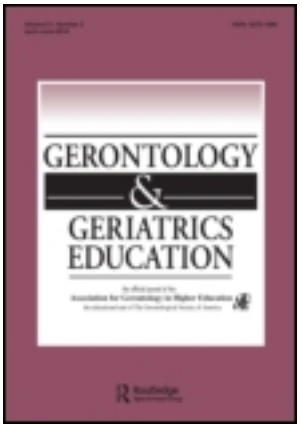

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Evaluation of the Person-Centered Care Essentials Program: Importance of Trainers in Achieving Targeted Outcomes

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Evaluation of the Person-Centered Care Essentials Program: Importance of Trainers in Achieving Targeted Outcomes

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A person-centered care (PCC) training program was developed and disseminated to 84 institutes for retired religious persons across the United States. The program was delivered via a train-the-trainer model wherein institute trainers attended a 2-day training conference, then taught the material to direct care workers (DCWs) at their respective sites. Evaluation of the training showed that DCWs' attitudes toward and knowledge of PCC improved after training. The relationship between trainers' perception of the ability of their site to implement PCC training and DCW knowledge improvement varied by training module. Training regarding the physical environment resulted in the smallest gains in DCW knowledge.

KEYWORDS aging, train-the-trainer, curriculum, personhood theory, dementia

Person-centered care (PCC), also called resident-centered care or individualized care, has been defined as care in which a positive relationship is established which respects the person's life history and preferences, identity is honored, engagement in meaningful activity is ensured, and an overall sense of well-being is encouraged (Kitwood, 1997). As an approach to practice, PCC has steadily gained momentum in the nursing home industry over the last two decades. However, few researchers have implemented

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comprehensive PCC training programs, and fewer have conducted evaluations of such programs. Thus, little is known about the feasibility of such an endeavor or of trainer characteristics that facilitate or hinder PCC initiatives. The purpose of this article is to describe a PCC training program and evaluation of program outcomes. In addition to examining impact of the training on participant knowledge and attitudes, we examine the effects of trainer confidence in site implementation ability on direct care workers' (DCWs) knowledge of PCC.

The concept of the PCC in dementia settings was first set forth in 1997 by Tom Kitwood and his organization The Bradford Dementia Group in England. The literature on PCC points to specific elements of knowing the person (Brooker, 2004; Fazio, 2001; White, Newton-Curtis, & Lyons, 2008), supporting relationships (Brooker, 2007), and autonomy and choice (Holburn, Jacobson, Schwartz, Flory, & Vietze, 2004; Kane et al., 2003; White et al., 2008). These concepts have been further applied to dementia care by William Keane, Project Guide for THE GREEN HOUSE® Project and Beverly Sanborn, Vice-President of Activities and Memory Support Programs at Belmont Village Senior Living, in Mather LifeWays' S.E.L.F. program in a practice called the "Just Right Challenge" (2009). This practice is defined as a "technique for supporting a person's independence and success; finding the right balance between what a person can do for themselves and when they need help; not too much, not too little, just the right amount" (Mather LifeWays Institute on Aging, 2008, p. 15). The principles of PCC addressed in the modules are building a positive relationship that respects the person's life history and preferences, honoring identity, ensuring engagement in meaningful activity, and encouraging an overall sense of well-being.

PCC is one element of culture change in nursing homes, and though culture change has grown into a national movement celebrated at the Annual Pioneer Network Conference, research in this area has not kept pace with the rest of the movement (Rahman & Schnelle, 2008). In their review of research undertaken to assess culture change initiatives, Rahman and Schnelle (2008) asserted that a dearth of empirical studies threatens to derail the culture change movement. Notable efforts to evaluate culture change include studies of three culture change models: Green House, Wellspring, and Eden Alternative (Kane, Lum, Cutler, Degenholtz, & Yu, 2007; Stone et al, 2002; Thomas, 1994; respectively). All resulted in positive findings. Additionally, a few individual initiatives such as training to promote a person-centered approach to bathing (Rader et al., 2006; Sloane et al., 2004) and empowered work teams (Yeatts & Cready, 2007; Yeatts, Cready, & Noelker, 2008) have been evaluated. In a randomized trial, Sloane et al. (2004; and later elaborated upon by Rader et al., 2006) found that person-centered showering and towel baths reduced aggressive incidents and behavioral symptoms in older adults with dementia in nursing homes, compared to traditional bathing techniques. Yeatts and Cready

(2007), in a longitudinal quasi-experiment, implemented a certified nursing assistant (CNA) team empowerment program in select nursing homes that resulted in modest gains in a number of person-centered areas compared to nonempowered teams, including staff attention to resident needs and providing residents choices.

