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# Assessment Courses in Counselor Education

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Pre- and post-surveys of an assessment class within the counselor education curricula were used to assess the thoughts, feelings, and concerns of counselors-in-training enrolled in the class. A mixed-methods study was conducted to assess themes in responses and examine comfort and competence with the concept of assessment. Results provide counselor educators insight into possible factors that affect and alter the perspective of counselors-in-training before and after taking an assessment class. Recommendations and implications for future research are discussed.

**Keywords:** counselor education, assessment, anxiety, counselor competence, master degree programs

In counselor education, researchers have explored pedagogy in assessment and appraisal by examining specific strategies and activities that are employed in the classroom (Davis, Chang, & McGlothlin, 2005). The impetus for this research relates to enticing students to learn these concepts when assessment courses are often met with "dread and fear" above all other courses in the counseling program curriculum (Davis et al., 2005, p. 95). However, students' anxiety or fear of the assessment course and instructional strategies that alleviate this anxiety has not been examined in the literature. Research on statistics anxiety indicates that assessment course anxiety may share some of the same contributing factors as statistics anxiety.

Statistics anxiety is defined as anxiety that occurs as a result of encountering statistics in any form and at any level (Onwuegbuzie, DaRos, & Ryan, 1997). According to Onwuegbuzie (2003), more than two-thirds of graduate students appear to experience uncomfortable levels of statistics anxiety. Based on research, statistics anxiety negatively affects learning due to situational, dispositional, and personal factors (Pan & Tang, 2004). Situational factors include students' math experience (Baloglu 2003; Hong & Karstenson, 2002) and statistics, computer, and research experience (Pan and Tang, 2004). Dispositional factors refer to students' math self-concept or self-esteem (Zeidner, 1991), scholastic competence (Onwuegbuzie, 2000), perfectionism (Onwuegbuzie & Daley, 1999; Walsh & Ugumba-Agwunobi, 2002), hope (Onwuegbuzie, 1998), and procrastination (Onwuegbuzie, 2000; Walsh & Ugumba-Agwunobi, 2002). Learning style (Onwuegbuzie, 1998), age (Baloglu, 2003), gender (Hong & Karstenson, 2002), and ethnicity (Bell, 1998; Onwuegbuzie, 1999) contribute to personal factors.

Pan and Tang (2005) researched factors and instructional strategies that alleviated anxiety in students taking a statis-

tics course. Fear of math, lack of connection between statistics and daily life, pace of instruction, and the instructor's attitude were identified as four patterns of factors that contributed to statistics anxiety. The majority of the participants reported anxiety related to math deficiency such as a math phobia. Study participants also reported a lack of understanding how statistics is useful in dealing with daily life problems which made it difficult to learn the concepts or place any importance on learning the concepts. The pace of instruction or the intensity of the instruction affected their perception of their own ability to learn the material. If information was presented in a short amount of time (i.e., short semester) versus over an entire academic year, participants reported a negative impact on their learning (Pan & Tang, 2005). Bell (2001) also found that students taking beginning statistics in an accelerated format score significantly higher on anxiety scales that indicate higher anxiety levels. Finally, the perception of the instructor's attitude in class was assessed as helpful or harmful. Participants reported feeling ridiculed for their lack of knowledge of the concepts which resulted in lower self-esteem.

In addition to learning more about factors contributing to statistics anxiety, Pan and Tang (2005) examined instructional strategies that participants' reported as helpful to them while learning the concepts. Helpful strategies included the instructors' practical application of the concepts, ability to carry real-world examples throughout the course, provision of an orientation prior to the beginning of the course, utilization of multiple evaluation criteria, and ability to be flexible

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in their availability to provide assistance. These findings correspond with prior research indicating that students respond with less statistics anxiety when statistics is applied to real-world situations (Forte, 1995) and a variety of multiple evaluation criteria are employed (Dolinsky, 2001).

