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Creating continuing education courses to optimize safety and independence among older adults with low vision

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Doctoral Project

CREATING CONTINUING EDUCATION COURSES TO OPTIMIZE SAFETY AND INDEPENDENCE AMONG OLDER ADULTS WITH LOW VISION

by

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DEDICATION

I would like to dedicate this work to my Oma, Dini van Ouwerkerk, and my Opa, Anton van Ouwerkerk, whose experiences inspired me and whose support enabled me to pursue this degree. I am forever grateful.

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CREATING CONTINUING EDUCATION COURSES

TO OPTIMIZE SAFETY AND INDEPENDENCE AMONG

OLDER ADULTS WITH LOW VISION

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ABSTRACT

Introduction*:* Continuing Education (CE) courses for allied health professionals do not consistently reflect the needs of adult learners and may not result in practice changes. In areas of allied health practice with a strong evidence base, poor quality CE courses stunt the dissemination of information which could improve the quality of life of clients. One such area is improving safety and independence of older adults with low vision, who are at increased risk of falls and functional limitations as a result of their visual impairments.

Description of Doctoral Capstone: The aim of this doctoral capstone was to discuss the theory and evidence for the creation of effective, learner-centered CE courses and to apply these findings to the creation of CE courses for allied health professionals on the topic of community-dwelling older adults with low vision.

Results: The resulting CE courses were compared to the guidelines for a theory-driven, evidence-based course and were found to adhere to quality standards of: use of a needs assessment, reflection of the real-life context of learners, incorporation of active learning and reflection components, inclusion of visible pedagogy, and evaluation of the translation of learning to practice.

Conclusion: CE courses that adhere to evidence-based, learner centered methods produce better learning and satisfaction outcomes for participants. CE course creators should adhere to these guidelines and advertise the use of theory and evidence to enable clinician participants to identify high-quality continuing education courses. Clinicians who gain knowledge in the areas of low vision diagnoses, screening, referrals, interventions, and resources, through attendance at a well-designed CE course, will be better able to identify clients with low vision and provide evidence-based care which has been found to improve client safety and independence.

Keywords*:* Adult learning, Best Practice, Visual Impairment, Older Adults, Allied Health, Occupational Therapy, Physical Therapy, Social Work, Case Management

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LIST OF ABBREVIATIONS

ADL ..... activity of daily living

AOTA ..... American Occupational Therapy Association

BU ..... Boston University

CCMC ..... Commission for Case Manager Certification

CDC ..... Centers for Disease Control

CE ..... continuing education

CEU ..... continuing education unit

CME ..... continuing medical education

COVID-19 ..... coronavirus disease 2019

BHS ..... Back Home Safely

BU ..... Boston University

IADL ..... instrumental activity of daily living

KTA ..... Knowledge-to-Action

LSW ..... licensed social worker

MVA ..... motor vehicle accident

NASW ..... National Association of Social Workers

NJSBPTE ..... New Jersey State Board of Physical Therapy Examiners

OT ..... occupational therapy / occupational therapist

OTA ..... occupational therapy assistant

OTPF ..... Occupational Therapy Practice Framework

PPT ..... PowerPoint

PT ..... physical therapy / physical therapist

PTA ..... physical therapy assistant

CHAPTER ONE: Introduction

Overview of Falls among Discharged Older Adults

Older community-dwelling adults discharged from a hospitalization experience a higher rate of falls than the general population. Older adults are at higher risk of functional decline as a result of hospitalization due to age-related factors such as decline in aerobic capacity and decreased muscle strength (Graf, 2006). Zisberg et al. (2011) found that 46% of adults over the age of 70 who were admitted to the hospital for non-disabling illnesses experience a decline in their ability to perform activities of daily living (ADLs) from admission to discharge. Hill et al. (2013) found that 43% of older adults discharged from acute and rehab wards experience falls in the 6 months following discharge, and 54.3% of these falls were injurious. A third study found that 27.2% of older adults discharged home from the hospital fell in the 3 months following discharge (Mahoney et al., 2000). In contrast, the rate of falls among the general U.S. older adult population (falls within the preceding 3 months) has been found to be approximately 15.9%, with 31.3% of those who fell sustaining an injury (CDC, 2008). The identified temporal effect between hospital discharge and falls indicates that deconditioning during a hospital stay contributes to the increase in the risk of falls in the period directly post-discharge (Mahoney et al., 2000). There are evidence-based interventions to prevent falls among older adults discharged from hospitalizations, specifically home modifications recommended by an occupational therapist (OT) combined with physical activity interventions (Campbell et al., 2005).

Consequences for Individuals and Society

Falls often result in injuries, decreases in ADL and IADL function, and increases in requirement for caregiving (Mahoney et al., 2000). One study found that in a population of community-dwelling older adults who returned home after a hospitalization, 9.8% were re-admitted to the hospital for a fall in the 6 months after discharge (Hill et al., 2013). These readmissions were due to fractures, contusions/abrasions, and lacerations in more than 75% of cases (Stevens & Sogolow, 2005). Fractures have been found to be the most common in-hospital fall-related diagnosis, accounting for 37.8% of women's and 28.3% of men's diagnoses (Stevens & Sogolow, 2005).

In addition to burdensome injury, there is also a long-term functional impact of injurious falls. Gill et al. (2013) found that older adults who sustained a fall that resulted in a hospitalization were more disabled (as determined by reported amount of assistance required in basic activities, instrumental activities, and mobility activities) at 6 months after the fall than they were prior to the fall. In comparison, older adults who were hospitalized for non-fall related reasons, returned to their pre-morbid level of functioning within 2 months (Gill et al., 2013).

In addition to this disability burden, falls are a leading cause of older adults losing independence by moving to nursing homes or assisted living facilities rather than aging-in-place in their homes (Galiana, 2019). Gill et al. (2013) found that when falls among older adults result in an injury requiring hospitalization, approximately 65.1% of these older adults are discharged to a nursing facility and approximately 20.6% result in a long-

term nursing home admission.

Finally, when falls result in hospital re-admissions, health care resources that are unnecessarily consumed include “increased emergency hospital admissions, reduced hospital bed capacity, [and] delays in admitting emergency department patients due to bed blocks” in addition to financial costs to Medicare and private insurance (Lee et al., 2018, p. 142). Taken together, this evidence indicates that effective falls prevention interventions implemented by an occupational therapist can help prevent losses of independence and decreases in quality of life, as well as decrease unnecessary costs to society.

Role of Occupational Therapy

Intervention to decrease the risk of falls from an occupational therapy perspective include falls prevention programs (e.g., exercise and education) and home modifications (e.g., barrier removal and equipment installation) to improve safety and independence. Falls prevention and home modifications fall under the Occupational Therapy Practice Framework (OTPF) intervention category of “Preparatory Methods and Tasks – Assistive technology and environmental modification,” as such methods prepare the client for engagement in activities (AOTA, 2014, p. S29). According to the OTPF (2014), assistive technology and environmental modifications include “application of universal design principles, and [recommendation of] changes to the environment or activity to support the client’s ability to engage in occupations” (p. S29). For example, if a client is discharged home to an unsafe home environment, has a fear of falling, or experiences an injurious fall, they would likely be unable to engage in ADLs and instrumental activities of daily

living (IADLs) to their maximum potential. Environmental modifications, such as grab bars, stair rails, or removal of rugs or other trip hazards, are needed to decrease the risk of these outcomes and allow the client to engage in meaningful occupations. In this way, it is within the purview of occupational therapy to seek to prevent falls among older adults discharged from hospitalizations by increasing the match between the older adult client's abilities and their environment.

Theoretical Model of the Problem

The problem of falls among older adults has been addressed by research in the fields of medicine and rehabilitation. Results have been synthesized by a number of systematic reviews and show that OT home evaluations and modifications, combined with physical activity interventions, can reduce falls by 31–36% (Chase et al., 2012; Gillespie et al., 2012; Clemson et al., 2008). Rigorous reviews of fall-prevention studies seem to indicate that solutions exist for addressing the high rate of falls among recently hospitalized older adults, yet there remains a substantial burden of falls and falls-related impairment among this population. I sought to better understand this disconnect through the use of a theoretical framework.

The Knowledge-to-Action (KTA) framework by Graham et al. (2006) can be used to understand the high rate of falls among this population despite the availability of evidence-based falls prevention methods. The Knowledge-to-Action (KTA) framework is a conceptual model which states that knowledge creation and action are (ideally) cyclical phases which improve outcomes for a target population (See figure 1; Graham et al., 2006, p. 19). The broad proposition of the KTA framework is that if innovative research

findings (knowledge) are taken up in practice settings (action), then clients will receive the best possible care (Graham et al., 2006). In the knowledge creation component, the authors state that if there is an initial knowledge inquiry, made up of a number of primary studies, then these will be aggregated into fewer studies (typically systematic reviews) over time, which are then used to create "tools" (typically practice guidelines) with the intent of influencing the actions of stakeholders (Graham et al., 2006). The systematic reviews described above, combined with American Occupational Therapy Association (AOTA) practice recommendations for multicomponent interventions consisting of physical activity, environmental modification, and behavioral adaptation, represent this aggregation of knowledge into tools (AOTA, 2017). The KTA framework goes on to state that the application of this distilled health-related intervention research depends on a number of cyclical steps, including steps in which barriers to implementation of the knowledge are identified, and interventions are selected and tailored to promote use of the knowledge accounting for those barriers (Graham et al., 2006). The next section will focus on the "Select, Tailor, and Implement Interventions" stage of this framework.

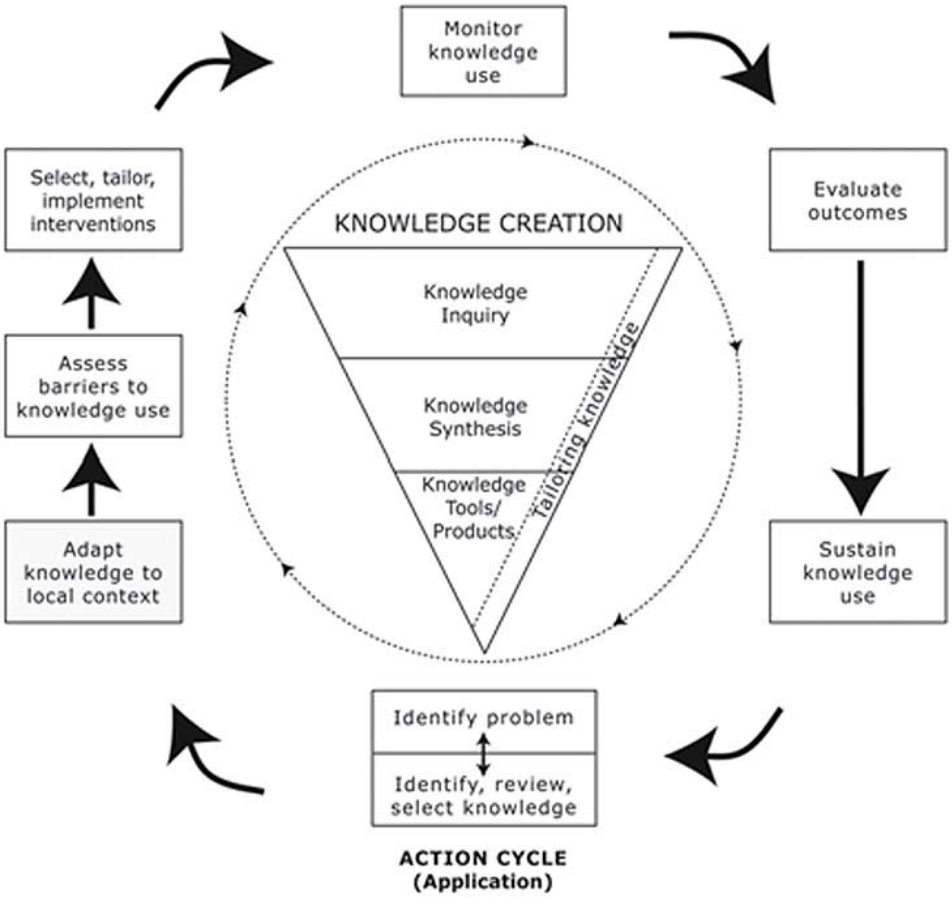


Figure 1. The Knowledge-To-Action Framework (Graham et al., 2006, p. 19)

The barriers to implementation of evidence-based falls prevention strategies include lack of referral to occupational therapy for home modifications and lack of client adherence to the recommended home modifications (Hill et al., 2013; Cumming et al., 1999; Campbell et al., 2005; Mikolaizak et al., 2018; Nikolaus & Bach, 2003). These barriers result in falls among older community-dwelling adults discharged from the hospital despite the availability of tools for adaptation of those environments and prevention of a proportion of those falls. Therefore, the KTA action cycle is experiencing breakdown at the "Select, Tailor, and Implement interventions" stage as the selection, tailoring, and implementation of falls-prevention interventions is not adequately

accounting for the identified barriers. These barriers and their mediation of the relationship between older adults discharged home from the hospital and falls are described in figure 2, and are further examined below.

