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A Pilot Study: The relationship of hope and anxiety in graduate-level counseling students anticipating taking a tests and measurements course.

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Introduction

The ability of comprehend test-based assessments implies careful training and the question arises of the dynamics of the tests and measurements course which are required for masters level counseling students. Research has focused thoroughly on education and training in psychological assessments addressing issues such as how students ought to be trained in the area (Childs & Eyde, 1990), however little investigation has been done on how students perceive the tests and measurements course. While studies have shed light on the fact that often students themselves tend to question the adequacy of their training (Dempster, 1990; Hilsenroth & Handler, 1995), there is still lack in research regarding the disposition of students prior to training.

A moderate level of statistics is involved in tests and measurements. Onwuegbuzie, Slate et al. (2000) stated that 75% to 80% of students in social sciences graduate programs exhibited uncomfortable levels of anxiety, consequently having a negative effect of their learning (Onwuegbuzie & Seaman, 1995). Accordingly, graduate students in the social sciences have the lowest academic skills in statistical analysis (Huntley, Schneider & Aronson, 2000). Furthermore, research suggests most anxiety reducing interventions till now have been teacher- focused rather than student-focused (Collins & Onwuegbuzie, 2007).

Tests and measurements course does not involve an intricate level of statistics, however due to misconceptions and previous negative experiences in statistics classes, students begin the course with inadequate feelings. The dilemma is not whether the course requires complicated statistics or students have the adequate background in statistics, but rather how hopeful students are about their academic performance in the course. More specifically, studies suggest that students with higher hope levels perform better academically than those with lower hope levels. For instance, students may think they do not have enough mathematical training or causing anxiety, therefore affecting their success in the course when it's taken. While it seems true for statistics that the lack of self-efficacy that is linked to lower hope levels (Onwuegbuzie & Snyder, 2000) sways students away from delving further into the subject to enhance their career (Pan, & Tang, 2004) making statistics the most anxiety inducing course in the program (Blalock, 1987; Caine et al.1987; Schacht & Stewart, 1990; Zeidner, 1991), the same trend may be evident for the tests and measurements course. Additionally, research has also demonstrated the importance of thought and self- efficacy in predicting anxiety (Diaz et al., 2001). Furthermore, on evaluation data collected every semester at Rider University for the Masters in Counseling Services Program indicates that current students, internship supervisors and graduates have persistently indicated they would like to receive better preparation in selecting, administering, scoring and interpreting assessment procedures for individuals and/or a groups (Westburg, 2008)

Research has also focused vastly on the effects of high anxiety on the academic performance. Onwuegbuzie (2000) determined that while predicting poor outcomes in the research methods course,

high levels of anxiety was considered the most defining factor. Further studies assessed performance and its relationship to anxiety and concluded that "pre-examination anxiety predicted negatives thought, which in turn predicted performance" (Diaz et al., 2001 p. 420). In an effort to enhance performance, research has focused on ways of coping with anxiety. Studies suggest that individuals who had thought they had better abilities to control their affect and negative cognitions may be better at controlling their anxiety (Arch, 1992). Further research has revealed that perceived creativity, perceived intellectual ability, and perceived scholastic competence are related to all dimension of anxiety (Onwuegbuzie, 2000). Unfortunately, there is immense scarcity in studies depicting the dispositions of students who are anticipating taking the tests and measurements course in order achieve their education goals. One measure that may provide more understanding of students' perception of the tests and measurements course is the Hope Scale (Snyder et al., 1991).

According to Snyder et al. (1991) hope is characterize as a goal–oriented cognitive construct comprised of two component, (a) the pathways component is the individual's sense of planning strategies to reach goals and (b) the agency component is the individual's determination to implement these goal- directed strategies. According to research (Snyder et al, 1991) previous conceptualizations have made the assumption people are goal directed and such behavior is adaptive, however such conceptualizations have not focused on the process of pursuing goals. Snyder (1995) identified both agency and pathways as necessary components to goal directed functions. In order to maintain progressive efforts towards their life goals, individuals must have functional perceptions of both agency and pathways.

Literature (Snyder, 1995) has explored the motivational construct of hope, which can have strong effect on anxiety and performance. Individuals with low hope have tendencies to ruminate on negativity with a focus on failure, in accordance with inadequate employment of agency and pathways. Graduate students utilizing the framework of high hope may determine agency and pathways for successful outcomes in their academic studies. One of the classes that students are required to take in the master's degree in Counseling Services Program is tests and measurements course.