BACKGROUND/OVERVIEW OF PROJECT

The National Religious Retirement Office (NRRO) was established in 1986 to support the 945 Catholic religious institutes of women and men in the United States in assessing and planning for the retirement needs of their growing elderly population. One of NRRO's priorities is to ensure that elder members of the institutes receive quality care and services. In late 2006, NRRO partnered with Mather LifeWays Institute on Aging (MLIA) to develop and evaluate a pilot training program on PCC. The goals of this project were to a) develop and implement an effective PCC training program to improve the skills and competencies of long-term care staff; b) conduct a pre/post process and outcome evaluation of the training program; and c) develop a plan for replication and dissemination of the program and findings.

An advisory group was established to provide input into program content and to recommend potential sites for the pilot training program. Four 1-hour training modules were developed by experts in the four key content areas: teamwork, programming, environment and dementia care. The content experts included a) William Keane (project guide for THE GREEN HOUSE® Project); b) Joanne Rader (independent consultant and author of *Individualized Dementia Care: Creative, Compassionate Approaches*); c) Margaret Calkins (product finder at TechforLTC), and d) Anna Ortigara (vice president of Campaign for Cultural Transformation at Life Services Network). Mr. Bill Keane is a founding board member of the National Pioneer Network and received the Distinguished Service Award from the American Alzheimer's Association. The module on PCC dementia care was developed by Ms. Joanne Rader, who has published numerous scholarly articles and books addressing the emotional needs and behavioral symptoms of persons with dementia. Dr. Margaret Calkins, who developed the environment module, has been at the forefront in elder-centered design since her first book *Design for Dementia* was published in 1988. Finally, Ms. Anna Ortigara, who developed the teamwork module, formerly served as director of Residential Care Services at the Rush Alzheimer's Center and led the Campaign for Culture Change for the Illinois nursing home association. Module development was overseen by Dr. Sam Fazio, Gerontology faculty at Northeastern Illinois University in Chicago and author of two books relating to PCC for individuals with dementia. The program Person-Centered Care

Essentials was promoted to NRRO institutes by e-mail and print communications. Institutes registered with MLIA and agreed to send two participants to a trainer conference, deliver the program within six months, and participate in the evaluation of the program.

Module 1, Building a Person-Centered Care Team, focuses on the role of teams in creating PCC settings. The goal is to foster care teams where all staff and residents are a part of the team. Objectives include having the trainee a) identify three advantages of effective teams in PCC settings, b) discuss three characteristics for intraorganizational staff to come together on successful PCC teams, and c) articulate the meaning of relationships within PCC and how it relates to PCC teams. The second module introduces key terms and conveys the value of "knowing the person." It also introduces tools that can be used to assess the residents' life interests/roles/skills, as well as their functional level for program participation. Objectives of Module 2, Creating Person-Centered Care Programs, include having the trainee: a) discuss two tools to assess the resident according to the principles of PCC for participation in a quality of life program, b) identify the four key elements of person-centered programming, c) describe the four Ps of successful presentation, and d) list three steps for working with individuals or groups. Module 3, Shaping a Person-Centered Care Environment, focuses on using the existing physical environment to better support the provision of PCC. Objectives were to a) describe two environmental interventions staff can implement that enhance a resident's sense of self and identity, b) identify three environmental barriers that limit residents' ability to maximize their independence, and c) list three environmental factors that may lead to the expression of distress or disruptive behaviors. Finally, the last module is designed to familiarize the trainee with seven key elements useful in providing person-centered dementia care. As a result of education in Module 4, Providing Person-Centered Care for People with Dementia, participants will a) list at least two key elements of person-centered dementia care, b) describe the importance of changing caregivers' behaviors in changing the behaviors of the person with dementia, and c) name two behavioral strategies helpful when interacting with persons with dementia.