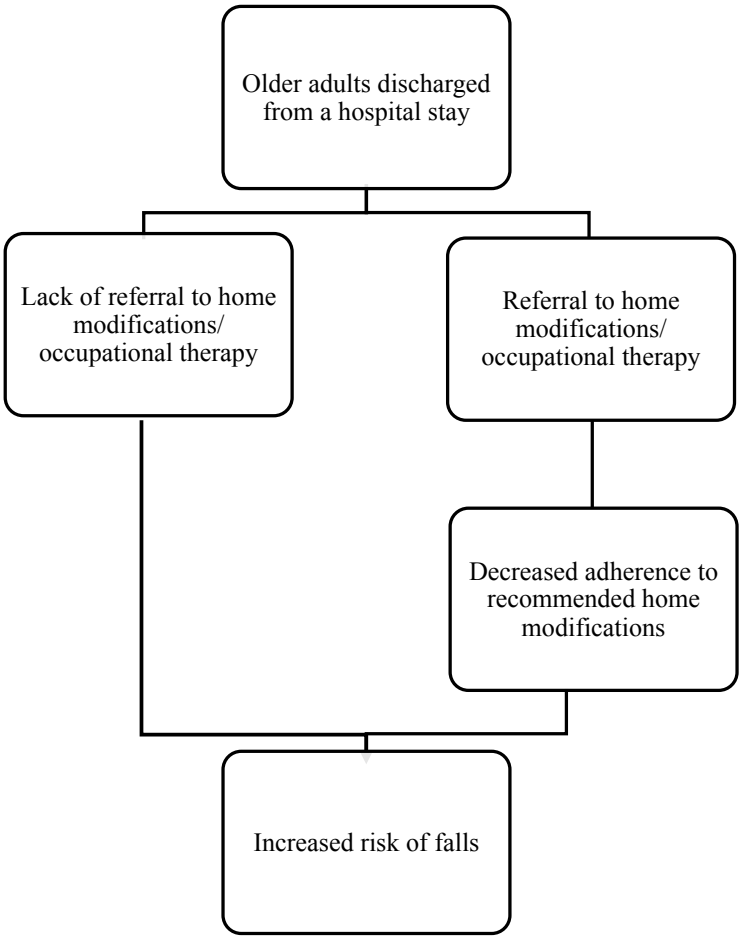


Figure 2: Visual Model of the Problem

Referral to Home Modifications & Occupational Therapy

Lack of referral of older adults to occupational therapy visits for home modification at discharge has been correlated with an increased rate of falls in this population. One study of the circumstances of falls among older adults recently discharged from acute and rehabilitation wards showed that only about 39.8% of these clients who experienced a fall

in the 6 months post-discharge had received a home visit by an occupational therapist (Hill et al., 2013). This indicates that a large proportion of at-risk older adults are being overlooked during the referral process of hospital discharge. The study took place in Australia and did not calculate the proportion of non-fallers discharged from acute and rehabilitation wards who received home visits from an occupational therapist, decreasing our confidence that there is a causal relationship between referral and falls using this data (Hill et al., 2013). However, another study comparing OT home assessment and modifications to a non-intervention control group found that only 36% of intervention group participants fell in the 12 months following discharge compared to 45% of control participants (Cumming et al., 1999). These participants were recently discharged from rehabilitation and other hospital units and had a mean age of 77 (Cumming et al., 1999). The study also excluded participants if they were already receiving home OT as part of their usual care, increasing our confidence that the identified relationship between referral and decreased falls is not due to a confounding factor of high-risk fallers who had already been caught by the referral system (Cumming et al., 1999). Another study used a 2 x 2 study design to compare OT home evaluations and modifications, an exercise program, a combination of both OT home modifications and exercise interventions, and a non-intervention control group among adults ages 75+ with visual impairments (Campbell et al., 2005). The study found that the participants who were assigned to one of the two conditions which included home modifications experienced 41% fewer falls than participants in the exercise only or control groups (Campbell et al., 2005). This supports the existence of a negative correlation between home modifications referrals and falls.

However, the factor of visual impairment makes this data difficult to translate to the general population of older adults, as individuals with visual impairment more frequently experience falls and thus may report increased effectiveness of home modifications. Relating to the KTA model step of "Select, Tailor, and Implement interventions", these studies promote the idea that implementing a program for older adults post-discharge which includes a provision for improving the rate of referral to home modifications OT would reduce the number of falls among this population.

Client Adherence to Home Modifications

Lack of client adherence to recommended home modifications has also been shown to increase falls among older adults. One study found that older adults adhere to home modifications recommendations at less than 60%, with adherence to the individual components of multifactorial interventions at an even lower rate, closer to 28% (Mikolaizak et al., 2018). This study of a multifactorial falls prevention intervention found that adherence was related to number of falls, as clients who adhered to all recommendations were found to have an average of 2.06 falls in the 12 months following the intervention, compared to 3.15 falls among those who did not adhere (Mikolaizak et al., 2018). This Australia-based study consisted of older adults who had experienced a fall that required a paramedic visit, only ran analyses comparing participants who completed 100% of recommended modifications to those who completed less than 100%, and included other factors such as physical exercise programming and medication review (Mikolaizak et al., 2018). These cultural factors and additional intervention components decrease our confidence that the negative relationship found here represents a direct

negative relationship between adherence to home modifications programming for older recently discharged American adults and frequency of falls. Another study which analyzed compliance with home modifications within a multifactorial falls prevention program found that older adults who adhered to at least one of the recommended home modifications were significantly less likely to experience a fall in the 12 months post-intervention (Nikolaus & Bach, 2003). Additionally, the authors found that those in the intervention group who had not adhered to home modifications had the same number of falls in the 12 months post-intervention as those in the non-intervention control group, indicating that compliance to home modifications was a critical factor in preventing falls (Nikolaus & Bach, 2003). Neither of these studies gathered information on the reason for non-adherence. However, a qualitative study of Australian adults enrolled in an OT-delivered falls prevention program found that the primary factor affecting adherence to recommended home modifications was whether the older adult believed that making a change to their home would result in fewer falls (Cumming et al., 2001). Because reasons for non-adherence have not been adequately catalogued in the literature, adherence to home modifications in the model in figure 2 is considered a broad barrier which increases risk of falls among older adults post-discharge until further specifications can be made. According to the KTA framework and the literature discussed above, improved referral rate to home OT and methods of improving adherence must be integrated into discharge programming and home modification interventions to improve the effectiveness of those programs in reducing falls (Graham et al., 2006). Integrating these factors would more fully address the step of “Select, Tailor, and Implement interventions” within the KTA

framework, better translating the knowledge into action regarding fall prevention among recently discharged older adults.

CHAPTER TWO: Foundations for Continuing Education Courses

Transition to Low Vision

The research presented in chapter 1 was conducted in the summer of 2019. It was based on a proposal for the project which included a hospital in-service to educate clinicians on the importance of referral to OT and home modifications experts to decrease the risk of falls among older adults. Communication with the capstone site, the home modifications company Back Home Safely located in Randolph, New Jersey, resumed in March of 2020. At that time, the limitations presented by the coronavirus disease – 2019 (COVID-19) pandemic shifted the focus of the project to community-dwelling older adults and the format of the intervention to an online continuing education (CE) course. The focus of the CE intervention was narrowed further to improving safety and occupational engagement of community-dwelling older adults with low vision, in order to address local clinicians' knowledge gap about this high-risk population. Despite this shift in focus, the background information and theoretical framework in Chapter 1 provide a foundation on older adults, falls, and evidence for home modification relevant to the current topic.

Older community-dwelling adults with low vision experience a higher rate of falls than the general population, have unique functional limitations, and are at risk for psychosocial conditions as a result of their visual impairments (Ehrlich et al., 2019; van der Aa et al., 2015). Increased risk of falls is due in part to vision-related factors, such as poor depth perception, poor stereoacuity, decreased contrast sensitivity, and visual field loss (Lord & Dayhew, 2001). Low vision has also been found to be associated with

increased rates of other fall risk factors, including decreased step accuracy, slower gait speed, postural instability, increased fear of falling, decreased balance, and decreased physical activity (Aartolahti et al., 2013; Tinetti & Kumar, 2010). Older adults with self-reported visual impairments have been found to be almost twice as likely to have fallen in the previous month than peers without visual impairments (18.8% compared to 10.3%) and were found to be more than twice as likely to have experienced more than one fall in the previous year than peers without visual impairments (27.6% compared to 13.2%; Ehrlich et al., 2019). The same study found that 50.8% of older adults with self-reported visual impairments had activity limitations due to fear of falling, compared to 33.9% of peers. This statistic suggests a significant secondary functional impact related to fall risk among this population.

Functional impairments as a result of low vision include difficulty reading, watching TV and driving, decreased social engagement, and increased risk of anxiety and depression (Brown et al., 2014; van der Aa et al., 2015). Performing reading tasks is the most commonly cited complaint of older adults with low vision in the US (Smallfield et al., 2017). One study of a specific low vision diagnosis, age-related macular degeneration, found that 77% of clients reported difficulty reading and 26% reported driving complaints (Brown et al., 2014). Similarly, and even more alarmingly, a study of clients with cataract found a 2.5-fold increased risk of motor vehicle accidents (MVA) compared to peers without visual impairments, while another study of clients with glaucoma found a six-fold increase in risk of MVA (Kline & Li, 2005; Queen & Beaver, 2019). Finally, a study found that older adults with low vision are more than twice as

likely to have a diagnosis of major depression or an anxiety disorder than peers without visual impairments (van der Aa et al., 2015).