According to Lambert (1991), crisis in measurement literacy in evident in several professional settings, individual testing, programs evaluation or statistics courses are assumed to be satisfying the measurement standards. The use of tests and assessments in the field by master's level counselors is very seldom and without significant depth to their work (Goldman, 1984). According to Goldman (1984) another related factor is the doubt of how much standardized test actually contributes to counseling clients. Counseling settings do not gain much from test use because "despite the appearance of precision, the facts about reliability and validity on careful examination show what many counselors and clients have discovered, that not much can be said with any degree of assurance about the client or the client's future." (Goldman, 1992, p. 616). According to Goldman (1992) standardize assessments will be used in practice by a very small percentage of counselors. One justification suggested by Goldman (1984) is that tests and measurements may be a circular process: insufficient training leads to untrained professionals in the tests and measurements area.

Due to the lack of stable use of tests and assessments in the field, counseling students might feel taking the tests and measurements course as unnecessary to their future career objectives. According to studies (Lambert, 1991) both the number of students interested in a career in measurements and positions for faculty with measurements background are declining. Since the pathways component of

hope is goal-directed behavior that is a basic block of human learning and coping (Eiser & Gentle, 1988), it is important to assess this. One way is to measure student's hope levels prior to taking the tests and measurements course. The level of hope will demonstrate student's functioning of the "two necessary components to goal directed cognitions" (Snyder, 1995, p. 355) namely agency and pathways. Identifying the level of hope and anxiety in students who have yet to take tests and measurements course may provide faculty the opportunity in advance to employ measures to increase hope and decrease anxiety in students for. The focus of this current study is to gain understanding of the levels of hope and anxiety of students anticipating taking the course in tests and measurements that may lead to potential helpful interventions.

Method

Participants

Participants were 35 graduate students from the Masters in Counseling Services program at a private university in a metropolitan area. Participants were enrolled in required courses prior to taking the tests and measurements course. Their ages ranged from 22 to 60 years. The sample consisted of 31 females and 4 males. Out of 35 surveys received one had to be discarded due to incompletion, 34 surveys were included in the data analysis. Participants were selected from four classes which are a part of the Masters in Counseling Services curriculum. Participants were requested to participate voluntarily and no participation requirements were enforced.

Students who agreed to volunteer were required to give their consent to participate by signing a statement of informed consent. Participants were administered the Demographic Data Sheet, Hope Scale (Snyder et al., 1991), and a Questionnaire developed by the author.

Measures

Three instruments used in the study were a Questionnaire, the Hope Scale, and a Demographic Data Sheet.

Questionnaire. After speaking to the instructor teaching the tests and measurements course, a questionnaire was developed to obtain students attitudes towards the course and their opinions about helpful interventions. The questionnaire consisted of four questions with a likert scale and two open ended. The first question asked participants to rate the importance of tests and measurements in their future career Likert Scale ranged from 1-5, where 1= not important at to 5= very important. Another question asked participants to rate their anxiety in anticipating taking tests and measurement course rating from 1= not anxious to 5=very anxious. Two questions suggested possible anxiety reducing interventions and asked participants to rate their effectiveness rating from 1=decrease it to 5=increase it. The open ended questions provided asked participants to list something that can reduce their anxiety regarding the course, if they do feel anxious.

Hope Scale. Consisting of 12 items, the Hope Scale (Snyder et al. 1991) is designed in a goal-setting structure. Out of the twelve items, four are fillers, four pertaining to pathways and four to agency. According to Snyder et al. (1991), the agency component is analogous to a sense of determination in successfully meeting goals and the pathways component refers to the sense of being able to make plans in effort to successfully meet the goals. The focus of agency and pathways is to recognize

cognitive evaluation of goal-oriented capacities. In this framework hope "taps the person's perception in relation to his or her goals" (Snyder et al., p. 571). In the context of the Hope scale, external factors are integrated into the cognitive analyses of agency and pathways; therefore hope is not measured as an external factor in relation to objectives things rather it is defined as a dispositional factor of individuals in accordance with agency and pathways. Cronbach's alphas ranged from .74 to .84 for the scale as a whole (Snyder et al., 1991). Cronbach alpha for the agency subscale ranged from .71 to .76 and pathways subscales ranged from .63 to .80 (Snyder et al., 1991). Additionally, the test-retest reliability of the Hope Scale has been measured in four samples and was reported as .85 over a three week interval, .73 over an eight week interval and .76 and .82 over a ten week interval in two samples. A factor analysis with oblique rotations from pattern matrixes of the Hope Scale capitulated agency and pathways, which supplied evidence of construct validity. For both pathways and agency α was .83 for scores.