A two-day train-the-trainer conference took place in Chicago, Illinois, to prepare two representatives ("trainers") from each participating institute to deliver the program to direct care workers (DCWs) within their local institutes. The conference included training on delivering each of the four modules, as well as training on PCC, adult learning principles, overcoming barriers, and implementing the evaluation. Each trainer received a trainer guidebook that included trainer scripts, handouts, glossary of terms, PCC resources, a CD-ROM of PowerPoint slides, and evaluation materials. Following the conference, trainers were expected to deliver all four training modules and conduct the evaluation with care workers within their local institutes.

STUDY HYPOTHESES

Hypotheses for the evaluation of this PCC program centered on a traditional program evaluation framework of pre- versus post-comparisons and on investigating the effects of trainer confidence in site implementation ability on DCWs' knowledge of PCC.

This study was partially exploratory in nature and intended to build on prior geriatric train-the-trainer program evaluations, which have tended to focus solely on data collected from trainers (e.g., Fitzgerald et al., 2009; Kovacich, Garrett, & Forti, 2006; Langer, 1999), or trainees (e.g., Boise, Congleton, & Shannon, 2005; Levine et al., 2007; Schonfeld et al., 1999). The current study utilized data from both trainers (collected at the train-the-trainer conference) and trainees (collected from direct care workers at trainers' home sites).

One piece of data of interest from site trainers was the response to the question, "How confident are you that you will be able to implement this training program back in your community?" This question was included in questionnaires completed by trainers at the initial train-the-trainer conference to assess their perceptions of the ease of implementation of PCC at their home communities. Barriers to implementing PCC in older adult living communities are numerous, and include maintaining a medical-custodial model of care (Eaton, 2000), labor-management dynamics (Leutz, Bishop, & Dodson, 2010), and communication problems (Dalton & Sweeney, 2010). Responses to this question were used in formulating the second hypothesis below.

Prior to data analysis, we hypothesized two outcomes. First, we predicted that DCWs' posttraining PCC attitude and knowledge scores would be higher (improved) than their pretraining PCC attitude and knowledge scores (*Hypothesis 1*). We based this on our belief that the PCC program was teaching them new information, and that they would be able to retain this information following the training. In addition, we believed that this new knowledge would positively affect their views on certain practices having learned that these practices promote PCC.

Second, we hypothesized that DCWs' knowledge scores at sites whose trainers had high confidence in the ease of PCC implementation would improve more between pretraining and posttraining tests than would DCWs' knowledge scores at sites with low-confidence trainers (*Hypothesis 2*).

METHOD

Participants

Trainers. One hundred sixty eight staff members from 84 institutes participated in the program. Slightly more than one half (52%) offered three

levels of care (Independent Living, Assisted Living, and Skilled Nursing) within the institute, and almost three fourths (73%) offered at least two levels of care. Twenty-eight percent contained dementia-specific units.[1] Trainers were staff members, managers, or others who were involved in direct care and who had the capacity to implement the training with the care staff at their communities. Nearly all (96%) were female, and 93% were White. Most (54%) were between age 51 and 65 years, whereas 24% were between age 26 and 50 years, and 22% were age 66 or older. Most (93%) had education beyond a high school diploma, and a majority (55%) had worked at their current location for at least 6 years.

Direct care workers. The secondary target audience was the care staff at the institutes who received training from the conference participants. A total of 1,782 care workers were trained in at least one module within institutes across the United States; 81 institutes (out of 84) returned staff surveys indicating completion of training for at least one module, for an institute response rate of 96%. Numbers of DCWs trained at each institute for each module varied greatly. Among institutes that returned data for all four modules, the smallest number of trained DCWs in an institute was one, and the largest number was 54. DCW numbers for sites returning data for one, two, and three modules completed ranged from one to 78, one to 136, and one to 56, respectively.[2] Most of the care workers who were trained (90%) were female, and 74% were White. Forty percent of them were between age 26 and 50 years, and 36% were between age 51 and 65 years. About one half the care workers (52%) had education beyond a high school diploma, and about one half (51%) had worked at their current location less than 6 years. Most (71%) were full-time employees. Twelve percent of care workers reported a language other than English as their first language.

