The Counselor Cognitions Questionnaire: Development and validation.

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Abstract:

Cognitive complexity is a crucial factor in counselor efficacy, yet an empirically validated instrument that measures counselors' cognitions about clients does not exist. Development and preliminary psychometric support for such a measure, the Counselor Cognitions Questionnaire (CCQ), are described. Evidence of validity and reliability are reported.

Keywords: case conceptualization | cognitive development | counselor cognitive complexity | counseling | counselor assessment

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INTRODUCTION

Effective counselors must be able to identify each client's unique combination of characteristics (e.g., cognitive, emotional, contextual, behavioral, and spiritual) that influence the presenting problem in counseling. Next, counselors must integrate those characteristics into a meaningful framework that informs effective treatment planning and implementation. With a complete understanding of client characteristics and an integrated conceptualization of the client, the counselor is best prepared to recognize client needs and make accurate decisions about treatment.

The process of forming a complete understanding of a client is complicated and requires that the counselor have advanced cognitive processing abilities (Blocher, 1983). Counselors who have high levels of cognitive processing abilities are able to recognize many characteristics, allowing for a sophisticated understanding of client needs. In contrast, counselors who have limited cognitive processing abilities are more likely to see clients simplistically, focus on concrete characteristics, and use black/white decision making (Blocher, 1983). The more advanced the counselor's level of thinking is, the more client characteristics counselors can recognize and process, and thus the more accurate their understanding of the client can be.

Counselors process client characteristics through their cognitive systems. In his Personal Construct Theory, Kelly (1955) described the cognitive system that individuals use to understand objects and experiences. Individuals create conceptual templates or constructs that allow them to interpret the things they experience in the world. Constructs are activated by stimuli and then used by the individual to assign meaning to the situation and respond appropriately. A person with an advanced, highly developed cognitive system can be described as having high cognitive complexity while a person with a less developed cognitive system can be described as having low cognitive complexity (Kelly, 1955). The two components of complexity of the cognitive system are differentiation and integration. In terms of counselors' thinking, the number of client characteristics a counselor can recognize is the counselor's level of differentiation; understanding how those characteristics fit together and what implications they have for client needs and treatment is the process of integration.

Crockett (1965) expanded on Kelly's (1955) theory. He contended that an individual's impression of another person is a function of the behavior and appearance of the perceived person; the relationship between the perceiver and the perceived; and the cognitions, beliefs, motives, intentions, personality, and psychological state of the perceiver. The perceiver only directly observes a few characteristics of the perceived, but makes extended inferences about many other characteristics. The inferences are made in the perceiver's cognitive system. Crockett (1965) focused on the complexity of the cognitive system as it relates to the process of forming impressions of others. Like Kelly, Crockett believed that a person's cognitive system becomes more complex over time as he or she encounters new experiences. Crockett clarified, however, that if an individual does not experience new stimuli in a particular domain, his or her cognitive system in that domain will not become more complex.

Therefore, complexity in one domain does not necessarily reflect complexity in another domain, or one's overall complexity (Crockett, 1982, 1965). This domain-specific nature of cognitive systems is quite relevant in understanding and conducting research on counselor cognitive complexity. In essence, measures of cognitive complexity need to be specific to counseling, and targeted learning experiences are necessary to facilitate counselors' cognitive growth. Thus, increasing the complexity of counseling students' cognitions about clients and the counseling process is a stated and implied goal of counselor education programs (Blocher, 1983; Loganbill, Hardy, & Delworth, 1982; Sexton, 1999; Stoltenberg, 1981).

Crockett's (1982, 1965) theory supports the assumption that the more client characteristics the counselors can recognize and process, the more likely they are to make accurate inferences about the client. Indeed, counselor level of cognitive development has been linked with multiple aspects of counselor effectiveness (e.g., Borders, 1989; Fong, Borders, Ethington, & Pitts, 1997; Holloway & Wolleat, 1980; Ladany, Marotta, & Muse-Burke, 2001). Borders (1989) reported that counseling students with higher levels of cognitive complexity were better able to remain objective in the counseling session, and Fong and colleagues (1997) found that students with higher levels of cognitive development used more complex and effective verbal skills and had

more confidence in their work. Borders, Fong, and Neimeyer (1986) found that only students at higher levels of ego development (Loevinger, 1976) described clients in interactional terms. Holloway and Wolleat (1980) reported that counselors with low levels of cognitive development formulated simplistic clinical hypotheses. Cognitive complexity also has been linked with case conceptualization skills (Ladany et al., 2001). In sum, counselors at higher levels of cognitive development are better able to formulate a thorough, objective understanding of the client and communicate effectively and confidently in the counseling session. Researchers also have found support for the assumption that cognitive complexity increases during supervised counseling practice (e.g., Duys & Hedstrom, 2000; Granello, 2002; Granello, 2010).