While functional impairments and fall risks persist, interventions exist to decrease risk of falls and increase occupational engagement among older adults with low vision. A 2020 systematic review found that low vision rehabilitation should be the primary intervention used to improve ADL and IADL performance among older adults with low vision (Kaldenberg & Smallfield, 2020). The study specified that low vision rehabilitation should include education about low vision conditions, use of low vision devices and compensatory strategies, and provision of low vision resources (Kaldenberg & Smallfield, 2020). With this evidence as a foundation, continuing education courses focused on these topics are believed to improve outcomes among community dwelling older adults with low vision.

Background on Continuing Education Courses

Continuing education courses have become a requirement for continued licensure in many health professions, including medicine, nursing, social work, case management, physical therapy, and occupational therapy. Continuing education (CE) is promoted as a mechanism for practitioners to maintain professional competence, gain skills and knowledge for best practice, and improve client outcomes (Gianino et al., 2016). While relevant licensing boards have published guidelines for organizations who wish to gain approval to provide CE, and require that those CE courses contain certain elements, the quality of continuing education courses remains unknown. According to Gianino et al. (2016), in the field of social work, there is evidence that “the types of CE that are

routinely approved by licensing boards, such as conferences and workshops, do not reflect the needs of adult learners and may not result in practice behavior changes or improved work performance" (p. 345).

Such a vast problem requires organized thinking to outline a solution, so it makes sense to consult adult learning theory literature. Reflected in the work of the many adult learning theorists, but well put by Karen Mann (2004) regarding the continuing education of physicians, "Theory is important to understanding how physicians learn, understanding how change is incorporated, knowing how to plan interventions, and building better opportunities that facilitate and enhance natural processes of learning" (p. S24). Therefore, it is clear that theory must be utilized to design more effective CE courses for health professionals. In addition to theory, use of intervention evidence to inform CE design increases the likelihood that CE consumers will gain knowledge, skills, and make practice changes as a result of attending a continuing education course. This leaves CE providers with the following directive; to design CE courses which have a strong theoretical foundation and which are evidence-informed, to better equip learners to make positive practice changes that may lead to improved client outcomes.

Evidence for Continuing Education Courses

Adult learning theories have long sought to answer the questions surrounding continuing education in the health professions. A search of relevant databases in education, allied health, and psychology returned hundreds of results for theory and continuing education and dozens of CE intervention studies across the health professions. Of these results, 12 articles on theory and 9 intervention effectiveness articles were found

to be most relevant to continuing education for allied health professions.

Many theories of adult learning which are relevant to this context were uncovered in this search. These include broad theoretical **models** such as behavioral and cognitive learning theory (Brandt, 1996; Mann, 1990; Mann, 2004), **theories** such as andragogy, social cognitive theory, constructivism, and transformative learning (Easton & Morganti-Fisher, 2014; Knowles, 1980; Mann, 1990; Mann, 2004; Mezirow, 1997; Slotnick & Shershneva, 2002; te Pas et al., 2017), and **tools or frameworks** such as learning outcome objectives and case-building (Houlden & Collier, 1999; Lowe et al., 2007; Ryan & Marlow, 2004). The goal of this synthesis was to identify the common threads across these perspectives to guide the development of an effective CE course for allied health professionals. In reviewing theoretical articles on the perspectives listed above, it became clear that seminal theories have influenced the development of many of the others. Cognitive learning theory, social cognitive theory, andragogy, transformative learning and constructivism theory appeared to be most impactful, frequently referenced, and relevant to the design of CE courses for the health professions, and are most visible in the discussion here. However, other theories are referenced for unique contributions to the theoretical literature and as mentioned in intervention studies.

Of the 9 intervention studies, one was a meta-analysis (Mansouri & Lockyer, 2007) two were systematic reviews (Robertson et al., 2003; Scerri et al., 2017), one was a randomized controlled trial (Sarayani et al., 2012), four were single-group repeated measures design (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Frey et al., 2015; Gromoske & Berger, 2017), and one was a qualitative case study (Gianino et al., 2016).

Of these, four studies focused on continuing medical education (CME) for physicians and nurses (Berrett-Abebe et al., 2019; Mansouri & Lockyer, 2007; Robertson et al., 2003; Scerri et al., 2017), one study focused on CE for pharmacists (Sarayani et al., 2012), and the remaining studies were on CE for social workers (Bunting & Cagle, 2016; Frey et al., 2015; Gianino et al., 2016; Gromoske & Berger, 2017). There is limited rigorous research focusing on continuing education for social workers and other allied health professionals. All of the single-group repeated measures research studies had fewer than 50 participants, representing limitations in generalizability of findings (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Frey et al., 2015; Gromoske & Berger, 2017). However, 3 of the 4 single-group repeated measures studies included a follow-up measure (at 1, 3, or 5 months post-intervention), allowing increased confidence that the findings may represent long-term study impacts (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Frey et al., 2015; Gromoske & Berger, 2017).

The following synthesis describes common features of adult learning theories that were relevant to CE for health professionals. These include use and integration of personal frameworks, needs assessment, real-life context, active construction of meaning, reflection/metacognition, evaluation/feedback, and visible pedagogy/learning objectives. Following each description and theory synthesis, intervention effectiveness literature relating to that feature is discussed and assessed.

Personal frameworks

Nearly all of the major theoretical models found in the literature mention personal frameworks or learner experience to explain that information must be built around what

the learner already knows (Brandt, 1996; Easton & Morganti-Fisher, 2014; Knowles, 1980; Mann, 1990; Mezirow, 1997; Slotnick & Shershneva, 2002). Constructivism, social constructivism, and social cognitive theory are built on this foundation, and all have as one of their primary concepts the importance of the learner's current beliefs, attitudes, knowledge, and perceptions of their cognition and learning (Easton & Morganti-Fisher, 2014; Mann, 1990; Slotnick & Shershneva, 2002). In both cognitive learning theory and transformative learning theory, the learner organizes knowledge, experience, or attitudes into structures — schemas or frames of reference, respectively (Brandt, 1996; Mezirow, 1997). For both schemas and frames of references, ideas which do not fit are likely to be rejected or ignored (Brandt, 1996; Mezirow, 1997). Brandt (1996) concludes that educational systems should seek to "build upon the learner's current frameworks of understanding and prior knowledge, rather than achieving predefined objectives set before the educational event" (p. 199). In this case, adult learning theorists appear to be on the same page — learner experience, knowledge, and beliefs must be considered in the development of educational material.

Interventions that integrate these elements and incorporate learner frameworks are discussed further under "needs assessment" or "real life context" below, as interventions which performed a needs assessment or otherwise determined real life context have been deemed to have discovered and integrated learner frameworks into their intervention design. Overall, the intervention effectiveness evidence reinforced the theorized importance of using learner knowledge and experience to build effective and engaging interventions.

Needs Assessment

Because of the importance of tailoring an intervention to the learners' experience and situating learning in real-life contexts, it is the natural conclusion that experience, knowledge, attitudes, real-life contexts, and problems of learners must be better understood by the CE creator. For this task, many adult learning theorists propose that an initial step towards creating effective adult learning content is to analyze student learning needs (Brandt, 1996; Easton & Morganti-Fisher, 2014; Knowles, 1980; Mann, 1990; Van Hoof & Meehan, 2017). Social cognitive theorists along with several other theorists go further, emphasizing context assessment as an additional step (Easton & Morganti-Fisher, 2014; Mann, 1990; Slotnick & Shershneva, 2002; Van Hoof & Meehan, 2017).

Based on the current intervention literature, performance of a needs assessment, and the subsequent integration of findings from a needs assessment into the study design (considered a proxy for "personal frameworks" above), appears to have a positive impact on outcomes of continuing education courses for health professionals (Robertson et al., 2003; Sarayani et al., 2012; Scerri et al., 2017). While the three studies that discussed the impact of a needs assessment varied in their needs assessment format (gap analysis technique, unstructured interviews, focus groups or surveys), in the subsequent study design based on needs assessment results, and in outcome measured (learner knowledge, attitude, or program satisfaction), all three reported positive study results in the selected outcome (Robertson et al., 2003; Sarayani et al., 2012; Scerri et al., 2017). This evidence indicates that a needs assessment may be an important ingredient to tailor educational content to the real-life needs of the participants and optimally harness and build upon

existing knowledge and experience, regardless of the assessment style or intervention style used. It is important to note that none of these studies analyzed the moderating effect of performing a needs assessment on study outcomes by comparing to a non-intervention control group or to a comparison group without use of a needs assessment. In this way, conclusions on the causal effects of the needs assessment is limited. All three studies had participants in medicine, nursing, or pharmacy, limiting confidence that the findings are generalizable to allied health professionals (Robertson et al., 2003; Sarayani et al., 2012; Scerri et al., 2017). Additionally, one study took place in Tehran, further limiting generalizability of findings due to potential impact of cultural factors (Sarayani et al., 2012).

Real-Life Context

In parallel with learning that considers the knowledge, beliefs, and experiences of learners, many theorists focus considerable energy on the importance of educational content that considers the real-life context of learners. In situated learning, knowledge is made meaningful only when it is learned in the context of a realistic situation (Brandt, 1996; Mann, 2004). While one situated learning theorist discusses use of simulations and standardized patients to meet this need (Brandt, 1996), others make a case for the use of small-group problem-based discussion to allow practitioners to share interventions that they have used in real-life clinical scenarios (Mann, 2004; Ryan & Marlow, 2004). Several theorists emphasize the fact that people become ready to learn something only when they experience the need for those skills in real life, when they become aware of a performance gap, or if they are learning solutions to problems they actually have

(Knowles, 1980; Slotnick & Shershneva, 2002; te Pas et al., 2016; Van Hoof & Meehan, 2017).

There is intervention evidence that learning content that aligns with the real-life context of learners is related to positive CE outcomes (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Frey et al., 2015; Gianino et al., 2016; Gromoske & Berger, 2017; Robertson et al., 2003; Ryan & Marlow, 2004). Four single-group repeated measures studies and one systematic review that included varied real-life components (role-playing, small-group problem-solving/discussions, real-world examples to illustrate key points, or case examples/case vignettes) and varied outcome measures (use of knowledge in practice, knowledge, attitudes, or self-efficacy) reported positive findings in at least one reported outcome (Berrett-Abebe et al. 2019; Bunting & Cagle, 2016; Frey et al., 2015; Gromoske & Berger, 2017; Robertson et al., 2003). However, lack of a comparison or control groups, small sample sizes (29–46 participants), varied participant professions, and variability in intervention components and duration limit generalizability of these findings. Additionally, two qualitative case studies reported that the presence of course information that could be applied to or was reflective of practice was related to perceived course effectiveness (Gianino et al., 2016; Ryan & Marlow, 2004). Together, these quantitative and qualitative findings indicate that content relating to the real-life contexts of learners, regardless of specific format, is related to positive study outcomes (e.g., knowledge, self-efficacy), perceived quality of CE courses, and participant satisfaction with CE courses.

Active Construction of Meaning

Many theorists posit that learners must actively process information and build upon prior knowledge in order to learn (Brandt, 1996; Easton & Morganti-Fisher, 2014; Knowles, 1980; Van Hoof & Meehan, 2017). Andragogy assumes that people attach more meaning to knowledge gained from experience than to knowledge gained passively, and thus requires that educational content itself must emphasize participatory experiential techniques (Knowles, 1980). In addition to participatory experiential techniques (role playing, group discussion, case method, simulation exercises), other educational approaches proposed by theorists include self-questioning, mapping concepts, collaborative learning groups, teaching others reciprocally, and even metaphors and imagery to encourage active processing (Brandt, 1996; Easton & Morganti-Fisher, 2014; Knowles, 1980; Mezirow, 1997).