Outcome Measures

Trainers: Confidence. At the initial train-the-trainer conference, after completing training in all four modules, trainers answered the question, "How confident are you that you will be able to implement this training program back in your community?" using a 1 (*not at all confident*) to 4 (*very confident*) scale.

Direct care workers: PCC attitudes. Prior to and after training, DCWs completed a survey containing eight items measuring their attitudes toward various facets of PCC. Participants indicated their agreement to each item (e.g., "The resident should always be a member of the care team") on a 1 (*strongly disagree*) to 4 (*strongly agree*) Likert-style scale. All items were coded so that a higher score indicated a more positive attitude toward PCC. Because of low scalar internal consistency (Cronbach's $\alpha_{pre} = .54$; $\alpha_{post} = .56$) and correlations between items, analyses were based on each item individually, rather than on the eight items together as a scale.

To determine whether the DCWs' posttraining attitude scores improved relative to pretraining scores, we examined the mean of participant scores on each PCC attitude item, at pre- and posttraining time points.

Direct care workers: Knowledge tests. Before and after training for each module, DCWs completed a multiple-choice knowledge test developed by project staff. Each multiple choice item was scored as either correct or incorrect. The number of correct items was summed across modules to compute overall pre- and posttraining knowledge scores for each DCW. Knowledge tests for modules 1 (Building a Person-Centered Care Team; $KR20_{pre} = .19$, $KR20_{post} = .36$), 3 (Shaping a Person-Centered Care Environment; $KR20_{pre} = .16$, $KR20_{post} = .24$), and 4 (Providing Person-Centered Care for People with Dementia; $KR20_{pre} = .34$, $KR20_{post} = .46$) each contained three items, and Module 2 (Creating Person-Centered Care Programs; $KR20_{pre} = .23$, $KR20_{post} = .36$) included four items, making the highest score across all thirteen items a "13." Content experts for each area created their respective multiple-choice items based on learning objectives for their module. Draft questions were revised by the project coordinator, who was skilled in instructional design, and reviewed by Mather LifeWays researchers, expert trainers, and an expert advisory group. To determine whether DCWs' posttraining knowledge scores improved relative to pretraining, we compared the mean DCW pre- and postmodule knowledge scores for each of four modules, and the means of premodule and postmodule test scores summed across all four modules.

Independent Variables

Trainer confidence. For the most part, trainers were confident that they could implement the training program in their community, as indicated by a median score of 3.00 (mean score of 3.24) on the 4-point scale; 61.2% of participants answered *fairly confident* ("3" on the scale), and 31.6% answered *very confident* ("4" on the scale). Trainers answering *very confident* ($n = 48$) were labeled "high-confidence," and trainers providing any other answer ($n = 93$) were labeled "low-confidence." Sites were classified as "high confidence" if at least one trainer (of the two from that community) was very confident, or "low confidence" if neither trainer was very confident. These two levels made up the trainer confidence independent variable. The high-confidence group included 791 DCWs representing 46% of the sites, and the low-confidence group included 1,014 DCWs representing 54% of the sites.

Procedure

After attending the conference, trainers returned to their home institutes to train their direct care staff. They were instructed to administer premodule

knowledge tests to DCWs before training them in each module, and to administer postmodule knowledge tests at the completion of each module. Institute trainers mailed DCWs' knowledge tests back to program evaluators at MLIA, who analyzed the data.

RESULTS

Impact of PCC Training on DCWs' Knowledge and Attitude Scores

> *Hypothesis 1:* DCWs' knowledge of PCC and attitude scores will improve from pre- to posttraining.

Based on a series of chi-square tests, DCWs' attitudes[3] significantly changed from pre- to posttraining for all eight items (see Table 1 for frequencies of responses to each item and chi-square comparisons).

