

Addressing the Gaps in Nursing Assistant Curriculum: Evaluation of a Dementia-Specific Education Program

Sara Crance

Edson College of Nursing and Health Innovation, Arizona State University

Author Note

Sara Crance  is a graduate student in the Edson College of Nursing and Health Innovation at Arizona State University and a Registered Nurse at Hospice of the Valley on the Dementia Team in the Supportive Care for Dementia Program.

I have no known conflict of interest to disclose.

Correspondence concerning this article should be addressed to Sara Crance, Edson College of Nursing and Health Innovation, Arizona State University, 550 N. 3rd Street, Phoenix, AZ 85004 email: sara.crance@asu.edu

Abstract

With dementia prevalence projected to exceed 152.7 million individuals worldwide in the next 25 years, the need for trained nursing assistants (NAs) in dementia care is critical. However, dementia-specific education is not required in most NA program curricula. To address this gap, a one-day Train-the-Trainer dementia education program was implemented for NA program instructors, covering dementia basics, person-centered care, simulations, teaching techniques, and classroom lessons. This quality improvement project evaluated the impact of incorporating this training into the NA curriculum on students' confidence, attitudes, and clinical practice in dementia care.

Pre-evaluation data were collected from 80 NA students across three Arizona community colleges. Participants were primarily female (83.75%), aged 18 to 53 (mean = 27.86), with 46.25% knowing someone with dementia and 18.75% having prior dementia care experience. The Confidence in Dementia Scale (CODE) and Dementia Attitudes Scale (DAS) measured pre- and post-education changes. Findings showed significant improvements in confidence (25.86 ± 8.22 to 35.94 ± 5.72 , $t = -12.20$, $p < .001$) and attitudes (103.03 ± 14.31 to 112.68 ± 15.22 , $t = -6.33$, $p < .001$). Open-ended responses highlighted increased confidence, patience, empathy, and understanding. While instructors integrated the training into lectures and labs, time constraints and limited resources were identified as key challenges.

These findings suggest that dementia-specific education enhances NA students' confidence and attitudes, fostering greater empathy and competence in dementia care. Integrating this training into NA programs can fill critical educational gaps and better prepare future NAs to deliver high-quality, person-centered dementia care.

Keywords: *Dementia-specific education, nursing assistants, clinical practice*

Acknowledgments

To my incredible husband, Ryan—your love, patience, and constant encouragement have been my anchor. You believed in me even when I struggled to believe in myself, and for that, I am endlessly grateful. This achievement is as much yours as it is mine.

To my daughters, Austin and Ashley—you are my greatest inspiration. Your love, support, and encouragement kept me motivated on my hardest days, and I hope this achievement shows you that perseverance and passion make dreams a reality.

To Dr. Lee Reeves-Blurton—my personal cheerleader! Your friendship, support, and belief in me kept me going, and I am so lucky to have you in my life.

To my sister, MaryAnn—your love and support are immeasurable, and I’m forever grateful for our relationship and the opportunity to walk together in life.

To my parents, Bob and MaryLee—your unwavering belief in me shaped who I am. You instilled in me the values of hard work, dedication, and service to others.

To Alisa Squires—your encouragement and steady presence reminded me that I was never alone in this process.

To Dr. Gill Hamilton, Belinda Ordonez, and Kristen Pierson—your commitment to this project has made it what it is today, and I am grateful to work with such an amazing team.

Finally, to Dr. Diane Nunez—thank you for your mentorship and unwavering support. You have been my tissue, toolbox, and cheerleader, shaping me into a better clinician, educator, researcher, and person. I am forever grateful to you!

This project is dedicated to nursing assistants worldwide who devote their lives to caring for individuals with dementia and the instructors who teach them.

Addressing the Gaps in Nursing Assistant Curriculum: Evaluation of a Dementia-Specific Education Program

As the prevalence of Alzheimer's disease and related dementias (ADRD) increases throughout the world, frontline healthcare professionals need dementia-specific education to help increase knowledge and skills to better care for individuals living with ADRD. Nursing assistants are responsible for the majority of direct care, including activities of daily living, of individuals living with ADRD in long-term care facilities and in acute care settings. However, most states do not require dementia-specific education in nursing assistant program curricula. As dementia-specific education is developed, implemented, and disseminated, program evaluation and follow-up are essential to understand the efficacy and translation to practice.

Problem Statement

Globally, over 55 million individuals are living with some form of dementia and more than 10 million individuals will be diagnosed with dementia each year (World Health Organization (WHO), 2023). In 2023, it was estimated that more than 6.7 million individuals were living with Alzheimer's disease (AD) and AD-related dementia (ADRD) in the United States (Rajan et al., 2021). By the year 2050, the number of individuals living with ADRD in the United States is projected to increase to over 12.7 million (Alzheimer's Association (AA), 2024). Arizona is projected to have the largest percentage of increase in total number of people aged 65 and older with AD in the United States by 2025 (AA, 2024).

A seminal survey on behalf of Justice in Aging, found that most states, including Arizona, do not require nursing assistant (NA) training programs to provide dementia-specific content in the curriculum (Burke & Orlowski, 2015) even though it is estimated that more than 50% of all long-term care residents have Alzheimer's disease and related dementias (ADRD) (AA, 2024). Without

dementia-specific education and training, NAs lack confidence to care for individuals living with ADRD which can lead to poor patient outcomes, high turnover rates, and burnout (WHO, 2021; Morris et al., 2018; Dokos et al., 2023; Adewuyi et al., 2022). Current literature and supporting evidence show that knowledge of dementia, confidence in dementia care, attitudes towards individuals living with dementia, and empathy can all be improved with dementia-specific education (see Appendix A, Table A1, A2, and A3).

Background and Significance

Dementia is not a specific disease, but is a term used to describe a variety of symptoms that are a result of changes in the brain that impact daily living such as memory, problem-solving, language, and other cognitive skills (AA, 2024). Causes of dementia include Alzheimer's Disease, Lewy Body Disease, Parkinson's Disease, cardiovascular disease, frontotemporal degeneration, and mixed pathologies with Alzheimer's disease being responsible for over 60-70% of all cases of dementia (AA, 2024). Cognitive changes that occur due to ADRD often make activities of daily living such as grooming, bathing, eating, and toileting difficult for the individual living with ADRD and may be met with resistance or negative behavioral responses due to fear or misunderstanding (Porsteinsson et al., 2021). NAs are responsible for the direct care of individuals living with ADRD and it is estimated that more than 50% of all long-term care residents have ADRD (AA, 2024). NA programs are overseen by state boards of nursing and as previously mentioned, are not required to provide dementia-specific education or training in the curriculum in most states despite NAs being responsible for the most direct care of individuals living with dementia (Burke & Orlowski, 2015; Dokos et al., 2023).

Nursing Assistants

Nursing assistants (NAs) are the principal caregivers in long-term care facilities who work under the supervision of a registered nurse or licensed practical nurse and provide essential care such as grooming, toileting, bathing, and feeding as well as social support for patients (Bureau of Labor Statistics, 2023). In 2022, there were over 1.4 million NAs in the United States with the majority working in long-term care facilities, also known as nursing homes or skilled nursing facilities (Bureau of Labor Statistics, 2023). NA programs vary by state and in Arizona students are required to complete a combination of 120 hours of lab, didactic, and clinical work with a minimum of 40 hours of direct patient care (Arizona Nurse Practice Act, 2019). A review of the current literature discovered that NAs describe the education and training that they receive as being more focused on completing required tasks and is not specific to caring for individuals living with ADRD or how to social support individuals living with ADRD (Dokos et al., 2023). In addition, the lack of desire to work with individuals living with ADRD can be attributed to inadequate or limited knowledge and lack of confidence to care for this population (Scerri & Scerri, 2019).

Dementia-Specific Education

A variety of education and training modalities for dementia-specific education and training have been researched. Face-to-face training programs, video delivered education, virtual simulation, experiential training, educational packets, and train-the-trainer programs have all been discussed in the literature. Although face-to-face dementia-specific training programs demonstrate the most impact on the participants (Parveen et al., 2021), other innovational forms of delivery such as virtual simulations and dementia-specific experiential training have also proven to increase knowledge and self-confidence in caring for individuals living with ADRD (Kimzey et al., 2019; Adewuyi et al., 2022). The train-the-trainer model of education delivery is based on adult-learning

theory and can be used to increase dissemination of education when there are limited resources or a need to train a larger group of individuals and may be an effective solution in dementia-specific education and training for healthcare professionals (Poitras et al., 2021)

Current State of Dementia-Specific Education

As dementia-specific education and training in NA programs is not compulsory in the United States, there are vast inconsistencies in what is provided, and some NA students may not receive any dementia-specific training or education in their programs (Burke & Orlowski, 2015). NAs report receiving inadequate program training to care for individuals living with ADRD, thus compelling the use of different methods of approach and communication that may or may not be effective in persons with dementia (Dokos et al., 2023). Additionally, NA program instructors may not have the resources to appropriately teach dementia-related content and efforts must be made to provide dementia education to instructors including communication techniques and interventions for behavioral and psychological symptoms of dementia (BPSD) (Kimzey et al., 2019; Dokos et al., 2023). A lack of dementia-specific education and training often leads to negative behavioral responses from the individual living with ADRD. This can be stressful for the individual as well as the NA and contributes to negative outcomes for individuals living with ADRD and their families (Morris et al., 2018; Dokos et al., 2023; Adewuyi et al., 2022).

Current needs identified in the literature include dementia-specific education in the healthcare workforce and for healthcare profession students to better care for individuals living with dementia, including program evaluation to determine the effectiveness of dementia-specific education (Vasquez et al., 2023; Schneider et al., 2021; Chen et al., 2023; Weiss et al., 2020). In addition, there are gaps in understanding the specific modalities of dementia-specific education

and training and how they impact practice (Morris et al., 2018; Kimzey et al., 2019; Parveen et al., 2021).

Dementia Education and Clinical Practice Outcomes

To improve population outcomes, it is necessary to increase the number of dementia-capable frontline NAs through access to dementia-specific education and training. This outcome will contribute to the Healthy People 2030 objective to improve the lives of individuals living with dementia nationwide (Office of Disease Prevention and Health Promotion, n.d.) The impact of dementia-specific education and training for the healthcare provider includes higher self-confidence, increased empathy, a positive change in attitude, improved knowledge, and increased skills in working with individuals living with ADRD (Duarte et al., 2023; Kimzey et al., 2019; Scerri & Scerri, 2019; Morris et al., 2018; Schneider et al., 2021; Vasquez et al., 2023; Parveen et al., 2021; Dokos et al., 2023; Adewuyi et al., 2022). Higher self-confidence gained from dementia-specific education and training can impact positive behavior change among NAs in the care delivery for individuals living with ADRD (Duarte et al., 2023; Kimzey et al., 2019). Dementia-specific education and training improves provider attitudes, increases skills, and increases knowledge which leads to better patient outcomes (Parveen et al., 2021; Dokos et al., 2023; Adewuyi et al., 2022). In addition, NA students can learn empathy through dementia-specific education, a necessary component of providing dementia-competent care, through simulation, curriculum on communication in ADRD, and experiential learning (Brown et al., 2020).

Common Themes

Dementia-specific education has been shown to improve care for individuals living with ADRD as well as decrease NA burnout and staff turnover for those caring for individuals living

with ADRD. To better prepare NAs to care for the growing population of individuals living with dementia, specific training and education that will increase confidence, empathy, attitudes, and skills is vital. Additionally, understanding how dementia-specific education impacts future clinical practice is needed to better inform future educational development and prepare NAs with the knowledge and skills needed to properly care for individuals living with ADRD.

Internal Data

A non-profit organization in the Southwest United States provides innovative dementia care and dementia education, as well as support programs to the community. This organization has identified a gap in the evaluation of dementia-specific education programs and the impact on healthcare provider clinical practice. The organization currently feels that there is an opportunity to understand how dementia-specific education influences (or guides) the participants' practice because they have spent significant time and resources educating healthcare providers and healthcare students in the community. Currently, there is no program evaluation to assess the impact of education on practice patterns. Hard data for dementia-specific education impact on confidence and clinical practice has not been tracked in the organization and is identified as a valuable metric to measure the impact of education on NAs caring for individuals living with ADRD.

PICOT Question

A review of the literature led to the clinically relevant PICOT question:

“In nursing assistant students attending an academic program (P), how does nursing assistant dementia-specific education (I) compared with no dementia-specific education (C) affect clinical practice (O)?” and led to the following comprehensive search.

Search Strategy

To fully study the PICOT question, an exhaustive literature review was conducted utilizing the following databases: PubMed, CINAHL, PsycINFO, and ERIC. The first three databases were utilized based on relevancy to the healthcare profession, ADRD, and the PICOT question. The fourth database, ERIC, was utilized for its relevancy to healthcare education. In addition, these databases are known for their research base containing rigorous peer reviewed journal articles that contribute to the advancement of the medical profession and healthcare education.

