

Counselor cognitions: General and domain-specific complexity.

By: Laura E. Welfare and L. DiAnne Borders

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Abstract:

Counselor cognitive complexity is an important factor in counseling efficacy. The Counselor Cognitions Questionnaire (L. E. Welfare, 2006) and the Washington University Sentence Completion Test (J. Loevinger & R. Wessler, 1970) were used to explore the nature of general and domain-specific cognitive complexity. Counseling experience, supervisory experience, counselor education experience, and highest counseling degree completed were identified as significant predictors of counselor cognitive complexity. Implications for counselor education are discussed.

Keywords: counseling | counselor cognitive complexity | cognitive complexity | counselor education | counselor assessment.

Article:

Clients and their clinical issues are often complex, multifaceted, and even contradictory. Counselors must be able to identify and integrate multiple ambiguous pieces of information to gain an accurate understanding of client needs, interpersonal dynamics, and treatment implications. In essence, counselors need to function at high levels of cognitive complexity to address the multiple demands clients present (Blocher, 1983; Stoltenberg, 1981).

Theories of cognitive complexity (e.g., Harvey, Hunt, & Schroeder, 1961; Kelly, 1955; Loevinger, 1976) suggest that, on the basis of their training and clinical experiences, counselors create conceptual templates (or constructs) to describe what they observe. These templates are organized into systems that explain the concordant and discordant relationships between and among the templates. The complexity of this system is defined by two components: differentiation and integration (Crockett, 1965). When theories of cognitive complexity are applied in a counseling context, differentiation refers to the number of client characteristics the counselor can recognize, whereas integration refers to the counselor's system for understanding how those characteristics fit together. Counselor development theorists have described differences in counselors at varying levels of cognitive development (Blocher, 1983; Loganbill, Hardy, & Delworth, 1982; Stoltenberg, 1981). A cognitively complex counselor is able to

recognize many relevant client characteristics. Even intricate cases of inconsistencies and paradoxes can be understood and addressed. In contrast, counselors with low levels of cognitive complexity see clients more simplistically, focusing on concrete characteristics and using black-and-white decision making. More cognitively complex counselors have the ability to develop a more accurate understanding of their clients and, presumably, be more effective in their clinical work (Blocher, 1983; Stoltzenberg, 1981).

In addition to the theoretical connection between counselor level of cognitive development and counselor effectiveness, there is empirical support for the relationship. Researchers have reported that counseling students at higher levels of cognitive complexity were better able to remain objective in the counseling session (Borders, 1989), accepted client ideas and encouraged exploration (Goldberg, 1974), used more complex and effective verbal skills and had more confidence in their work (Fong, Borders, Ethington, & Pitts, 1997), tolerated ambiguity (Holloway & Wampold, 1986), avoided stereotyping (Spengler & Strohmer, 1994), described their clients in interactional terms (Borders, Fong, & Neimeyer, 1986), and formed more complex clinical hypotheses (Holloway & Wolleat, 1980) and case conceptualizations (Ladany, Marotta, & Muse-Burke, 2001). In sum, counselors at higher levels of cognitive development were better able to formulate a complete understanding of the client and use effective techniques in the counseling session.

These findings emphasize the vital need for facilitating cognitive development during counselor training and supervision, a stated (Blocher, 1983) and implied goal of counselor education. Some researchers have found support for the assumption that cognitive complexity increases during counselor training (Brendel, Kolbert, & Foster, 2002; Duys & Hedstrom, 2000; Granello, 2002; Kendjelic & Eells, 2007), whereas others have found mixed evidence of such growth (Eells, Lombart, Kendjelic, Turner, & Lucas, 2005; Fong et al., 1997). These contradictory findings may be related to another critical aspect of cognitive complexity--it is domain specific (Crockett, 1965, 1982). That is, the complexity of an individual's understanding varies from topic to topic. An expert counselor would have high cognitive complexity regarding clinical domains (e.g., adolescent mental health) but a simplistic understanding of other fields (e.g., structural engineering). The expert counselor could identify many characteristics to consider when meeting a new teenage client but would not know what to consider in planning and building a secure suspension bridge. Complexity level in one domain does not necessarily suggest complexity level in another domain, nor does it define overall cognitive complexity (Crockett, 1965, 1982). Because of this aspect of complexity, it is important to consider research findings in the context of the type of assessment used in the study. Counselor cognitive complexity researchers to date (Brendel et al., 2002; Duys & Hedstrom, 2000; Eells et al., 2005; Fong et al., 1997; Granello,

2002; Kendjelic & Eells, 2007) have used different assessment methods, some domain specific and some general.

