Interpersonal Complexity: A Cognitive Component of Person-Centered Care

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Purpose: This study concerns one component of the ability to provide person-centered care: the cognitive skill of perceiving others in relatively complex terms. This study tested the effectiveness of a social motivation for increasing the number of psychological constructs used to describe an unfamiliar senior citizen. Design and Methods: Forty-four certified nurse aide students participated. Students were mostly 30-year-old (M = 31) females (86%) with a high school education (72%). A quasi-experimental design was used. Early in training, participants completed the Role Category Questionnaire (RCQ), which measured their interpersonal cognitive complexity. On the basis of their RCQ scores, participants were matched and assigned to the experimental or control condition. Five weeks later, participants viewed a 15-min videotaped biography of an unfamiliar senior citizen—Mitch. Participants in both conditions were told they would be asked to describe Mitch as a person after watching the video. Only participants in the experimental condition were additionally asked to imagine that they would be having a personal conversation with him afterward. Results: As hypothesized, participants in the experimental condition (M = 14.6) used more constructs to describe Mitch than did participants in the control condition (M = 11.8): F(1, 41) = 4.03, p < .05. Participants’ RCQ scores were significantly correlated with the complexity of their descriptions of Mitch. Implications: The findings suggest that new training materials should be created that include experienced certified nurse aides’ modeling how biographical and personal information can be used in caregiving tasks to gain residents’ cooperation.

Key Words: Person-centered care, Certified nurse aides, Interpersonal cognitive complexity, Nurse aide training

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Interpersonal Cognitive Complexity

Interpersonal cognitive complexity refers to the number of psychological constructs that people use
to describe others. A psychological construct—for example, friendly—is distinguished from a physical construct used to describe someone—for example, bald—and from a behavioral description—for example, eats slowly. People who use more psychological constructs to describe others are said to have more differentiated perceptions of others. Over 30 years of research in the communication literature documents an association between interpersonal cognitive complexity, as assessed by the Role Category Questionnaire (RCQ; Crockett, 1965), and person-centered communication skills (Burleson & Caplan). People with higher levels of interpersonal cognitive complexity have more ability to understand the perspectives of others, demonstrate more empathy, make more situational attributions, and are able to generate more potential explanations for others’ behaviors (Burleson & Caplan). To date, research has included daycare workers, nurses, police officers, and organizational managers (Burleson & Caplan; Kasch, Kasch & Lisnek, 1987; Sypher & Zorn, 1986). One of our goals in this study was to assess the range of interpersonal cognitive complexity in a population of CNA students.

A second goal was to test the predictive validity of the RCQ. The RCQ involves asking people to describe others with whom they are familiar. It would be expected that perceivers who used a relatively large number of constructs to describe people they knew would also use a relatively large number of constructs to describe people to whom they had just been introduced. We tested this idea by asking CNA students to view a 15-min videotaped biography of an unfamiliar resident of a long-term-care community, and then to describe him. We hypothesized that students with high RCQ scores would use more constructs to describe the resident.

**Balance and Interpersonal Cognitive Complexity**

A third goal of the study was to test the hypothesis that perceivers with high levels of interpersonal cognitive complexity would perceive others in more balanced ways. Balance would be desirable because it would likely be associated with being less judgmental. Several studies support this hypothesis.

Linville and Jones (1980) demonstrated that people who perceived more complexity in others were more likely to judge them moderately—that is, neither extremely negatively nor extremely positively. Brewer and Pierce (2005) demonstrated that individuals with higher levels of social identity complexity—that is, people who perceived themselves to be members of a wide variety of groups—were more tolerant of “outgroup” members than were people with lower levels of social identity complexity—that is, people who perceived themselves as members of relatively few groups. We hypothesized here that more complex perceivers would use almost as many constructs to describe a “liked” as a “disliked” peer. In contrast, we predicted that less complex perceivers would use many fewer constructs to describe a disliked versus a liked peer.