There is substantial evidence indicating that active intervention methods are associated with positive continuing education outcomes for health professionals (Bunting & Cagle, 2016; Frey et al., 2015; Gianino et al., 2016; Gromoske & Berger, 2017; Mansouri & Lockyer, 2007; Robertson et al., 2003; Sarayani et al., 2012; Scerri et al., 2017). In three well-researched reviews, authors concluded that active intervention methods were more effective or resulted in greater reported satisfaction than passive methods (Mansouri & Lockyer, 2007; Robertson et al., 2003; Scerri et al., 2017). Most powerfully, Mansouri & Lockyer (2007) performed a meta-analysis of CME studies that evaluated outcomes of physician knowledge, performance, or patient outcome. They found the greatest effect sizes for multifaceted educational programs, interactive small

groups, and case discussion interventions, and the lowest effect sizes for conferences and lectures, mail-out strategies, and videotapes. This meta-analysis included 31 studies, a large sample size, and data with narrow confidence intervals, all of which underscore the strength of the findings (Mansouri & Lockyer, 2007). However, it must be noted that as in the systematic reviews, the participant population emphasized medical professionals, limiting the generalizability of the findings to allied health professionals (Mansouri & Lockyer, 2007; Robertson et al., 2003; Scerri et al., 2017). Echoing these results, a three-arm RCT comparing didactic lecture to two interactive intervention conditions found that overall satisfaction and motivating impact were lowest for the didactic-only condition, and competence scores in both interactive conditions increased significantly at posttest and follow-up compared to no change in the didactic condition (Sarayani et al., 2012). These results, while found under rigorous study design, were found for pharmacists in Tehran and had a medium sample size, limiting their generalizability (Sarayani et al., 2012).

Because many intervention methods categorized under “active construction of meaning” overlap with those categorized under “real world examples”, (i.e., role playing), the three single-group repeated measures studies including these real-life components which reported positive impacts on at least one outcome measure described above also apply here, as do their generalizability restrictions (Bunting & Cagle, 2016; Frey et al., 2015; Gromoske & Berger, 2017). These three studies used various active learning components (practice of the EBP process, problem-solving exercises, role plays, small-group and large-group discussions) and measured a variety of outcomes (self-

efficacy, knowledge, attitudes), but the positive results across studies reinforces the importance of active learning techniques. A qualitative case study of social work stakeholders found that "there was nearly unanimous agreement among practitioners and students that the quality of CE correlated positively with hands-on, interactive, and dynamic content delivery" (Gianino et al., 2016, p. 351). Taken together, these findings offer powerful support for the use of active learning methods, regardless of specific format, to increase learners' knowledge acquisition and satisfaction with CE courses.

Reflection/Metacognition

Several theorists emphasize the importance of learner reflection on maximization of learning (Brandt, 1996; Mann, 1990; Mann, 2004). In cognitive learning theory, successful learners are those who have become aware of their own cognitive processes and the effects of these processes on their learning, called metacognition (Brandt, 1996). According to social cognitive theory, individuals reflect on and analyze their experiences and their own thought processes in order to build a perception of their own competence to perform a task, called self-efficacy (Mann, 1990). These perceptions are developed through the four processes of direct experience, vicarious experience, judgement of others, and individuals' inference from existing knowledge (Mann, 1990). Finally, Schon's model of reflective practice emphasizes maximizing learning from practice by promoting reflection through tools such as diaries and reflective exercises (Mann, 2004).

Three studies present evidence supporting the use of reflection to promote learning in continuing education courses for health professionals (Frey et al., 2015; Lowe et al., 2007; Scerri et al., 2017). One study used small-group discussions to provide

feedback to participants on personal bias (Frey et al., 2015), another allotted time for participants to reflect on their pre-course learning priorities and the implications of the learning on their practice (Lowe et al., 2007), and a systematic review included three studies which incorporated a reflection component, such as case study discussion and reflection (Scerri et al., 2017). All three studies found that reflection was associated with improved participant satisfaction, self-efficacy, or perceived learning (Frey et al., 2015; Lowe et al., 2007; Scerri et al., 2017). As these studies lacked comparison or control groups, and some had small sample sizes ($n < 50$), these results have limited generalizability (Frey et al., 2015; Lowe et al., 2007; Scerri et al., 2017). However, as two focused on allied health professionals while the other included health professionals from various groups, confidence is increased that the findings may generalize to groups of allied health professionals (Frey et al., 2015; Lowe et al., 2007; Scerri et al., 2017).

Evaluation/Feedback

A number of theorists discuss the importance of program evaluation to provide feedback to both learner and instructor (Houlden & Collier, 1999; Slotnick & Shershneva, 2002; Van Hoof & Meehan, 2017). Slotnick & Shershneva (2002) emphasize that because learning is maximized when the information solves a problem the learners already have, feedback must be obtained on whether the information adequately solved the real-life clinical problems post-course. While this component does not claim to modify the learning outcomes of CE, it is proposed as a mechanism to evaluate the effectiveness of new and existing CE and to highlight performance gaps and encourage process improvements.

The evidence for adequate evaluation as defined above is variable (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Gromoske & Berger, 2017). Three single-group repeated measures studies which used varied evaluation methods (follow-up open-ended survey, post-test with Likert scale, standardized assessment) to determine translation of CE knowledge to practice reported positive findings on those measures (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Gromoske & Berger, 2017). However, one study also found that at one-month follow-up, 46% of participants reported that they had not used knowledge and skills from the CE training in practice (Bunting & Cagle, 2016). Had the authors included a follow-up to this question to determine what could have been done in the training to increase use of skills and knowledge in practice, they may have been able to use this evaluation data to improve the quality of a future intervention. Overall, these results indicate that it is possible to extend program evaluation to translation of information into clinical practice, but that there is room to improve in terms of designing evaluation studies which enable improvements to continuing education courses. Limitations include varied participant professional groups and one study which gathered only post-test data, limiting certainty that knowledge translated to behavior change in practice (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Gromoske & Berger, 2017).

Visible Pedagogy/Learning Objectives

One modern theorist suggests that an integral component of modern CE is that content creators make explicit which intervention elements are believed to impact learning so participants may understand the connection of their education to practice change (Van Hoof & Meehan, 2017). This “visible pedagogy” is itself considered a mechanism for

deeper learning and increased engagement with course content, as learners who understand why the intervention will work can become more informed consumers of CE and more sophisticated participants in the health care system (Van Hoof & Meehan, 2017). While there was no evidence found to support this theoretical mechanism, it is likely that learning outcome objectives relate to this concept. Houlden & Collier (1999) state that learning objectives are a valuable tool to define course content and to remind both learners and educators that education should be learner-centered. Learning outcome objectives are believed to be most powerful when they: use active verbs, contain the conditions under which the observable behavior will be performed and the degree of acceptable performance, and challenge the learner to be an active participant and implement the knowledge and skills acquired in the CE session (Houlden & Collier, 1999). These guidelines clarify how learning objectives can reveal parts of the course learning mechanisms and the outcomes that relate to those mechanisms, and therefore are an example of "visible pedagogy".

While few studies reported here detail the inclusion or impact of learning objectives, one single-group repeated measures study touches upon their use (Lowe et al., 2007). This study included course objectives and an agenda in order to allow students to reflect on the content and determine how the learning may fit with their own practices, to which one participant stated "[You] ask yourself, "Is this what I want to learn?". . . I used to downplay course objectives but they're critical because they [lay out] the framework, and . . . you can see how the learning fits" (Lowe et al., 2007, p.146). This quote reinforces the ideas put forth by "visible pedagogy" and learning objective theorists and

is an encouraging preliminary finding for their use.

Implications for Practice

The above theoretical frameworks and intervention studies have strong implications for the development of effective continuing education interventions for allied health professionals. First, cognitive learning theory is the most relevant theoretical underpinning for CE courses for allied health professionals. This was determined primarily by the finding that the tenets of cognitive learning theory (personal frameworks, active learning, situation in real-life settings, and reflection) were supported by the research literature, and secondarily by Brandt's (1996) essay on cognitive learning theory, which urges continuing educators to perform a needs assessment prior to program development. This well-rounded theory provides a learner-centered, evidence-based foundation upon which to build an effective continuing education course (Brandt, 1996). Based on this theoretical model and the evidence outlined above, continuing educators must first perform a needs assessment to determine learning needs, existing knowledge and attitudes, and clinical context of learners (Robertson et al., 2003; Sarayani et al., 2012; Scerri, Innes, & Scerri, 2017). Educators must then use that information to develop a course that meets the needs of the learners and builds upon their current knowledge, includes active learning components, situates learning in real-life clinical contexts, and incorporates reflection upon personal cognitive processes and learning (Berrett-Abebe et al., 2019, Bunting & Cagle, 2016, Frey et al., 2015, Gianino et al., 2016, Gromoske & Berger, 2017, Lowe et al., 2007, Mansouri & Lockyer, 2007, Robertson et al., 2003, Ryan & Marlow, 2004, Sarayani et al., 2012, Scerri et al., 2017). Finally, inclusion of

evaluation of clinical behavior change, visible pedagogy, and learning objectives should be considered when developing a CE course due to the promising preliminary evidence supporting their use (Berrett-Abebe et al., 2019, Bunting & Cagle, 2016, Gromoske & Berger, 2017, Gianino et al., 2016, Lowe et al., 2007). These guidelines offer a learner-centered, theory-driven, evidence-based foundation upon which to develop an effective continuing education course.

CHAPTER THREE: Creating Research-Based Continuing Education Courses

This capstone project consisted of the creation of two versions of a continuing education (CE) course on increasing safety and independence of community dwelling older adult clients with low vision — one course for occupational therapists (OTs), physical therapists (PTs), occupational therapy assistants (OTAs) and physical therapy assistants (PTAs) and one course for social workers and case managers. These CE courses are evidence-based and learner-centered and were developed based on state social work, case management, physical therapy, and occupational therapy licensing board guidelines in the state of New Jersey, as the target audience is New Jersey clinicians. These continuing education courses will be delivered by BHS staff to clinicians virtually or in-person after the completion of this capstone project.

Integrating Evidence into Practice: Steps Taken

As described in Chapter 2, a literature search on adult education theory and intervention effectiveness was performed to determine theory-driven and evidence-based methods for creating effective CE courses. Cognitive learning theory was identified as a relevant theoretical underpinning for CE courses for allied health professionals, as both the original tenets and those added by more recent theorists in connection with this theory are supported by the research literature (Brandt, 1996). These tenets have been proven effective in CE intervention literature to improve knowledge, self-efficacy, attitudes, or satisfaction for health professionals. The tenets include: performing a needs assessment to determine learning needs, existing knowledge, attitudes, and clinical context of clinicians (Brandt, 1996; Robertson et al., 2003; Sarayani et al., 2012; Scerri et al., 2017); using

educational content that mirrors the real-life clinical context of clinicians (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Frey et al., 2015; Gromoske & Berger, 2017; Gianino et al., 2016; Robertson et al., 2003; Ryan & Marlow, 2004); using active learning components (Bunting & Cagle, 2016; Frey et al., 2015; Gianino et al., 2016; Gromoske & Berger, 2017; Mansouri & Lockyer, 2007; Robertson et al., 2003; Sarayani et al., 2012; Scerri et al., 2017); and incorporating reflection upon personal cognitive processes and learning (Frey et al., 2015; Lowe et al., 2007; Scerri et al., 2017). Other intervention components not discussed as a part of cognitive learning theory but supported by preliminary evidence include: evaluating clinical behavior change (Berrett-Abebe et al., 2019; Bunting & Cagle, 2016; Gromoske & Berger, 2017); making explicit which intervention elements are believed to impact learning (i.e. "visible pedagogy") (Van Hoof & Meehan, 2017); and incorporation of learning objectives (Houlden & Collier, 1999; Lowe et al., 2007).