Fong et al. (1997) reported that 43 master's-degree counselors-in-training demonstrated no cognitive growth during a counselor training program as assessed by a measure of general cognitive complexity, the Washington University Sentence Completion Test (WUSCT; Loevinger, 1976; Loevinger & Wessler, 1970). The students were assessed at five time points throughout the 2-year master's degree program but exhibited no growth on the measure of general cognitive complexity. The authors speculated that the WUSCT was too broad a measure to accurately capture the cognitive growth that they assumed occurred during counselor training.

Duys and Hedstrom (2000) used the Role Category Questionnaire (RCQ; Crockett, 1965), an assessment of differentiation of cognitions about respondents' peers. Duys and Hedstrom found that the complexity of peer conceptualizations of 36 master's-degree counselors-in-training increased significantly from the beginning to the end of a semester of skills training. The RCQ more closely measured the cognitive work of a counselor because it required the participant to describe personality traits and relational dynamics of a peer, but the authors suggested a more client-specific instrument might better capture more relevant cognitive growth of counseling students.

Both the WUSCT and the RCQ assess cognitive functions similar to those required of counselors, but neither evaluates counselors' cognitions about clients. Only a measure specific to the counseling domain can assess the complexity of counselors' thoughts about their clients or indicate whether these thoughts become more complex as a result of counselor training and supervision. There are a few methods for assessing counselors' conceptualizations about clients. The Conceptual/ Integrative Complexity Method (CICM), developed by Suedfeld, Tetlock, and Streufert (1992), assesses the complexity of information processing and decision making. Trained raters score a writing sample for the presence or absence of these marks of complex thinking using four levels of integrative complexity: 1 = low differentiation and low integration, 2 = moderate/high differentiation and low integration, 3 = moderate/high differentiation and moderate integration, and 4 = high differentiation and high integration.

Ladany et al. (2001) used the CICM in a study of 100 counseling students. Participants were given a written intake of a client and asked to write at least three sentences describing what they believed to be the origins of the client's issue and an effective treatment plan for addressing the

issue. Although Ladany et al. reported acceptable interrater reliabilities of .91 for etiology ratings and .80 for treatment ratings, there are considerable limitations to this assessment method. The participant was not necessarily aware that the passage would be evaluated for completeness because the directions did not ask for a complete conceptualization. In addition, the case conceptualization was based solely on a written intake, neglecting the other sources of information that are essential to the way counselors typically form conceptualizations of clients.

The Clinical Treatment Planning Simulation (CTPS; Falvey, 1994) also contains a written intake of a client with attention-deficit/ hyperactivity disorder (ADHD). In this assessment method, participants' written diagnostic profiles are scored against the experts' and are awarded one point for each matching element and charged one point for each omitted element.

Falvey, Bray, and Herbert (2005) used the CTPS in a study of 20 licensed clinicians' problem solving and clinical judgment. The authors reported an interrater reliability of .88, but the findings have limited relevance to the study of counselor cognitive complexity. The CTPS scores reflected counselor knowledge of the symptoms and treatment practices for ADHD but had no apparent relationship with the counselors' level of cognitive complexity.

A third method for evaluating case conceptualizations was developed by Eells, Kendjelic, and Lucas (1998). The Case Formulation Content Coding Method (CFCCM; Eells et al., 1998) assesses the comprehensiveness, formation elaboration, precision of language, complexity, coherence, treatment plan elaboration, goodness of fit, and systematic process of a case formulation. Raters assign one of five values to each case formulation: 0 = insufficient information, 1 = very little complexity, 2 = little complexity, 3 = moderate complexity, and 4 = high complexity.

Eells et al. (2005) used the CFCCM to compare case formulations of 65 psychology graduate students, psychologists, and psychiatrists who the authors classified as novice, experienced, and expert psychotherapists based on years of experience. Participants were provided six written case vignettes and asked to "think aloud" about the case formulation "as best you can, addressing whatever you feel is important" (Eells et al., 2005, p. 582). Responses were audio-recorded and coded to assess "the extent to which therapists integrated several facets of the person's problems into a meaningful presentation" (Eells et al., 2005, p. 583). Much like the CICM method used by Ladany et al. (2001), this method did not operationalize integration or give specific criteria for

each rating. The scores were too broad to provide detailed information about the complexity of the conceptualizations.