Although these studies provide information on factors that contribute to statistics anxiety in college students, they cannot be generalized to the thoughts and perceptions of students who take counselor education courses that focus on assessment and appraisal techniques. Based on anecdotal evidence that counselors-in-training (CITs) procrastinate in taking assessment courses as well as research courses, it is somewhat logical to assume CITs may be experiencing some level of anxiety about assessment courses. Because research on statistics anxiety is evidence of the negative relationship between high levels of statistics anxiety and course performance, it is important to determine if a similar relationship is occurring in assessment courses.

The current study (a pre- and post-test design) was used to focus on CIT's thoughts and feelings about taking an assessment course. In addition, we assessed levels of confidence, competence, and the effectiveness of instructional strategies.

## Method

In designing the study, we were interested in obtaining qualitative aspects of the participants' experience before and after taking the assessment course. Hence, an open-ended question survey was created. Additionally, two Likert-questions were included that assessed competence and confidence with assessment concepts. Participant responses were analyzed by the researchers to identify possible themes.

### Participants

The participants in the study included students enrolled in a masters-level assessment in counseling course at a large university in the southeast. A total of 46 students completed the pre-survey for both 2007 and 2008 summer assessment classes. The majority of the participants reported their age to be in the 20 to 25 year-old range ( $n = 21$ ). Fourteen participants were in the 26 to 30 year-old range, five were in the 31 to 40 year-old range, and seven were in the 41+ range. The pool of participants identified as: Caucasians representing 78% ( $n = 37$ ), African Americans representing 17% ( $n = 8$ ), and 2 participants representing no identified racial group.

### Procedure and Data Collection

Utilizing grounded theory as the research basis required us to make preliminary decisions about the participants or purposive sampling (Glaser, 1978; Strauss & Corbin, 1998). Only students who were registered to take an assessment course in counseling were appropriate due to the nature of the research. In order to have sufficient data to examine, the study was conducted with two separate assessment classes.

Because the course was offered only one time a year during a summer session, data was collected during the summers of 2007 and 2008. The class offered the same instructor, syllabus, assignments, and text.

We developed two unpublished, on-line surveys based on ideas presented in the statistics anxiety literature (Pan & Tang, 2004; 2005) and conducted a pilot study (Gibson & McCallum, 2006) a summer session assessment class in 2006. The pre-survey questions (Table 1) were administered prior to the beginning of the summer course session.

All students registered for the course were contacted via email. This initial email included a letter of informed consent, directions for taking the survey, and the Internet link to the pre-survey. In an effort to eliminate possible undue influence from the instructor, the letter of informed consent described the procedures for examining the survey results. Since the instructor of the course was also the lead researcher for the project, the second author collected the pre-survey data and did not disclose this information to the instructor during the summer session.

This data included the names of students who participated in the pre-survey, as they were the only students eligible to participate in the post-survey. Students were provided with extra credit points for completing both surveys at the end of the semester. With one week remaining in the semester, the instructor provided the Internet link for the post-survey questions (see Table 1) to the class with the instructions that only students who completed the pre-survey were eligible to take the post-survey during the last week of class. A total of 42 students completed the post-survey for both summer assessment courses. The second author provided the instructor with the names of students who completed both surveys in order to award extra credit points. The remaining data were examined by both researchers after grades were submitted.

### Analyses of Bias

In qualitative research, it is important to assess the relationship between the researcher and the ideas being studied. In this case, one of the researchers was a tenure-track assistant professor who was also the instructor of the assessment of counseling course. The second researcher was a doctoral student in a counselor education program and research assistant for the instructor. Prior to data collection the researchers met to discuss their ideas and views about this study and reviewed the results of a pilot study (Gibson & McCallum, 2006) in order to be aware of potential confounds and bias to the data collection process.

### Data Analysis

The results of the pre- and post-surveys for 2007 and 2008 were read and coded by both researchers. Each of us read the results several times to identify themes in the data. After these individual readings, we met to examine the themes we had found, and we named these themes. In this open coding process, 15 identified incidents and issues with similarities

**Table 1. Survey Questions**

Pre-Survey Questions	Post-Survey Questions
1. What is your name?	1. What is your name?
2. What does assessment mean to you?	2. What are your thoughts as you complete this course?
3. What are your thoughts as you begin this course?	3. What are your feelings as you complete this course?
4. What are your feelings as you begin this course?	4. What concerns did you experience during the course?
5. What concerns do you have as you begin this course?	5. How did your concerns change and why?
6. Can anything be done now to address your concerns? If so, what?	6. Could anything have been done to address your concerns? What?
7. How would you rate your comfort with the concept of assessment?	7. How would you rate your comfort with the concept of assessment?
8. How would you rate your competence with the concept of assessment?	8. How would you rate your competence with the concept of assessment?