The following steps were taken to integrate these evidence-based components into the development of a learner-centered CE course on the topic of increasing safety and independence for community dwelling older adults with low vision:

Step 1: Determined CE Requirements for Health Professions of Interest

I researched New Jersey and national social work, case management, occupational therapy and physical therapy licensing board requirements for CE. The relevant boards were as follows: National Association of Social Workers (NASW), Commission for Case Manager Certification (CCMC), New Jersey State Board of Physical Therapy Examiners (NJSBPTE), and the American Occupational Therapy Association (AOTA). I recorded

the CE requirements of each board, and discussed them with BHS staff to determine available contacts and resources to complete requirements (i.e. previously submitted CE application materials). I used these requirements as guidance for creation of the CE courses and course materials.

Step 2: Performed a Needs Assessment

Via six semi-structured phone interviews, I gathered information on the learning needs, current knowledge on the topic of low vision, attitudes, and clinical context of the target population. The target population consisted of practicing licensed social workers (LSWs), case managers, and physical therapists. Occupational therapists were not included in the needs assessment as my academic mentor, an OT with extensive experience in low vision, and I, an OT student, provided an adequate range of experience in our profession. I created a semi-structured interview guide addressing the following topics: current knowledge around visual impairments; knowledge of resources for clients with visual impairments; experience working with clients with visual impairments; clinical context (client population, resources), and personal learning needs on the topic of visual impairments/low vision. This semi-structured interview guide is included in Appendix A. I gathered contacts within the target population from personal contacts (former colleagues in other health professions) and BHS staff contacts. The resulting six clinicians were four dual-role social worker-case managers experienced in geriatric care, one recently graduated social worker, and one physical therapist with 1 year of experience in an outpatient clinic. These clinicians were contacted to verify willingness to participate, then participated in 15–30-minute phone conversations to gather relevant

information. The data resulting from the semi-structured interviews was recorded and analyzed for themes.

Interviewing two professionals, one social worker and one physical therapist, with limited experience, in addition to the four social workers with experience working in geriatric care provided an interesting contrast in levels of knowledge around visual impairments and low vision rehabilitation among allied health professionals. The experienced social workers were able to provide information which could be used to create realistic, contextually relevant case studies. These clinicians were asked to describe in detail a few of their clients with low vision, the services provided to them, and their personal intervention decision making process. This real-life information was used to create fictional case studies which reflect the clinical context of practice. In contrast, the social worker and physical therapist with limited experience provided perspectives on the foundational understanding imparted by their graduate programs on geriatrics and visual impairments. All clinicians were asked what they would find beneficial in a continuing education course on low vision and older adults. There was very little variation in answers, with clinicians stating that they wanted to learn more about specific low vision diagnoses, how to identify clients with visual impairments, and new technology and services available to clients with low vision. This information was used to create relevant learning objectives for the CE courses, which were designed to be interesting and informative for new clinicians, while providing opportunities for skill development and updating of knowledge for experienced clinicians.

Step 3: Gathered Evidence on Visual Impairments and Home Modifications

In order to create evidence-based CE courses for allied health professionals on the topic of older adults and low vision, I sought to gain knowledge and skills related to diagnoses, functional impacts, screening tools, and interventions for this population. I also sought information on evaluation for, selection of, and costs of home modifications. I pursued information and experiences around home modifications because of the expertise my site mentors had in this area. This information broadened my understanding of environmental modifications generally and as they apply to older adults with low vision. This information was gathered using a number of methods and with varying outputs (see table 1).

Topic	Data Collection Method	Output
Low Vision: Diagnoses, functional impact, fall risk	Review of the literature to determine causes and symptoms of common low vision diagnoses, associated functional impacts, and risk/frequency of falls	Document with facts, figures, references
Low Vision: Environmental Barriers	Completion of a low vision CE course offered by Boston University, including content on environmental barriers to engagement in occupation for this population	CE course notes
Low Vision: Screening tools	Review of the literature to determine the effectiveness of screening tools to identify clients with low vision	Document with facts, figures, references
Low Vision: Interventions	Literature review on the effectiveness of existing OT interventions, including adaptive equipment (AE)/assistive technology (AT)/home modification interventions to increase safety and engagement in meaningful activities for adults with low vision	Annotated bibliography: OT interventions: 27 articles

	Literature search to further identify existing and developing assistive technology interventions for clients with low vision Connected with 1 product vendor and 3 NJ associations to learn about products/services offered to clients with low vision	AT interventions: 16 articles Notes taken during conversations with organization/ product representatives
Home Modifications: Evaluations	Observation of home modifications experts during client assessment and home evaluation for 15+ clients	Observation notes
Home Modifications: Selection	Careful review of Back Home Safely website	Notes on available modifications
	Completion of a home modifications education course offered by BHS, including course content on matching client abilities to home modifications to increase client safety and independence in ADL and IADL tasks	CE course notes
	Observation of home modifications experts during the home modification selection phase of a home modifications project for 15+ clients	Observation notes
Home Modifications: Installation	Observation of home modifications experts during the installation phase of home modifications for a client, including the installation of custom stair rails and a custom stair lift	Observation notes
Home Modifications: Costs	Observation of the price estimate/billing process for home modifications clients Interview of home modification experts on the Medicare, Medicaid, long-term care and other private insurance coverage of home modifications	Observation notes
Home Modifications: Referrals	Interview of home modifications marketing expert on the local referral processes to home modifications	Interview Notes

Table 1: Data and Information Gathering– Visual Impairments and Home Modifications

Step 4: Created Course Content

I developed two PowerPoint (PPT) presentations which will be the platform of the CE courses. Figures 3–5 are example slides from these PowerPoint decks. In addition to an agenda, the PowerPoint presentations include learning objectives, which were developed based on the identified learning needs of the target population and on the current evidence for visual impairments interventions (See figure 3). The presentations begin with a review of the anatomy of the eye, as well as normative age-related changes within the eye. Based on data gathered from the literature review on low vision diagnoses, the OT/PT presentation includes six common age-related low vision diagnoses and a simulation of the visual impacts of the diagnoses, while the social worker/case manager presentation includes five diagnoses and simulations. The second section outlines the primary functional impacts of these diagnoses, including reading, falls and mobility, and psychosocial impacts. The third section includes information on screening clients for possible visual impairments and appropriate referrals for clients with visual impairments. Data from the literature review on intervention for clients with low vision was used to construct the third section on intervention strategies, which includes information on low vision aids and compensatory strategies for older adults with low vision (See figure 4). The literature search on new and developing assistive technology was used to create subsequent sections on voice assistants, software, and applications for older adults with low vision. The final section includes local and national resources for this population, including organizations offering services, online resources, and websites to purchase low vision equipment. The presentation for social workers and case managers includes an

expanded resources section with additional information, and is 90 minutes, or 1.5 continuing education units (CEUs). The presentation for OTs, PTs, OTAs and PTAs includes greater detail on intervention strategies and is 120 minutes, or 2 CEUs.

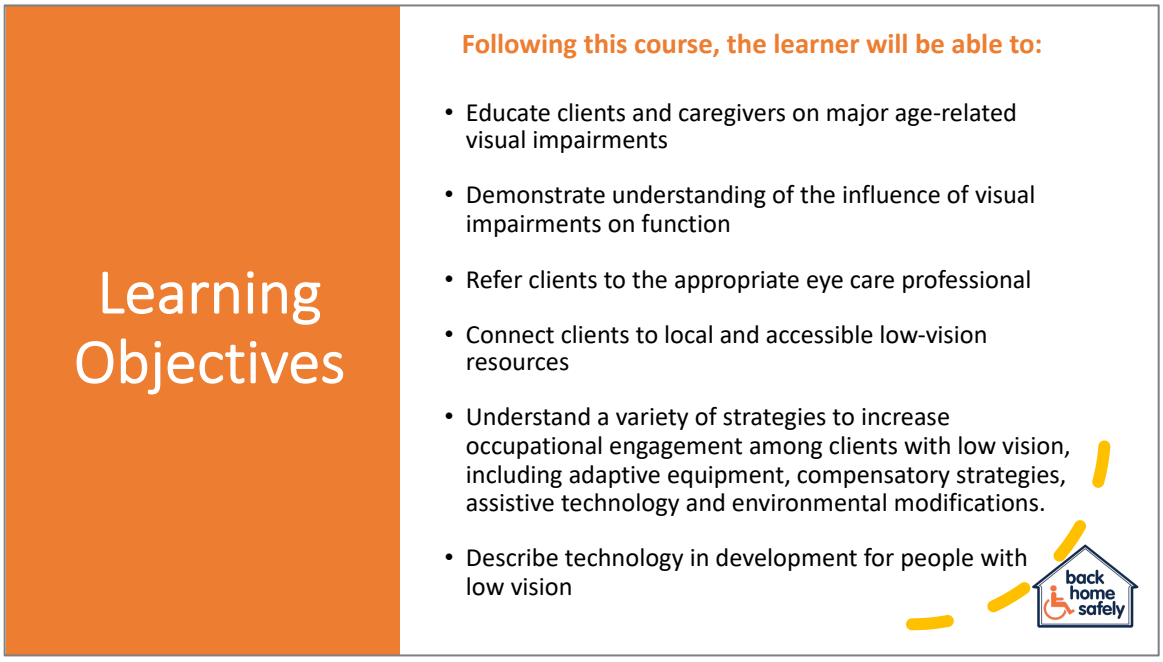


Figure 3: Learning Objectives PowerPoint Slide

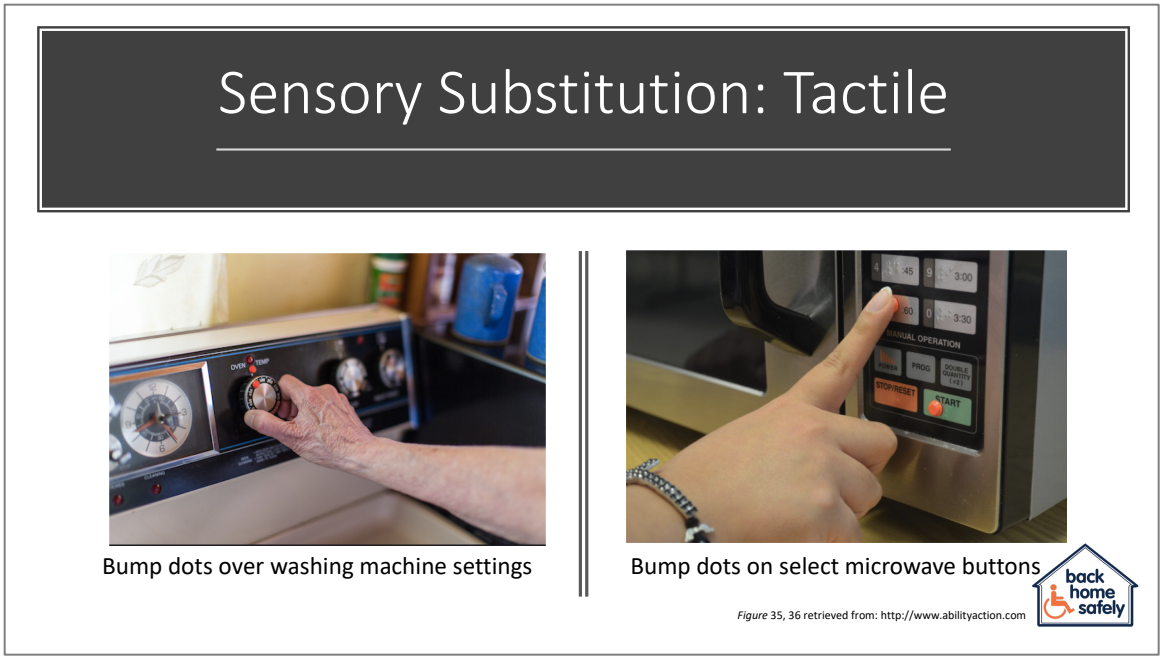


Figure 4: Compensatory Strategy PowerPoint Slide

The PowerPoint presentation also includes two active learning components: group discussions and case discussion. The OT/PT presentation includes two prompts for group discussion, one on functional impairments and another on intervention strategies, while the social worker/case manager presentation includes only the functional impairment group discussion (See figure 5). Both presentations include prompts for two case discussions. As discussed, development of case scenarios/vignettes was based on the descriptions clinicians gave of their client population during the needs assessment. This step ensures that the course content matches with the real-life experiences of the participant population, increasing participant engagement with and skill uptake from the course content, and increasing the likelihood that skills learned in the CE course will apply to practice.