Also of interest was whether CNAs who found the resident more likable would use more psychological constructs to describe him. A common finding in the RCQ literature is that people use more constructs to describe liked versus disliked others (Crockett, 1965). It is plausible that if an audience likes someone who is presented in a video, that audience will attend more closely to information about that person. In this study, we explore the association between the resident’s likeability and the number of constructs that CNA students used to describe him.

**Increasing Interpersonal Cognitive Complexity Through Training and Motivation.**—The literature in social cognition and communication conceptualizes interpersonal cognitive complexity as an individual difference variable rather than a personality variable. Cognitive complexity is conceptualized as a skill, and people are considered to be relative novices or relative experts (Burleson & Caplan, 1998). Adults have higher levels of interpersonal cognitive complexity than children, and more sociable adults have higher levels of interpersonal cognitive complexity (Burleson & Caplan; Crockett, 1965; Feldman & Ruble, 1981). Interpersonal cognitive complexity, as measured by the RCQ, is not strongly associated with IQ or with loquacity (Burleson & Caplan).

If interpersonal cognitive complexity is a skill, then one would expect that it could be taught. Several studies have reported success in increasing the interpersonal cognitive complexity of counseling students. One study demonstrated success after 2 years of training (Brendel, Kolbert & Foster, 2002); another study after a semester (Duys & Hedstrom, 2000). Both studies used role play, observations, feedback, and opportunities for students to reflect on their own practice. It would be desirable to develop shorter-term techniques for increasing cognitive complexity.

**Increasing Interpersonal Cognitive Complexity Through Motivation.**—Dual process theories of person perception in the social cognition literature suggest that another way to increase the complexity of CNA students’ perceptions of others would be to motivate students to pay closer attention to personal and biographical information about residents.

Dual process theories hypothesize that person perception is relatively automatic and stereotype driven under one set of circumstances, and relatively controlled and data driven under other circumstances. Dual process models of person perception
(Kunda, 2002) hypothesize that perceivers are stereotype driven when they are cognitively busy or when interactions are relatively superficial and rushed. Within the aging literature, elderspeak (Hummert, 1999) is a negative example of automatic processing. In contrast, perceivers have been shown to process information about others more carefully when they are motivated to do so. For example, in social cognition studies, people attend more carefully to information about others if this information will be used to select a team member in a competitive game (Kunda). Within the aging literature, nurse aides who adjust their behaviors to resident’s characteristics—for example, waking a resident at a certain hour to avoid incontinence—exemplify more controlled processing of information (Bowers, Fibich, & Jacobson, 2001).

In one study of person perception, Devine, Sedikides, and Fuhrman (1989) demonstrated that simply anticipating an interaction with another person can motivate people to recall more information, as well as more accurate and better integrated information about that person. One goal of the present study was to test the applicability of the dual process theory of person perception to the case of CNA students. We hypothesized that CNA students would perceive more complexity in a videotaped biography of a resident if they were motivated by a social interaction goal. We had half of the CNA students in the present study instructed to imagine that they were going to have a personal conversation with the resident to whom they were introduced by means of a videotaped biography. Demonstrating that these CNA students absorbed more personal and biographical information would have implications for the creation of training materials. Support for the study hypothesis could guide the creation of training materials that present personal and biographical information about residents in ways that show how this information can be used to gain the cooperation and minimize the opposition of residents to caregiving tasks such as dressing and feeding.

In summary, our goals were to (a) assess individual differences in interpersonal cognitive complexity within a population of CNA students; (b) test the hypothesis that interpersonal cognitive complexity, as measured by the RCQ, would be highly correlated with the complexity that CNA students perceived in an unfamiliar resident to whom they were introduced by means of a brief videotaped biography; (c) test whether CNA students who were high in interpersonal cognitive complexity would use a more equal number of constructs to describe both liked and disliked peers than would CNA students who were lower in complexity; and (d) test the hypothesis that an instruction to anticipate an interaction with a resident, after viewing a videotaped biography of that resident, would cause CNA students to perceive more complexity in the resident.