To assess DCW knowledge change by module, pretraining and posttraining PCC knowledge mean scores across all items in the module were calculated, and then compared via a paired-sample t test.[4] Knowledge scores improved significantly from pretraining to posttraining in each module (see Table 3). In Module 1 (Building a Person-Centered Care Team), DCWs improved from a mean of 1.81 (SD = .87) to 2.21 (.88), $t(1804) = 17.74$, $p < .0001$. In Module 2 (Creating Person-Centered Care Programs), DCWs improved from a mean of 1.87 (1.00) to 2.86 (.94), $t(1077) = 27.89$, $p < .0001$. In Module 3 (Shaping a Person-Centered Care Environment), DCWs improved from a mean of 1.24 (.87) to 1.80 (.91), $t(1086) = 18.67$, $p < .0001$. In Module 4 (Providing Person-Centered Care for People with Dementia), DCWs improved from a mean of 1.57 (.96) to 2.40 (.82), $t(1149) = 27.14$, $p < .0001$.

Effect of PCC Trainers' Confidence on DCW Improvement

> *Hypothesis 2:* DCWs' knowledge scores at sites whose trainers had high confidence in the ease of PCC implementation will improve more between pretraining and posttraining tests than will DCWs' knowledge scores at sites with low-confidence trainers.

For Hypothesis 2 to be supported, Trainer Confidence × Time interactions should be evident, showing that improvement was greater from pretest to posttest for DCWs with high-confidence trainers than from those with low-confidence trainers. A 2 (Trainer Confidence: low or high) × 2 (Time) ANOVA was performed using DCW knowledge premodule and postmodule scores summed across all modules as dependent variables. Only participants

TABLE 1 Frequencies of Direct Care Workers' Pre- and Postmodule Responses to Attitude Items

Item	*N*	% Strongly disagree Pre/Post	% Disagree Pre/Post	% Agree Pre/Post	% Strongly agree Pre/Post	χ^2
1. Teams work best when individual staff members only do their job.[a]	1666	63.3/70	18.4/15	8.8/7.6	9.5/7.3	1043.4*
2. The resident should always be a part of the care team.	1661	3.6/3.8	6.6/3.1	24.3/14.3	65.6/78.7	433.8*
3. Person-centered care assumes that everything we do is an activity.	1054	8/4	13.5/4.1	42.1/10.5	36.4/81.4	195.4*
4. Activities must always be implemented as planned (staying on schedule and focusing on producing a final product).[a]	1045	35.2/45	24.7/19.5	25.1/18.9	15/16.6	594.8*
5. A person-centered care environment can support residents in maintaining their independence.	1065	5.2/4.3	3/1.1	22.6/13.6	69.2/80.9	572.2*
6. A building is what it is – there are not many ways to make it person-centered without major renovations or large budgets.[a]	1053	52.4/58.2	24/18.2	16.6/12.9	6.9/10.6	745.7*
7. People with dementia often act in certain ways intentionally to manipulate their caregivers.[a]	1124	59.4/67.8	19.2/13.6	16.1/11.7	5.2/6.9	651*
8. People with dementia have the capacity to live, love, and lead happy and meaningful lives.	1133	4.2/3.5	8.9/3.6	33.4/18.1	53.5/74.8	494.2*

[a]Item was reverse-scored.

*$p < .001$.

($n = 498$) completing all four modules were used for this analysis. There was a main effect for time, indicating that DCWs scored higher on posttests than pre-tests, $F(1, 496) = 444.88$, $p < .0001$. The Time × Confidence Group interaction we had hypothesized was absent, as DCWs from high-confidence trainer sites did not improve significantly more from pretest to posttest than DCWs from low-confidence trainer sites did, after summing all modules' scores together (see Table 2 for descriptive statistics based on confidence groups).

We further investigated the changes in DCW knowledge scores from pretest to posttest by examining scores from each of the four modules that made up the program's content. To determine if the main effects and interactions were present in some modules and not others, individual 2 (Trainer Confidence: low or high) × 2 (Time) ANOVAs were performed for each module, using the DCW pre- and posttest scores for that module as dependent variables (see Table 3 for descriptive statistics for module analyses based on confidence groups).