These three methods for evaluating counselor case conceptualizations provide valuable information, yet they do not assess cognitive complexity related to counseling and clients. In contrast, the Counselor Cognitions Questionnaire (CCQ; Welfare, 2006) was specifically designed to assess complexity of counselors' thoughts about their clients. (The CCQ and rater training manual are available from the first author by request.) Respondents provide a complete conceptualization of two of their recent or current clients. The conceptualization may include any characteristics that the counselor finds relevant to the client's presentation or needs in counseling. The CCQ responses are evaluated by means of a detailed scoring protocol that raters use to assign differentiation and integration scores to each respondent. The CCQ was deemed the most appropriate instrument to explore the research questions because it is domain specific, reflects naturally formed case conceptualizations, and has a detailed scoring protocol. Additional information regarding the development and validation of the CCQ is provided in the Method section.

The goals of this study were to explore a possible explanation for the previous discordant findings (e.g., Duys & Hedstrom, 2000; Eells et al., 2005; Fong et al., 1997) regarding growth in counseling students' cognitive complexity and to identify factors that influence counselor cognitive complexity. We examined to what degree counseling experience predicted general and domain-specific cognitive complexity. Our expectation was that counseling experience would predict counselor-specific cognitive complexity but not general cognitive complexity.

Next, we sought to find preliminary evidence of counselor characteristics that predict complexity of cognitions about clients. The goal of this study was to identify the characteristics that are statistically significant predictors, not to speculate about the relative importance of the predictors or how they affect cognitive growth. Three predictors drawn from theory and empirical research were included in the analysis: highest counseling degree completed, counseling experience, and general cognitive complexity. Highest counseling degree completed and counseling experience have been linked with aspects of counselor effectiveness in research on counselor cognitions (Goodyear, 1997; Granello, 2002; Skovholt, 2005; Skovholt & Ronnestad, 1992). General cognitive complexity level has been suggested as an important prerequisite for complexity in counseling as well (Borders, 1989). Finally, we hypothesized that supervisory experience and counselor education experience would influence complexity of client cognitions because these activities involve explaining clients and clinical issues to counseling students and seem to promote the teacher's/supervisor's own development.

Method

Participants

Master's-degree counselors-in-training and post-master's-degree counselors who were enrolled or had graduated from a program accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) were recruited for this study. Students and practitioners were included because of our interest in testing the influence of counseling experience. Only CACREP-accredited programs and graduates were included to ensure that participants had completed similar core course work in counseling. The counselor education programs were located at public and private universities in Illinois, North Carolina, Tennessee, Texas, and Virginia. Of the 120 persons who agreed to participate, 80 (66.7%) were in master's programs at seven CACREP-accredited counseling programs, and 39 (32.5%) were post-master's-degree practitioners or enrolled in counselor education doctoral programs. Fourteen participants (11.7%) were male, and 105 (87.5%) were female. Of the participants, 98 (81.7%) were Caucasian, 12 (10.0%) were African American, 3 (2.5%) were Hispanic or Latino, 2 (1.7%) were American Indian or Alaska Native, 2 (1.7%) were Asian, 1 (0.8%) was Native Hawaiian or Other Pacific Islander, and 1 (0.8%) identified as "other." Participants' ages ranged from 22 to 59 years, with a mean age of 30.65 ($SD = 8.41$). Fifty (41.7%) of the participants identified themselves as school counselors, 44 (36.7%) as community or mental health counselors, 8 (6.7%) as couple and family counselors, 6 (5.0%) as college student counselors, and 10 (8.3%) as "other." One participant did not endorse the demographic categories of level of program, gender, and race, and 2 participants did not endorse the type of program in which they enrolled or completed. The sample size of 120 was estimated to be sufficient to obtain .80 power at alpha < .05 (Lenth, 2001) and to conduct a regression analysis with five predictor variables (Green, 1991).

Measures

Information questionnaire. Participants reported demographic information related to their personal characteristics, degree level, counseling-related experiences, and information about their relationships with the clients they described on the CCQ.

CCQ. The CCQ (Welfare, 2006; Welfare & Borders, 2009) is a measure of the complexity of counselors' cognitions about their clients. It is based in personal construct theory (Crockett, 1965; Kelly, 1955) and models of counselor development (e.g., Blocher, 1983; Stoltenberg, 1981). Development of the CCQ included four revisions based on feedback from a panel of counseling supervisors, expert review by an experienced supervision researcher and a psychometrician, and results of two pilot studies. The pilot studies were based on convenience samples of master's and doctoral students and included 17 participants and 34 participants, respectively. Please see Welfare and Borders (2009) for more information about the development of the instrument.