Response options: 1-None at All, 2-A Little, 3-Somewhat, 4-Often, 5-Extremely

were reorganized and redefined into five thematic categories based on the pre-survey.

For the post-survey, the open coding process identified 10 incidents and issues with similarities. These incidents were reorganized and redefined into six thematic categories. Patton (2002) describes this process as generating analyst-constructed typologies, which are typologies created and applied to the participants' responses by researchers that are grounded in the data but not necessarily used or explicitly reported by participants. This process entails uncovering patterns, themes, and categories in order to guide further explorations in the study. Once the process of open coding was completed, we engaged in axial coding of the connections between these categories. We completed this process as individuals and together by examining the context, mediating variables, and goal-oriented activities of the participants in their experience in an assessment course (White & Marsh, 2006).

In addition, two pre- and post-survey quantitative questions were asked in regard to level of comfort and competence with the concept of assessment. Responses were based on a 5-point Likert scale on a continuum of "none at all" to "extremely." These results were analyzed using the statistical computer analysis system SPSS 16.0 (2007).

## Results

Five themes emerged after analyzing the pre-survey data and six themes emerged after analyzing the post-survey data. The pre-survey also included an open-ended question about the meaning of assessment. The pre-survey themes included (a) perception of difficulty and challenge associated with an assessment course, (b) anxiety and fear of failure, (c) exter-

nal issues that influence success, (d) value of practical implications, and (e) professor influence. The post-survey themes included (a) competence and confidence, (b) better understanding of assessment, (c) academic self-concept, (d) value of practical implications, and (e) professor influence. Words that highlight the essence of each theme are italicized in the respondents' quotes for the pre- and post-surveys.

### Pre-Survey

The pre-survey internet link was emailed to all of the students registered for the course in the Summers of 2007 and 2008. A description of the five themes that emerged from the pre-survey results follows.

**The Meaning of Assessment.** When asked about the meaning of assessment in the pre-survey, the majority of the participants' responses centered on words such as evaluating, testing, gathering information, and measurement. Many of the recorded responses connected these terms to counseling as reported by one participant, "Assessment means *utilizing tests and other measures to gain data* on clients in order to make an educated evaluation and/or assessment of that individual."

The majority of the comments alluded to more formal assessment that utilizes tests, techniques, and measures rather than informal assessment, "A *test* of some sort to gather information." Furthermore, some of the participants named specific state tests that were used in the public education system to assess achievement or associated assessment with tests in schools. There was an acknowledgment in other participants' responses that assessment could be used in conjunction with program evaluation and not only with individuals.

**Perception of Difficulty and Challenge Associated with an Assessment Course.** This theme became evident in examining the pre-survey questions related to the participants' thoughts and feelings associated with beginning the assessment course. Based on the responses, poor math self-concept appeared to be related to perceived difficulty of the class and either doing well or poorly in the class as illustrated in the comment, "It will be heavily math based and similar to the research course I have already taken. *I may need additional help if I cannot grasp the concepts.*"

The participants' responses also reflected an association between the course being challenging due to the importance of learning assessment concepts and applying them in counseling. One participant reported, "I do know the importance of assessment to counseling, so I feel this course will greatly improve my future skills." Another participant reported, "I think assessment will be challenging because there are so many different tests and a need to know about assessment." These sentiments about difficulty and challenge were also echoed in the theme of anxiety and fear of failure.