To date, however, these results primarily have been based in non-specific measures of cognitive complexity, despite evidence that level of complexity varies by domain (Crockett, 1965) and primarily with novice counselors. Thus, research on the complexity of counselors' client-specific cognitions is limited. Importantly, no empirically validated measure of counselor cognitive complexity currently exists, so counselor cognitive growth cannot be charted over time and the effectiveness of curricular experiences and supervisory interventions targeted toward cognitive development cannot be evaluated. The Counselor Cognitions Questionnaire (CCQ; Welfare, 2006) was developed to fill this void as a measure of the complexity of novice and early career counselors' cognitions about their clients. This study describes four phases in developing the CCQ and collecting evidence of its estimated reliability and aspects of construct validity: Development, initial pilot study, preliminary evidence to support the psychometric sufficiency of CCQ scores, and additional evidence to support the psychometric sufficiency of CCQ scores.

PHASE ONE: DEVELOPMENT

Counselors have a multitude of thoughts about their clients, many of which are relevant to the assessment of counselor cognitive development. The CCQ assesses the counselor's conceptualization of the client. Existing measures of case conceptualizations assess the completeness of a respondent's list of symptoms, the appropriateness of the diagnosis given, or recognition of factors in the presenting problem (e.g., Blocher et al.,1985; Falvey, 1994; Ladany et al., 2001). These "thoughts" are pieces of information or facts that are taught in counselor education programs (e.g., symptoms of depression: sadness, fatigue, worthlessness, hyposomnia, etc.). Assessing these thoughts provides valuable information about whether students have learned these facts, but does not indicate how complexly counselors are able to contemplate these facts and also integrate them with other client information (e.g., client family of origin, transference issues, readiness for change, and inconsistencies in the client's report). To that end, the CCQ is designed to capture the counselor's complete conceptualization of the client. Respondents list a variety of characteristics of the client, not just diagnostic symptoms or the presenting problem. By obtaining a more complete client description, researchers can come closer to assessing the complexity of counselors' cognitions, not just the accuracy of the content.

The CCQ (Draft 1) was developed based on a thorough review of counselor development and cognitive complexity literature (e.g., Blocher, 1983; Crockett, 1965; Harvey, Hunt, & Schroeder, 1961; Kelly, 1955; Loevinger, 1976; Stoltenberg, 1981; Zajonc, 1960). The strengths and weaknesses of existing instruments found in this literature—Role Construct Grid (Kelly, 1955), Sentence Completion Test (Loevinger & Wessler, 1970), Paragraph Completion Method (Hunt, Butler, Noy, & Rosser, 1977), Counselor Perception Questionnaire (Blocher et al., 1985), Role Category Questionnaire (Crockett, 1965), Conceptual Systems Test (Harvey & Hoffmeister, 1967), Conceptual/Integrative Complexity Method (Suedfeld, Tetlock, & Streufert, 1992), Learning Environment Preferences (Moore, 1989), and the Clinical Treatment Planning Simulation (Falvey, 1994)—were studied. A summary of the characteristics of each instrument is provided in Table 1. In addition, findings in research on counselor cognitive development (e.g., Borders, 1989; Fong et al., 1997; Holloway & Wolleat, 1980; Ladany et al., 2001), social cognition (e.g., Deutsch & Strack, 2006; Macrae & Bodenhausen, 2000), and counseling expertise (e.g., Skovholt & Ronnestad, 1992) were reviewed. Based on the literature, several characteristics seemed important for the instrument: structured free response format, specific client stimulus, collection of a complete and naturally formed conceptualization, and a scoring system that yields scores for both markers of complexity, differentiation and integration, rather than content of responses.

Table 1 is omitted from this formatted document.

Counselor Cognitions Questionnaire (Draft 1)

Because of the adaptability of its stimulus and evidence of adequate validity and reliability, the Role Category Questionnaire (RCQ; Crockett, 1965) was chosen as the basis for the format and scoring protocol for the CCQ's measure of differentiation. The RCQ is a well-established measure of interpersonal construct differentiation. It has two items: describe a liked peer and describe a disliked peer. Scorers of the RCQ tally the number of characteristics a respondent uses to describe each peer. Individual characteristics are defined as any attribute, quality, trait, motivation, belief, habit, mannerism, or behavior (Crockett, 1965). The RCQ earned 4-week test-retest reliability scores of .84 and .86 (O'Keefe, Shepherd, & Streeter, 1982). In support for the external aspect of construct validity (Messick, 1995), Beatty and Payne (1984) found RCQ scores to be positively correlated with adults' performance on a measure of social perspective taking (Social Perspectives Task; Hale & Delia, 1976). Angell (2000) found scores on the RCQ, and the Paragraph Completion Method (see Table 1; Hunt et al., 1977) had a weak positive correlation ($r = .37$, $p < .05$), a finding that also supported the hypothesis that general cognitive complexity is related to, but not necessarily synonymous with, complexity of cognitions about a specific domain. The RCQ had no significant relationship with loquacity (Angell, 2000) or writing speed (Burleson, Applegate, & Neuwirth, 1981). In sum, there appeared to be sufficient evidence about the construct validity of the RCQ as a measure of cognitive differentiation in descriptions of peers. Therefore, the RCQ was deemed an appropriate template on which the client-focused measure could be based.