Respondents are asked to write complete conceptualizations of two current or former clients, one with whom they felt effective and one with whom they felt less effective. The directions instruct respondents to describe each client as fully as they can using words and phrases (e.g., timid, unsure of herself, hopeful at times, strong family support, anxious, resilient). Twenty-five lines are provided for each client description, and the respondents are told they do not have to use all of the space provided. No client characteristics are provided for the respondents. Respondents then report whether each characteristic is a positive or negative characteristic of the client. A sample response is "impulsive = negative, self-aware = positive." Respondents also assign a rating for the importance of each characteristic to their overall impression of the client using a Likert-type scale ranging from 1 (not at all important) to 5 (extremely important). In the second part of the assessment, respondents are asked to review the characteristics listed and consider whether any of them can be grouped into categories. Respondents can write any categories that come to mind in the blank lines provided. For example, the client characteristics "great sense of humor" and "good social network" could be conceptualized as fitting in a category named "client strengths."

Raters use a detailed scoring protocol (Welfare & Borders, 2006) to assess the cognitive complexity of each respondent. The training manual (Welfare & Borders, 2006) prepares raters, who should have a minimum of a bachelor's degree, to apply the scoring rules consistently. Quantitative and qualitative review of the responses yields two scores: differentiation and integration. The differentiation score is derived from the number of unique characteristics the respondent uses in the client descriptions. The integration score is derived from the valence and nature of characteristics evinced in the client descriptions. Conceptualizations that include a balance of positive and negative characteristics that are behavioral, contextual, cognitive, emotional, and spiritual in nature earn higher complexity scores. In addition, counselors who include a characteristic or category that reveals that they considered the counseling relationship in the case conceptualization earn higher scores. For example, the characteristics "seems to trust me" or "pushes my buttons" reveal that the respondent is considering the counseling relationship.

Finally, being able to see conceptual links, similarities, and dissimilarities among the characteristics of the client is also an indicator of complexity; therefore, the number of unique categories included in the conceptualizations contributes to the integration score. The written responses are reviewed by raters for the presence or absence of each mark of integrative complexity. Raters in the second pilot study ($N = 34$) obtained high interrater reliabilities (Pearson product-moment correlation, $r = .99$, $p = .00$, for differentiation, and $r = .95$, $p = .00$, for integration), which suggests the scoring protocol, although complex, can be consistently implemented by two different raters. More detailed information about the psychometric properties of the CCQ is available in Welfare and Borders (2006, 2009).

WUSCT. The WUSCT (Hy & Loevinger, 1996; Loevinger, 1976, 1998; Loevinger & Wessler, 1970) is a free-response measure of ego development that assesses cognitive, moral, character, and self-development. Respondents are asked to complete 36 sentence stems. For example, the stem "When I am criticized ..." can be made into a complete sentence using any phrase that the respondent chooses. Raters who have completed the manual-directed training rate each response using the specific scoring protocol described in the manual and assign a stage level. The WUSCT has eight ego developmental stages: E2 (Impulsive), E3 (Self-Protective), E4 (Conformist), E5 (Self-Aware), E6 (Conscientious), E7 (Individualistic), E8 (Autonomous), and E9 (Integrated; see Table 1). A response of "When I am criticized... I ignore it" would earn a rating of E4 (Conformist), whereas a response of "When I am criticized ... I evaluate the criticism to see if it is true" would earn a rating of E6 (Conscientious). An updated and highly detailed manual that includes instructions to raters and the scoring protocol is available in Hy and Loevinger. The WUSCT has strong evidence of reliability and validity as a measure of conceptual complexity in adolescents and adults (Hy & Loevinger, 1996; Loevinger, 1998; Manners & Durkin, 2001). Originally developed for use with women, the instrument was later expanded for use with men and has been validated with samples of racially and geographically diverse middle and high school students, 2- and 4-year college students, and adults from a variety of professions and affiliations (e.g., Bursik, 1991; Cramer, 1999; Novy, 1993; Novy & Francis, 1992; Truluck & Courtenay, 2002).

WUSCT raters have achieved interrater reliabilities that exceed .90 (e.g., .94 in Novy, 1993). Internal consistency reliabilities, measured using coefficient alpha, were .84, .81, and .90 for the first half, second half, and full-length 36-item forms, respectively (Loevinger, 1998). Despite the slight decrease in reliability, the two half-length tests are comparable with the 36-item form and are used when researchers wish to shorten the time or effort required for participation (Loevinger, 1998; Manners & Durkin, 2001; Novy, 1993). Loevinger (1998) suggested that users consider the purpose of the study when selecting sentence stems. For this study, 18 diverse and representative items were selected by the first author and a researcher (second author)

experienced with the WUSCT and ego development theory. Items chosen addressed family and peer relationships (e.g., "Raising a family..."), ideas about education and career (e.g., "Education ..."), beliefs about values and rules (e.g., "Rules are ..."), helping behaviors (e.g., "When people are helpless ..."), likes and dislikes (e.g., "I just can't stand people who ..."), and self-concept (e.g., "I am ...") because these topics seemed especially relevant to the work of counselors. Items about men and women were included because counselors work with male and female clients (e.g., "Men are lucky because ... " and "A good mother..."). The correlation of the item to the total score in validation samples was also considered to ensure that the 18 items represented ego development well. The range of correlations on the 18-item form (.36 to .57) is comparable with the range for items on the 36-item form (.36 to .59).