Module 1 (Building a person-centered care team). There was a main effect for time, indicating that DCWs scored higher on the Module 1 posttest than the pretest, $F(1, 1803) = 317.73$, $p < .0001$. The interaction between time and trainer confidence group was not significant, failing to support Hypothesis 2.

Module 2 (Creating person-centered care programs). There was a main effect for time, showing that DCWs scored higher on the Module 2 posttest than the pretest, $F(1, 1076) = 812.07$, $p < .0001$. There was a significant interaction between Time and Trainer Confidence Group, $F(1, 1076) = 32.78$, $p < .0001$, suggesting that DCWs from high-confidence sites improved more than DCWs from low-confidence sites, supporting Hypothesis 2.

Module 3 (Shaping a person-centered care environment). There was a main effect for time, $F(1, 1085) = 347.49$, $p < .0001$. The interaction between

TABLE 2 Descriptive Statistics of Direct Care Workers' (DCWs) Pre- and Postmodule Knowledge Test Scores Arranged According to Site Confidence Group for DCWs Who Completed All Four Modules

	N	Pretraining *M* (*SD*)	Posttraining *M* (*SD*)	Improvement
Trainer confidence in site implementation ability				
Low	269	6.97[a] (2.40)	9.36[a] (2.35)	2.39[b]
High	229	6.34[a] (2.35)	8.76[a] (2.61)	2.42[b]
Total	498	6.68 (2.40)	9.08 (2.49)	2.40[b]

[a]Mean confidence group scores are different from one another within time point at $p < .001$ level based on *t* test with Bonferroni adjustment.

[b]Posttraining mean score significantly different than pre-training mean score at $p < .001$ level based on *t* test with Bonferroni adjustment.

TABLE 3 Descriptive Statistics of Direct Care Workers' Pre- and Postmodule Knowledge Test Scores Arranged According to Site Confidence Group and Time for Each Module

	N	Premodule *M* (*SD*)	Postmodule *M* (*SD*)	Improvement
Module 1: Building a Person-Centered Care Team				
Low	1014	1.81 (.89)	2.18 (.91)	.37[c]
High	791	1.81 (.84)	2.25 (.84)	.44[c]
Total	1805	1.81 (.87)	2.21 (.88)	.40[c]
Module 2: Creating Person-Centered Care Programs				
Low	560	2.03[a] (1.06)	2.83 (.92)	.80[c]
High	518	1.70[a] (.91)	2.90 (.96)	1.20[c]
Total	1078	1.87 (1.01)	2.86 (.94)	.99[c]
Module 3: Shaping a Person-Centered Care Environment				
Low	589	1.26 (.89)	1.80 (.95)	.54[c]
High	498	1.22 (.84)	1.79 (.87)	.57[c]
Total	1087	1.24 (.87)	1.80 (.91)	.56[c]
Module 4: Providing Person-Centered Care for People with Dementia				
Low	720	1.58 (.94)	2.36[b] (.82)	.78[c]
High	430	1.55 (.99)	2.47[b] (.81)	.92[c]
Total	1150	1.57 (.96)	2.40 (.82)	.83[c]

[a]Mean confidence group scores are different from one another within module and time point at $p < .001$ level based on *t* test with Bonferroni adjustment.
[b]Mean confidence group scores are different from one another within module and time point at $p < .05$ level based on *t* test with Bonferroni adjustment.
[c]Posttraining mean score significantly different than pretraining mean score at $p < .0001$ level based on *t* test with Bonferroni adjustment.

Time and Trainer Confidence Group was not significant, failing to support Hypothesis 2. Scores were almost identical across confidence groups within time points (see Table 3).

Module 4 (Providing Person-Centered Care for People with Dementia). Again there was a main effect for time, $F(1, 1148) = 722.50$, $p < .0001$. The interaction between Time And Trainer Confidence Group was significant, $F(1, 1148) = 5.07$, $p < .05$, suggesting that DCWs from high-confidence sites improved more than DCWs from low-confidence sites, supporting Hypothesis 2.

Partial support was found for the prediction that DCWs from higher-confidence trainer groups improved more than DCWs from lower-confidence trainer groups, with significant interactions detected within Modules 2 and 4.