Keyword Selection

Keywords that were utilized in each database were based on the PICOT question and included combinations of the following: *Alzheimer**, *dementia*, *nursing assistant*, *nurse's aide*, *education*, and *training*. The keyword combination that yielded the most relevant results included: *Alzheimer**, *dementia*, *nursing assistant*, and *education*. In addition, MeSH terms were utilized to narrow search results, including: "Alzheimer Disease"[Mesh], "Dementia"[Mesh], "Nursing Assistants"[Mesh], and "Education"[Mesh]

Initial and Final Search Yields

The keyword string that was first searched in each database was: (((alzheimer*) OR (dementia)) AND (nursing assistant)) AND (education). Initial results in PubMed yielded 255 articles, PsycINFO yielded 9 articles, CINAHL yielded 45,889 articles, and ERIC yielded 835 articles. Filters were added to further limit the search results including articles that were published between 2018-2024, written in English, and included in a scholarly journal. After the filters were placed the results included: 104 articles in PubMed, 2 articles in PsycINFO, 15,832 articles in CINAHL, and 63 articles in ERIC.

To further limit results in PubMed, MeSH terms were utilized, and the following search string was deployed: "Alzheimer Disease"[Mesh] OR "Dementia"[Mesh]) AND "Nursing Assistants"[Mesh] AND "Education"[Mesh], which yielded 57 initial results. After applying filters including articles that were published between 2018-2024, written in English, and included in a scholarly journal, the search yielded eight results. To further limit the results in CINAHL, MeSH terms for Alzheimer's Disease and Dementia were combined with nursing assistant training and yielded 12 results. After filters were placed for articles written in 2018-2024, in English, and in scholarly journals, the search yielded one result.

Limitations, Inclusion, and Exclusion Criteria

Article titles and abstracts from each of the database's final results were reviewed for relevancy and yielded a total of 24 articles. In addition, articles were scanned for citations included in the reference list relevant to the search, which identified five additional articles. The 29 articles were reviewed utilizing the full text, and rapid critical appraisal was utilized to narrow the articles down to the highest quality, relevant studies. Inclusion criteria included articles that utilized dementia-specific education as an intervention targeted for nursing assistants or healthcare professionals. Exclusion criteria included articles that did not examine dementia-specific interventions and those that were focused on caregivers or non-healthcare professionals. Of the search results, 10 articles were selected including two systematic reviews, two cross-sectional studies, two descriptive studies, two quasi-experimental studies, and two mixed methods studies.

Critical Appraisal and Synthesis of Evidence

Melynk and Fineout-Overholt's (2023) process for rapid critical appraisal was utilized on relevant studies found in the literature review to determine each article's validity, reliability, and

applicability to the PICOT question. Ten studies that were relevant to the PICOT question and were considered to be high quality were included in the final analysis (see Appendix A, Table A1 and A2). There were two systematic reviews, two cross-sectional studies, two descriptive studies, two quasi-experimental studies, and two mixed methods studies that were found to be applicable that examined dementia-specific education or training for healthcare professionals or healthcare students. Although randomized control trials are higher strength of evidence, this research method is not commonly utilized when evaluating dementia-specific education as randomization and blinding is more difficult. The major findings in the studies were synthesized and compared for evaluation (see Appendix A, Table A3).

The type of educational programming, the length of the training or education, and the measurement tools varied throughout the studies. Educational programming examined included experiential learning, virtual simulation, online learning, and in-person training. The length of training or education varied and included program ranging from 9 hours to 2 days. Measurement tools for knowledge, confidence, attitudes, and empathy were similar across the studies with the most commonly used tools include the Confidence in Dementia Scale (CODE), Dementia Knowledge Assessment Tool Version 2 (DKAT 2), Dementia Attitudes Scale (DAS), and Alzheimer's Disease Knowledge Scale (ADKS) (see Appendix A, Table A3). The qualitative portion of the mixed methods studies revealed common themes, including behavior, practice, care interaction, communication, and knowledge (see Appendix A, Table A3). Overall, the studies showed statically significant improvement in dementia knowledge, confidence in caring for individuals living with dementia, attitudes towards individuals living with dementia, empathy, communication, and skills. Sample size and country varied throughout the studies demonstrating the widespread effect dementia care has on NA education globally.

Purpose and Rationale

Dementia-specific education is imperative for all NAs to improve the care and clinical practice for individuals living with ADRD. More information is needed on the effect of dementia-specific education and training on the knowledge, application, and attitudes of NA students after receiving specialized training. Improved NA confidence, knowledge, and attitudes toward dementia may positively impact patient care, which in turn, may improve the individual living with dementia's quality of life and reduce provider burnout and turnover. The purpose of this project is to examine the impact of a NA dementia-specific education Train-the-Trainer program that has been implemented in the NA curriculum on NA students' clinical practice, attitudes towards dementia, and confidence in caring for individuals living with dementia.

Theory Application

Bandura's Theory of Self-Efficacy is applicable to nursing assistant education and the influence of education and training on clinical practice. The Self-Efficacy Theory explains the connection between an individual's behavior and self-perception (Bandura, 1977). Individuals often engage in activities, tasks, or behaviors in which they perceive they are capable and will not engage when they feel they are not capable or lack experience (Bandura, 1977). In healthcare, self-efficacy is directly connected to an individual's confidence in their ability, their perception of the experience, and their ability to perform in a given situation (Robb, 2012). Nursing assistant students that have not received dementia-specific education or do not have experience working with individuals living with dementia may lack self-efficacy to care for individuals living with dementia. Awareness of self-efficacy can help guide development and evaluation of dementia-specific training programs for nursing assistants and can allow educators

to better understand the influence of education, experience, and perception on behavior change that impacts clinical practice (see Appendix B, Figure B1).

Implementation Framework

The Kirkpatrick Model was used to guide the implementation of the proposed project. The model consists of four levels of evaluation to determine the efficacy of training, including reaction, learning, behavior, and results, and is utilized to measure the efficacy of training (see Appendix B, Figure B2). The Kirkpatrick Model is applicable to dementia-specific education for nursing assistant students as it is used in healthcare training to evaluate the learner's experience with the training, how the training impacts the individual's knowledge, how the individual applies the knowledge gained to practice, and the outcome on clinical practice (Kirkpatrick & Kayser-Kirkpatrick, 2009; Duarte et al., 2022; Garrod et al., 2019). This model was specifically chosen in order to determine the impact of dementia-specific education on nursing assistant students' clinical practice and behavior change when caring for individuals living with dementia. The Kirkpatrick Model is fitting for a training or education program that has not evaluated one or more of the levels and would like to determine outcomes from the education or training. Specifically, level three and level four of the Kirkpatrick Model consist of determining the behavior change as a result of training and the results of the training program, which could be applicable to determine the effect on clinical practice from dementia-specific education (see Appendix B, Figure B2). This program evaluation focused on the application of levels two and three. Level two of the Kirkpatrick Model evaluates the learning or knowledge gained from the dementia-specific education which was examined utilizing pre-and post-evaluation CODE and DAS scores. Additionally, level four of the Kirkpatrick Model determines the behavior change as

a result of the dementia-specific education which was assessed through post-evaluation open-ended questions examining the impact of the education on clinical practice.

Methods

Ethical Considerations

The ethical principles that guided this project include respect for persons, beneficence, and justice. Respect for persons is the understanding that individuals are treated as autonomous beings with the capability to determine their choices and to treat individuals with dignity (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979; Melynk & Fineout-Overholt, 2023). This project adhered to the principle of respect for persons by allowing participants the right to choose to be involved and giving them the opportunity to withdraw from participating at any time. The principle of beneficence focuses on the decreasing harm by doing what is good for the patient (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979; Melynk & Fineout-Overholt, 2023). This project seeks to determine the impact of dementia-specific education on nursing assistants' clinical practice including knowledge, confidence, and attitudes towards dementia which may result in determining both beneficial and potentially negative impacts on patient care. Understanding the impact of dementia-specific education on clinical practice may provide insight for future education for healthcare providers to decrease harm to individuals living with dementia. The principle of justice examines equal access and equal distribution of the benefits of research (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). This project promoted justice by treating each participant equally, ensuring each participant's privacy, and by disseminating findings broadly to allow access to all nursing assistant programs. Informed consent was

obtained from all participants in the project to protect privacy and autonomy. Participants were provided with a transparent description of the project to decrease deception. Implied consent to participate was obtained, and each individual had the right to withdraw from participation in the project at any time. Institutional review boards at both the project site and at Arizona State University reviewed the methodology of the project to ensure that ethical principles were followed, and that participants' human rights were protected. The project was approved by Arizona State University's Institutional Review Board as exempt on August 1st, 2024, and as exempt by the project site on August 30th, 2024.

Setting and Stakeholders

A current NA dementia-specific education train-the-trainer program has been established at a non-profit organization in the Southwest United States and currently trains NA program coordinators and instructors in the state of Arizona. It is undetermined how this training impacts knowledge, confidence, attitudes, and clinical practice in the NA students that have received the education from the training attendees. The NA dementia-specific education train-the-trainer program educates NA program coordinators and instructors in the Southwest United States. After the train-the-trainer event, attendees are provided a dementia-specific didactic lesson, a dementia-specific laboratory lesson, and resources to implement into their NA program curriculum. This training has shown an increase in NA program coordinator and instructor knowledge of dementia and confidence in teaching dementia (Crance, et al., 2023).

Stakeholders in the proposed project include the non-profit organization in the Southwest United States that is providing training, NA program coordinators and instructors in the state of Arizona, NA students, and individuals living with dementia that are being cared for by the NA students. The non-profit organization in the Southwest United States provides the training to the

NA instructors and program coordinators and are heavily invested in the impact of the education on NAs and their clinical practice. NA program coordinators and instructors have attended the Train-the-Trainer events and will be delivering the education to the NA students and are responsible for preparing the NA students for state board exams and entry into practice. NA students will receive the dementia-specific training and education, evaluate the program, and will determine the impact of this education on their clinical practice. Individuals living with dementia that are or will be cared for by the NAs that have received the dementia-specific training may be positively or negatively impacted based on changes in clinical practice.

Participants and Recruitment

Participants in this project included current NA students 18+ years of age enrolled in a 6-to-8-week NA program in the state of Arizona. The NA students would be receiving dementia-specific education from an NA program coordinator or instructor who attended the NA Dementia-Specific Education Train-the-Trainer event. Exclusion criteria included participants under the age of 18 and individuals who have already received dementia-specific education from the train-the-trainer event. Three different programs with 6-to-8-week cohorts were utilized for this project. NA students in the programs were recruited prior to receiving the dementia-specific education and training so that pre-course evaluation could take place. The project lead presented the evaluation project to the NA students, including the purpose of the project, informed consent, and the option to participate or decline participation.

Project Intervention

The purpose of this project was to determine the impact of a NA dementia-specific education Train-the-Trainer program on NA students' clinical practice, attitudes toward dementia, and confidence in caring for individuals living with dementia. Initial data collected

included the number of NA programs currently utilizing the dementia-specific education, the number of NA students that were anticipated to receive the dementia-specific education, and the timing of when the dementia-specific education would be delivered to the NA students. In planning the evaluation project, the following evaluation question will be addressed: What are the barriers and facilitators of implementing the dementia-specific nursing assistant training received at the train-the-trainer events? Understanding and evaluating the barriers and facilitators of the program implementation is vital to this program evaluation. This was completed by assessing the NA programs that have implemented the NA dementia-specific education from previous Train-the-Trainer events. In addition, these programs were contacted to determine when their next cohort of NA students will receive the dementia-specific education training.

Project Timeline

The project took place between August 2024 and April 2025 (see Appendix C, Figure C1). Project implementation occurred between September 2024 and December 2024, with pre-training evaluations completed in November 2024 and post-training evaluations completed in December 2024. NA program coordinator and instructor evaluations were completed in December 2024. All data was analyzed to properly complete the project evaluation in February and March 2025. Findings from the project will be disseminated to the project site in March 2025 and will be presented to colleagues in April 2025.

Data Collection and Outcome Measurement

From September 2024 to November 2024, initial pre-program evaluation surveys were deployed and included a demographic questionnaire, qualitative questions regarding experience with dementia, and the CODE and DAS tools, which measure dementia attitudes and confidence. After the initial assessment, the dementia-specific training was provided by the NA instructors

and coordinators who attended the train-the-trainer event. After the NA students received the dementia-specific training in their coursework, the project lead revisited the cohort for follow-up evaluation where post-training evaluation of dementia attitudes and confidence using CODE and DAS tools took place. In addition, participants were given a questionnaire with open-ended questions about dementia, caring for individuals living with dementia, and questions about how the training had influenced their practice. All data gathered was anonymous to ensure participant privacy, and a participant-created code was utilized to match pre- and post-training evaluations for comparison. The data was kept, stored, and disseminated anonymously.

Data from pre- and post-training was analyzed to evaluate the impact of the received dementia-specific education on dementia attitudes, confidence, and clinical practice. Pre- and post-learning CODE and DAS scores were analyzed for statistical significance. Qualitative data gathered in the open-ended questions was organized and pre- and post-training responses were compared. In addition, NA program coordinators and instructors were given evaluations to determine barriers and facilitators to incorporating dementia-specific education from the train-the-trainer into NA curriculum. After analysis was completed, significant evaluation tools will be incorporated into the train-the-trainer program so that the NA program coordinators and instructors and the project site can continue to evaluate outcomes from the training.