Procedure

A convenience sample of counseling students was recruited via emails to seven counselor educators who are professional colleagues of ours and who are faculty members in master's- and doctoral-level CACREP-accredited counseling programs across the country. Counselor educators at public, private, research-intensive, and teaching universities with full-time and part-time students were included in an attempt to increase the representativeness of the sample. The purpose, goals, and procedures of the study were explained, and the counselor educators were asked to invite students who were currently enrolled in practicum or internship to participate in the study during a regularly scheduled class. Ali practitioners were professional colleagues of ours. Ali had completed a CACREP-accredited master's program and were recruited through phone, e-mail, and in-person contact by the first author.

Administration occurred in individual or group sessions, proctored by the first author or participating counselor educators. Ali master's and doctoral students completed the instruments during regularly scheduled class time. A few practitioners were not able to meet with the first author in person. They self-administered the assessments. All completed assessments were mailed to the first author in self-addressed stamped envelopes via the U.S. Postal Service.

Consenting respondents were given the CCQ, the WUSCT, and the information questionnaire, in that order. Verbal instructions at each point were "Please read the directions and spend a few minutes completing each section of the forms." After 30 minutes, all forms were collected. The time limit was used to ensure consistency across administrations and was observed to be adequate by the administrators.

Data Analyses

Participant forms were reviewed for completeness prior to data entry. Responses that included omissions were entered but excluded listwise from analyses. Descriptive and inferential statistics were calculated using SPSS (Version 14.0.0). The normality of each distribution was assessed using a histogram. Linear regression analyses were used to estimate the predictive ability of experience on CCQ scores and WUSCT scores. An independent samples t test was used to assess mean differences between dichotomized respondent subgroups. Linear regression analyses were performed to assess the individual influence of WUSCT scores, counseling experience, supervisory experience, counselor education experience, and highest counseling degree completed on client-specific cognitive complexity, and simultaneous multiple regression analyses were used to assess the significance of the combined models. Significance and effect size are reported for all analyses.

Results

The 120 instrument packets were independently scored by the first author and two trained raters. Three measures were instituted to reduce the potential for bias: (a) the two trained raters were unaware of the purpose of the study and participants' information; (b) each rater scored only one measure, either the CCQ or the WUSCT; and (c) the first author scored the CCQ and WUSCT responses before viewing the participant demographic information. The interrater reliability (Pearson product-moment correlation) was .99 for the CCQ differentiation total and .96 for the CCQ integration total. The interrater reliability for the WUSCT showed adequate agreement of .86 as well.

Respondents' CCQ differentiation scores ranged from 6 to 72, with a mean of 22.03 ($SD = 10.39$). CCQ integration scores ranged from 0 to 22, with a mean of 9.88 ($SD = 3.78$). The sample included a range of WUSCT scores as well: 8 respondents at E4 (Conformist), 26 respondents at E5 (Self-Aware), 66 respondents at E6 (Conscientious), 16 respondents at E7 (Individualistic), and 4 respondents at E8 (Autonomous; see Table 1 for stage descriptions). These three variables were normally distributed.

Duration of counseling experience ranged from 0 to 27 years ($M = 2.13$, $SD = 4.29$, $Mdn = 1$, mode = 0). Student participants who were enrolled in their first semester of practicum ($n = 49$) were credited with 0 years of experience, whereas student participants who were enrolled in their second semester of internship ($n = 30$) were credited with 1 year of experience. Of the 120 respondents, 17 reported having experience as a counseling supervisor; the duration ranged from 0 to 14 years ($M = 0.41$, $SD = 1.52$, $Mdn = 0$, mode = 0). Fourteen respondents reported having experience teaching counseling-related course work, with a range of 0 to 15 years ($M = 0.51$, $SD = 2.09$, $Mdn = 0$, mode = 0). Eighty respondents (66.7%) held bachelor's degrees, 23 (19.2%) held master's degrees, 12 (10.0%) held specialist in education degrees, and 4 (3.3%) held doctoral degrees; 1 participant (0.8%) did not complete this item. These distributions had a positive skew, meaning many participants endorsed few years of counseling experience, no years of supervisory or teaching experience, and undergraduate degree as their highest counseling completed degree. The regression analyses, as planned, were robust to the nonnormality of the data (Howell, 2002), and appropriate caution was used in interpreting the results.