Key changes were made to the RCQ that preserved the original format and purpose of the instrument, but used language more relevant to the way a counselor conceptualizes a client. For example, the adjectives used in the RCQ prompt were "liked" and "disliked." This language was thought to be atypical of the way professional counselors would think about or describe their clients. Instead, the adjectives "challenging" and "not challenging" were used so that the original intent of the prompts (to gather cognitions about two different types of individuals) was maintained. As with the RCQ, respondents are asked to describe individuals whom they know well instead of a standardized client, which ensures that natural impression formation has occurred. Variability exists in the respondents' interactions and relationships with the clients described on the CCQ just as there is variability in the respondents' interactions and relationships with the peers described on the RCQ. To achieve the criteria of a complete conceptualization, respondents on both instruments are instructed to describe the clients "completely so that a stranger might understand the kind of people they are from the description only." To gather such information efficiently, respondents list characteristics describing the clients, rather than sentences or paragraphs as required by other measures.

To assess cognitive integration, new tasks were added to the original RCQ format that tap into how the respondent makes conceptual connections between the client characteristics. In addition to the list of client characteristics just described, respondents complete a characteristic importance section and a categorizations section. Respondents indicate the importance of each characteristic using a 5-point Likert-type scale from 1 = not at all important to 5 = extremely important. In conceptualizing any client, some characteristics are more central or important than others. This component is not included in the scoring protocol but provides valuable information for use in clinical supervision. The final component of the CCQ integration assessment is based on Zajonc's (1960) cognitive assessment method and maps the connections between constructs in the respondents' cognitive systems. Here, respondents group the client characteristics into categories based on perceived similarities (e.g., characteristics "low self-esteem, limited social support, recent failed relationship" in the category "factors of the client's depression"). The directions for this section are "Now review the characteristics you listed in the first part. Consider if any of them group together or fit into categories. If so, write a label that describes the category and write the numbers of the characteristics that are included in it." The respondent creates a list of categories for each client separately.

Scoring of the Counselor Cognitions Questionnaire (Draft 1)

Trained raters review the responses to assess both cognitive differentiation and integration. These two scores represent the two distinct aspects of cognitive complexity as described by Crockett (1965). A brief description of the initial scoring protocol is described below.

Based on the RCQ scoring protocol, CCQ raters review the characteristics and tally a differentiation score reflecting the number of unique constructs included in the client descriptions. As in the RCQ scoring, basic demographic and physical descriptors are excluded

from scoring because they represent recitation of concrete facts rather than the respondents' impression of the client. Raters do not focus on the quality (i.e., content) of the constructs, but on the quantity of constructs included in the description. The numerical sum of unique characteristics is the respondent's differentiation score.

Assessment of cognitive integration is more complicated than differentiation because the process of integrating characteristics is complex. The first marker of integration is found in the characteristics used to describe the clients. Raters classify each construct as one of four types of descriptors: cognitive, emotional, spiritual/values, or behavioral. Because more complex conceptualizations include a variety of types of characteristics (Suedfeld et al., 1992), respondents earn a point for each type of descriptor used. Another marker of cognitive complexity is an awareness of the counseling relationship itself (e.g., Borders et al., 1986; Loganbill et al., 1982; Skovholt & Ronnestad, 1992). To assess this marker, raters review the client descriptors for characteristics that mention the counseling relationship (e.g., "seems to want my approval," "resistant to counseling").

Raters also assess valence of the characteristics as a marker of integrative complexity. As more cognitively complex counselors realize, no client is all good or all bad. Individuals with higher integrative complexity can process discordant information (i.e., consider both positive and negative characteristics of an individual; Nidorf & Crockett, 1965). To assess this marker, trained raters classify each construct in the client descriptions as positive, negative, or neutral (e.g., manipulative = negative, receptive to treatment = positive, single = neutral). They then calculate the balance of positive and negative characteristics and award one point if less than 80% of the characteristics were of one valence. The use of a percentage rather than a specific number of characteristics allows assessment of valence for respondents with varying levels of complexity. These are the components of the integration score that came from the lists of client characteristics.