**Anxiety and Fear of Failure.** The primary emotion reported in regard to how the participants felt prior to starting the assessment class was nervousness and anxiety. These feelings ranged from a more positive feeling of excitement and nervousness to more negative and extreme feelings of anxiety. Some of the more general feelings of anxiety were related to the condensed format of the course (taught in 6 weeks), "*I am nervous and anxious about beginning this course. Because everything is so fast paced I am not sure whether or not I will be able to get everything done and still have my sanity intact.*"

Extreme anxiety appeared to be related to math self-concept and possibly statistics anxiety as reported by one participant, "I am extremely anxious. I have heard this course can be very difficult and, for example, *I struggle with some statistical skills* needed to evaluate reliability and validity." This early perception of a heavily statistics-loaded assessment course (although students were not required to perform any statistics in the course) permeated the responses regarding anxiety. In addition, previous negative experiences with statistical knowledge appeared to influence their high anxiety as reported by another participant,

I feel like *I will have a hard time translating the numbers* concerning reliability and validity. Even if the course does not require doing calculations, I will have difficulty seeing how to interpret the numbers provided to us in the course.

Students in the course were most concerned about failing to either make a good grade or acquire the knowledge to adequately apply learned concepts to practice. Both of these concerns about failure appeared to be related to several concepts including time management, academic self-concept, and class requirements. The issue of time management appeared to be related to the condensed nature of the summer

course as related by one participant, "Same concern as with every summer course...*will I be able to get all the work done* in such a short time!"

Another participant reported a concern related to academic self-concept, "My biggest concern is that I will not be able to take everything in and be *as competent in assessments as I would like.*" Fear was also related to the concern about course requirements as reported by another participant, "From reading the syllabus, I am immediately concerned about the different assignments and exams that are scheduled."

**External Issues That Influence Success.** For some participants, external factors outside of the course influenced their perception of possible success in the class. Based on the participants' report, these external factors ranged from the time of year (summer), the summer school schedule, and finding balance between school and leisure activities. One participant reported, "I am also wanting very much to *balance school with leisure time.* I am afraid I will not balance my life well over the summer."

For another participant, the concern was focused on the logistics of the summer school schedule, "My major concern is that I will have a hard time *juggling two summer classes.*" This concern was echoed in other comments regarding the condensed format of summer courses and workload involved with these courses.

**Value of Practical Implications.** The pre-survey asked the participants if anything could be done at the time of the pre-survey to alleviate their current concerns. While several participants noted that nothing but starting the class could help them, two distinct themes did emerge. One focused on the participants' need to experience practical application in the course as one participant noted, "I hope that there is instruction as well as *experiential components.*" A second participant reported, "Yes, practice giving assessment tests and getting familiar with the tests would help."

Participants who were familiar with some tests through their work in the schools had more specific requests,

*"Practical application* of the use of inventories and tests [would help]. In other words, I would like to know what the schools in our state use as instruments, how the school professionals decided upon the efficacy of whatever instruments they are using."

**Professor Influence.** A second theme that emerged from asking participants what could be done at the time of the pre-survey to help alleviate their concerns involved how the participants perceived how the professor would be helpful. This included clarification of the course requirements as noted on the syllabus, empathy for students taking condensed summer courses and more than one summer course, and perceptions of a professor under whom they are studying for the first time.



Although the syllabus was posted to Blackboard prior to the start of the course, several participants indicated a need for clarification to help alleviate their concerns. One participant reported, "It would be *helpful to have a discussion* when reviewing the syllabus about what we need to know for tests, quizzes, etc." Several participants were concerned about how the professor would teach and interact with the students. One student reported, "I guess the only concern would be that I have not had [first author] as a professor so *I don't know what to expect* for me to express my concerns." A second student requested empathy from the professor, "The only thing that can be done to address this concern is to be *understanding and empathetic* with me, and to continually express a caring attitude while helping us learn this lucrative information."

### Post-Survey

The post-survey internet link was provided to all of the students with instructions that all students who completed the pre-survey were eligible to complete the post-survey. A deadline of one week was provided to complete the post-survey. The five themes that emerged from the participants' responses are described below as well as the results from the two Likert scale questions in regard to comfort and competence.