Outcome measures include NA students' attitudes towards individuals living with dementia and confidence in caring for individuals living with dementia. These measures connect to Bandura's Theory of Self-Efficacy in that NA students are more likely to engage in activities, tasks, or behaviors that they have perceived confidence in their abilities and have positive attitudes towards (Bandura, 1977; Robb, 2012).

Instrumentation

Measuring baseline confidence and confidence after dementia-specific education is imperative to understanding the impact of the education on the attendee's confidence in working with individuals living with dementia. The Confidence in Dementia Scale (CODE) is a self-reported questionnaire with nine-items that is utilized to measure an individual's confidence in working with individuals living with dementia using a 5-point Likert scale with ratings ranging from *not able* to *somewhat able* to *very able* (see Appendix D, Figure D1). Individuals working with those living with dementia may include nurses, nursing assistants, medical aides, and medical staff. The CODE scale was originally used in a hospital setting with staff who were working with individuals living with dementia to measure pre- and post-education confidence levels (Elvish et al., 2014; Parveen et al., 2020). The creators of the scale were experts in dementia care and used ideas from existing tools and measures to create this unique self-reported questionnaire. The total score of the CODE can be between 9 and 45, with the higher score representing more confidence in working with individuals living with dementia (Elvish et al., 2014).

The initial study included 115 participants that completed the scale (Elvish et al., 2014). The Kaiser-Meyer-Olkin (KMO) measure was applied to determine a sample size that was an adequate sample. Initial psychometric measurements included an overall Cronbach's alpha value of 0.91 and overall KMO of 0.90 (see Appendix D, Table D2). Data from a second study was combined with the first study for a larger sample size of 696 participants and the Cronbach's alpha value of 0.88 and overall KMO of 0.89 (Elvish et al., 2018). This data suggests that the CODE scale has high internal consistency reliability without redundancy and excellent sample adequacy. Additional psychometric testing was completed to test the CODE scale's validity and

reliability and an overall KMO was 0.80 and the Cronbach's alpha value was high at 0.85, suggesting high validity and reliability (Gkioka et al., 2020)

Measuring baseline attitudes towards individuals living with dementia and attitudes after dementia-specific education is an essential component of determining the impact of the training on the NA student's attitudes towards individuals living with dementia. The Dementia Attitudes Scale (DAS) is a self-reported 20-item scale that measures perception of comfort and person-centered knowledge towards dementia (see Appendix D, Figure D3). The authors of the scale are experts in dementia and developed this scale testing different numbers of questions for validity and reliability. The study included an initial sample with two different groups including certified nursing assistant students (n=145) and college students (n=302) and then another sample of college students (n=157) was studied for confirmatory analysis (O'Conner & McFadden, 2010). Cronbach's alpha ranged from 0.83-0.85 for the scale, thus demonstrating reliability and validity (O'Conner & McFadden, 2010).

Data Analysis Plan

Descriptive statistics were utilized to describe the sample demographics, including age, gender, race, and education level. Inferential statistics were used to describe the outcome measures including pre- and post-training measurements utilizing the DAS and CODE tools. Thematic analyses were utilized for the qualitative data gathered in the post-training open-ended questions.

Budget and Funding

The total budget for this project is \$6,582 (see Appendix E, Figure E1). The funding for the project came from in-kind donations of time and student funding for materials. The budget

included time the site champion and student spent planning, designing, and implementing the project.

Results

A total of n=80 participants completed both the pre-and post-evaluation surveys from 4 cohorts of nursing assistant programs at 3 different community colleges. Descriptive statistics were utilized to examine participant demographics. Participants were primarily female (n=67, 83.75%), White (n=28, 35%) followed by Hispanic or Latino (n=24, 30%), aged 18 to 53 (mean=27.86 years), with some college education (n=49, 61.25%) (see Table 1). Among the participants, 46.25% (n=37) reported knowing someone with dementia, while 18.75% (n=15) reported having prior dementia care work experience.

Table 1

Participant Demographics

Variable	<i>n</i>	%
Gender		
Female	67	83.75
Male	13	16.25
Race		
African American/Black	9	11.25
White	28	35.00
Hispanic or Latino	24	30.00
Asian	6	7.50
Other: White & African American/Black	2	2.50
Other: White & Hispanic or Latino	7	8.75
Native American	1	1.25
Other: White & Asian	1	1.25
Native Hawaiian or Other Pacific Islander	2	2.50
Education		
Master's Degree	2	2.50
Bachelor's Degree	14	17.50
Associates Degree	6	7.50
Some College	49	61.25
High School Diploma	6	7.50
GED	3	3.75

Note. Due to rounding errors, percentages may not equal 100%.

The Confidence in Dementia Scale (CODE) and Dementia Attitudes Scale (DAS) measured pre- and post-education changes. Descriptive and inferential statistics were utilized to analyze the pre- and post-evaluation data. The observations for pre-CODE scores had an average of 25.86 ($SD = 8.22$, Min = 9.00, Max = 45.00). The observations for post-CODE scores had an average of 35.94 ($SD = 5.72$, Min = 17.00, Max = 45.00) (see Table 2). A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre- and post-evaluation CODE scores was significantly different from zero. The two-tailed paired samples *t*-test result was statistically significant based on an alpha value of .05, $t(79) = -12.20$, $p < .001$. The mean of pre-evaluation CODE was significantly lower than the mean of post-evaluation

CODE (see Table 3). These findings suggest that there was a statistically significant improvement in confidence in dementia after receiving dementia-specific education.

Table 2

Summary Statistics for Pre- and Post-Evaluation Confidence in Dementia Scale (CODE)

Variable	<i>M</i>	<i>SD</i>	Min	Max
Pre-evaluation CODE	25.86	8.22	9.00	45.00
Post-evaluation CODE	35.94	5.72	17.00	45.00

Table 3

*Two-Tailed Paired Samples *t*-Test for the Difference Between Pre-Evaluation Confidence in Dementia Scale and Post-Evaluation Confidence in Dementia Scale (CODE)*

Pre-Evaluation CODE		Post-Evaluation CODE		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
25.86	8.22	35.94	5.72	-12.20	< .001	1.36

Note. N = 80. Degrees of Freedom for the *t*-statistic = 79. *d* represents Cohen's *d*.

Figure 1

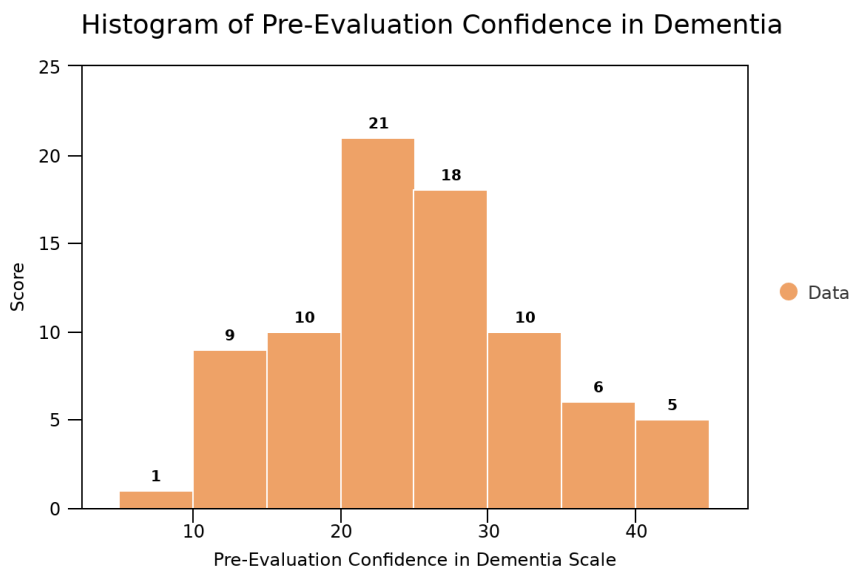
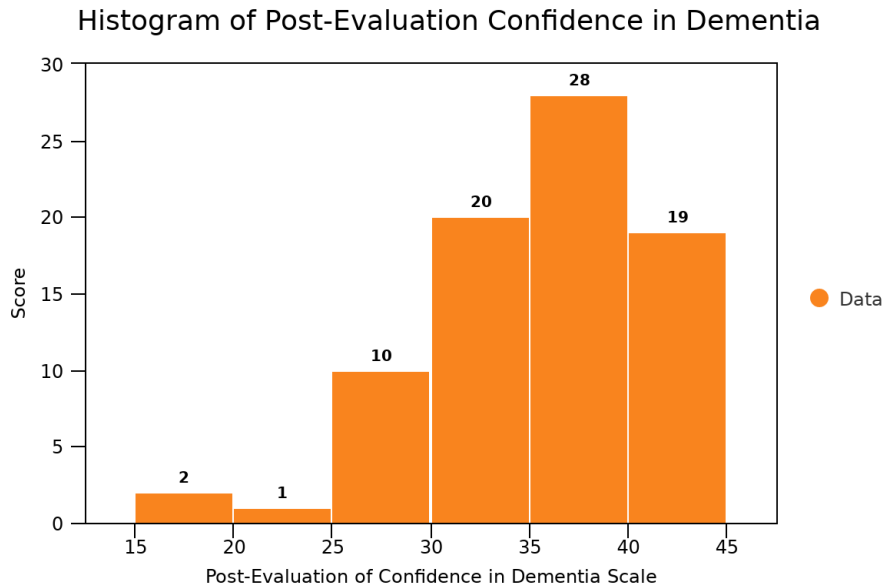


Figure 2



The observations for pre-evaluation DAS scores had an average of 103.03 ($SD = 14.31$, Min = 73.00, Max = 140.00). The observations for post-evaluation DAS scores had an average of 112.68 ($SD = 15.22$, Min = 74.00, Max = 140.00) (see Table 4). A two-tailed paired samples t -test was conducted to examine whether the mean difference of pre- and post-evaluation DAS scores was significantly different from zero. The two-tailed paired samples t -test result was statistically significant based on an alpha value of .05, $t(79) = -6.33$, $p < .001$. The mean of pre-evaluation DAS was significantly lower than the mean of post-evaluation DAS (see Table 5). These findings suggest that there was a statistically significant improvement in attitudes toward dementia after receiving dementia-specific education.

Table 4

Summary Statistics for Pre- and Post-Evaluation Dementia Attitudes Scale (DAS)

Variable	M	SD	n	Min	Max
Pre-evaluation DAS	103.03	14.31	80	73.00	140.00
Post-evaluation DAS	112.68	15.22	79	74.00	140.00

Table 5

Two-Tailed Paired Samples t -Test for the Difference Between Pre-Evaluation Dementia Attitudes Scale and Post-Evaluation Dementia Attitudes Scale (DAS)

Pre-Evaluation DAS		Post-Evaluation DAS		t	p	d
M	SD	M	SD			
103.00	14.40	112.68	15.22	-6.33	< .001	0.71

Note. $N = 80$. Degrees of Freedom for the t -statistic = 79. d represents Cohen's d .

Figure 3

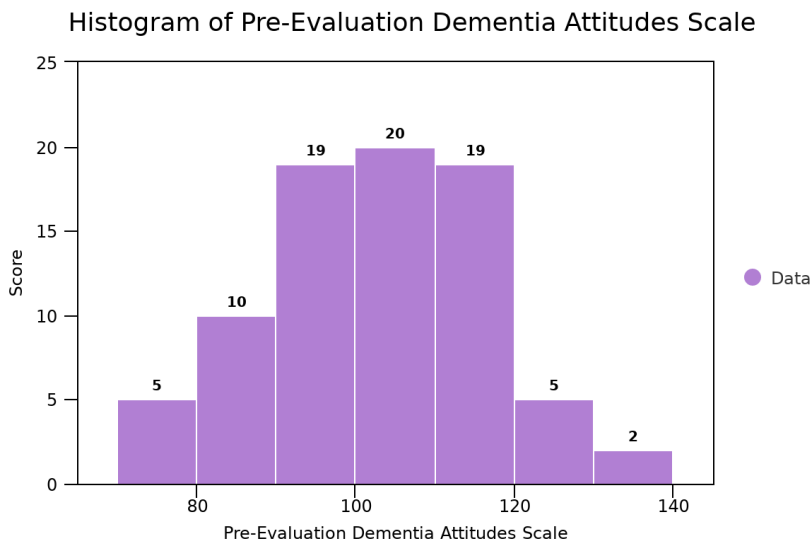
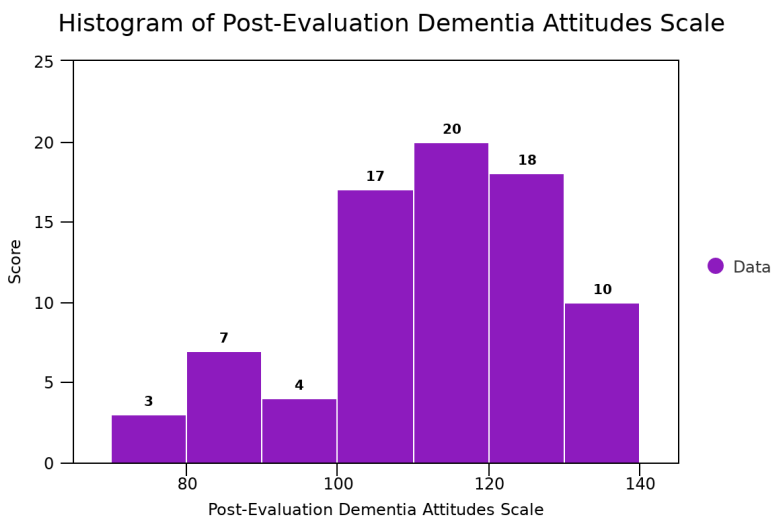


Figure 4



An analysis of variance (ANOVA) was conducted to determine whether there were significant differences in post-evaluation CODE and post-evaluation DAS scores by program cohort to determine any significant differences that may be a result of the education received or the demographics of each of the program cohorts. The ANOVA for post-evaluation CODE was examined based on an alpha value of .05. The results of the ANOVA were not significant, $F(3, 76) = 0.50, p = .681$, indicating the differences in post-evaluation CODE scores among the levels of program cohorts were all similar (Table 6). The main effect, program cohort, was not significant, $F(3, 76) = 0.50, p = .681$, indicating there were no significant differences in post-evaluation by program cohort levels. The means and standard deviations are presented in Table 7.