On the final component of the assessment, raters tally the number of unique categories listed by the respondent as a marker of integrative complexity. In addition, raters review the categories for signs of respondent awareness of the counseling relationship, as described previously. Raters also note evidence of meta-cognition (e.g., "resilient, repeatedly victimized, reluctant to change" in the category "things I do not understand about the client"), another marker of advanced cognitive complexity (e.g., Loganbill et al., 1982; Skovholt & Ronnestad, 1992). Thus, the total integration score is a composite of the scores for characteristic type, characteristic valence, categorizations, awareness of the counseling relationship, and evidence of meta-cognition.

The CCQ (Draft 1) was reviewed by a panel of seven experienced counselors and counselor educators to provide evidence for the content aspect of construct validity (Messick, 1995). The panel feedback resulted in a change to the client prompt (from "a client whom you found challenging" and "a client whom you did not find challenging" to "a client with whom you believe you were effective" and "a client with whom you believe you were less effective"). The

panel members suggested that the original wording was vague and could cause respondents to feel defensive. After making revisions suggested by that panel, the CCQ was critiqued by a researcher experienced with cognitive complexity. The experienced researcher suggested increased specificity in the directions (e.g., "Indicate the importance of each characteristic to your overall impression of the client" instead of just "Indicate the importance of each characteristic") and some format changes that improved the ease of use.

Next, one master's degree student with no counseling experience and one doctoral student with several years of post-master's counseling experience completed the CCQ. Their feedback about the clarity of the directions was positive. Their responses informed revisions in the scoring protocol. For example, originally, demographic and physical characteristics were excluded from the differentiation score, but upon review of their descriptions it became clear that many demographic and physical descriptors were important to their conceptualizations (e.g., elderly, physically fit, biracial, divorced). As such, the scoring protocol was revised to include all physical and demographic characteristics except gender and numerical age. Basic differences between the novice and more experienced counselors' responses were congruent with expectations (e.g., the more experienced counselor scored higher for differentiation and integration than did the inexperienced counselor), suggesting the CCQ seemed to capture the desired kind of client characterizations. At this point, the CCQ was deemed ready for a more expanded trial.

PHASE TWO: INITIAL PILOT STUDY

The purpose of this pilot study was to establish administration guidelines and hone instrument directions and the scoring protocol. The RCQ can be administered with or without a time limit. When timed, 5 minutes per peer or 10 minutes total is allotted. When administered untimed, differentiation scores are higher than when administered timed (Okeefe et al., 1982), but the scores are highly correlated. As such, consistency in administration is important. Because the CCQ has added components, participants in this initial pilot study were not given a time limit.

Method

A convenience sample of 10 master's and seven doctoral students at one public university in the southeast United States volunteered to participate. The students were all enrolled in counseling internships through their Council for Accreditation of Counseling and Related Educational Programs (CACREP)-accredited graduate program. The assessment was administered during regularly scheduled group supervision. One of the students was male and 16 were female. Fourteen participants were Caucasian, two were Asian, and one was African-American. Participants ranged in age from 23 to 63, with a mean age of 29.11 (SD = 6.59).

Consenting participants were given the CCQ and were verbally instructed to "read the directions and spend a few minutes completing each section of the forms." Respondent behaviors and completion times were observed and noted by the administrator. Upon completion of all forms,

participants were invited to share their reactions. Open prompts were used by the administrator to facilitate discussion of the instrument (e.g., "What was it like to take this assessment?" and "Did you have adequate time to complete each section?").

Results

Four of the 5 groups completed the CCQ within 15 minutes. Several respondents were observed to finish writing before 10 minutes had elapsed. One respondent required 20 minutes for completion of the instrument. It was noted that English appeared to be this respondent's second language. During administration, this respondent asked the administrator several questions about the directions. It seemed the open nature of the directions and writing task was difficult for this ESL respondent.

In the follow-up interview, respondents reported they had adequate time to complete the instrument. As such, the administration time of 15 minutes was established. They also reported directions for the first part of the assessment were clear (listing characteristics), but they were unclear about what was meant by "category" in the second task. The written directions for this task were revised to improve clarity ("write a label that describes the category and write the numbers of the characteristics that are included in it" was changed to "write a label that describes the category and write the numbers of the characteristics that explain or fit within that category"). One respondent reported she had trouble thinking of "vocabulary words" to describe her clients. The other participants in her group unanimously agreed. Consequently, the written directions were changed to "describe the client as fully as you can by writing words or phrases that explain their defining characteristics."