### Methods

#### Design

We used a quasi-experimental design in our study. Participating CNA students completed RCQs during their first of 6 weeks of classes. Coders, working with researchers, then calculated RCQ scores based on the number of psychological constructs they judged participants had used to describe a liked and then a disliked peer. On the basis of their RCQ scores, we matched and assigned participants to the experimental or control condition so that participants in both conditions were equivalent in terms of average RCQ scores. Several weeks later, during the last day of the training session, instructors asked participants to view a 15-min videotaped biography of a senior citizen, “Mitch,” whom they had not met. Instructors told participants in both the experimental and control conditions that they would be asked to describe Mitch, as a person, after watching the video. Only participants in the experimental condition were additionally asked to imagine that Mitch was in the next room and that they would be having a personal conversation with him after watching the video.

After watching the video, participants described Mitch. Coders scored their descriptions, counting the number of psychological constructs participants used to describe Mitch. Instructors also asked participants to make judgments about how much they liked Mitch and how useful the video would be if they were actually taking care of Mitch. We carried out this same cycle of steps with each of three successive classes of CNA students, during the length of the spring 2004 semester.

We used an analysis of covariance (ANCOVA) to analyze the effect of the independent variable—anticipating a personal interaction with Mitch or not—on the dependent variable—the number of psychological constructs participants used to describe Mitch. We used participants’ RCQ scores as the covariate.

#### Participants

Participants in this study were students enrolled in one of three daytime CNA training courses offered by an area technical college during the spring semester, 2004. Each class included approximately 20 students with a consistent drop-out rate of about 20%. We used data from 44 students in this study. Nine of the originally enrolled 53 students dropped out of the program prior to completion.

Most of the participants were female (88.6%); they ranged in age from 20 to 41 years ($M = 31$ years, $SD = 9.6$ years). Educational attainment ranged from 8th grade (2.3%) to a bachelor’s degree (12%).
Materials

The RCQ.—We used Crockett’s (1965) RCQ to measure participants’ interpersonal cognitive complexity. Completion of the two-person version of the RCQ required each participant to describe a liked and a disliked same-age peer. At the request of technical college instructors, we simplified the wording of the standardized form (Burleson & Waltman, 1988) and added prompts: “What are this person’s values? What do you like or dislike about how this person treats others?” According to Burleson and Caplan (1998), the RCQ is flexible in structure and administration without compromising its validity. We had the instructors give the participants two sheets on which to write their descriptions of each peer.

Coders counted the number of psychological constructs participants used to describe the liked and disliked peers, and they summed these to calculate each participant’s RCQ score.

We then constructed the following index of balance in order to test the hypothesis that CNA students who were high in interpersonal cognitive complexity would use a more equal number of constructs to describe both liked and disliked peers:

\[
\text{RCQ score} = \left(1 - \frac{\text{no. of constructs used to describe liked peer}}{\text{no. of constructs used to describe disliked peer}}\right)
\]

As one can see from inspection, we constructed the index so that it was of maximum value—closest to 1—when participants used an equal number of constructs to describe liked and disliked peers. In contrast, the index was closer to 0 when participants used many more constructs to describe a liked peer than a disliked peer.

Measuring the Complexity of Perceptions of Mitch, an Unfamiliar Resident.—Instructors introduced participants to Mitch by means of a 15-min videotaped biography, which we created in collaboration with a local continuing care retirement community (Medvene & Base, 2002). After viewing the video, participants were asked to describe Mitch and were prompted by the same questions posed in the RCQ: for example, “What are Mitch’s values? What do you like or dislike about how Mitch treats others?” Instructors gave participants two sheets on which to write their descriptions of Mitch.