Table 6*Analysis of Variance Table for Post-Evaluation Confidence in Dementia by Program Cohort*

Term	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>	η^2_p
Program ID	50.36	3	0.50	.681	0.02
Residuals	2,534.32	76			

Table 7*Mean, Standard Deviation, and Sample Size for Post-Evaluation Confidence in Dementia by Program Cohort*

Combination	<i>M</i>	<i>SD</i>	<i>n</i>
Program 1 – Cohort 1	36.56	6.11	18
Program 1 – Cohort 2	35.80	5.48	20
Program 2	37.14	4.13	14
Program 3	35.04	6.40	28

The ANOVA for post-evaluation DAS was examined based on an alpha value of .05. The results of the ANOVA were not significant, $F(3, 75) = 0.97, p = .411$, indicating the differences

in post-evaluation DAS scores among the levels of program cohorts were all similar (Table 8).

The main effect, program cohort, was not significant, $F(3, 75) = 0.97, p = .411$, indicating there were no significant differences in post-evaluation DAS scores by program cohort levels. The means and standard deviations are presented in Table 9.

Table 8

Analysis of Variance Table for Post-Evaluation Dementia Attitudes Scale by Program Cohort

Term	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>	η_p^2
ProgramID	674.55	3	0.97	.411	0.04
Residuals	17,384.54	75			

Table 9

Mean, Standard Deviation, and Sample Size for Post-Evaluation Dementia Attitudes Scale by Program Cohort

Combination	<i>M</i>	<i>SD</i>	<i>n</i>
Program 1 – Cohort 1	110.22	17.74	18
Program 1 – Cohort 2	112.32	14.56	19
Program 3	118.79	9.94	14
Program 4	111.46	16.03	28

In addition, qualitative data was gathered through post-evaluation open-ended responses for the following questions:

- *How did the education change the way you think about individuals living with dementia?*
- *How did the education change the way you care for individuals living with dementia?*

Thematic analysis of the qualitative responses to the open-ended questions highlighted increased confidence in caring for individuals living with dementia. Other themes included patience, empathy, understanding, and increased knowledge about dementia.

Post-evaluation surveys were distributed to the faculty of each program (n=3) to determine the integration of the NA Dementia-Specific Education Train-the-Train into their curriculum, as well as barriers and facilitators to providing dementia-specific education for nursing assistant students. All 3 instructors acknowledged that they had incorporated the knowledge and experience gained from the NA Dementia-Specific Education Train-the-Trainer into the lessons in their curriculum to provide dementia-specific education within their program and spent 30 – 90 minutes of their lecture time on dementia-specific education. Key challenges of incorporating dementia-specific education into the nursing assistant student curriculum included time constraints of the program, limited resources, and little focus on the state board exam on the topic of dementia. The instructors had mixed opinions of whether or not they felt that their students would be capable of caring for individuals living with dementia after completing the nursing assistant program.

Impact

The aim of this project was to evaluate the NA Dementia-Specific Education Train-the-Trainer to determine the impact on nursing assistant students' confidence in caring for individuals living with dementia, attitudes toward dementia, and the impact of dementia-specific education on clinical practice. This project determined that the train-the-trainer method can be utilized to train nursing assistant program instructors to deliver dementia-specific education to nursing assistant students that increases confidence in caring for individuals living with dementia and improves attitudes towards individuals living with dementia. In addition, this project highlights the positive impact of dementia-specific education on nursing assistant student clinical practice which can directly impact patient outcomes as well as the nursing assistant's experience. The insight gained from the program evaluation can be used to support the need for dementia-

specific education to be included in nursing assistant program curricula throughout the United States.

Sustainability

This project gained support from the organization's Medical Director and Program Director. The Medical Director has served as the project site champion and has a vested interest in the educational programming that is carried out in the community. She is committed to continuing the NA Dementia-Specific Education Train-the-Trainer program to help educate nursing assistant instructors, program coordinators, and students in the state of Arizona. The Medical Director and Program Director will continue to oversee the educational development at the site and are willing to integrate the results of this program evaluation to continue to improve dementia-specific education for nursing assistants in the state.

Program evaluation and development is an iterative process that requires the organization to continuously assess, evaluate, and develop training and education that is impactful and meaningful in the community. Upon completion of this program evaluation, the organization now has a better understanding of the impact of the NA Dementia-Specific Education Train-the-Trainer program on nursing assistant students' attitudes towards individuals living with dementia and their confidence in working with individuals living with dementia. The outcomes of this project will be utilized to improve the current training program, address any barriers to implementation including the development of an online, asynchronous dementia education module that can be integrated into coursework without using classroom time, and incorporate the measurement tools into the program for future data collection. The organization plans to continue to utilize the Dementia Attitude Scale (DAS) and Confidence in Dementia Scale (CODE) in pre- and post-training for nursing assistant students. Including these measurement tools will allow the

organization to continue to monitor the impact of dementia-specific education, gather data from participants, and allow for continuous improvement of the education program. Long-term, the organization would like to continue this evaluation process by examining the long-term impacts of education on NA clinical practice after the completion of their NA program.

Discussion

The findings of this program evaluation suggest that dementia-specific education improves nursing assistant students' confidence in caring for individuals living with dementia, attitudes toward dementia, and clinical practice. These findings are consistent and comparable to what others have found in the current literature. Thematic analysis of open-ended questions pertaining to the impact of dementia-specific education on thoughts towards individuals living with dementia and caring for individuals living with dementia highlighted increased empathy, knowledge, understanding, and patience which may all directly contribute to improved patient care, patient outcomes, and possible job satisfaction.

Limitations to this program evaluation include the type of programs included in the study. The nursing assistant programs included in the evaluation were all community college programs that were 6-8 weeks in length. Including other types of nursing assistant programs in future program evaluation may give more robust data and may be used to determine the impact of variations in the type of the program, length of the program, time spent on dementia-specific education in the program, and nursing assistant student demographics.

Recommendations for future research include the evaluation of the long-term impact of dementia-specific education on nursing assistant students as they move forward in their careers and the inclusion of various types of nursing assistant programs. Examining the long-term impacts of dementia-specific education in nursing assistant programs may give insight into the

ongoing impact on clinical practice and patient outcomes, as well as how dementia-specific education impacts nursing assistant job satisfaction, burnout, and job turnover.

The Nursing Assistant Dementia-Specific Education Train-the-Trainer is a feasible way to integrate dementia-specific education into nursing assistant programs. The knowledge and experience gained by the nursing assistant instructor and incorporated into the nursing assistant program curriculum increased confidence in caring for individuals living with dementia and improved attitudes toward dementia. In addition, nursing assistant students experienced increased empathy, patience, and understanding towards individuals living with dementia that they will carry forward into their clinical practice. Integrating the Nursing Assistant Dementia-Specific Education Train-the-Trainer into nursing assistant programs can fill critical education gaps in current curricula and better prepare future nursing assistants to deliver high-quality, person-centered dementia care that will improve the lives of those living with dementia.

References

- Adewuyi, M., Morales, K., & Lindsey, A. (2022). Impact of experiential dementia care learning on knowledge, skills and attitudes of nursing students: A systematic literature review. *Nurse Education in Practice*, 62, 103351. <https://doi.org/10.1016/j.nepr.2022.103351>
- Alzheimer's Association. (2024) *2024 Alzheimer's Disease Facts and Figures*.
<https://www.alz.org/media/Documents/alzheimers-facts-and-figures.pdf>
- Arizona Nurse Practice Act. (2019). *R4-19-802 Nursing Assistant (NA) Program Requirements*.
https://www.azbn.gov/sites/default/files/202003/RULES.Effective.June3_.2019.pdf
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Brown, E. L., Agronin, M. E., & Stein, J. R. (2020). Interventions to enhance empathy and person-centered care for individuals with dementia: A systematic review. *Research in Gerontological Nursing*, 13(3), 158–168. <https://doi.org/10.3928/19404921-20191028-01>
- Bureau of Labor Statistics (2023). *Occupational Outlook Handbook, Nursing Assistants and Orderlies*. U.S. Department of Labor. <https://www.bls.gov/ooh/healthcare/nursing-assistants.htm>
- Burke, G., & Orlowski, G., (2015). *Training to serve people with dementia: is our health care system ready? Paper 3: A review of dementia training standards across professional licensure*. (Issue Brief). Justice in Aging. <https://justiceinaging.org/our-work/healthcare/dementia-training-requirements/dementia-training-requirements-state-by-state/>
- Chen, H., Song, J., Zhang, N., Li, N., Jiang, Q., Lu, X., Liu, L., & Liu, Y. (2023). Confidence in

- dementia care and care approach toward dementia among the nursing staff in long-term care facilities in China: A cross-sectional survey. *Frontiers in Public Health*, 11, 1182631. <https://doi.org/10.3389/fpubh.2023.1182631>
- Crance, S.J., Yu, F., Hamilton, G. and Ordonez, B. (2023), Foundational changes to improve dementia care: Implementing person-centered, dementia-specific education for nursing assistant programs. *Alzheimer's Dement.*, 19, e073325. <https://doi.org/10.1002/alz.073325>
- Dokos, M., Schultz, R., Gossner, J. D., & Fauth, E. B. (2023). Supporting persons with dementia: Perspectives from certified nurse's assistants. *Innovation in Aging*, 7(5), igad049. <https://doi.org/10.1093/geroni/igad049>
- Duarte, N., Alves, S., & Gomes, B. (2023). Evaluation of a dementia training course for staff of a center of dementia care. *Dementia and Geriatric Cognitive Disorders*, 52(4), 205–213. <https://doi.org/10.1159/000529856>
- Elvish, R., Burrow, S., Cawley, R., Harney, K., Graham, P., Pilling, M., Gregory, J., Roach, P., Fossey, J., & Keady, J. (2014). 'Getting to Know Me': the development and evaluation of a training programme for enhancing skills in the care of people with dementia in general hospital settings. *Aging & Mental Health*, 18(4), 481–488. <https://doi.org/10.1080/13607863.2013.856860>
- Elvish, R., Burrow, S., Cawley, R., Harney, K., Pilling, M., Gregory, J., & Keady, J. (2018). 'Getting to Know Me': The second phase roll-out of a staff training programme for supporting people with dementia in general hospitals. *Dementia*, 17(1), 96–109. <https://doi.org/10.1177/1471301216634926>
- Garrod, L., Fossey, J., Henshall, C., Williamson, S., Coates, A., & Green, H. (2019). Evaluating

- dementia training for healthcare staff. *The Journal of Mental Health Training, Education and Practice*, 14(4), 277-288. <https://doi.org/10.1108/JMHTEP-10-2018-0062>
- Gkioka, M., Tsolaki, M., Papagianopoulos, S., Teichmann, B., & Moraitou, D. (2020). Psychometric properties of dementia attitudes scale, dementia knowledge assessment tool 2 and confidence in dementia scale in a Greek sample. *Nursing Open*, 7(5), 1623–1633. <https://doi.org/10.1002/nop2.546>
- Kimzey, M., Mastel-Smith, B., & Seale, A. (2019). Effects of dementia-specific education for nursing students. *Nurse Educator*, 44(6), 338–341.
- Kirkpatrick, J. & Kayser-Kirkpatrick, W. (2009). *The Kirkpatrick four levels: A fresh look after 50 years*. Kirkpatrick Partners.
- Mastel-Smith, B., Kimzey, M., Garner, J., Shoair, O. A., Stocks, E., & Wallace, T. (2020). Dementia care boot camp: Interprofessional education for healthcare students. *Journal of Interprofessional Care*, 34(6), 799–811. <https://doi.org/10.1080/13561820.2019.1696287>
- Melnyk, B.M., & Fineout-Overholt, E. (2023). *Evidence-based practice in nursing and healthcare: A guide to best practice* (5th ed.). Lippincott, Williams & Wilkins.
- Morris, L., Horne, M., McEvoy, P., & Williamson, T. (2018). Communication training interventions for family and professional carers of people living with dementia: A systematic review of effectiveness, acceptability and conceptual basis. *Aging & Mental Health*, 22(7), 863–880. <https://doi.org/10.1080/13607863.2017.1399343>
- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. U.S. Department of Health and Human

Services. <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>

Office of Disease Prevention and Health Promotion. (n.d.). *Dementias*. Healthy People 2030.