Upon review of the responses, additional revisions were made to the instrument and scoring protocol. It was very difficult for raters to interpret whether the respondent conceptualized some characteristics as positive or negative (e.g., is reserved a positive, negative, or neutral characteristic?). Consequently, a column was added to the CCQ (Draft 2) so that the respondents themselves could indicate valence for each characteristic. This information allows raters to directly observe if the respondent recognizes both positive and negative characteristics in the client. In addition, very few respondents mentioned the counseling relationship. To make sure the instructions did not limit counselor thinking to client descriptors only, the wording was changed from "Think about any attributes or characteristics they have which you might use to describe them" to "Think about your interactions with them and any attributes or characteristics which you might use to describe them." This subtle change was intended to invite interactional descriptors.

PHASE THREE: PRELIMINARY EVIDENCE IN SUPPORT OF THE PSYCHOMETRIC SUFFICIENCY OF CCQ SCORES

After revisions from the panel feedback, expert review, and initial pilot study, the CCQ was ready for a more extensive trial. The purpose of this phase of the study was to collect preliminary

evidence about the score reliability and validity of the CCQ as a measure of complexity of counselors' cognitions about clients. To that end, the study was designed to test theory-based expectations and provide evidence of substantive, external, and structural construct validity as described by Messick (1995). First, Kelly (1955) and Crockett (1965) both described cognitive complexity as having two distinct components: differentiation and integration. However, few existing measures yield scores for both. Therefore, one goal of this study was to explore the relationship between respondents' differentiation and integration scores, thus collecting some evidence of the substantive aspect of construct validity (Messick, 1995). Second, if cognitive complexity is truly domain specific (Crockett, 1965, 1982), then complexity of thoughts about a peer could differ from complexity of thoughts about a client. Therefore, the respondents completed both the RCQ and the CCQ to allow for comparison of complexity across the two domains (peers and clients). Because the RCQ includes only the initial listing of characteristics, only differentiation scores of the RCQ and CCQ could be compared. This validation question was designed to provide preliminary evidence of discriminant validity, which relates to the external aspect of construct validity (Messick, 1995). Finally, inter-rater reliability for the CCQ differentiation and integration scores was calculated using a Pearson product-moment correlation to determine if the CCQ could be scored consistently. High inter-rater reliability would support the structural aspect of construct validity (Messick, 1995). Specifically, the validation questions for this study were as follow:

What is the relationship between the two components of counselor cognitive complexity (differentiation and integration)?

What is the relationship between the complexity of cognitions about clients and the complexity of cognitions about peers?

Can trained raters use the CCQ scoring protocol with sufficient consistency?

Method

A convenience sample of 34 master's and doctoral students was obtained from a CACREP-accredited counseling program at a public university in the southeast United States. (None of the respondents had participated in Phase Two of CCQ development.) Consenting respondents were given the first section (in which they list characteristics) of the CCQ and RCQ. The order of CCQ and RCQ was counterbalanced with 17 respondents receiving the CCQ first in the packet and 17 respondents receiving the RCQ first in the packet. After 15 minutes, they were given the second section (in which they categorize the characteristics) of the CCQ only. After 10 minutes they were given a brief demographic form. After five minutes all forms were collected. Verbal instructions at each point were "Please read the directions and spend a few minutes completing each section of the forms."

Of the 34 participants, 4 (11.8%) were male and 30 (88.2%) were female. Twenty-nine participants (85.3%) were Caucasian, two (5.9%) were Asian, two (5.9%) were American Indian

or Alaska Native, and one (2.9%) was African American. One respondent was eliminated from data analysis due to the potentially confounding factor that English was not his or her first language. Participants ranged in age from 22 to 50, with a mean age of 29.00 (SD = 7.03).

The CCQ and RCQ forms were scored by two trained raters, the principal investigator and an advanced master's student in counseling who was unfamiliar with the purpose of the study. The second rater successfully completed the Rater Training Manual (Welfare & Borders, 2006) prior to scoring study data. All discrepancies in ratings were reconciled by discussion.

Results

Analysis of the data provided basic descriptive results of students' performance on the CCQ. Respondents' differentiation scores ranged from 8.00 to 50.00 with a mean of 22.00 (SD = 8.72). Integration scores ranged from 6.00 to 15.00 with a mean of 10.42 (SD = 2.39). As expected (Validation Question 1), we found a positive correlation between differentiation and integration scores (Pearson product-moment correlation; r(31) = .48, p = .005). This suggests that the two indices of cognitive complexity are related but not sufficiently explained by one score alone.

Respondents' RCQ scores ranged from 11.00 to 35.00 with a mean of 19.73 (SD = 5.86). To explore the relationship between complexity of cognition about peers and clients, a correlation between RCQ and CCQ scores was calculated (Validation Question 2). The Pearson product-moment correlation between the CCQ differentiation total and RCQ differentiation total was not statistically significant (r(31) = .217, p = .225), suggesting the complexity of respondents' thoughts about their peers differ from the complexity of thoughts about their clients.