Mitch’s Likeability and the Usefulness of the Video.—After watching the video and describing Mitch as a person, participants were asked to rate Mitch’s likeability from 1 (not at all) to 5 (quite a bit). Participants also were asked to rate the usefulness of watching the video of Mitch for taking care of him, from 1, useful (strongly agree) to 5, not useful (strongly disagree). We reversed scored this item so that higher numbers meant more agreement that the video would be useful to the participants if they had to take care of Mitch.

Demographic Items.—Instructors from the technical college provided information about CNA students’ age, gender, and educational background.

Procedures

Administering the RCQ.—Based on our mutual interests as well as those of the technical college instructors, the instructors presented the RCQ and the exercise of watching the videotaped biography of Mitch as teaching techniques: “This exercise will help you learn about how you look at others. Knowing this may be helpful as you work with residents, and I’m interested in incorporating this into my teaching.” On the basis of standardized instructions, we had participants given a total of 10 min to describe both a peer they liked and a peer they disliked.

Coding the RCQs.—We trained four undergraduate psychology majors to code the RCQ forms. We expanded Crockett’s (1965) codebook to include examples and rules for deciding whether a descriptor would be counted as a psychological construct. After training, coders worked in pairs, coding all responses on the RCQ forms. Overall, interrater agreement for the RCQs was .92. Most disagreements were resolved through group discussion; in the few cases in which this was not possible, L. Medvene or K. Grosch resolved the disagreement.

Watching the Videotaped Biography and Describing Mitch.—We conducted the second portion of this study within the last 2 days of CNA training, after participants had taken their exams. The technical college instructor introduced the videotape by making this statement:

You may remember several weeks ago describing someone you liked and someone you didn’t like. This is a continuation of that activity. Today I’m going to show you a video, and I’m going to ask you to describe the person on the video. I’m showing the video to you because I think it may be a good teaching tool.

After describing Mitch, participants rated Mitch’s likeability and the usefulness of the videotape in taking care of Mitch. The instructor then engaged students in a brief discussion of the video.

Using the codebook developed to code RCQ scores, pairs of coders scored participants’ descriptions of Mitch, counting the number of psychological constructs participants used. Interrater reliability for
Table 1. Correlation Summary Table

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<td>(1) RCQ score</td>
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<td>.39**</td>
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<td>.32*</td>
<td>.19</td>
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<tr>
<td>(2) RCQ balance</td>
<td>—</td>
<td>.45**</td>
<td>.40**</td>
<td>.29*</td>
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<tr>
<td>(3) Mitch complexitya</td>
<td>—</td>
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<td>(4) Mitch likeabilityb</td>
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<td>(5) Task usefulnessc</td>
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Notes: RCQ = Role Category Questionnaire. For the table, $N = 44$.

a Number of constructs used to describe Mitch.
b RCQ Balance Proportion: higher proportions equal more similar number of constructs used to describe both liked and disliked peers.
c 5-point Likert scale: higher scores equal more likeable, or more useful.
*p < .05; **p < .01.

coding participants’ descriptions of Mitch ranged from .93 to .94. Disagreements were resolved by the coders, or with the help of L. Medvene or K. Grosch.

Results

Participants’ RCQ scores ranged from 8 to 48 ($M = 24.9, SD = 10.0$). Participants’ scores on the study outcome variables are displayed in Table 1, including the proportion measuring the balance in the number of constructs that participants used to describe liked and disliked others; the number of constructs that participants used to describe Mitch; Mitch’s likeability; and the perceived usefulness of the videotaped biography for taking care of Mitch.

As one can see from Table 1, Mitch’s likeability was positively correlated with participants’ RCQ scores and the number of constructs they used to describe Mitch. Perceived usefulness of the videotaped biography did not correlate with participants’ RCQ scores or with the number of constructs they used to describe Mitch. The balance proportion was significantly and positively associated with participants who were lower in complexity. This hypothesis was supported. The Pearson’ product–moment correlation between RCQ scores and the balance proportion was $r (44) = .39, p < .01$.