U.S. Department of Health and Human Services.

<https://health.gov/healthypeople/objectives-and-data/browse-objectives/dementias>

Parveen, S., Smith, S. J., Sass, C., Oyebode, J. R., Capstick, A., Dennison, A., & Surr, C. A.

(2021). Impact of dementia education and training on health and social care staff knowledge, attitudes and confidence: A cross-sectional study. *BMJ Open*, *11*(1), e039939. <https://doi.org/10.1136/bmjopen-2020-039939>

Poitra, M. E., Bélanger, E., Vaillancourt, V. T., Kienlin, S., Körner, M., Godbout, I., Bernard-Hamel, J., O'Connor, S., Blanchette, P., Khadhraoui, L., Sawadogo, J., Massougbdji, J., Zomahoun, H. T. V., Gallani, M. C., Stacey, D., & Légaré, F. (2021). Interventions to improve trainers' learning and behaviors for educating health care professionals using train-the-trainer method: A systematic review and meta-analysis. *The Journal of Continuing Education in the Health Professions*, *41*(3), 202–209. <https://doi.org/10.1097/CEH.0000000000000375>

Porsteinsson, A. P., Isaacson, R. S., Knox, S., Sabbagh, M. N., & Rubino, I. (2021). Diagnosis of early Alzheimer's Disease: Clinical practice in 2021. *The Journal of Prevention of Alzheimer's Disease*, *8*(3), 371–386. <https://doi.org/10.14283/jpad.2021.23>

Rajan, K., Weuve, J., Barnes, L., McAninch, E., Wilson, R., Evans, D. (2021) Population estimate of people with clinical AD and mild cognitive impairment in the United States (2020-2060). *Alzheimers Dement*, *17*(12), 1966-75.

Robb, M. (2012). Self-efficacy with application to nursing education: A concept analysis.

- Nursing Forum*, 47(3), 166–172. <https://doi.org/10.1111/j.1744-6198.2012.00267.x>
- Scerri, A., & Scerri, C. (2019). Outcomes in knowledge, attitudes and confidence of nursing staff working in nursing and residential care homes following a dementia training programme. *Aging & Mental Health*, 23(8), 919–928.
<https://doi.org/10.1080/13607863.2017.1399342>
- Schneider, J., Miller, J., Teschauer, W., Kruse, A., & Teichmann, B. (2021). Evaluation and effectiveness of a two-day dementia training program for hospital staff working in an emergency department. *Journal of Alzheimer's Disease*, 84(4), 1631–1644.
<https://doi.org/10.3233/JAD-210505>
- Weiss, J., Tumosa, N., Perweiler, E., Forciea, M. A., Miles, T., Blackwell, E., Tebb, S., Bailey, D., Trudeau, S. A., & Worstell, M. (2020). Critical workforce gaps in dementia education and training. *Journal of the American Geriatrics Society*, 68(3), 625–629.
<https://doi.org/10.1111/jgs.16341>
- World Health Organization. (2023). *Dementia*. <https://www.who.int/news-room/fact-sheets/detail/dementia>
- World Health Organization. (2021). *Global status report on the public health response to dementia*. <https://www.who.int/publications/i/item/9789240033245>
- Vasquez, L., Schultz, M., Ishado, E., Borson, S., & Sadak, T. (2023). Building a dementia-capable nursing workforce. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing*, 46, 31–38.
<https://doi.org/10.1016/j.profnurs.2023.02.007>

Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Chen et al., (2023), Confidence in dementia care and care approach toward dementia among the nursing staff in long-term care facilities in China: a cross-sectional survey Country: China Funding: Shandong University of Traditional Chinese Medicine Bias: Mixture of data collection methods including pencil	None listed	Design: Cross-sectional study Purpose: To explore nursing staff confidence in caring for PwD in long-term care facilities and the care approach utilized by nursing staff.	N= 317 Demographics: Female n=248 Mean age = 35.61 years Junior College degree or below n=198 Experience with dementia patients more than 3 years n=160 (50.47%) Setting: Long-term care facilities in China Inclusion: Direct care with people living with dementia during daily	IV: Participant characteristics DV1: Dementia knowledge DV2: Confidence in dementia DV3: Approach to dementia care	Tools: Dementia Knowledge Assessment Tool Version 2 (DKAT 2) ($\alpha = 0.79$) Confidence in Dementia Scale (CODE) ($\alpha = 0.91$) Approach to Advanced Dementia Care Questionnaire (ADCQ) ($\alpha = 0.602$)	Statistical Tests Used: Independent t-tests and one-way analysis of variance (ANOVA), Pearson's correlation, multivariate linear regression analysis	Results: 95% CI, $p < 0.05$ V1: DKAT2 and CODE ($r = 0.612$, $p < 0.001$) DKAT2 and ADCQ ($r = 0.327$, $p < 0.001$) V2: Confidence in early-stage dementia 9.89 ± 3.32, confidence in dementia as a whole 9.61 ± 3.46, confidence in middle or late-stage dementia 9.27 ± 3.58, total 28.77 ± 8.98 CODE and ADCQ ($r = 0.401$, $p < 0.001$) V3: Emphasis on past or present 1.80 ± 0.56, correction of	Level of Evidence: IV Strengths: -Sufficient sample size -Validated measurement instruments Weakness: -Convenience sampling -Limited geographical focus -Mixture of data collection methods Feasibility: -Easily replication with validated tools Application to practice: - Improve training and education for less experienced -Improve confidence and approach to care.

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
and paper methods and online methods which may introduce bias			work for at least one month, able to read, understand, and express verbally in Chinese, and consent to participate in the study.				behavior 1.21±0.74, aim of the communication 1.20±0.87, orientation of time, place, and situation 1.18±0.66, whether confusion had any meaning for the people with dementia 0.81±0.39, total 6.21±1.96	
Parveen et al., (2021). Impact of dementia education and training on health and social care staff knowledge, attitudes, and confidence: a cross-sectional study. Country: United Kingdom Funding: NIHR Policy Research	None listed	Design: Survey-based cross-sectional observation study Purpose: To determine the impact of education and training on knowledge, attitudes, and confidence of health care staff and to identify the most effective features of dementia	N= 553 participants n= 18 dementia education programs Demographics: White, British ethnicity (94.4%), women (88.4%) Setting: England Inclusion: Health or social care staff that had completed	IV: Dementia education program DV1: Dementia knowledge DV2: Attitudes toward dementia DV3: Confidence in dementia care	Tools: Knowledge in dementia scale ($\alpha = 0.72$) Dementia Attitudes Scale with two subscales including dementia knowledge ($\alpha = 0.83$) and comfort being around those with dementia ($\alpha = 0.85$)	Statistical Tests Used: Hierarchical multiple regression analysis	Staff characteristics, education, and training content variables and pedagogical factors were found to account for: DV1: 18% variance in staff knowledge ($F=2.17$, $p<.01$) DV2: 22% variance in attitude (knowledge) ($F=3.80$, $p<.01$) and 14% variance in staff comfort (attitude) ($F=2.11$, $p<.01$) DV3:	Level of Evidence: IV Strengths: -Large sample size -Diverse range of dementia education and training programs Weakness: -Cross-sectional design -Limited geographic location of participants Feasibility: -Easily replication with validated tools Application to practice: - Dementia training and

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Programme (Understanding Effective Dementia Workforce Education and Training: A Formative Evaluation (DeWET Evaluation), PR- R10-0514-12006)		education and training.	one of the examined training packages in the past 5 years, 18 years of age or older, ability to read and write in English.		Confidence in Dementia Scale ($\alpha = 0.91$)		29% variance in staff confidence ($F=4.13$, $p<.001$)	education is just one factor that contributes to caregiver knowledge, attitude, and confidence in caring for individuals living with dementia. -Consider pedagogical factors and depth of education
Scerri & Scerri (2019). Outcomes in knowledge, attitudes and confidence of nursing staff working in nursing and residential care homes following a dementia training programme Country: Malta Funding:	None listed	Design: Quasi- experimental with pre- and post-tests Purpose: To determine the impact of the training program on dementia knowledge, attitudes, and confidence	N= 304 participants at first training (T1), N= 218 at the last training (T2) Demographics: Female (67% at T1, 68.2% at T2), Registered nurse (37.5% at T1, 34.6% at T2), young, newly qualified nurses with less than 5 years experience	IV: 14-hour training program (7 – 2- hour courses) DV1: Dementia Knowledge DV2: Attitudes toward dementia DV3: Confidence in dementia care	Tools: Alzheimer's Disease Knowledge Scale (ADKS) ($\alpha =$ 0.71) Dementia Attitudes Scale (DAS) ($\alpha = 0.83$ – 0.85) Confidence in Dementia Scale (CODE) ($\alpha =$ 0.91)	Statistical Tests Used: Analysis of variance (ANOVA), Pearson correlation, Cohen's <i>d</i> , and stepwise regression analysis	DV1: Dementia knowledge ($t=5.347$, $p<.001$) DV2: Attitude toward dementia ($t=3.531$, $p<.001$) DV3: Confidence in dementia care ($t=2.391$, $p=.017$)	Level of Evidence: III Strengths: -Large sample size -Use of validated, reliable tools -Detailed training program Weakness: -Limited geographic location of participants - Lower response rate at the end of training Feasibility: -Easily replication with validated tools -The outline of the training was included for replication

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
European Union – European Social Fund OPII Empowering People for More Jobs and a Better Quality of Life – <i>Capacity Building in care for the Elderly and Persons with Disability</i> Grant number ESF 4.242			(38% at T1, 39% at T2) Setting: Malta Inclusion: Nursing staff at publicly funded nursing homes for older persons and long-term residential homes.					-Missing specific details for content Application to practice: Dementia training contributes to dementia knowledge, attitudes, and confidence in caring for individuals living with dementia.
Kimzey et al., (2019). Effects of Dementia-Specific Education for Nursing Students Country: United States Funding: None identified	None listed	Design: Quasi-experimental design using pretest and posttest data from 2 groups Purpose: To determine the effects of a virtual dementia experience on knowledge of dementia, attitudes toward dementia, self-	N= 108 n= 56 (intervention group) Demographics: Women (92.7%), ranging in age from 17 to 20 years (78%), Setting: Southwest United States	IV: Virtual dementia experience DV1: Attitudes toward dementia DV2: Empathy DV3: Dementia knowledge	Tools: Dementia Attitudes Scale ($\alpha = 0.83$ to 0.85) Interpersonal Reactivity Index (IRI) ($\alpha = 0.71$ to 0.77) Dementia Knowledge Assessment Tool Version 2 (DKAT 2) ($\alpha = 0.79$) Confidence in	Statistical Tests Used: Mixed analysis of variance	DV1: ($F_{1,80}=3.98$, $P=.049$, partial $\eta^2=0.05$) with both groups showing an increase in the DAS, no significant effect when comparing the control and intervention groups DV2: ($F_{1,83}=7.54$, $P=.007$, partial $\eta^2=0.03$) on Perspective Taking subscale from pre to post test, no	Level of Evidence: III Strengths: -Innovative virtual dementia intervention Weakness: -Convenience sampling -Self-reported surveys -No randomization -Low number of posttest surveys completed Feasibility: -Easily replication with validated tools

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
		confidence in dementia care, and empathy in nursing students.	Inclusion: Current baccalaureate student enrolled in a required Behavioral Health course in a nursing program in the southwest United States	DV4: Confidence in dementia care	Dementia Scale ($\alpha = 0.91$)		significant effect when comparing the control and intervention groups DV3: ($F_{1,77}=74.27, P<.001$, partial $\eta^2= 0.23$) with both groups showing an increase in the DKAT scores. DV4: ($F_{1,83}=24.95, p<.001$, partial $\eta^2= 0.23$) with both groups showing an increase in the CODE scores	Application to practice: Dementia education can have a significant impact on student's knowledge, attitude, and self-confidence in caring for individuals living with dementia and has some effect on empathy towards individuals living with dementia.
Duarte et al., (2023). Evaluation of a dementia training course for staff of a center of dementia care Country: Portugal Funding: North Portugal Regional	Kirkpatrick's Evaluation Framework	Design: Quasi-experimental with pre-post design Purpose: To determine the impact of a dementia training course for staff in a specialized dementia center	N pre = 101 N post =85 Demographics: Female (92.1%), median age 31 (16%), healthcare assistant (50.5%), with 0-5 years of experience (72.3%)	IV: Dementia training course that included 12, 45 minutes sessions DV1: Staff reaction and satisfaction to the training DV2: Skills and learning	Tools: Likert scales to measure staff reaction and satisfaction to the training Portuguese Dementia Attitudes Scale ($\alpha = 0.952$ and 0.890)	Statistical Tests Used: Wilcoxon signed-rank test, paired t test, and thematic analysis	DV1: Satisfaction with training was high (median 4/5) DV2: Perceived knowledge improved (median 3-4; $p<.001$). Median knowledge test score 70.8%. Better attitudes toward dementia (mean 116.4, SD 10.3, to	Level of Evidence: III Strengths: -Followed World Health Organization recommendations for public health response to dementia and pre-service training -All services lines included -Multidisciplinary training facilitators