Research Question 1

The first research question explored the impact of counseling experience on cognitive complexity. Adjusted /ya was used because it provides a more conservative estimate of the predicted variance than does [R.sup.2]. As expected, counseling experience was a significant predictor of client-specific cognitive complexity. For CCQ differentiation, the adjusted [R.sup.2] was .23. The linear relationship was statistically significant as evidenced by the F test, $F(1, 114) = 35.13$, $p = .00$. For CCQ integration, the adjusted [R.sup.2] of .04 was statistically significant, $F(1, 115) = 5.49$, $p = .02$. Counseling experience predicted 23% of the variance in respondents' CCQ differentiation scores and 4% of the variance in CCQ integration scores. Counseling experience did not have a significant effect on general cognitive complexity, $F(1, 118) = 3.30$, $p = .07$.

An independent samples t test revealed additional differences in respondent performance. The mean CCQ scores for those respondents whose WUSCT scores were E4 (Conformist; $n = 8$) and those whose scores were E5 (Self-Aware) or greater ($n = 112$) were compared (CCQ differentiation, $[M_{sub}E4] = 17.63$ and $[M_{sub}[greater than or equal to]E5] = 22.35$; CCQ integration, $[M_{sub}E4] = 7.13$ and $[M_{sub}[greater than or equal to]E5] = 10.08$). The mean difference in CCQ integration scores was statistically significant, $t(118) = -2.17$, $p = .03$. The mean difference in CCQ differentiation scores was not significant, $t(118) = -1.56$, $p = .16$. Because the sample sizes were unbalanced, equality of variances was especially important.

Levene's test revealed insignificant differences in the variances of the two groups, $F(1, 118) = 1.03$, $p = .31$.

Research Question 2

A correlation matrix (see Table 2) revealed significant relationships between measures of cognitive complexity and counselor characteristics of interest. Separate linear regression analyses assessed the percentage of variance in CCQ differentiation scores accounted for by each counselor characteristic: counseling experience (adjusted $[R.\text{sup.}2] = .23$), $F(1, 114) = 35.13$, $p = .00$; supervisory experience (adjusted $[R.\text{sup.}2] = .29$), $F(1, 116) = 48.18$, $p = .00$; counselor education experience (adjusted $[R.\text{sup.}2] = .16$), $F(1, 116) = 22.87$, $p = .00$; and highest counseling degree completed (adjusted $[R.\text{sup.}2] = .15$), $F(1, 116) = 21.58$, $p = .00$. Note that highest counseling degree completed was included despite being an ordinal variable with four levels: bachelor's degree, master's degree, specialist in education degree, and doctoral degree. Ordinal variables are frequently included in regression models in social science research and do not affect Type I and Type II error rates dramatically (Jaccard & Wan, 1996; Zumbo & Zimmerman, 1993). WUSCT scores were not a significant predictor of CCQ differentiation, $F(1, 117) = 2.18$, $p = .14$.

When the four individually significant predictors were regressed simultaneously on CCQ differentiation, the combined model explained 31% of the variance in CCQ differentiation scores ($[R.\text{sup.}2] = .34$, adjusted $[R.\text{sup.}2] = .31$), $F(4, 111) = 14.08$, $p = .00$. Four participants were excluded from this analysis because their responses were incomplete.

Separate linear regressions revealed the same four significant predictors of CCQ integration: counseling experience (adjusted $[R.\text{sup.}2] = .04$), $F(1, 115) = 5.49$, $p = .021$; supervisory experience (adjusted $[R.\text{sup.}2] = .10$), $F(1, 117) = 13.48$, $p = .00$; counselor education experience (adjusted $[R.\text{sup.}2] = .06$), $F(1, 117) = 8.88$, $p = .00$; and highest counseling degree completed (adjusted $[R.\text{sup.}2] = .18$), $F(1, 117) = 26.94$, $p = .00$. A simultaneous regression revealed that the combined model was significant and predicted 20% of the variance in CCQ integration scores ($[R.\text{sup.}2] = .23$, adjusted $[R.\text{sup.}2] = .20$), $F(4, 112) = 8.28$, $p = .00$. Five participants were excluded from this analysis because of missing data.

The primary goal of this study was to explain previous discordant findings regarding growth in counseling students' cognitive complexity. In line with Crockett's (1982) theory, our results suggest that domain-specific measures of complexity yield a more informative assessment of cognitions of counseling students and practitioners than do general measures of complexity. Two analyses contributed to this conclusion. General complexity scores did not predict domain-specific complexity scores, and counseling experience predicted domain-specific but not general complexity scores. These results help explain contradictory findings of Duys and Hedstrom (2000), who found counselors' conceptualizations of their peers increased over a semester, and findings reported by Fong et al. (1997), who found no growth in students' general cognitive complexity across 2 years. Thus, a domain-specific measure of cognitive complexity, such as the CCQ, can identify cognitions specific to counseling that seem to be more amenable to intervention and change.