Each of the 33 CCQ forms was scored by the two trained raters (Validation Question 3). The inter-rater reliability for differentiation total was significant at .99 and for integration was .95. These very high inter-rater reliabilities suggest the two raters scored the responses consistently.

PHASE FOUR: ADDITIONAL EVIDENCE TO SUPPORT THE PSYCHOMETRIC SUFFICIENCY OF CCQ SCORES

With psychometric support from the preliminary studies, the CCQ underwent further evaluation in a subsequent study using a larger sample and addressing additional aspects of Messick's conception of construct validity (1995). In this study, the relationship of domain-specific complexity (as measured by the CCQ) and overall cognitive complexity was explored. The Washington University Sentence Completion Test of Ego Development (SCT; Loevinger & Wessler, 1970) was selected as the measure of general cognitive complexity because of its adequate evidence of construct validity and reliability and particular relevance to counseling. The SCT has been used in research on counselor cognitive development (e.g., Borders, 1989; Borders et al., 1986) and captures relevant information about the respondent's system for perceiving self, others, and relationships. It yields a single score for overall ego development. Four validation questions were posed:

What is the relationship between the two components of counselor cognitive complexity (differentiation and integration)?

Are post-master's counselors' scores higher than master's students' scores?

Do respondents' scores vary across counseling specializations?

What is the relationship between the complexity of cognitions about clients and general cognitive complexity?

First, the relationship between CCQ differentiation and integration was assessed again to provide additional evidence of the substantive aspect of construct validity (Messick, 1995). Second, if graduate training increases counselor cognitive complexity as the literature suggests (e.g., Duys & Hedstrom, 2000; Granello, 2002), then post-master's counselors should score higher than master's students on the CCQ. This finding would provide additional evidence for the substantive aspect of construct validity. Third, as previously described, the CCQ was designed with a respondent-provided stimulus so it can be used with counselors of any specialty. Thus, finding no mean differences across groups of respondents from different counseling specializations (e.g., mental health counselors, school counselors, etc.) would provide evidence for the generalizability aspect of construct validity (Messick, 1995). Finally, the relationship between specific and general cognitive complexity was evaluated to explore discriminant evidence for the external aspect of construct validity. Inter-rater reliability was reported for both the CCQ and the SCT.

Method

A convenience sample of 120 master's students and post-master's counselors was obtained. Eighty students at seven CACREP-accredited counseling programs at private and public universities in the United States participated. Thirty-nine post-master's counselors currently in practice or enrolled in counselor education doctoral programs participated as well. None of the respondents had participated in previous CCQ pilot studies. Consenting respondents were given the CCQ, SCT, and a brief information form in individual or group administration sessions. 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.

Of the 120 participants, 14 (11.8%) were male and 105 (88.2%) were female (1 participant omitted this item). Ninety-eight participants (82.4%) were Caucasian, 12 (10.1%) 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 (.8%) was Native Hawaiian or Other Pacific, and 1 (.8%) identified as Other; 1 omitted this item. Participants ranged in age from 22 to 59, with a mean age of 30.65 (SD = 8.41). Forty-four of the participants identified themselves as community or mental health counselors, 50 as school counselors, 8 as couple and family counselors, 6 as college student counselors, 10 as Other; 2 omitted this item.

The CCQ forms were scored by two trained raters, the principal investigator and an advanced master's student in counseling who was unfamiliar with the purpose of the study. The SCT forms also were scored by two trained raters, the principal investigator and a doctoral student in counseling who was unfamiliar with the purpose of the study. The raters completed the respective instrument training manuals and samples prior to scoring study data (Hy & Loevinger, 1996; Welfare & Borders, 2006). All discrepancies in ratings were reconciled by discussion.

Results

Respondents' differentiation scores ranged from 6.00 to 72.00 with a mean of 22.03 (SD = 10.39). Integration scores ranged from 0 to 22.00 with a mean of 9.88 (SD = 3.78). As expected (Validation Question 1), we found a positive correlation between differentiation and integration scores (r(117) = .64, p = .00). This significant correlation again suggested that the two indices of cognitive complexity are related, but not sufficiently explained by one score alone.

Descriptive statistics also were calculated and tested across the degree levels of the participants (Validation Question 2). Analysis of variances (ANOVA) results showed that the mean differentiation score for post-master's counselors (M = 28, SD = 11.7) was higher than for master's students (M = 18.95, SD = 8.22). That difference was statistically significant (F(1, 116) = 23.7, p = .00). Similarly, post-master's counselors scored higher on integration (M = 11.69, SD = 3.8) than master's students (M = 9.03, SD = 3.48), and that difference was statistically significant (F(1, 117) = 14.49, p = .00).