Demographic Data Sheet. The demographic questionnaire included questions on age, sex, marital status, employment, education related to mathematics and their current counseling track.

<div align="center">Results</div>

Hope Scale Scores:

Hope scores ranged from 19 to 32, with an average of 24.94. (SD = 5.03)

Each question on the anxiety questionnaire was analyzed individually. Rather than combining the scores of all the questions, correlations were done on an individual bases.

Anxiety scores ranged from 1 to 5 (on a Likert Scale ranging from 1 to 5) with an average of 3.62 (SD=1.16). Scores on the importance of tests and measurements in future career also ranged on a Likert Scale of 1 to 5, with an average of 2.74 (SD=.99). Question regarding the pre-session on the course averaged 2.09 (SD=.84).

Pearson Correlations:

A correlation analysis was undertaken to evaluate the relationship between the total scores of the Hope Scale and the scores on the item in the Questionnaire that asked participants to rate their anxiety in anticipating taking tests and measurements. Correlation analysis was used to assess the connection between the other variables such as number of years elapsed since participants took a statistics course, the number hours participants worked, age and the importance of tests and measurements.

The different factors considered in the correlation research and there r values are reported below.

Table 1

Results of Pearson Correlation

Factors	r
	-.54
Years elapsed since last math course X Hope	.51
Years elapsed since last math course taken X Anxiety	-.37
Years elapsed since last statistics course taken X Anxiety	.32
Importance of tests and measurements X Anxiety	-.30
Years elapsed since last statistics course X Hope	.26
Anxiety X Hope	.24
Pre-session X Number of work hours	-.17
Pre-session X Hope	-.1
Pre-session X Anxiety	-.06

Qualitative analysis

Question: If you feel anxious about tests and measurements? Why?

In responding to the open ended questions inquiring about the factors that contribute to anxiety, participants provided a variety of responses. There were five general identifiable themes that corresponded with the open ended responses: fear of math, fear of the unknown, lack of other skills, because it's difficult and don't feel anxious (see Table 3). Math related anxiety was dominant in almost all the participants. Sixteen students mentioned the fear of math as their cause of anxiety in anticipating taking tests and measurements. One participant mentioned "I heard that it's a lot of work and math is not my best subject". Another said "I struggle with math and it often takes me longer than my peers to comprehend some of the methods". Five students stated fear of the unknown as a reason of their anxiety. One student mentioned "Because I don't know what to expect". Three students stated lacking other skills that they thought were necessary to succeed in the course. One student mentioned "I haven't had any professional experience using the material". Four students stated not feeling anxiety about the course. Table 2 shows the number of participants that expressed anxiety according to theme.

Table 2

Summary of Reasons of Anxiety

Theme	Number of Participants
Fear of math	16
Fear of the unknown	5

Lack of other skills	4
Don't feel anxious	4
Because it's difficult	4

Question: If you feel anxious about tests and measurements course, what could help reduce you anxiety?

In regards to the suggestions students gave as to what will help lower their anxiety four main themes came to surface: studying, having some exposure prior to the class, good teaching and reassurance (see Table 4). Nine students expressed that having some kind of information about the course beforehand will help reduce their anxiety. One student mentioned "talking to those in the course and looking over the current syllabus" will help reduce anxiety. Another suggested anxiety can be lowered by having a "refresher course". "Having others share their experience and modeling example" another one agreed. Eight students also expressed having a good instructor will help lower their anxiety. Seven students desire a slow paced instructor who takes time and makes the course more "fun and creative". Table 3 shows the number of participants that expressed anxiety according to theme.

Table 3

Summary of what can help lower anxiety

Theme	Number of Participants
Good teaching	8
Exposure to material Beforehand	7

Studying	5
Reassurance	2
Not Sure	2

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Question: How important do you feel tests and measurements are in your future career?

Another question asked students to rate how important they felt tests and measurements is to their future career. Twenty Three students indicated that there was no or little importance of tests and measurements in their future careers. Ten students mentioned that tests and measurement was important to their future careers. None of the students rated tests and measurements of highest importance in their future careers as. This question asked students to rate the importance on a Likert Scale of 1 to 5. Students averaged 2.74 out of 5.

Question: If there was a pre-session explaining what the tests and measurements course consist of, how would that affect your anxiety?