There was some indication, however, that general complexity governs some aspects of domain-specific complexity. Specifically, respondents whose scores were E4 (Conformist) on the WUSCT showed significantly less ability to integrate information about clients than did respondents whose scores were E5 (Self-Aware) or greater. The same result was not found for differentiation scores about clients. Thus, it may be that counselors' general cognitive abilities have little effect on their ability to recognize a number of client characteristics but do affect their ability to achieve sophisticated, integrated conceptualizations, including those that make meaning out of inconsistencies, paradoxes, and mutual influences in interactions with clients. This interpretation is in line with those of other researchers who have described a ceiling effect of general cognitive complexity on domain-specific complexity (e.g., Borders, 2001). Nevertheless, only domain-specific cognitions were influenced by counseling experience and so have the greater potential to be informative about counselors' levels of complex thinking about their clients.

Relatedly, counseling experience had more predictive power (23%) for differentiation of client cognitions than for integration (4%) of those cognitions. That is, experience working with clients seems to have a stronger impact on the ability to recognize many client characteristics than it does on the ability to integrate them. It may be that exposure to more and a greater variety of clients over time readily highlights new and relevant individual characteristics but does not necessarily lead counselors to see new, meaningful connections among those characteristics. Perhaps an intentional intervention, such as reflective practice (Neufeldt, 1999, 2007) or clinical supervision interventions that focus on developing cognitive skills (Borders & Brown, 2005), is needed to develop cognitive integration of client characteristics.

Our secondary goal was to identify counselor characteristics that are important for cognitive development, specifically predictors of complexity of counselors' cognitions about clients. For both differentiation and integration scores, all four counseling-related predictors--counseling experience, supervisory experience, counselor education experience, and highest counseling degree completed--were individually significant. When the predictors were regressed simultaneously, the combined models predicted 31% of the variance in differentiation and 20% of the variance in integration. This finding provides evidence of an empirical link between these experiences and higher complexity cognitions, but caution must be used when interpreting these preliminary results. The number of participants with supervisory experiences (17 of 120 participants), teaching experiences (14 of 120 participants), and doctoral degrees (4 of 120 participants) was small, limiting confidence in the regression results. A replication study of counselors with a range of counseling, supervisory, teaching, and advanced curricular experiences is needed to better understand how each variable contributes to cognitive complexity.

Limitations

Limitations of the sample, instrumentation, and analyses need to be considered in interpreting our results. This study is one of the few to include post-master's-degree counselors, yet two thirds of the sample was practicum or internship students, and some post-master's-degree participants were doctoral students rather than full-time practitioners. The relatively few participants with supervisory experiences, teaching experiences, and doctoral degrees limit the generalizability of the findings to those populations. The convenience sampling plan was limiting as well. Ali seven counselor educators who were asked to invite their students to participate in the study agreed to do so. They were not asked to gather any information about students who declined to participate, if any, so representativeness cannot be determined and response rate cannot be calculated.

The CCQ is a new measure of counselor cognitive complexity needing further validation and study. On the basis of the preliminary evidence of validity and reliability reported by Welfare and Borders (2009), however, the findings of this study are informative. The WUSCT is well validated, but the particular combination of items selected for the half-length form in this study may not have been used previously. Finally, the limitations of regression analyses, especially when a small number of participants have high scores on some variables (e.g., supervisory experience and counselor education experience), should be noted. In particular, we are not able to determine the relative strength of our predictors of cognitive complexity.

Implications for Counselor Education, Supervision, and Future Research

Despite these limitations, there are important implications for counselor educators, supervisors, and researchers. First, it seems that counseling experience can have an impact on counselors' development of more complex cognitions about clients, given that counseling experience did predict differentiation and integration scores. Research is needed, however, to determine what components of counseling experience contribute to cognitive growth. A number of our practitioners held advanced degrees or were enrolled in doctoral work. To what extent is advanced study needed to promote cognitive growth? Can continuing education experiences have a similar effect? What aspects of advanced training (e.g., research training, supervision training) are most effective in promoting cognitive growth? Are intentional interventions that target client and counseling-related cognitions needed? Several writers (e.g., Biggs, 1988; Borders, 1991; Ellis, 1988; Granello & Underfer-Babalis, 2004) have described interventions they designed specifically to facilitate cognitive growth. Our results indicate that, in investigating these and other potentially effective experiences (e.g., reflective practice, supervision approaches), researchers should use domain-specific measures, such as the CCQ, that reveal how counselors think about clients.