**Competence and Confidence.** The post-survey questionnaire paralleled the pre-survey by asking the same questions but as a reflection of the students' experiences as they completed the assessment in counseling course. Most participants conveyed a sense of relief upon completion of the course. More importantly, many participants reported feeling a sense of confidence and competence in assessment. One participant reported, "I feel very refreshed! When entering the class I felt very anxious and incompetent in the area of assessment. Just six weeks later, *I am much more competent and confident* in my knowledge of assessment."

The comments also indicated that participants felt validated in their decision to pursue a career in counseling as noted by this comment: "I feel more confident in my understanding of the use of different assessments. I also feel a little better about how reliability and validity relate to assessments. This class also *helped validate my decision* to go into school counseling."

The reported feelings of confidence were reflected also in the comments by participants who reported feeling more competent in the area of assessment. One student reported, "I feel more competent in the area of assessment. I feel that I have the knowledge to choose appropriate instruments and interpret the results." Another student reported, "*I feel much more confident* in my ability to assess the degree of intention for suicide which was a huge concern of mine before taking this class." It appears that the confidence in their obtained assessment skills addressed concerns the participants had in regard to counseling practice.

In addition to participant comments, two Likert questions (anchored 1-5) were utilized to assess how the participants

would rate their level of comfort and competence with the concept of assessment. The means and standard deviations for each year of data collection and the combination of both years are seen in Table 2.

For the purpose of this research, the data was combined for both years to conduct independent t-tests for each question. The first question asked participants to choose the descriptor (i.e., 1-None at All, 2-A Little, 3-Somewhat, 4-Often, 5-Extremely) of how they would rate their comfort with the concept of assessment (pre- and post-survey). There was a significant difference between mean ratings of comfort between pre-survey ( $M = 2.77$ ,  $SD = .89$ ) and post-surveys ( $M = 3.86$ ,  $SD = .65$ ;  $t = -6.55$ ,  $df = 87$ ,  $p < .0001$ ). The second question asked participants to choose the descriptor (i.e., 1-None at All, 2-A Little, 3-Somewhat, 4-Often, 5-Extremely) of how they would rate their competence with the concept of assessment (pre- and post-survey). There was a significant difference between mean ratings of competence between pre-survey ( $M = 2.43$ ,  $SD = .88$ ) and post-survey ( $M = 3.66$ ,  $SD = .88$ ;  $t = -6.55$ ,  $df = 86$ ,  $p < .0001$ ).

**Better Understanding of Assessment.** Overwhelmingly, the participants reported they had gained a better understanding of assessment including learning a more inclusive definition of assessment, the applications of assessment, and how to be critical consumers of assessment techniques. One participant reflected on the definition of assessment, "*Assessment has a much broader definition* than I previously thought. I viewed assessment as testing, and while testing is a part of assessment, it is only a small part." The definition of assessment expanded from formal assessment to informal assessment as indicated by another participant, "I think there is a place for formal assessment in counseling, but I think I will likely use informal assessments more often. I think I understand when to use each now."

Participants also reported how they learned the value of good assessment and how important it is in counseling, "*Assessment is very important* and it is imperative that counselors have training before being able to give assessments." This was also reflected in changes in the perceptions about assessment practices that participants previously held prior to the class as noted in this comment,

Going into it [the assessment class] I didn't think I would like the class because I have always heard so many bad things about assessment from counselors working in the schools. But it was nice to see all of the different types of assessment options.

**Academic Self-Concept.** The post-survey included a question that asked participants about any concerns experienced during the course. The responses to this question indicated a continued concern about the participants' ability to grasp the material, apply the material, and obtain a good grade. However, obtaining the good grade was a reflection of grasping the material as one participant commented, "*Of*

**Table 2. Pre- and Post-Survey Means and Standard Deviations for Comfort and Competence with the Concept of Assessment**

	Pre-Survey		Post-Survey	
	Mean	SD	Mean	SD
Comfort (2007)	2.57	.84	3.77	.75
Comfort (2008)	2.96	.91	3.95	.51
Comfort (2007-2008)	2.77	.89	3.86	.65
Competence (2007)	2.48	.90	3.32	.84
Competence (2008)	2.38	.86	4.05	.78
Competence (2007-2008)	2.43	.88	.366	.88

course I was concerned about my grades. Was my work going to be good enough?"