To test whether the CCQ is appropriate for use with counselors in any counseling specialization (Validation Question 3), ANOVAs were conducted on CCQ differentiation total and CCQ integration total scores across counseling track (e.g., mental health, school, couple and family, student development/college counseling, and other). No significant mean differences were found for differentiation (F(4, 113) = 1.075, p = .37). The ANOVA for integration was significant at the p < .05 level (F(4, 113) = 2.78, p = .03). A Tukey's post hoc test revealed that participants who identified as mental health counselors scored significantly higher on CCQ integration than participants who identified their specialization as school counseling. A follow-up independent samples t-test exposed a potential confound: significantly more of the mental health counselors were post-master's degree counselors (N [post-master's] = 18, N [master's students] = 26) than were school counselors (N [post-master's] = 11, N [master's students] = 39), t(92) = 2.0, p = .048.

To explore the relationship between complexity of cognitions about clients and general cognitive complexity, a correlation was calculated (Validation Question 4). The Pearson product-moment correlation between the CCQ differentiation total and SCT total was not statistically significant (r(117) = .14, p = .14), nor was the correlation between CCQ integration and SCT total (r(118) = .16, p = .07). These results indicate that the complexity of counselor cognitions about clients differs from the general cognitive complexity scores in this study sample.

Each of the 120 CCQ forms was scored by the two trained raters. The inter-rater reliability for differentiation total was .99 and for integration was .96. The very high inter-rater reliabilities again suggest that the CCQ raters scored the responses consistently. The inter-rater reliability for the SCT was sufficiently high (r = .86) as well.

In addition to these empirical results, the findings informed one additional change to the CCQ scoring protocol. In categorizing the characteristics (part of the integration scoring), raters noted that some respondents included descriptors of clients' situational or contextual characteristics (e.g., "strong support from family" or "isolated/few friends"). These characteristics were grouped into the most inclusive category (Behavioral) but seemed to merit a separate category in future CCQ use. The scoring protocol was subsequently modified (to its current format) to include the following types: cognitive, emotional, behavioral, contextual, and spiritual. In addition, none of the participants in the initial pilot study (N = 34) or this sample (N = 120) included responses that had evidence of meta-cognition. This component of the scoring protocol for integration was removed. No changes were made to the instrument itself.

DISCUSSION

These four phases of development provided preliminary evidence of validity and reliability for the Counselor Cognitions Questionnaire. The framework for the validation questions was organized in light of Messick's (1995) model of construct validity. The results are largely supportive for use of the CCQ as a measure of cognitive complexity in counselors in training and early to mid-career practice.

The first finding in support of the substantive aspect of construct validity of the CCQ is the relationship between differentiation and integration scores. The positive correlation between CCQ differentiation and integration, found in two separate samples, suggests the necessity of assessing both aspects of cognitive complexity. Measures that only assess differentiation (such as the RCQ) do not appear to adequately represent the two components of cognitive complexity. The correlation between the scores was statistically significant, suggesting that as differentiation increases so does integration, but cognitive complexity cannot be fully described by either score alone.

Additional evidence of the substantive aspect of construct validity of the CCQ as a measure of counselor cognitive complexity can be found in the mean differentiation and integration scores of subgroups of respondents. As expected, participants who had completed master's degrees scored higher, on average, than master's students. This result suggests, in line with cognitive complexity theories and research (e.g., Crockett, 1965; Duys & Hedstrom, 2000; Granello, 2010), that additional training and experience enhances counselors' cognitions about their clients. Individual scores did vary within the degree level, however, with some master's students scoring higher than some post-master's counselors. It seems that factors other than years of graduate training—yet to be identified— also impact cognitive complexity.

The CCQ was designed with a respondent-provided client stimulus to increase its versatility for use with counselors in various settings (e.g., hospitals, schools, mental health agencies). In the Phase Four study, there was one significant pair-wise difference across counseling specialization, but the difference in degree level across two counseling settings might have confounded the scores. Therefore, further study is necessary to assess if comparison of CCQ scores across counselor setting is appropriate.

Evidence for the external aspect of construct validity was found in the comparison of CCQ and RCQ scores and CCQ and SCT scores. Previous investigators of counselor cognitive complexity (e.g., Duys & Hedstrom, 2000; Little, Packman, Smaby, & Maddux, 2005) have used the differentiation score from the RCQ as a measure of counselor cognitive complexity. The non-significant Pearson product-moment correlation between differentiation scores on the CCQ (about clients) and differentiation scores on the RCQ (about peers) suggests that the two instruments are measuring different things. In addition, the non-significant correlation between CCQ score and SCT score suggests that a general measure of cognitive complexity does not capture the same information that the client-specific CCQ does. The findings are congruent with Crockett's (1965) assertion that cognitive complexity is domain specific, and therefore complexity of counselor cognitions about clients cannot be assessed with a measure of complexity of cognitions about peers or a general measure. CCQ's use of a client stimulus is essential to the content aspect of construct validity as a measure of counselor cognitive complexity.