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Operational Program supporting NORTE-06-3559- FSE-000175 and RISE – LA/P/0053/2020 and UIDP/04255/2020			Setting: Dementia care center in Portugal Inclusion: Staff at a specialized dementia care center in Portugal Attrition: 15.8% (16)	DV3: Behavior changes	Close-ended questions to measure behavior changes		mean 122.2, SD 11.5; $p < .001$) DV3: Changes in behavior were identified by 93% of participants. Thematic analysis yielded four behavior/practice dimensions: care provision/interaction, communication, family/caregivers, and self-confidence	Weakness: -Online delivery format -Geographic limitations -Low post-test response rate -Small sample size -Self-reported measures -Only reported the immediate impact of the training Feasibility: -Easily replication with validated tools Application to practice: Dementia training contributes to improved attitudes toward dementia and behavioral change in clinical practice.
Mastel-Smith et al., (2020) Dementia care boot camp: Interprofessional education for healthcare students Country: United States	Social Cognitive Theory	Design: Mixed methods: quasi- experimental pre-post design with a qualitative focus group embedded into the design Purpose:	N= 43 Demographics: Female (90.7%), age 22-25 (41.9%), white (69.8%), college student (100%) Setting:	IV1: 16-hour Dementia Care Boot Camp DV1: Dementia knowledge DV2: Attitudes towards dementia	Tools: Dementia Knowledge Assessment Tool Version 2 (DKAT2) ($\alpha =$ 0.79) Dementia Attitudes Scale ($\alpha = 0.83$ to 0.85)	Statistical Tests Used: Paired- sample t- tests and correlation analysis. A seven- step method was used to	DV1: $t = 7.92$, $p < .001$ DV2: $t = 5.04$, $p < .001$ DV3: IRI Fantasy: $t = .32$, $p = .78$ IRI Empathy: $t = .51$, $p = .61$	Level of Evidence: III, VI Strengths: -Innovative, interprofessional educational approach Weakness: -Small, non-diverse sample -Use of self-selection for

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Funding: The University of Texas at Tyler College of Nursing and Health Sciences' Institute for Integrated Health grant		To examine the impact of a 16-hour dementia course on healthcare students' knowledge, attitudes, confidence in care, and empathy in dementia care.	University in the southwest United States Inclusion: University or junior college student enrolled in a nursing, pharmacy, occupational therapy assistant, or psychology program	DV3: Empathy DV4: Confidence in dementia care	Interpersonal Reactivity Index (IRI) ($\alpha = 0.71$ to 0.77) Confidence in Dementia Scale ($\alpha = 0.91$)	guide qualitative data analysis.	IRI Personal Distress: $t = 1.17, p = .25$ IRI Perspective Taking: $t = 2.08, p < .05$ DV4: $t = 8.35, p < .001$ Themes from the focus groups: Empathy, attitudes toward dementia and knowledge and confidence for dementia care. In addition, students reported that they attained dementia care competencies.	the course -Limited geographic area Feasibility: -Easily replication with validated tools Application: Dementia education can improve healthcare students' knowledge of dementia, attitudes towards PwD, empathy, and confidence in caring for PwD.
Adewuyi et al., (2022). Impact of experimental dementia care learning on knowledge, skills, and attitudes of nursing students: A systematic review		Design: Systematic Review Method: CINAHL, MEDLINE, and ProQuest searched	N= 17 articles total Inclusion: Pre-licensure nursing students in the sample, dementia care and experiential	IV1: Experiential learning experience Types: 12 - Face-to-face learning 5- simulated	Learning programs varied across the studies. DV1: 6/17 studies measured dementia knowledge	PRISMA	DV1: 6 studies showed an increase in dementia knowledge pre/post education DV2: 1 study showed an increase in dementia skills	Level of Evidence: I Strengths: -Systematic review design -Use of JBI Critical Appraisal Checklist and JBI Critical Appraisal Checklist for Qualitative

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB**I – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Country: United States Funding: None		Terms: dementia care combined with AND/OR and other search terms including knowledge, skills, attitudes, older adults, student nurses, face-to-face, clinical, virtual, simulation and experiential learning Purpose: To synthesize evidence on the effect of clinical experiential learning approaches on pre-licensure nursing students' competence in dementia care and to identify associated challenges.	learning, published in the English language, peer-reviewed journal article, published between 2010-2021. Exclusion: Not primary research, psychometric research studies, did not include experiential learning experience related to dementia care.	experiential learning 2- virtual experiential learning including video simulation 0- hybrid experiential learning DV1: dementia knowledge DV2: Skills DV3: Attitudes toward dementia 3 qualitative studies examined the experiences and perspectives of nursing students in caring for PwD	DV2: 1/10 study measured skills DV3: 12/17 studies measured attitudes toward dementia		DV3: 12 studies showed improved attitudes toward dementia and increased empathy, caring, and compassion	Research, and use of MMAT. Limitations: -Excluded articles due to inclusion criteria -Lack of longitudinal studies -Use of convenience and purposive sampling -Few studies included instruments' reliability scores Conclusion/Application: Can inform curriculum development, teaching methods, experiential learning experiences, and clinical placement regarding dementia care.
Brown et al., (2020). Interventions to enhance empathy		Design: Systematic Review	N= 18 articles total	IV1: Dementia education intervention	Training varied across the studies.	PRISMA	DV1: Increased empathy in 4 studies	Level of Evidence: I

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
and person-centered care for individuals with dementia: A systematic review Country: United States Funding: Dr. Brown receives support from Miami Jewish Health as a part of a grant from the Wolfson Foundation		Method: AgeLine, CINAHL, MEDLINE, and PsychINFO searched Terms: (“health personnel” OR “health services” OR “health services administration” OR “health administration” OR “geriatric psychiatry” OR “professional - patient relations” OR “nurse-patient relations” OR “nurs*” PR “care*” OR “psychiatry*” OR “psychology*”) AND (“empath*” OR “communication skills training” OR “communication	Inclusion: Primary research study, English language, peer-reviewed journal, LTC environment, interventions that focused on training current or future healthcare providers that examined empathy for PwD, quantitative experimental or quasi-experimental study. Exclusion: AD or dementia was not the primary diagnosis of the target population or patients, research	DV1: Empathy DV2: Dementia knowledge DV3: Communication skills DV4: Attitudes toward dementia DV5: Perceived confidence	DV1: 6/18 studies examined empathy DV2: 6/18 studies examined dementia knowledge DV3: 6/18 studies examined communication skills with PwD DV4: 3/18 studies examined attitudes toward dementia or staff reactions to dementia behaviors DV5: 1 study examined perceived confidence to care for PwD		No effects in empathy in 2 studies DV2: Increase in dementia knowledge in 5 studies, no effect on dementia knowledge in 1 study. DV3: Increase in positive therapeutic communication in 6 studies. DV4: Increase in positive attitudes toward dementia in 3 studies and decrease in negative reactions in 1 study. DV5: Increase in perceived confidence in 1 study	Strengths: -Systematic review design -Use of John Hopkins Nursing Evidence-Based Practice: Model and Guidelines for quality appraisal -Use of Quality Assessment Tool for Quantitative Studies Limitations: -Inclusion criteria may have limited results -Studies took place in different countries so training and licensure may vary across countries -Self-reporting measures Conclusions/Application: Dementia training and education can increase clinical competencies related to dementia care including empathy, knowledge, communication, attitudes, and perceived confidence in delivery care to PwD

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach’s alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer’s Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
		skills” OR “communication training”) AND (“Alzheimer* OR “dement* Purpose: To examine the impact of interventions focused on improving healthcare student’s or provider’s ability to experience and communicate with empathy with PwD.	conducted in a hospital, family or informal care provider inclusion in the study, focus on end-of-life or palliative care.					
Garrod et al., (2019). Evaluating dementia training for healthcare staff Country: United Kingdom Funding:	Kirkpatrick’s Evaluation Framework	Design: Mixed Methods quasi- experimental pre-post design with a qualitative focus group Purpose: To report on a service evaluation of a dementia	N= 162 participants Demographics: Nurses (37.65%), healthcare assistants (30.86%), allied health professionals (10.49%),	IV1: 2-day dementia training program DV1: Dementia knowledge DV2: Confidence in dementia care DV3: Skills	Tools: Alzheimer’s Disease Knowledge Scale (ADKS) ($\alpha =$ 0.71) Confidence in Dementia Scale (CODE) ($\alpha =$ 0.91) Vignettes	Statistical Tests Used: Wilcoxon signed-rank test and thematic analysis of qualitative data gained from the focus groups.	DV1: ADKS ($Z = -5.600$, $p = 0.000$) DV2: CODE ($Z = -8.906$, $p = 0.000$) DV3: Skills – Vignettes ($Z = -8.143$, $p = 0.000$)	Level of Evidence: III, VI Strengths: -Large sample size -Diverse healthcare staff positions -Utilization of reliable measurement tools Weakness: -Lack of geographical and system diversity

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach’s alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer’s Disease

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Health Education England, NIHR Oxford Cognitive Health Clinical Research Facility, NIHR Oxford Health Biomedical Research Centre, partnership between Oxford Health NHS Foundation Trust and the University of Oxford.		training program for healthcare staff to determine the impact on dementia knowledge and confidence, as well as evaluating changes to practice.	managers (6.17%), and other roles (9.25%) Setting: England Inclusion: Healthcare staff and managers working in community hospitals, older people's mental health wards and community teams.	Themes from qualitative data for participant's behavior, reaction to training regarding application to practice, and usefulness of the training.	In addition, qualitative data was gathered on the participant's reaction to the training.		Behavior themes: experiential learning, awareness of diagnosis, understanding, communication, risk, changed practice, and going forward. Themes- reaction to training: Information provided, teaching methods, and interactive nature of the program. Suggestions included changing the length of the program, adding case studies, and inclusion of additional programs.	- Did not use level 4 of Kirkpatrick's Evaluation Framework to determine outcome of the education on patient experience -Limited demographical information Feasibility: -Easily replication with validated tools Application: Dementia education that is competency based for healthcare staff can improve dementia knowledge and competence as well as have a positive impact on care for PwD.

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, **α** – Cronbach's alpha, **r** – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, **t** – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB**I – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Table A2
Evaluation Table for Qualitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Themes/Findings	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Schneider et al., (2021). Evaluation and effectiveness of a two-day dementia training program for hospital staff working in an emergency department Country: Germany Funding: J.S. (primary author) received doctoral funding by the Robert Bosch Foundation in Stuttgart, Germany	Holton's Human Resource Development and Evaluation Research Model	Design: Mixed Methods Method: Qualitative content analysis using inductive category building and descriptive (quantitative) Purpose: Evaluation of the impact of a 2-day dementia training program for hospital staff on learning outcomes, individual performance, and organizational performance.	Sample: N= 44 Pre-interview phase n=18, post-interview phase n=9 Demographics: Female (97.7%), under 35 years of age (59.1%), at least 10 years of school education (54.5%), registered nurses (63.6%) Setting: Emergency department of a hospital in Germany Attrition: 50% from pre-interview to post-interview phase	RQ1: What effect did the dementia training program have on outcome-levels learning, individual performance, and organizational performance? RQ2: Did the dementia training program meet the expectations and needs of staff working in the emergency department? What was the role of the emergency department setting in particular?	Data Collection: Semi-structured interviews and questionnaires utilizing a Likert scale	Content analysis	(1) Expectations and potential for development of the training – met expectations, entertaining, and interactive (2) The role of the setting Emergency Department – need for specialized ED training for dementia (3) Learning outcomes – better theoretical knowledge (4) Individual performance – greater understanding of PwD, application of	Level of Evidence: VI Strengths: -Utilization of Holton's Human Resource Development and Evaluation Research Model Weakness: -Small sample size -Lack of validated tools -Interview structure was not well explained -Questionable dependability Feasibility: It would be difficult to replicate this study without additional information. Application: Evaluation of

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach's alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer's Disease

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Themes/Findings	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
							care and communication techniques, distraction techniques, and relative involvement (5) Organizational performance and environmental changes – no changes on organizational level, wish for better resources (6) Context information – satisfaction with daily work as “rather high”	dementia education and training programs and their impact on individual performance and organizational changes.