The ability to mentally grasp the material was at times connected to previous concerns about math ability as one participant described, "I was concerned about *my ability to grasp* the statistical [and] mathematical part of the course." For others it was connected to having to process a lot of material in a short period of time as reported by another participant, "I had a *hard time grasping* the new knowledge well enough to build on it with so much new information being offered in the very beginning."

Some of the participants also reported concerns about their ability to appropriately apply the assessment concepts, as reflected in this student's comment, "I think my biggest concern had to do with actually *applying the tests in lab*. It was challenging at first, but I kept thinking about the importance of utilizing it correctly for the well-being of our clients." Students reported overall concerns about their ability to interpret tests used in the course as well as tests they would potentially use in the future.

**Value of Practical Implications.** This theme emerged on the post-survey as well as the pre-survey. Participants reported a general sense of appreciation for having practical experiences integrated in the assessment course. These practical experiences were reported to alleviate some of their concerns. The practical experiences included role-playing an assessment interview, scoring and interpreting specific test instruments, and critiquing test instruments.

In applying research skills to critiquing assessments, participants reported a growing sense of confidence in succeeding in the class and being able to apply these skills in their future work as counselors. The role-plays appeared to help some participants become familiar with the language often used in assessment as described in this comment: "*Practicing* working with clients on lab days helped me to use some of the vocabulary and understand my tendencies in order to

make the necessary adjustments." The practice of role-playing test interpretation also appeared to help one student learn how to do better interpretation, "The *practice with re-laying results* seemed to help me better understand how to interpret." In regard to critiquing assessments, one participant reported, "The assignments required interpreting the validity, reliability and norming factors in instruments. That really reinforced the class discussion on these topics, and I do feel I have moved forward somewhat on my understanding of these issues."

**Professor Influence.** Professor influence was another theme that was echoed in both pre- and post-surveys. In the post-survey, participants reported how the professor was able to ease concerns. These concerns were alleviated by the participants understanding what was required in terms of assignments, by the classroom atmosphere promoted by the professor, and by the professor demonstrating or providing assessment examples in class.

One participant reported how her anxiety decreased because of the classroom atmosphere, "The *teacher made the atmosphere of the class relaxed and non-threatening*. It relieved a lot of the anxiety I was feeling." Furthermore, the counseling assessment examples were helpful to another student, "the professor seemed to *intentionally include MFT with examples* from her experiences as a counselor." Observing the professor role-play test interpretation helped students grasp the application of assessment concepts, "My concerns changed after we got to actually perform the assessments in lab and receive feedback as well as observe the professor do examples of them in class."

## Discussion

This study was conducted to assess the thoughts, feelings, and concerns of students prior to taking an assessment course in counseling and to assess how concerns were ad-

dressed during the course. Although there is no research available that addresses these issues specifically, we based the construction of the survey questions on pilot study data (Gibson & McCallum, 2006) as well as research on statistics anxiety. Hence, the results are discussed in terms of the similarities between this research and that of the statistics anxiety research.

Using the framework described by Pan and Tang (2004), many of the themes found in this study can be described as situational, dispositional, or personal factors that affect the thoughts, feelings, and concerns regarding taking an assessment course. Pre-survey themes of the (a) perception of difficulty and challenge associated with an assessment course and (b) anxiety and fear of failure both included components similar to situational and dispositional factors. The situational factors included prior math and statistics experience and research experience. Student concerns regarding ability to grasp assessment concepts, do well in the class, and manage time and course load were consistent with dispositional factors.

The themes of (a) external issues that influence success and (b) value of practical implications is consistent with personal factors that include how the student's learning style and age can influence the student's concerns about the course. Additionally, Pan and Tang (2005) found that the pace of instruction and instructor's attitude were additional factors that influenced statistics anxiety and is relevant to the theme of professor influence in the results of this study. Based on previous negative experiences with instructors of perceived difficult classes (i.e., statistics, research), Pan and Tang (2005) identified the instructor's attitude as a concern for students and this was echoed in the pre-survey results that identified a need for empathy from the professor and apprehension about the experience with a professor that had not taught them in classes prior to the assessment course.