Question regarding whether offering a pre-session for the course was provided a Likert 1 to 5, 1- decrease anxiety and 5- increase anxiety. The number of students and the way they answered this question if reported in Table 4.

Table 4

Results for Question 1

Number of Student	Number of Participants

"top" colspan="3">18	2-Slight decrease in anxiety
7	1- Great decrease in anxiety
7	3-Neutral
1	5- Great increase in anxiety

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Discussion

Hope and anxiety appears to have a positive relationship, although not a very strong one. Students appear to show high levels of hope as well as high levels of anxiety in anticipating taking the tests and measurements course. The positive correlation can be accounted for by the fact that being in the counseling field students have learned to set goals for themselves and determine ways to implement goal-directed behaviors. Although anxiety does exist amongst students in anticipating taking tests and measurements, they appear to have strategic way of coping with anxiety. This appears to be something counseling students learn because it's a professional attribute to keep themselves in good mental health and provide services to their clients.

Furthermore anxiety was negatively correlated with the numbers of years that had elapsed between now and when students took their last statistics course. Therefore students who had recently taken statistics course showed higher levels of anxiety in comparison to students who had taken statistics years back and have come back to school. Specifically, it is likely that these students who are experiencing higher levels of anxiety have recently come out of undergraduate education and lack some of the practical experience that older students might have in the field.

The perception of how important students felt tests and measurements is in their future career appeared to be very prevalent. Having to take something which students feel is unnecessary may precipitate their anxiety. As most students feel that tests and measurements do not hold much importance to their career, it appears that they may not fully understand the purpose of the course. It is possible that student's anxiety in anticipating taking the course is further elevated by the lack of connection to the real world. This attitude can be addressed by instructor arranging a pre-session in which the importance of tests and measurements and how it is relevant to their careers. Providing students with different scenarios they might face in their careers relations to tests and measurement

can provide them with a context

In addition to the fear of math and fear of the unknown, lack of other skills such as the ability to grasp concepts, feeling confused and the ability to go at pace with others was important for student's anxiety relating to the tests and measurements course. Students feared that they did not have any practice using the material; therefore they might not be able to grasp the concepts.

Implications of this study focus on interventions that can be provided to students for a smoother transition into the tests and measurements course. The students in the study revealed that if the instructor can make the class an enjoyable experience while teaching at a slower pace might help alleviate their anxiety. This means that if the professor went at a slow pace and addressed there questions may make the course much smoother, rather than presenting the information in a tedious manner. The responses of the students consistently favored a good instructor who will understand the students and their learning process. Therefore, if the instructor can perform a pre-test on incoming students, the course can be planned accordingly. Knowing where the students fall on the spectrum, the instructor can use alternate ways of teaching the course, such as grouping students who have little knowledge in the area with students who have more extensive knowledge. The findings of this study revealed that teaching tests and measurements required the instructor to be more attentive to the student's level of knowledge in the field and well as when was the last time they had taken a math course.

Students indicated that some pre-exposure to the course may help reduce their anxiety in anticipating taking tests and measurements. For instance, several approaches of pre exposure, such as talking to students who have taken the course, looking at the previous syllabus, looking through the book and having a pre-session prior to the course, may be helpful ways of lessening students' anxiety about the course. Arranging a meeting between students who have taken the course and who are anticipating taking the course can produce beneficial outcomes for incoming students as they will not be walking in completely elusive to the course.

The limited geographical area of the participants, the small sample size and the large domination of females in the sample limit the generalization of the results. This study tried to provide potentially useful interventions for instructors to explore as a means of reducing anxiety related to tests and measurements.

In further research, it would be recommended to replicate this study with a larger sample and an equal number of male and female students. Since females experience anxiety more often than men (Mirowsky & Ross, 1995), the results might have shown more anxiety than average since the sample was largely female. Conducting a study that includes a pre-test and post-test of student's anxiety levels might provide a better picture of how the interventions suggested affect the student's anxiety. It will be interesting to see how much students' own suggestions work in reducing their anxiety. Conducting a study to investigating how many students actually use tests and measurements in their careers and exploring their feelings about it.

In summary, the anxiety related to tests and measurements among graduate students in the Master's of Counseling Services can be addressed by both planned teaching strategies by the instructor and pre-exposure of the material. Working at the students' pace and handling questions properly provides students a supportive and facilitative environment to learn. Similarly providing students some exposure

prior exposure to the course material will elevate the feeling of walking in the course with a fear of the unknown.

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