Key: **N** – number of participants **IV** – Independent Variable, **DV** – Dependent Variable, α – Cronbach’s alpha, r – correlation coefficient, **IV** – Independent Variable, **DV** – Dependent Variable, **F** – final hierarchical model, t – t-test scores, **SD** – standard deviation, **RQ** – research question, **PwD** – people with dementia, **CINAHL** – Cumulative Index to Nursing and Allied Health Literature, **JB** – Joanna Briggs Institute, **MMAT** – Mixed Methods Appraisal Tool, **LTC** – long-term care, **AD** – Alzheimer’s Disease

Table A3
Synthesis Table

Study (Author, year)	Chen et al., 2023	Parveen et al., 2021	Scerri & Scerri., 2019	Kimzey et al., 2019	Duarte et al., 2023	Masteel-Smith et al., 2020	Adewuyi et al., 2022	Brown et al., 2020	Garrod et al., 2019	Schneider et al., 2021
Design	CSS/ IV	CSS/IV	QE/III	QE/III	QE/III	MM – QE/III, FG/VI	SR/I	SR/I	MM - QE/III	MM – QUAL VI
LOE										
Sample										
<i>n</i>	317	553	304	108	85	43	17	18	162	44/18/9
<i>Country</i>	China	UK	Malta	USA	Portugal	USA	USA	USA	UK	Germany
Framework										
					KEF	SCT			KEF	HHR
Interventions										
<i>Type of Program or Education</i>	-	18 dementia education programs	In-person training program	Virtual dementia experience	Dementia training course	Dementia Care Boot Camp	Experiential Learning Experience	Dementia education intervention	Dementia training program	Dementia training program
<i>Length</i>	-	6 hours –1 day	14 hours	-	12, 45-minute sessions	16 hours	2 hours to 5 days	varied	2 days	2 days
Measurement Tools										
	DKAT2, CODE, ADCQ	DAS, KDS, CODE	ADKS, DAS, CODE	DAS, DKAT2, CODE	Likert scales, PDAS	DKAT2, DAS, IRI, CODE			ADKS, CODE	
Outcomes										
<i>Approach</i>	<i>r</i>									
<i>Attitude</i>			↑	↑	↑	↑	↑ (12)	↑ (4)		
<i>Change in behavior</i>					↑					
<i>Communication</i>								↑ (6)		
<i>Confidence</i>	<i>r</i>		↑	↑		↑		↑ (1)	↑	
<i>Empathy</i>						↑	↑ (12)	↑ (4), NE (2)		
<i>Knowledge</i>	<i>r</i>		↑	↑	↑	↑	↑ (6)	↑ (5), NE (1)	↑	
<i>Perspective Taking</i>				NE		↑				
<i>Satisfaction with Training</i>					High					
<i>Skills</i>							↑ (1)		↑	

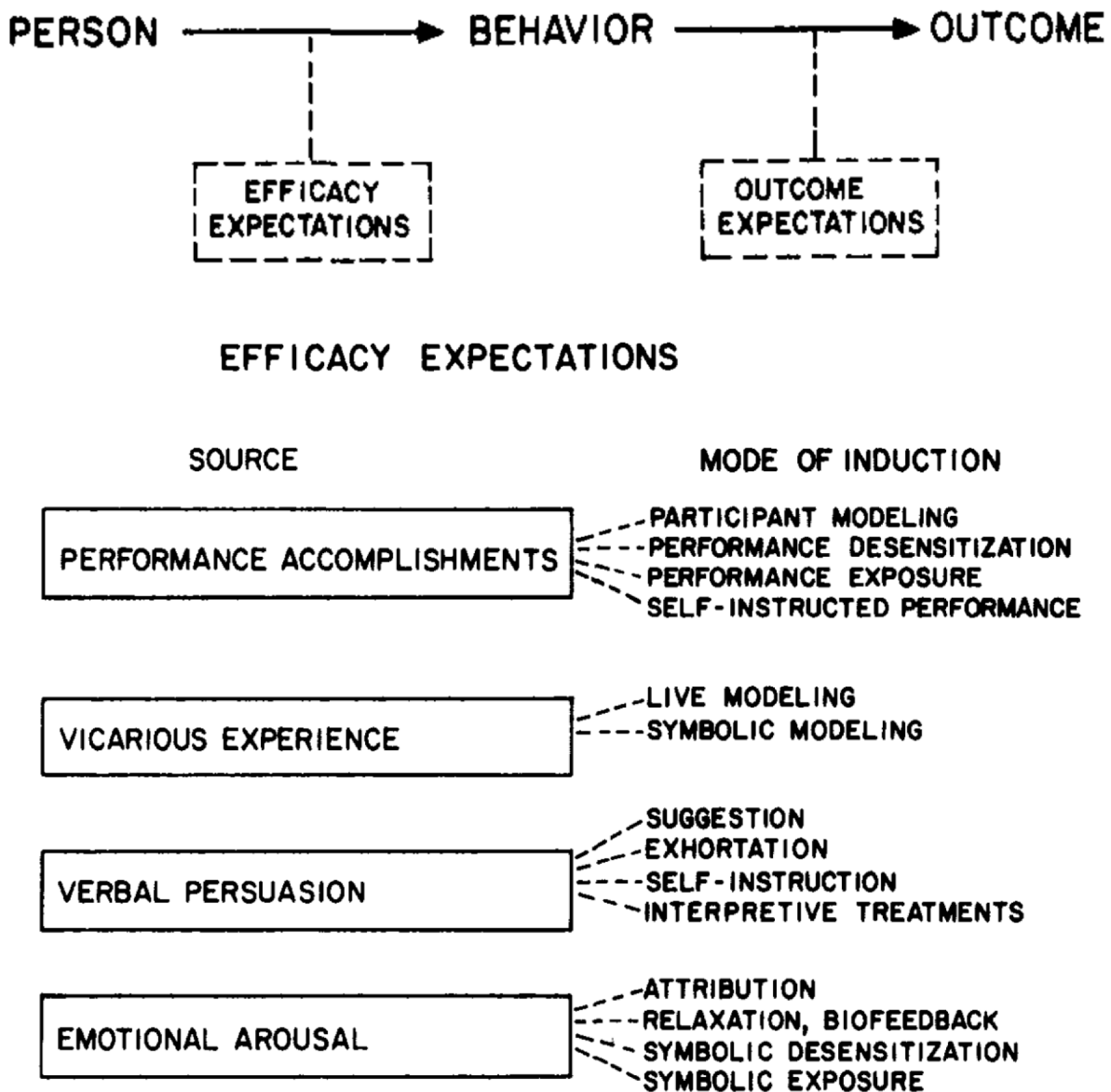
Key: **CSS** – cross-sectional study, **MM** – mixed methods study **QE** – quasi-experimental study, **SR** – systematic review, *r* – correlation with another outcome(s), **DKAT2** – Dementia Knowledge Assessment Tool Version 2, **CODE** – Confidence in Dementia Scale, **ADCQ** – Approach to Advance Dementia Care Questionnaire, **DAS** – Dementia Attitudes Scale, **KDS** – Knowledge in Dementia Scale, **ADKS**- Alzheimer's Disease Knowledge Scale, **DAS** – Dementia Attitudes Scale, ↑- increased or improved, **KEF**- Kirkpatrick's Evaluation Framework, **PDAS**- Portuguese Dementia Attitudes Scale, **FG** – focus group, **SCT** – Social Cognitive Theory, **IRI** – Interpersonal Reactivity Index, **NE** – no effect or change, **HHR**- Holton's Human Resource Development and Evaluation Model

Study (Author, year)	Chen et al., 2023	Parveen et al., 2021	Scerri & Scerri., 2019	Kimzey et al., 2019	Duarte et al., 2023	Masteel-Smith et al., 2020	Adewuyi et al., 2022	Brown et al., 2020	Garrod et al., 2019	Schneider et al., 2021
Themes										
<i>Attained core competencies</i>						•				
<i>Attitudes</i>						•				
<i>Behavior</i>					•				•	
<i>Care Interaction</i>					•					•
<i>Communication</i>					•					•
<i>Empathy</i>						•				
<i>Expectations</i>										•
<i>Knowledge</i>						•			•	•
<i>Length of Training</i>									•	
<i>Organizational Performance</i>										•
<i>Practice</i>					•				•	•
<i>Satisfaction</i>										•
<i>Self-confidence</i>					•					
<i>Teaching methods</i>									•	

Key: **CSS** – cross-sectional study, **MM** – mixed methods study **QE** – quasi-experimental study, **SR** – systematic review, *r* – correlation with another outcome(s), **DKAT2** – Dementia Knowledge Assessment Tool Version 2, **CODE** – Confidence in Dementia Scale, **ADCQ** – Approach to Advance Dementia Care Questionnaire, **DAS** – Dementia Attitudes Scale, **KDS** – Knowledge in Dementia Scale, **ADKS**- Alzheimer's Disease Knowledge Scale, **DAS** – Dementia Attitudes Scale, ↑- increased or improved, **KEF**- Kirkpatrick's Evaluation Framework, **PDAS**- Portuguese Dementia Attitudes Scale, **FG** – focus group, **SCT** – Social Cognitive Theory, **IRI** – Interpersonal Reactivity Index, **NE** – no effect or change, **HHR**- Holton's Human Resource Development and Evaluation Model

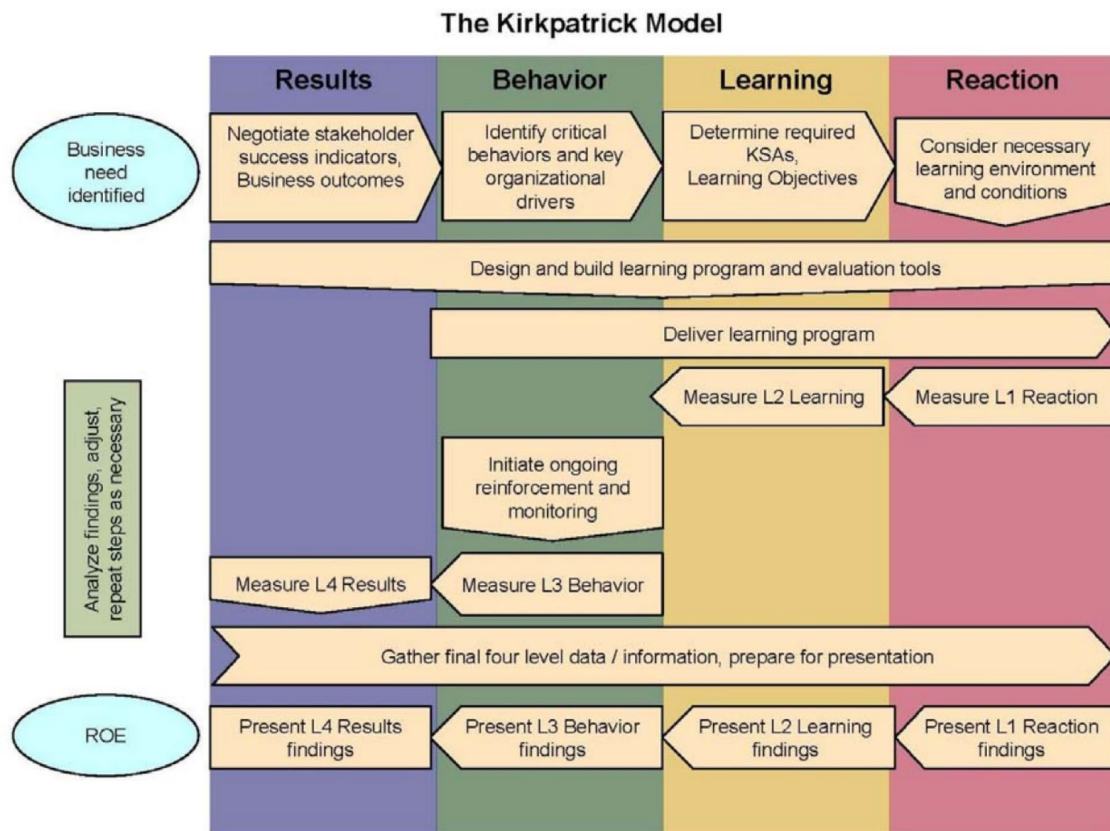
Appendix B

Models and Frameworks

Figure B1*Bandura's Self-Efficacy Theory*

(Bandura, 1977)