Figure 5: Active Learning Component PowerPoint Slide

Step 5: Created Course Materials

In addition to the CE course itself, I created an expanded resources and references packet for clinicians to take home to reinforce learning and to use as an on-the-job reference for clients with low vision. I developed two scripts to accompany the PowerPoint presentations for use by BHS staff during course delivery. I recorded audio of myself presenting the OT/PT presentation as an additional reference for BHS staff. I created materials in compliance with state and national licensing board requirements for CE courses for each of the four disciplines, including sign-in sheets, course completion certificates, course surveys and post-tests, outlines, advertisements, brochures, and abstracts (Advertisement example included in Appendix B). These materials were submitted to BHS staff to be included in the applications for approval of the CE courses.

Step 6: Designed a Course Evaluation

I created a follow-up course evaluation which captures knowledge uptake, participant satisfaction, use of skills in practice, increases in referrals, and areas of improvement for the CE course. This evaluation is to be sent to clinicians at least 3 months post-course, to determine whether the course content translated to changes in clinical behaviors (i.e. whether clinicians used interventions or resources from the course or referred to services for clients with visual impairments). The evaluation is included in Appendix C. This data will be assessed by BHS staff and changes may be made to the CE course as a result of feedback, in order to improve the quality of this CE course.

Potential Barriers

There are a number of potential barriers to the implementation of these theory-driven, evidence-based, learner-centered CE courses for OTs, PTs, OTAs, PTAs, social workers, and case managers. When background research on effective continuing education courses was being conducted, the course was envisioned as an in-person learning experience. The in-person design would allow small group discussion during active learning components and sharing of experiences and ideas. The shutdown of in-person activities as a result of the COVID-19 pandemic resulted in the transition of this course to a virtual format. The online learning platform owned by BHS allows participant input by typing into a chat box or by responding to a poll. This will be the substitution for small-group discussion and the format of active learning components in the virtual version of this CE course. It is understood that the online learning platform significantly limits the ability of the active learning components to engage clinicians as was originally

planned. However, BHS has agreed that when the course is delivered in-person again in the future, the active learning components will return to the small-group discussion format.

Because I designed this continuing education course, conducted the background research, and created all materials, there is a chance that BHS staff will be less familiar with the material, resulting in a less fluent presentation of the CE courses. This has been addressed via collaboration with BHS staff throughout the creation of the presentations, creation of presentation scripts for both courses, and presentation of the course itself to BHS staff. Additionally, BHS staff have requested that I be added to the list of presenters in the application materials to the relevant state and national licensing boards so that I may assist in the presentation of this material. These steps are expected to ensure that BHS staff become more familiar with the low vision material over time and are eventually able to conduct the CE course fluently and independently.

CHAPTER FOUR: Evaluation of CE Course Quality

Logic Model

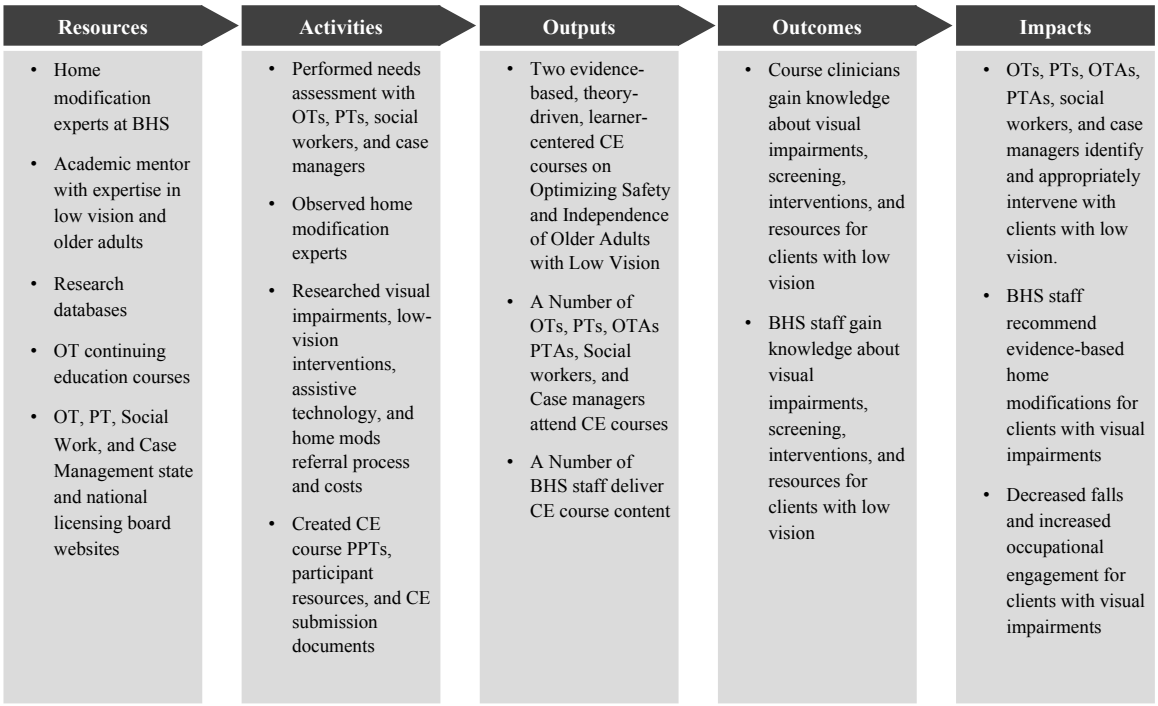


Figure 6: Logic Model of Project

As shown in the logic model in figure 6, the resources and activities described in chapter three resulted in an output of two CE courses on optimizing safety and independence among older adults with low vision. These CE courses must be determined to be evidence-based, theory-driven, and learner-centered as intended. The background literature on continuing education course effectiveness indicated the importance of course evaluation to ensure that the CE course meets the needs of clinicians. These CE courses, however, will not be delivered to OT, PT, social work and case manager clinicians until after the completion of this capstone, and so course outcomes could not be included in the

evaluation of this capstone project. It is important to note that a course evaluation with appropriate outcome measures has been included in the project for use by BHS staff after delivery of the CE course. As a result of these timing constraints, the quality of the CE course with respect to the evidence-based guidelines gathered during the research synthesis will serve as the yardstick for success.

Guidelines for an Evidence-Based, Learner-Centered CE Course

This course has been evaluated for adherence to the following guidelines to ensure that it is both evidence-based and learner-centered, and therefore likely to affect clinical behavior change in clinicians:

- Contains evidence-based components identified in research synthesis
    - Incorporates content based on a needs assessment
    - Reflects real-life context of clinicians
    - Incorporates active learning components
    - Includes reflection components
    - Includes visible pedagogy (e.g. learning objectives)
    - Evaluates the translation of learning to practice
- Adheres to state/national board requirements for CE courses
- Uses content based on current state of the research evidence

Incorporates Content Based on a Needs Assessment

A needs assessment consisting of semi-structured interviews with 6 LSWs and PTs was completed. Proof of completion was documented via notes from these interviews.

Participant responses regarding preferred content for a CE course on low vision were used as a foundation for the content areas, as well as the learning objectives, of this course. These steps ensure that the CE courses will provide clinicians with practical knowledge that reflects the needs of their personal clinical practice, thereby increasing the chance that clinicians will be engaged in the material and integrate learning into practice.

Reflects Real-Life Context of Clinicians

Case studies within the CE course are related to the clinical experiences of the clinicians in the needs assessment. The two case studies in the CE courses were created based on the client descriptions provided by the experienced social workers interviewed for the needs assessment. No names or other identifiable information were collected during the needs assessment, so there was no risk of revealing client identities. One or more of the following components from the interview notes are similar to at least one component in each case vignette or example: Client age, client primary diagnosis, client visual impairment diagnosis, client family structure, client cognitive status, client home environment, clinical setting (e.g. home care, inpatient hospital), primary referral reason, client socioeconomic considerations, or clinician dilemma. The cases were modified to include broad low vision issues and include a focus on both goal setting and client education. The match between real-life experience of clinicians and CE course case studies is expected to increase clinical behavior change by allowing clinicians to apply the information from the course directly to their real-life practice settings.

Incorporates Active Learning Components

The CE courses include two active learning components, group discussion and case discussion. The group discussions are prompted by the following questions: 1) In the functional implications section, following content on the impact of low vision diagnoses on reading ability, “What other activities will be impacted by reading ability?”. This question will prompt clinicians to think about the impact of reading on a range of ADLs, IADLs, and other occupations, with the hope that clinicians internalize the broad impact of low vision on client function. 2) In the intervention section, following a discussion on increasing contrast to improve safety and independence, “How can we increase contrast across the home?”. This question will encourage clinicians to envision a client with low vision moving through their home, and identify areas in which improved contrast may be possible and beneficial. The case studies (discussed above) will prompt clinicians to apply what they have learned about low vision diagnoses, screening, referrals, interventions, and resources to two simulated cases, and have been designed to encourage innovative thinking through generalization of these concepts. These group discussions will occur via a chat or poll format in the virtual course, but preparations have been made for transition to small group discussion for all active learning components when the CE courses are able to be delivered in-person. By requiring clinicians to participate in their own learning and encouraging them to apply learned information to clinical scenarios, these components are expected to increase learner engagement and information uptake.

Includes Reflection Components

The script of the learning objectives page includes prompts to ask clinicians to read the

learning objectives, then ask “What drew you to this course?”. This reflective component is intended to focus clinicians on their personal learning goals at the outset of the CE course so they are better able to engage with the components of the course that align with those goals. Next, the script includes the question “What else are you hoping to get out of this course?”. This question should further encourage clinicians to analyze the stated objectives and reflect on the match between these objectives and their personal learning goals. When clinicians share the outcome of this reflection with facilitators, facilitators will be equipped to take a learner-centered approach to the CE course and integrate didactic information which will help the learners achieve their goals.