DISCUSSION

This manuscript reports findings of an evaluation of a PCC program in which trainers from retired religious institutes across the U.S. were trained in PCC (PCC) principles. Those trainers returned to their home communities where they trained direct care workers in PCC and administered tools to assess the degree of improvement in staff attitudes and knowledge.

The findings that PCC training improved DCWs' attitudes and knowledge about PCC were not surprising. Although DCWs improved in posttraining knowledge scores in each of the four modules (teamwork, programming, environment, dementia care) compared to pretraining, improvement scores for Module 3 (environment) were noticeably lower than those for the other modules, with fewer than two out of three questions being answered correctly on average before and after training. This may be due to trainers' and DCWs' lack of knowledge about the topic of the module, namely environmental factors related to PCC. The fact that Module 3 scores were lower than the other modules at pretest and posttest support this idea. Or, perhaps respondents had worked in their locations for a long time without seeing major renovations, leading to a sentiment that physical surroundings were not as important as human factors in their unit, such as relationships with residents or staff practices. A related possibility is that DCWs viewed the physical environment as more relevant to nursing home administrators' responsibilities, instead of their own, which were more focused on caregiving.

This combination of a lack of knowledge about environmental design and a belief that buildings cannot become person centered without major renovations suggests the need for more and/or improved training related to communities' physical infrastructures and innovative cost-efficient ways of transforming a building's environment to become more person centered. The importance of a building's physical environment in promoting resident quality of life has been frequently highlighted, especially regarding the conceptualization and development of valid measurement instruments (see Cutler, Kane, Degenholtz, Miller, & Grant, 2006; Kane & Cutler, 2009; Rodiek, 2008; White et al., 2008). Yet more programs oriented toward the implementation of environmental design research findings, such as those described in Brawley (2006), are needed. An example of a program intended to improve the physical environment of senior living communities is Rodiek's (2009) *Access to Nature: Planning Outdoor Space for Aging* DVD series, in which researchers and designers promote the use of accessible outdoor space to improve resident quality of life by implementing low-cost changes to physical surroundings.

Physical design is an important part of the PCC experience. The physical design of a senior living community often can be the most salient feature in staff and resident's perceptions of that community. At the same time,

physical design may be perceived as the least malleable aspect of a community. Research should continue in this area. Besides the aforementioned work in older adult living communities, the physical environment has been emphasized as a key part of the PCC experience in occupational therapy (Robertson & Fitzgerald, 2010) and senior mental health services (Snowdon, 2007) as well.

The predicted interaction between confidence and time posited that DCWs from sites with high-confidence trainers would improve more from pretraining to posttraining than DCWs from sites with low-confidence trainers. When all four modules were examined together, this interaction was not found, yet it was present in individual modules. Namely, it occurred in Modules 2 (PCC programs) and 4 (dementia care). In these two modules, DCWs from sites with high-confidence trainers improved more over time in PCC knowledge than DCWs from sites with low-confidence trainers. This larger improvement at sites with high-confidence trainers could be due to those trainers already having the knowledge that DCWs in their home community are eager to learn PCC principles.

The differences in impact of trainer confidence across modules could have been due to module content. Module 1, Building a Person-Centered Care Team, was oriented around teamwork and relationships. Module 3, Shaping a Person-Centered Care Environment, was oriented around transforming a physical space to become more person centered, which, as previously discussed, was a difficult concept for most DCWs to grasp. Modules 2, Creating Person-Centered Programs Environment, and 4, Providing Person-Centered Care for People with Dementia (the modules where there was a relationship between confidence and DCW improvement) were more oriented toward the actual practice of providing PCC. It could be that trainers coming to the initial train-the-trainer conference felt more confident in these specific areas, after being trained, than they did in teamwork and environment, and that confidence was translated to their DCWs as knowledge gains. In future studies examining trainer confidence in implementation ability, trainer confidence in specific areas, as opposed to the current study's global approach, should be investigated.