Domain-specific measures, such as the CCQ, could be investigated as effective tools themselves. Rather than scoring the conceptualizations, supervisors could focus on the content of supervisees' descriptions of their clients or a particular client. The client descriptions might reveal patterns, cultural blind spots, relational struggles, or other instructive information regarding the supervisee's perceptions of the client that can become the focus of discussion.

In addition to intervention studies, longitudinal investigations to chart cognitive growth over time would be informative. Given the state of knowledge about counselor cognitive complexity, longitudinal researchers should consider collecting a wide range of counselor characteristics, including experiences inside and outside the educational and supervision settings, and might assess both level of complexity and the content of counselors' client cognitions (cf. Borders, 1989; Borders et al., 1986). Both developmental models of supervision (e.g., Blocher, 1983; Loganbill et al., 1982; Stoltzenberg, 1981) and research based in the novice-expert literature (e.g., Skovholt, 2005; Skovholt & Ronnestad, 1992) could be useful frameworks for designing these studies. Such research would provide valuable information for curriculum development, accreditation requirements, and ongoing professional development.

Although our results are limited, it seems that experience as a supervisor and experience teaching counseling-related course work offer opportunities for cognitive development of mid- and late-career counselors. Conducting supervision requires the supervisor to reflect on counseling processes, client issues, and treatment options and articulate those observations to supervisees. These cognitive tasks seem likely to stimulate new growth in the supervisor. Similarly, teaching counseling-related course work requires mastery of the subject matter and the ability to apply the concepts to practice. If future research supports our findings, the benefits would be numerous. Such growth not only would enhance professional counselors' development and their work with clients but also would result in developing cognitively complex teachers and supervisors who might then have a substantive impact on the respective cognitive growth of their counseling students and supervisees.

Other domain-specific measures might be needed. The CCQ focused on counselors' cognitions about their clients. Measures of the complexity of counselors' theoretical explanations for their work, perceptions of the counseling process, and other aspects of the counseling enterprise might provide a more comprehensive profile of a counselor's domain-specific complexity. What is clear, from our results, is that attention to domain-specific complexity holds much promise for advancing the counseling profession's ability to develop cognitively complex counselors.

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Laura E. Welfare. Counselor Education. Virginia Polytechnic Institute and State University; L. DiAnne Borders. Department of Counseling and Educational Development, University of North Carolina at Greensboro. This research was supported in part by funding from the Association for Counselor Education and Supervision. Correspondence concerning this article should be addressed to Laura E. Welfare, Counselor Education, School of Education, Virginia Polytechnic

Institute and State University. 309 East Eggleston Hall (0302). Blacksburg. VA 24061 {e-mail: welfare@vt.edu}.

TABLE 1

Characteristics of Loevinger's Stages of Ego Development

Ego Level Code Characteristic

Impulsive E2 Poor impulse control, egocentric,
dependent, focus on bodily feelings

Self-Protective E3 Focus on short-term gratification,
opportunistic, manipulative, wary

Conformist E4 Respect for rules, loyal,
black-and-white thinking, strong desire
for acceptance

Self-Aware E5 Exceptions to rules are allowable,
self-aware, emphasis on feelings

Conscientious E6 Self-evaluated standards, self-critical,
Individualistic E7 responsible Tolerant of differences,
formed identity

Autonomous E8 Tolerant of ambiguity, awareness of the

need for autonomy

Integrated E9 Cherishes individuality, fully
 actualized

Note. From Measuring Ego Development(2nd ed., p.4), by L. X. Hy and J. Loevinger, 1996, Hillsdale, NJ: Erlbaum. Copyright 1996 by Taylor & Francis Group, LLC. Adapted with permission.

TABLE 2
Correlation Matrix of Measures of Cognitive Complexity
and Counselor Characteristics

Variable	1	df	2	df	3	df
1. Differentiation	--					
2. Integration	.64 **	119	--			
3. Counseling	.49 **	116	.21 *	117	--	
4. Supervising	.54 **	118	.32 **	119	.69 **	117
5. Teaching	.41 **	118	.27 **	119	.78 **	117
6. Degree	.40 **	118	.43 **	119	.54 **	117

Variable 4 df 5 df 6

1. Differentiation

2. Integration	
3. Counseling	
4. Supervising	--
5. Teaching	.68 ** 119 --
6. Degree	.47 ** 119 .43 ** 119 --

Note. Counseling = counseling experience; Supervising = supervisory experience; Teaching = counselor education experience; Degree = highest counseling degree completed.

* p < .05, two-tailed. ** p < .01, two-tailed.