Includes Visible Pedagogy

The CE course learning objectives are as follows:

Following this course, the learner will be able to:

- Educate clients and caregivers on major age-related visual impairments
- Demonstrate understanding of the influence of visual impairments on function
- Refer client to the appropriate eye care professional
- Connect clients to local and accessible low-vision resources
- Understand a variety of strategies to increase occupational engagement among clients with low vision, including adaptive equipment, compensatory strategies, assistive technology, and environmental modifications
- Describe technology in development for people with low vision

The script for the learning objectives section includes a statement that the course was

designed to provide clinicians with the opportunity to develop the described skills. These objectives and accompanying script are an example of visible pedagogy because they allow the learner to understand the framework of the course and how their learning will be facilitated within it. The CE course also includes an agenda, and the course presentation script contains the following statement: “We hope that this is an interactive, engaging experience for you. We know that you’ll learn more if you are more involved, so we’ve built in a few active learning components into this course. It is our intention that those components will allow you to engage in the material and envision your own practice and clients as we discuss low vision conditions, screening, and intervention strategies.” This statement is an intentional form of visible pedagogy. By revealing learning mechanisms within the course and connecting those mechanisms to learning outcomes, it is theorized that clinicians will be empowered to increase their engagement with those mechanisms (Houlden & Collier, 1999; Van Hoof & Meehan, 2017).

Evaluates Translation of Learning to Practice

A follow-up course evaluation was created which includes questions on the actual implementation of skills in practice, and on suggested changes to course components to improve translation of skills to practice in future iterations (course evaluation included in Appendix C). This follow-up survey will be distributed to clinicians at least 3 months after the CE course to allow clinicians time to apply knowledge to practice. This process will highlight gaps in the CE course and provide concrete steps for BHS staff to take to improve the quality of the CE courses.

Adheres to State/National Licensing Board Requirements

The course content and associated resources have been matched to the published licensing board guidelines for CE courses for the four relevant disciplines. The CE course adheres to the CE course requirements of the NASW, CCMC, NJSBPTE, and the AOTA. Guidelines included course content (learning objectives, set number of recent references), descriptive materials (abstracts, statements of appropriateness to the various disciplines), and documents (sign in sheets, course completion certificates, advertisements).

Uses Content Based on Research Evidence

Didactic content in the CE course PowerPoints is research-based. The vast majority of content related to facts and figures around visual impairment, intervention effectiveness information, and screening tools and assessments was sourced from academic resources published in the last 5 years. Relevant and current references are cited on each PowerPoint slide in which didactic content is included, and a resource document with complete references is included in the packet of information sent to each course participant.

Data Analysis

A checklist of the items described above is included in figure 7 below. These items were assessed and approved by myself and my academic advisor. The course was determined to have adhered to quality standards as each item was confirmed and checked at the end of the capstone project.

COURSE QUALITY CHECKLIST

Needs Assessment

☑ Three or more interviews completed with LSWs and/or case managers
☑ Interview notes completed for each participant

Real-life Context

☑ Identified match between needs assessment and CE course examples and case descriptions in at least 1 listed core component

Active Learning Component

☑ At least 1 active learning component present in CE course

Reflection Component

☑ At least 1 reflection component present in the CE course

Visible Pedagogy

☑ PowerPoint slide with agenda

☑ Prompt in CE course script to describe learning mechanisms of key course components

☑ PowerPoint slide with course Learning Objectives
☑ Prompt in CE course script to elucidate further learning objectives from clinicians

Evaluation of Skill to Practice

☑ Follow-up survey includes questions on actual implementation of skills in practice
☑ Follow-up survey includes questions on changes to the course which would improve translation of skills to practice

Licensing board requirements:

☑ CE course adheres to documented National Association of Social Workers (NASW) CE requirements

☑ CE course adheres to documented Commission for Case Manager Certification (CCMC) CE requirements

☑ CE course adheres to documented New Jersey State Board of Physical Therapy Examiners (NJSBPTE) CE requirements

☑ CE course adheres to documented American Occupational Therapy Association (AOTA) CE requirements

Research-Based Content

☑ Relevant and current references present on each PowerPoint slide in which didactic content is included

Figure 7: Course Quality Checklist

CHAPTER FIVE: Dissemination

This capstone project resulted in two primary messages, which have been and will continue to be disseminated across the occupational therapy profession and other allied health fields. These messages are described in table 2.

Topic	Key Message
1. CE Best Practice	CE courses that adhere to evidence-based, learner-centered methods produce better learning and satisfaction outcomes for participants. These methods include use of a needs assessment, reflection of the real-life context of learners, incorporation of active learning and reflection components, inclusion of visible pedagogy, and evaluation of the translation of learning to practice.
2. Low Vision education for OTs, PTs, social workers, and case managers	Clinicians who gain knowledge in the areas of low vision diagnoses, screening, referrals, interventions, and resources, will be better able to identify clients with low vision and provide evidence-based care which has been found to improve client safety and independence.

Table 2: Capstone Project Key Messages

Key Message 1: CE Best Practice

The goals of disseminating key message 1 are that CE course creators are better equipped to create courses which engage learners and result in improved learning outcomes and participant satisfaction. If these course creators advertise their use of evidence-based guideline, this goal also enables clinicians who are selecting CE courses to have increased confidence in the quality of courses, and allows better use of CE units during the course of a clinician's continuing education journey.

Audience

While the participant focus of this project and these CE courses are allied health professionals, the synthesis in Chapter 2 was based on literature across health disciplines.

For this reason, the primary audience of key message 1 is professionals who seek to create CE courses or coursework for health professionals. This audience may include clinicians creating education courses for in-service presentations, individuals and businesses creating CE courses for distinct disciplinary groups, or individuals or groups who wish to improve existing CE courses designed for health professionals. The secondary audience of this message is the potential participants of these CE courses. Upon viewing the evidence-based guidelines described in marketing materials for these courses, they can be more certain of course quality and the ability of the course to promote learning and clinical practice change.

Delivery Methods

Message 1, that of the integral components for a theory-driven, evidence-based, learner-centered approach to CE course design, has been and will be disseminated in a number of ways. First, this capstone project, including findings of the literature synthesis, was presented and discussed via virtual poster presentation to the Boston University (BU) OT clinical faculty and fellow OT doctoral students on August 21, 2020. Further, this work will be published to the ProQuest database to allow other health professionals to continue to access this information after the conclusion of this capstone project. This paper will be indexed with appropriate keywords to allow CE creators in the health disciplines to locate this work during background research on best practice.

Evaluation of Dissemination

Dissemination of message 1 will be measured informally through attendance at the poster session on August 21, 2020, as well as through the number of views of the capstone paper

within the ProQuest database. While not possible to quantify, a further indicator of the dissemination of this message would be an increased use of the guidelines in Chapter 2 to create effective and engaging CE courses in the health professions, following access of this capstone paper.

Key Message 2: Low Vision Education

The short-term goal of disseminating key message 2 is that clinicians in New Jersey attend the CE courses offered by BHS. In attending these courses, clinicians will gain knowledge around low vision diagnoses, screening, and intervention techniques for community-dwelling older adults with low vision. The long-term goal related to this message is that older adults with low vision in New Jersey receive higher quality care from allied health professionals, develop increased independence in meaningful activities, and experience fewer falls in the home.

Audience

The audience of the second message is OTs, PTs, OTAs, PTAs, social workers, and case managers in New Jersey, especially those who work with community-dwelling older adults. This distinction is necessary because while all of the disciplines described may benefit from education on low vision diagnoses, screening, and intervention, this CE course as has been tailored specifically to the clinical practice area of clinicians who work with community-dwelling older adults, and would provide the greatest benefit to these clinicians.

Delivery Methods

Message 2 has and will be disseminated through a number of methods. First, this message

was disseminated to BHS staff through the presentation of the complete OT/PT continuing education course, with active learning components, via Zoom. By informing BHS staff of the low vision diagnoses, screening techniques, and evidence-based intervention methods for older adults with low vision, BHS staff can not only make suggestions to their clients with low vision which can improve their function, but can also provide better information on the benefit of these CE courses to potential participants in their clinician network. BHS staff will disseminate this message to the primary target audience of OTs, PTs, OTAs, PTAs, social workers, and case managers in New Jersey through the marketing of the evidence-based CE courses. Marketing materials in the form of separate flyers for the OT/PT/OTA/PTA and social worker/case manager courses, developed by me with input from BHS staff, highlight the impact of low vision interventions on clients' quality of life and include a full description of the course contents and learning objectives (See Appendix B). In line with the goal of allowing CE participants to select high-quality courses, the marketing materials include a statement on the use of cognitive learning theory and evidence-based adult learning methods to guide course development. These materials will be sent out via BHS e-mail contact lists to clinicians in northern New Jersey and the surrounding areas. The course is intended to be offered by BHS on a routine basis throughout the next two years, and marketing materials will be disseminated in advance of each new offering of the course. Offering the course on a routine basis will help maximize its reach to both emerging clinicians entering relevant positions and to existing clinicians who were interested but unable to attend previous iterations of the course. Finally, the CE courses themselves consist of

PowerPoint slides which include, as described, evidence-based intervention methods which are most likely to result in positive outcomes for community-dwelling older adults with low vision. Participants will be provided with a resource guide including links to local and national resources, detailed information on screening methods, and a full reference list from the PowerPoint presentation. In taking these courses and having access to the related resources, clinician participants will be equipped to increase independence and safety of their clients with low vision.

Evaluation of Dissemination

Dissemination of message 2 will be measured through registration for and attendance at the CE courses when presented by BHS and myself. This is a meaningful indicator of the successful dissemination of the message because clinicians who have registered for and attended the course prove, by those actions, that they believe the course will provide themselves and their clients with valuable information on understanding and addressing low vision. Additionally, a follow-up evaluation will be distributed to clinicians at least 3 months after the CE course to allow clinicians time to apply their newly learned knowledge to practice. The follow-up evaluation of the course will assess participants' perception of the quality of this course and the application of the course content in practice to determine the degree to which the message is translating to clinical outcomes (See Appendix C). This data will be assessed by BHS staff and changes will be made to the CE course as necessary, resulting in continual improvement of the quality of the course.

CHAPTER SIX: Conclusion

The goal of this project was to create a theory-driven, evidence-based, learner-centered continuing education course on the topic of older adults with low vision. In the process of researching the theoretical foundations and evidence related to this goal, I discovered that CE courses in the allied health professions have demonstrated varying degrees of quality with few, if any, measures available to help clinicians determine course quality before attendance. This project provides a potential guideline with which continuing education creators can create effective and engaging CE courses for health professionals. The literature synthesis described in Chapter 2 resulted in the finding that CE courses should adhere to cognitive learning theory, be based on the findings of a needs assessment, reflect the real-life context of learners, incorporate active learning and reflection components, include visible pedagogy, and evaluate the translation of learning to practice. It is recommended that all continuing education creators integrate as many of these components as are possible into new and existing CE courses and advertise the presence of these components in their marketing materials to indicate to potential participants the quality of their courses.

The literature on age-related low vision diagnoses and interventions indicates that there are many evidence-based interventions (e.g., use of assistive technology, compensatory strategies) for older adults with low vision to improve independence in ADLs, IADLs, reading, and leisure, and to decrease the risk of falls. This information combined with the results of the needs assessment among social workers and physical therapists resulted in the creation of a learner-centered, evidence-based CE course

tailored to four allied health professional groups: occupational therapy, physical therapy, social work and case management. The CE course was designed to increase clinicians' knowledge and competence in the provision of effective interventions for older adults with low vision. As indicated by the needs assessment, this project fulfills an unmet need for clinicians in northern New Jersey, who seek to more fully understand low vision diagnoses, vision screening for older adults, and intervention strategies to address low vision challenges.