The post-survey results also reflected similar themes related to situational factors. When asked about concerns during the class, students reported concerns about academic self-concept. These students were very concerned about their ability to grasp assessment concepts that may be connected to their own feelings of anxiety about the class and their own abilities. The themes of (a) value of practical implication and (b) professor influence were repeated from the pre-survey to the post-survey. For the post-survey, these themes were consistent with Pan and Tang's (2005) study on interventions that were helpful in addressing statistic anxiety. They found that students reported reduced anxiety when the instructor demonstrated sensitivity to students' concerns and was attentive to their worries. In addition to the instructor's attitude, Pan and Tang (2005) found that students' concerns diminished when the instructor integrated real-world examples, practical examples, and application teaching strategies. Students in the current study reported similar helpful strategies by the professor.

By investigating the thoughts, feelings, and concerns before and after taking the assessment course, the study participants provided insight into their "lived experiences." These

experiences allowed us to understand how students perceived themselves in the process of taking an assessment course in counseling. The post-survey themes of (a) competence and confidence and (b) better understanding of assessment are qualitative evidence of these self-perceptions and possible future applications of the learned concepts. Based on the results of the two independent t-tests on comfort and competence, quantitative evidence of increased comfort and competence in the post-survey provides support for the qualitative findings.

### Limitations

There are limitations to the generalizability of these results because of the specific sample of participants as well as the structure and format of the assessment course. These participants were limited to two different summer assessment in counseling courses, both in a condensed format. More variety in responses may be observed in a non-counseling assessment course as well as in assessment courses offered during a longer-length semester (i.e., Fall or Spring). However, these results should offer insight for the instructors of assessment courses in counselor education since it has been identified as a course that has been informally associated with apprehension by students (Davis et al., 2005).

A second limitation of the study includes instrumentation. The surveys were constructed by us based on statistics anxiety research and the results of a pilot study (Gibson & McCallum, 2006) on this topic. Although the results were consistent with found in the statistics anxiety research, new information was also found in regard to students' self-perceptions after completing the assessment course. Hence, the current questions may not be capturing the students' experiences exclusively. More specific information in regard to anxiety could be explored if additional instruments on anxiety were included in this research.

Although coding from transcription is a risk because the researchers can lose paralinguistic clues about the meaning of the interview (Tilley, 2003), we worked closely together to review the survey results. We made intentional efforts to review the data separately, then together, to determine what the data was "saying." Interpreting the meaning of the consistent patterns of the data is part of this process and should be viewed as a limitation to this type of methodology since it relies on the researchers to tell the participant's stories.

Finally, the subjectivity of the researcher as a possible limitation is acknowledged. Because the first author was the professor of the course, it can be argued that this could have informed the study. We also acknowledged this subjectivity in the planning stages of the study as well as processed it throughout the different phases of data collection and analysis.

### Recommendations

In regard to applying the research findings, counselor education programs can now acknowledge that assessment courses



do promote specific thoughts, feelings, and concerns in students. However, it is recommended that programs need to take this to another level in being intentional and proactive in alleviating concerns that would hamper students' learning. Instructors of this course can provide specific information prior to or at the beginning of the course to delineate expectations for learning and achievement in the course. Providing real-world examples and practical application experiences in the course will provide students with different opportunities for learning assessment concepts. In addition, multiple types of evaluation will address concerns of students in regard to different learning styles.

For future research in this area, studying students' thoughts, feelings, and concerns during a longer length semester will provide a comparison to the current findings. This could include multiple points of measurement throughout the semester to delineate when possible feelings of anxiety and fear dissipate, if ever. The construction of a research instrument that assesses assessment course anxiety may provide instructors with a tool to assess these feelings pre- and post-course. This tool could help instructors adjust their teaching strategies and style to promote a more effective learning environment.

Finally, quantitative research that examines relationships between personal factors such as age, ethnicity, and gender and assessment anxiety could provide information that could affect the instruction in assessment courses. Such research could inform counselor educators regarding instructional practices that are effective but also promote a positive and healthy instructional atmosphere.

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