The third hypothesis was that an instruction to anticipate an interaction with an unfamiliar resident, introduced by means of a videotaped biography, would result in participants using more psychological constructs to describe that resident. The matching procedure was effective in equating RCQ scores in the experimental and the control conditions: $M = 24.7, SD = 10.3$ versus $M = 25.1, SD = 9.9$, respectively, $F (1, 42) = .01, p = ns$. We conducted an ANCOVA to assess the impact of the motivational prompt on the number of constructs that participants used to describe Mitch. The covariate was participants’ RCQ scores. ANCOVA results demonstrated a significant main effect of participant condition. The mean RCQ scores were higher in the experimental condition ($n = 23$) than in the control condition ($n = 21$): $M = 14.6$ versus $M = 11.8$, respectively, and $F(1, 41) = 4.03, p < .05$, partial $\eta^2 = .09$ (see Table 2).

Descriptions of Mitch

In order to give the reader a sense of participants’ descriptions of Mitch, we present the following two examples. The first example is from a participant in the experimental condition: “hard worker, respectful for others, positive, enjoys life, committed, intelligent, grateful, religious, giving, well-rounded, funny, happy, well-mannered, adapts well to stress, likes challenges, brave, strong-willed, friendly, talkative, and loving.” The second participant, in the control condition, described Mitch in the following way: “talkative, curious, ambitious, kind, respectful of others, patient, traveler, open-minded, well-mannered, and well-behaved.” This qualitative data was consistent with the questionnaire re-
sponses. The mean of participants’ likeability rating of Mitch was \( M = 4.52 \) on a 5-point Likert scale.

**Discussion**

The study findings supported our research hypothesis that participants’ RCQ scores would be positively correlated with the number of constructs used to describe a novel resident—Mitch. As we predicted, participants with higher RCQ scores described both liked and disliked peers in equally complex ways, consistent with the cognitive complexity literature (Brewer & Pierce, 2005; Linville & Jones, 1980). Finally, consistent with dual process theories of person perception (Kunda, 2002), the complexity of participants’ descriptions of Mitch was increased by an instruction that gave CNA students a social motivation for attending to the biographical and personal information presented about Mitch. The rest of the discussion section explores the implications of these findings for training CNA students who will be working in assisted living facilities or nursing homes. One caveat for this discussion section is that the findings have to be regarded as pilot data, given the small sample size and the involvement of only one site.

**Identifying Individual Differences in Cognitive Complexity**

There was a wide range of individual differences in the amount of complexity that CNA students perceived in others, both familiar and unfamiliar. Participants’ RCQ scores, based on their descriptions of familiar others, ranged from 8 to 48, and the number of constructs they used to describe Mitch, an unfamiliar resident, ranged from 1 to 25. The RCQ literature indicates that short-term interpersonal cognitive complexity is stable (Burleson & Caplan, 1998). The findings here also indicate that participants’ RCQ scores were predictive of the amount of complexity they perceived in an unfamiliar resident. In addition, the findings suggest that CNA students with higher RCQ scores would be more likely to perceive both liked and disliked residents in relatively complex ways. All of these findings suggest that CNAs’ ability to perceive others in relatively complex ways might be one of several criteria for selection and hiring.

**Training CNAs to Perceive More Complexity in Residents**

The instruction to anticipate a personal conversation with Mitch increased the number of constructs participants used to describe him. This finding indicates that simply anticipating a social interaction motivated CNA students to be more data driven in processing information about him. This was a relatively weak manipulation, and future research should involve manipulations with more relevance to the real world of CNAs. It would be powerful to show that the complexity of CNAs’ perceptions of residents can be increased by educational interventions that demonstrate how biographical and personal information about residents can be used to make nurse aides’ jobs easier—that is, gain residents’ cooperation and minimize their opposition to caregiving tasks. We are currently involved in such research (Medvene, 2005).