Figure B2
The Kirkpatrick Model



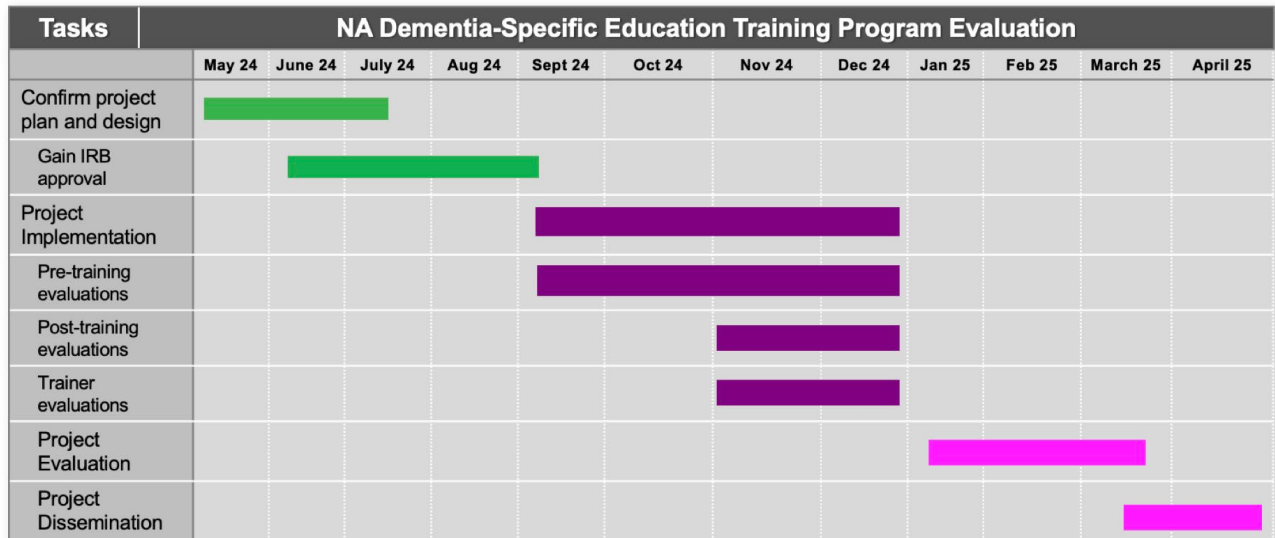
(Kirkpatrick & Kayser-Kirkpatrick, 2009)

Appendix C

Project Timeline

Figure C1

NA Dementia-Specific Education Training Program Evaluation Timeline



Appendix D

Instrumentation

Figure D1

Confidence in Dementia Scale (CODES)

1. I feel able to identify when a person may have a dementia.

Not able	Somewhat able	Very able
_____ 1 _____	_____ 2 _____	_____ 3 _____
_____ 4 _____	_____ 5 _____	

2. I feel able to understand the needs of a person with dementia when they can communicate well verbally.

Not able	Somewhat able	Very able
_____ 1 _____	_____ 2 _____	_____ 3 _____
_____ 4 _____	_____ 5 _____	

3. I feel able to understand the needs of a person with dementia when they cannot communicate well verbally.

Not able	Somewhat able	Very able
_____ 1 _____	_____ 2 _____	_____ 3 _____
_____ 4 _____	_____ 5 _____	

4. I feel able to interact with a person with dementia when they can communicate well verbally.

Not able	Somewhat able	Very able
_____ 1 _____	_____ 2 _____	_____ 3 _____
_____ 4 _____	_____ 5 _____	

5. I feel able to interact with a person with dementia when they cannot communicate well verbally.

Not able	Somewhat able	Very able
_____ 1 _____	_____ 2 _____	_____ 3 _____
_____ 4 _____	_____ 5 _____	

6. I feel able to manage situations when a person with dementia becomes agitated.

Not able

Somewhat able

Very able

_____1_____2_____3_____4_____5_____

7. I feel able to gather relevant information to understand the needs of a person with dementia.

Not able

Somewhat able

Very able

_____1_____2_____3_____4_____5_____

8. I feel able to help a person with dementia feel safe during their stay in hospital.

Not able

Somewhat able

Very able

_____1_____2_____3_____4_____5_____

9. I feel able to work with people who have a diagnosis of dementia.

Not able

Somewhat able

Very able

_____1_____2_____3_____4_____5_____

The questionnaire is scored on a five-point Likert scale with anchored ratings of 'not able', 'somewhat able', and 'very able'. It is possible to gain a total score between 9 and 45, with a higher score representing better confidence in working with people with dementia. Cut-off points based on data from original study (Elvish et al., 2014) are as follows: 0-18 = not confident, 19-35 = somewhat confident, 36-45 = very confident.

Figure D2*Psychometric properties for the Confidence in Dementia Scale (CODES) Initial Testing*

Rank order	Item ^a	Mean (SD)	KMO if item deleted	Cronbach's alpha if item deleted
1	I feel able to understand the needs of a person with dementia when they cannot communicate well verbally	2.58 (0.76)	0.86	0.90
2	I feel able to interact with a person with dementia when they cannot communicate well verbally	2.86 (0.82)	0.86	0.90
3	I feel able to manage situations when a person with dementia becomes agitated	3.02 (0.86)	0.95	0.90
4	I feel able to identify when a person may have a dementia	3.02 (0.74)	0.91	0.90
5	I feel able to gather relevant information to understand the needs of a person with dementia	3.15 (0.89)	0.92	0.90
6	I feel able to help a person with dementia feel safe during their stay in hospital	3.37 (0.85)	0.88	0.90
7	I feel able to work with people who have a diagnosis of dementia	3.54 (1.00)	0.91	0.91
8	I feel able to understand the needs of a person with dementia when they can communicate well verbally	3.54 (0.86)	0.92	0.90
9	I feel able to interact with a person with dementia when they can communicate well verbally	3.86 (0.85)	0.88	0.89

^aResponse range 1–5, not able–very able.

(Elvish et al., 2014)

Figure D3*Dementia Attitudes Scale (DAS)***The Dementia Attitudes Scale**

Melissa O'Connor, Ph.D. and Susan H. McFadden, Ph.D.

Please rate each statement according to how much you agree or disagree with it. Circle 1, 2, 3, 4, 5, 6, or 7 according to how you feel in each case. *Please be honest. There are no right or wrong answers.* The acronym "ADRD" in each question stands for "Alzheimer's disease and related dementias."

1. It is rewarding to work with people who have ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

2. I am afraid of people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

3. People with ADRD can be creative.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

4. I feel confident around people with ADRD

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

5. I am comfortable touching people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

6. I feel uncomfortable being around people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

7. Every person with ADRD has different needs.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

8. I am not very familiar with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

9. I would avoid an agitated person with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

10. People with ADRD like having familiar things nearby.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

11. It is important to know the past history of people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

12. It is possible to enjoy interacting with people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

13. I feel relaxed around people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

14. People with ADRD can enjoy life.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

15. People with ADRD can feel when others are kind to them.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

16. I feel frustrated because I do not know how to help people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

17. I cannot imagine taking care of someone with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

18. I admire the coping skills of people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

19. We can do a lot now to improve the lives of people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

20. Difficult behaviors may be a form of communication for people with ADRD.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

(O'Conner & McFadden, 2010)

Appendix E

Budget

Figure E1

Addressing the Gaps in Nursing Assistant Curriculum: Evaluation of a Dementia-Specific Education Program Budget

Projected Project Expenses				
Type of Cost	Activities	Cost	Subtotal	Total
Direct	Personnel			
	Project Lead (DNP Student) \$45/hour x 10 hours/week for 12 weeks	\$5,400		
	Site Champion Medical Director \$100/hour x 1 hour/month for 3 months	\$300		
	Materials for questionnaires including paper and ink to print	\$100		
	Cookies, plates, and napkins for participants \$44 x 4 groups x 2	\$352		
	Review and statistical analysis of results 10hrs x 20/hour	\$200		
			\$6,352	
Indirect	Office space for project lead to develop project, print materials, and analyze data (internet usage, electricity, air conditioning, laptop computer usage and depreciation) for 12 weeks	\$200		
	Gas expenses for project lead to and from NA programs	\$100		
	Intellectus Statistical Software	\$200		
			\$500	\$6,852

Budget Justification:

The budget for this project is an estimate of both direct and indirect costs associated with the project.

Potential Funding Services:

Most of the funding will come from in-kind donations of time and materials or will be funded by the student. Additional potential funding services include applying for a seed grant through the ASU Graduate and Professional Student Association, applying for a special project grant through project site, or this project may be covered under a grant that has already been received by the project site.

Cost Versus Revenue/Savings:

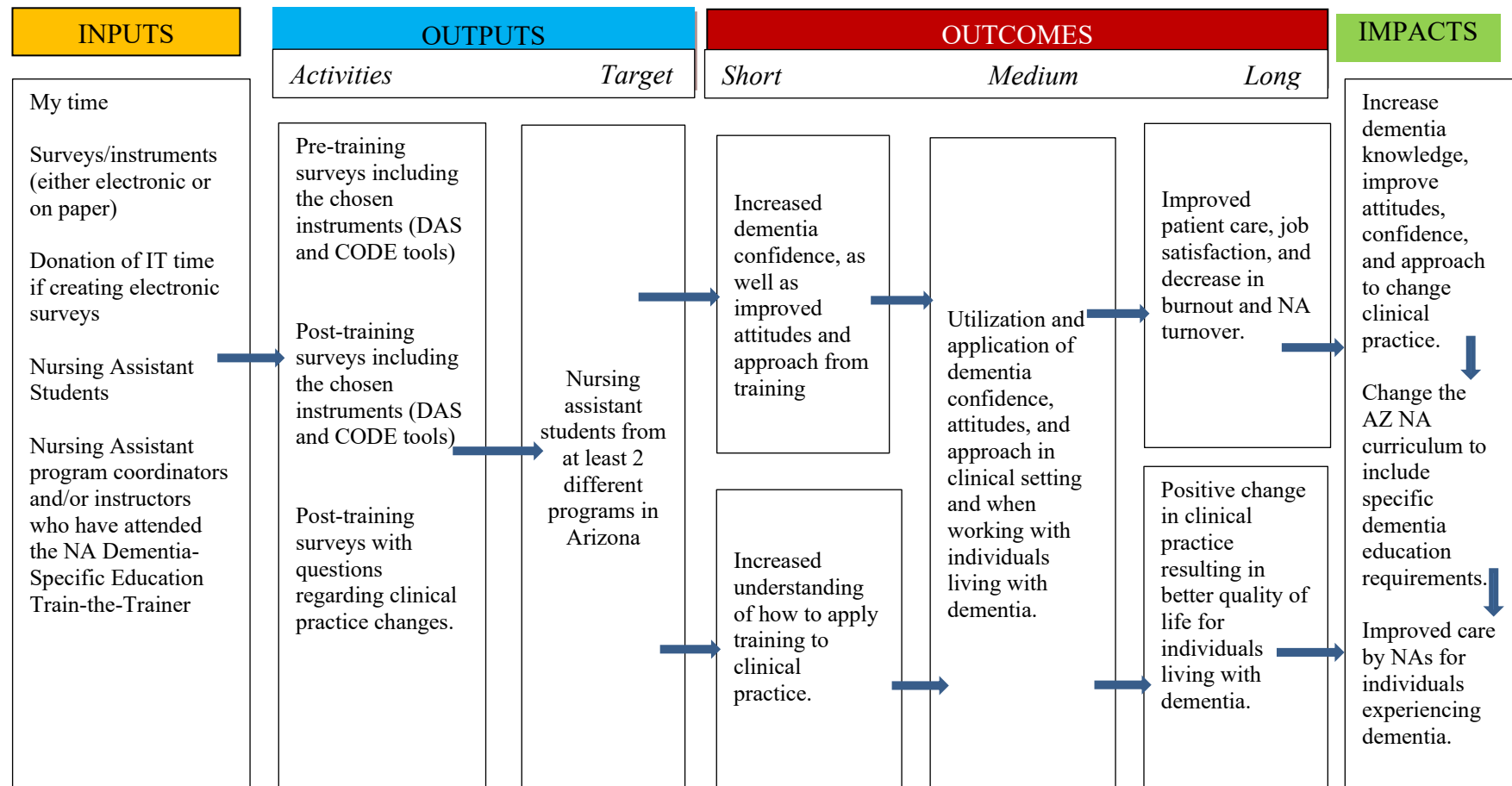
This project may produce future costs savings and future generation of revenue. Understanding whether the NA dementia-specific education Train-the-Trainer program impacts the nursing assistant students' confidence and attitudes towards individuals living with dementia and the impact on clinical practice will determine the future curriculum and use of the program. The goal of the program is to improve nursing assistant attitudes and confidence and to positively impact clinical practice. If this education is not achieving these goals, then the curriculum will need to be rewritten to better address these areas. If the nursing assistant students' attitudes and confidence towards individuals living with dementia improve with the education and/or if clinical practice is impacted, then the site will be able to continue the programming as it is currently. This project may impact future cost savings by decreasing nursing assistant turnover and caregiver fatigue and by increasing job satisfaction. In addition, quality of life may be improved for individuals living with dementia. This project may generate revenue in the future as far as receiving grant funding to continue education in the community at the project site based on the positive outcomes.

Appendix F

Figure F1

Addressing the Gaps in Nursing Assistant Curriculum: Evaluation of a Dementia-Specific Education Program Logic Model

Goals: To determine the impact of dementia-specific education on nursing assistant (NA) students that is presented by a NA instructor that attended the NA dementia education Train-the-Trainer.



Assumptions: The nursing assistant (NA) students will be present to complete pre-training evaluations including tools to measure dementia knowledge, attitudes, confidence, and approach. The NA students will attend the training provided by an instructor or program coordinator that attended the NA dementia-specific education train-the-trainer. The NA students will be present to complete post-training evaluations including tools that were utilized in pre-training evaluation along with a questionnaire about clinical experiences working with individuals living with dementia after receiving the training. The training will result in improved dementia knowledge, attitudes, confidence, approach, and have a positive impact on clinical practice.