Important evidence for the structural aspect of content validity of a rater-scored assessment is the estimation of inter-rater reliability (Messick, 1995). Scores on the CCQ are based on trained raters' evaluation of the responses. An inter-rater reliability of .90 has been suggested for use of an instrument in research (e.g., Fraenkel & Wallen, 2006). The CCQ inter-rater reliabilities of .99, .96, and .95 in these studies exceed the suggested minimum and are comparable to or better than reliabilities for other instruments designed to measure cognitive complexity. For example, Novy (1993) reported a .94 inter-rater reliability for the Sentence Completion Test. Ladany and colleagues (2001) reported inter-rater reliabilities of .91 for etiology ratings and .80 for treatment ratings using the Conceptual/Integrative Complexity Method (see Table 1; Suedfeld et al., 1992). The CCQ raters achieved adequate inter-rater agreement, thus providing evidence that the scoring protocol is adequately detailed and differences in cognitive complexity are evident in the respondents' answers.

LIMITATIONS AND FUTURE RESEARCH

Instrument development and validation is a long-term process. The results reported here provide consistent (yet incomplete) evidence of construct validity and reliability to support the adequacy of the CCQ as an assessment of the complexity of counselors' cognitions about their clients. Some limitations and additional questions need to be addressed in the ongoing process regarding the efficacy of the CCQ.

Limitations of the studies presented herein can be grouped into three types: limitations of the samples, limitations of the methodology, and limitations of the analyses. First, these pilot studies involved relatively small convenience samples, which threaten the generalizability of the results. Additional studies with larger, random samples of counselors at all stages of development would support a more complex psychometric evaluation. Second, because the instrument developer served as a rater for the studies, the inter-rater reliabilities may be artificially inflated. A better assessment of the adequacy of the Rater Training Manual and scoring protocol would be a study using two raters who were unfamiliar with the instrument except for their exposure to the manual. Finally, the insignificant correlations between the CCQ and RCQ and the CCQ and SCT merely suggest that the instruments are measuring different constructs. A longitudinal study that includes all three measures as predictors of counselor effectiveness would allow for the exploration of the evidence for predictive validity of each measure. Similarly, because differences in experience level confounded the analysis of mean differences in complexity across counselor setting, further study is necessary to determine if counselors from all settings are able to accurately record the complexity of their conceptualizations on the CCQ.

The next phase of the development and validation of the CCQ offers several important questions that merit closer study. For example, what balance of positive and negative characteristics best demonstrates the respondent's ability to incorporate discordant information? Post hoc analysis of the responses in these studies revealed that respondents used significantly more positive characteristics to describe the clients with whom they felt effective than they did to describe the clients with whom they felt less effective (see Welfare, Farmer, & Lile, under review, for more information). A larger sample would support the quantitative analysis that is required to identify the best way to score this theoretically important component of integration.

In addition, it is unclear if the scoring protocol is equally able to measure complexity in novice, mid-career, and expert practitioners. It is well-documented in the cognitive science literature (e.g., Patel, Glaser, & Aracha, 2000) that experts use different cognitive processes than do novices. The samples herein included mostly counselors-in-training and early career practitioners. Because the CCQ is designed primarily for use in training and supervision, the composition of the sample makes sense for preliminary validation. However, if the CCQ is to be expanded for use as a tool to track cognitive growth across the entire career or compare cognitive complexity of expert practitioners with cognitive complexity of novice or mid-career practitioners, subsequent validation is required.

Finally, additional information about the concurrent and predictive validity of the CCQ would contribute to the strength of the instrument. Evidence of concurrent validity could come from comparison of CCQ scores and supervisor evaluations of supervisee cognitive complexity, client perceptions of counselor competence, client satisfaction with counseling, or client outcomes such as progress on goals. Evidence of predictive validity could be assessed in a longitudinal study of counselor cognitive development and counseling effectiveness. These studies would provide

additional evidence that the CCQ measures counselor cognitive complexity and that counselor cognitive complexity is important in counselor effectiveness.

IMPLICATIONS

With the aforementioned empirical support, it appears that the CCQ can be informative in empirical research. Having a way to empirically assess the complexity of the counselor's conceptualization of the client and to consider specific components of the conceptualization results in new options for counselor preparation and supervision research. Ultimately, educators and supervisors need evidence-based techniques that facilitate their supervisees' cognitive growth. The Counselor Cognitions Questionnaire is a valuable tool that provides information needed to begin identifying such empirically based techniques.

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