Limitations

The fact that DCWs improved their knowledge scores from pretest to posttest in all four module content areas may lead a skeptical observer to wonder if practice effects—improvements in performance due to repeated administrations of a test in the absence of interventions (Bartels, Wegrzyn, Wiedel, Ackermann, & Ehrenreich, 2010)—might have been the cause of improvement. Because no nonintervention control group was utilized in this study, we cannot rule out entirely that participants may have benefitted from

completing measures twice (once before training and once after). However, practice effects tend to be evident more in tests of psychoneurological, cognitive, or motor functioning than in recognition tests (Bartels et al., 2010), which the multiple-choice tests used in the current study would qualify as. Nevertheless, it is possible that participants' higher scores may have at least partially come from an increase in comfort due to taking the test a second time, or an increase in procedural knowledge of how to take the test, rather than actual increases in knowledge as a result of attending the training. In future studies, the use of a nonintervention control group could account for increases in knowledge due to practice effects; however, due to time and logistical constraints involved in administering applied knowledge tests in the field, it seems an unnecessary luxury.

Knowledge tests consisted of three or four items per module. Although keeping the tests brief allowed for quick administration, each module showed questionable internal consistency in pretest and posttest form, as evidenced by low KR-20 coefficients. In future efforts, attempts should be made to construct items more uniform in difficulty, and to provide more items per module to measure knowledge gained in that area, to provide higher internal consistency.

Although this study's findings are based on relatively high numbers of trainers and DCWs across the country, there are limitations to its generalizability. The sample consisted solely of trainers and staff of senior living communities for retired Catholic leadership (e.g., nuns and priests). These staff may be different from other staff from less religious or nonreligious settings. For example, we learned in posttraining follow-up phone interviews that the staff at these institutes had few opportunities to participate in professional development training. That lack of opportunity could have made them more enthusiastic about participating in the PCC training and to enact the training.

Trainer confidence in implementation ability is a multifaceted construct. Besides being examined in relation to specific knowledge areas, it could also be examined with finer detail. The current study's construct of trainer confidence was only measured on a 4-point scale, and with levels of *not at all confident*, *somewhat confident*, *fairly confident*, and *very confident*, its scalar properties could be questioned. Future studies of trainer confidence as construct should view it as more of an interval scale and include at least five response choices, to allow more variance in answers. Trainer confidence as a dependent variable could also be investigated, with potential predictors including trainer's years of experience, management's receptiveness to change, or trainer personality traits such as extraversion or openness to experience.

Most of this study's hypotheses and findings focused on changes in PCC knowledge, with the exception of our initial question, which dealt with PCC attitudes. For a more comprehensive evaluation of the effect of PCC

training, additional constructs should be assessed. Namely, behaviors should be included as an outcome measure. In the current study, behaviors were indirectly assessed via self-report measures, but those data were not included in analyses because of measurement inconsistencies.[5] Future studies of PCC training implementation should include valid measures of self-reported and observed staff behaviors, as well as measures of changes in resident quality of life.

Conclusion

Despite the study's limitations, DCW improvements in knowledge of specific content areas should be of use for future design and implementation of PCC training programs. Specifically, modules relating to PCC programs and dementia care seemed to be the most well received, followed by the module pertaining to teamwork. Changing a senior living community's physical environment to support PCC was a topic that appeared difficult for DCWs to master. Although the current study's findings relating to trainer confidence are far from conclusive, it would be wise for future train-the-trainer evaluations to incorporate trainer-level variables to explore this area further. Doing so could lead to a deeper understanding of train-the-trainer dynamics that would be worthwhile to both researchers and practitioners.

NOTES

1. Trainer confidence, direct care worker PCC knowledge, and direct care worker PCC attitudes did not vary across types of institutes.

2. Several sites returned data lacking consistent DCW identifiers, therefore we were unable to match knowledge tests across modules, resulting in disproportionately low numbers of DCWs verifiably completing multiple modules.

3. Due to their lack of scalar properties, the PCC Attitude items were not included as additional variables in further hypotheses.

4. *t* tests were performed for each module using means from participants who completed a pre- and posttest for that module. *N*s for each module varied greatly based on variation in site training schedules and in numbers of sites returning correctly coded data for each module.

5. The construct PCC Practice was assessed at pretraining and posttraining, but questions varied across time points and were unable to be analyzed in a valid matched-samples technique.

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