The finding that CNA students did not think the videotape would be especially useful if they were caring for Mitch was likely because they were inexperienced caregivers and relationships were not emphasized in their training. One implication of this explanation is that person-centered caregiving instructional materials should include having experienced CNAs model how biographical and personal information about residents can be used to accomplish caregiving tasks. For example, knowing that a resident grew up on a farm could be useful. Asking a resident what it was like to work with tractors could distract the resident from moments of indignity when he or she was being bathed. Or, knowing that a resident likes to be in control could cue the CNA to give the resident lots of choices, whether the task be dressing, dining, or bathing. Preliminary findings from a series of interviews with skilled CNAs indicate that they find it useful to think about residents in terms of personal constructs such as how close versus how distant residents want their relationships with them to be; whether residents are talkative, and, if so, what they like to talk about; and residents’ food preferences (Wolcott & Medvene, 2005). These outstanding nurse aides spoke of their instructors’ discouraging them from developing personal relationships with residents. They learned how to develop close relationships in spite of such training. The research that we are currently carrying out involves testing the effectiveness of having experienced peer CNAs teach CNA students how to use such biographical and personal information.

The finding that Mitch’s “likeability” was associated with the number of constructs participants used to describe him also has implications for designing training materials. It suggests that CNAs will attend more carefully to biographical and personal information if this material presents residents in a positive light. Developing such training materials and evaluating their usefulness is an important task for future research.

A significant issue in the development of training materials is the need to know how much complexity is useful for CNAs. For example, is less interpersonal complexity functional in working with greatly impaired residents, whereas more interpersonal complexity is functional in working with higher functioning residents? Is there a core set of personal
constructs that skilled CNAs use and that CNA students need to learn first? These are issues for future research.

An additional topic for future research is to identify the information about residents that CNAs find most helpful. Are there specific kinds of biographical and personal information that are more helpful than others? Would it be helpful to include some information about residents’ caregiving preferences, such as not to make room decorations frilly and fancy? Can better use be made of the information collected in the social histories of residents at intake? The insights of skilled CNAs would be useful here as well.

**Screening CNAs for Complexity**

The data on increasing cognitive complexity as a generic person perception skill suggests that it requires intensive work over at least a semester, and it has to involve repeated role plays, observations, and opportunities for reflection (Brendel et al., 2002). Given the limited resources available for training CNAs, consideration should be given to using the RCQ as a screening tool. It could be used to give CNA students feedback about their social perception skills. It could also be used as a screening tool by employers. However, additional research is needed before the RCQ is used in this way. This research has to demonstrate that there is a strong association between outstanding job performance and cognitive complexity, and that the RCQ is a valid measure of interpersonal cognitive complexity for CNAs whose second language is English (e.g., Hispanics or Asian Americans).

**Limitations and Future Research**

Some potential limitations of the applicability of the concept of interpersonal cognitive complexity and the RCQ measure ought to be considered. Although the RCQ can be administered quickly and with little training, it may not be a valid measure of interpersonal cognitive complexity for CNAs with poor language skills, as just noted. Furthermore, some CNAs who are good caregivers may not be articulate about residents for whom they are caring, or even about how they care for them; nonetheless, these caregivers may be highly skilled and this must be taken into account.

Future research has to replicate and establish the generalizability of the findings reported here. More research is needed to establish the usefulness of videotaped biographies as a medium for presenting information about residents. More research is needed with CNA students from other parts of the country, as well as with CNAs who are culturally different from the residents with whom they are working. Such research will determine the potential of the findings reported here for the development of training materials to promote person-centered care. Because person-centered care refers to nurse aides’ relationships with their peers, as well as with residents, the findings here have the potential to improve staff-to-staff relationships. Future research could explore the association of cognitive complexity with this domain of relationships as well.

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