Additionally, this project fulfills an unmet need among community-dwelling older adults in New Jersey who were previously being treated by clinicians who themselves lacked understanding about low vision, and who may now find increased independence and safety in their homes following treatment by a clinician participating in these CE courses. The evidence used to create the intervention sections of both CE courses reports concrete improvements in the engagement of clients with low vision in ADLs, IADLs, reading, leisure, and social participation, all of which contribute to clients' quality of life. Falls occur at an increased rate among older adults with visual impairments compared to older adults without visual impairments. The courses also include interventions which have been found to decrease the risk of falls among community-dwelling older adults with low vision. Therefore, this intervention has the potential to decrease the risk of falls among older adults with low vision who are treated by a clinician participating in these CE courses, reducing the risk of injury, hospitalization and additional adverse events.

APPENDIX A: Semi-Structured Interview Guide

Needs Assessment Semi-Structured Interview Guide

- What types of settings have you worked in/do you currently work in?

- Can you tell me what you know of visual impairment among older adults?

    - How did you learn it?

- Have you had clients with visual impairments?

    - Can you tell me about those clients?

    - What did you do for them?

    - Who did you refer them to?

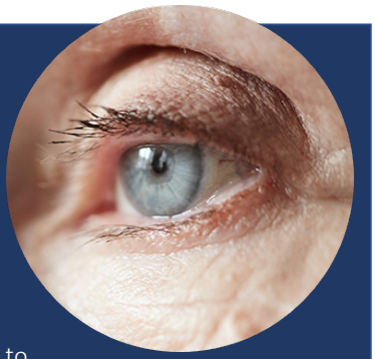
- What would you want to learn about low vision?

Notes:

APPENDIX B: CE Course Advertisement

1.5 Credit Online CEU
NJ Social Workers and Care Managers

Low Vision and Older Adults: Optimizing Safety and Independence in the Home



Description: Older adults with low vision can regain the ability to engage in activities that they love and can function safely in their own homes if provided with appropriate tools, strategies, and resources. This 1.5-hour course will educate the participant in low vision diagnoses, intervention strategies, and resources to promote safety and independence at home and increase quality of life for these clients. This course includes a discussion of major low vision diagnoses, as well as the functional and psychosocial impairments associated with these diagnoses. Participants will be introduced to functional screening techniques to identify clients with low vision, as well as appropriate referrals for these clients. This course includes an in-depth discussion of intervention strategies to increase safety and independence for clients with low vision, including low vision devices, compensatory strategies, and assistive technology. The course includes a detailed description of local and national resources for clients with low vision (including peer support groups, courses offered by non-profit groups, and national library services) as well as online resources. These course components will provide the social worker or case manager participant with the skills to identify barriers in client homes, select strategies to allow clients to engage in meaningful activities, and connect clients to resources, improving client quality of life, safety, and independence in the home.

*Course components were designed based on cognitive learning theory and evidence-based adult learning mechanisms

PRESENTERS: Karen Frank, PT,
Gregg Frank, OTR/L, CAPS, Home Improvement Contractor,
Cara Kubinak, OTD

DATE: _____

LOCATION: _____

COST: _____

Questions: contact Karen at karen@backhomesafely.com or call (973) 219-4147

This program has been pre-approved by NJ Social Work Continuing Education Approval Collaborative and The Commission for Case Manager Certification to provide continuing education credit to CCM board certified case managers. This course is approved for 1.5 CE contact hours.

Learning Objectives:

Following this course, the learner will be able to:

- Educate clients and caregivers on major age-related visual impairments
- Demonstrate understanding of the influence of visual impairments on function
- Refer clients to the appropriate eye care professional
- Connect clients to local and accessible low-vision resources
- Understand a variety of strategies to increase occupational engagement among clients with low vision, including adaptive equipment, compensatory strategies, assistive technology and environmental modifications.
- Describe technology in development for people with low vision

Course Outline:

- Age-related visual conditions
- Functional impairments
- Screening for visual impairments
- Intervention strategies
- Low vision resources
  - Local and national organizations
  - Reading Resources
  - Online Resources

APPENDIX C: CE Course Follow-Up Evaluation

Low Vision Course Follow-up Evaluation

We at Back Home Safely seek to continually improve our CE courses to provide better quality education to clinicians. Please help us improve our low vision course by answering a few questions about your experience.

Please answer the following questions with respect to your experience with the CE course **"Low Vision and Older Adults: Optimizing Safety and Independence at Home":**

1. How satisfied are you with your **experience** with this CE course?

1 = Unsatisfied 2 = Somewhat unsatisfied 3 = Neutral 4 = Somewhat Satisfied 5 = Satisfied

2. If you answered 1-3, why were you "less than satisfied" with your experience?

_____

_____

_____

3. What could have made your experience with this course better?

_____

_____

_____

4. How satisfied are you with your **learning** from this CE course?

1 = Unsatisfied 2 = Somewhat unsatisfied 3 = Neutral 4 = Somewhat Satisfied 5 = Satisfied

5. If you answered 1-3, why were you "less than satisfied" with your learning?

_____

_____

_____

6. What could have been done to improve your learning?

_____

_____

_____

7. Have you used any of the knowledge from this CE course in practice since completion of this CE course?

1 = Yes 2 = No

If yes, please elaborate: _____

_____

_____

If no, why not?: _____

_____

_____

8. Have you made any referrals for clients with low vision since completion of this CE course?

1 = Yes 2 = No

If yes, please elaborate: _____

_____

_____

9. Please feel free to add any additional comments about the course:

_____

_____

_____

_____

Thank you for completing this survey.

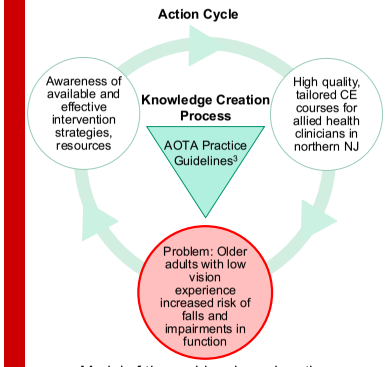
Creating Continuing Education Courses about Older Adults and Low Vision

Cara Kubinak, B.S., OT/s[1]
Sue Berger PhD, OT/L, FAOTA[1]; Karen Frank, PT[2] ; Gregg Frank, OT[2]
[1]Boston University Department of Occupational Therapy, [2]Back Home Safely

LITERATURE REVIEW

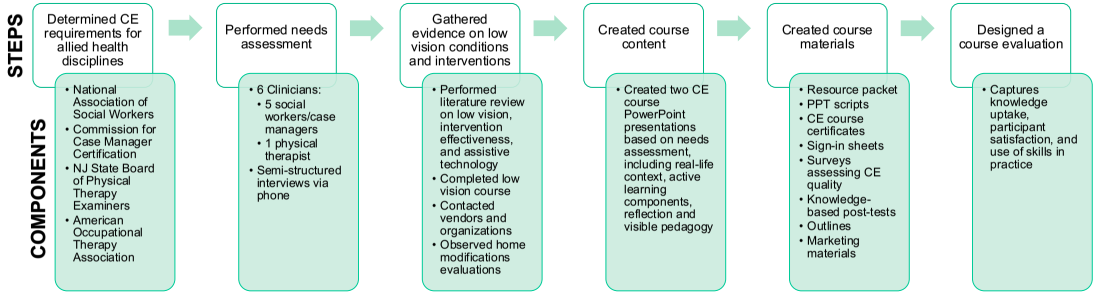
- **Problem Statement**: While licensing boards require that continuing education (CE) courses contain certain elements, CE courses for allied health professionals do not consistently reflect the needs of adult learners and may not result in practice changes.
- **Findings**: Cognitive learning theory[1] provides a learner-centered, evidence-based foundation to guide effective creation of continuing education courses. This theoretical model & the intervention evidence guide CE educators to:
  - Perform a needs assessment
  - Situate learning in real-life contexts
  - Include active learning components
  - Include reflective components
  - Include visible pedagogy
  - Include an evaluation of clinical behavior change.

THEORETICAL BASIS



Model of the problem based on the mechanisms of action of the **Knowledge to Action (KTA) Framework**[2]

DESCRIPTION OF PROJECT



OUTCOME EVALUATION

✓ Adheres to state & national licensing board requirements

✓ Includes visible pedagogy
✓ Incorporates reflective components

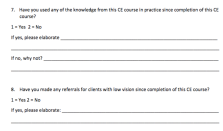
✓ Includes visible pedagogy

✓ Incorporates active learning components

✓ Uses content based on research evidence

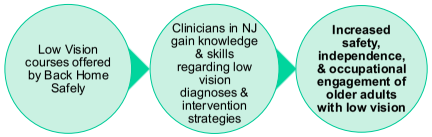
✓ Incorporates content based on the needs assessment

✓ Reflects the real-life context of clinicians



✓ Includes an evaluation of clinical behavior change

CONCLUSIONS



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APPENDIX E: Executive Summary

Creating Continuing Education Courses to Optimize Safety and Independence Among Older Adults with Low Vision
Back Home Safely

Cara Kubinak, BS, OT/s
Academic Mentor: Sue E. Berger, PhD, OT/L, FAOTA
Site Mentors: Karen Frank, PT, Gregg Frank, OT, CAPS

Continuing education courses for health professionals are acknowledged to be of varying degrees of quality with few, if any, measures available to help clinicians determine course quality before attendance. This project began with a synthesis of theory and continuing education effectiveness literature to determine which continuing education course features better engage learners, are associated with increased learning, and result in clinical behavior change. This resulted in the finding that CE courses should adhere to cognitive learning theory, and should be based on the findings of a needs assessment, reflect the real-life context of learners, incorporate active learning and reflection components, include visible pedagogy, and evaluate the translation of learning to practice. This project provides a potential guideline that continuing education creators can use to create effective and engaging CE courses for health professionals. It is recommended that all continuing education creators integrate these components into CE courses and advertise the presence of these components in their marketing materials to indicate to potential participants the quality of their courses.

This background literature was used to create two continuing education courses about low vision among older adults for the home modifications company Back Home Safely to deliver to their clinician contacts in northern New Jersey. Visual impairments

that cannot be completely corrected by corrective lenses are called “low vision”. Older adults are at an increased risk for eye diseases that cause low vision, and many experience decreased functional independence in several life areas, including reading, leisure activities, social participation, driving, and safe mobility. Older adults with low vision also experience a greater risk of falls, and a greater risk of anxiety and depression than older adults without visual impairments. However, there are strategies that have been proven effective in research literature to increase the safety and independence of older adults with low vision. These strategies lie within the scope of practice of occupational therapists, physical therapists, occupational therapy assistants, physical therapy assistants, social workers, and case managers. This project sought to create two continuing education courses for these groups of professionals in order to provide them with foundational knowledge and skills regarding low vision conditions among older adults, screening for visual impairments, and intervention strategies for older adults with visual impairments (e.g. education, low vision devices, compensatory strategies and resources). By equipping allied health professionals with such knowledge and skills, these CE courses intend to result in improved independence and safety among community-dwelling older adults with low vision.

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