Student Anxiety Toward Level II Fieldwork

(c curriculum, stress, measurement, program evaluation)

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The State-Trait Anxiety Inventory (STAI) purports to measure two types of anxiety: state anxiety, fluctuating and transitory; and trait anxiety, a relatively stable proneness to apprehension. As part of a battery of measures comparing a new occupational therapy curriculum with an old curriculum being discontinued, the STAI was administered to separate groups of students from each curriculum completing their programs concurrently. The primary purpose of the anxiety study was to test the hypothesis that students with an early introduction to Level I fieldwork (the new curriculum) would have significantly less state anxiety in anticipation of Level II fieldwork than students with a later introduction to Level I fieldwork (the old curriculum). Statistical analysis failed to support the hypothesis. Also discussed are: the significant reduction in anticipated anxiety when students report for fieldwork, and the validity and reliability of the STAI.

After a period of curriculum revision and change, the Eastern Michigan University Department of Occupational Therapy had a unique opportunity to undertake a comparative study of two curricula. Separate groups of students were concurrently completing their on-campus programs and were about to enter the 6-months Level II fieldwork that completes the professional program. One group was the last section of the curriculum that was being discontinued (old curriculum); a second group was the first class to complete the final semester in the newly revised program (new curriculum).

The content targeted in the two curricula was similar, but sequencing and emphasis differed. The old curriculum included a number of discrete courses in such areas as mental health, physical dysfunction, kinesiology, and adjustment to disability. Content was mastered in separate packages. Although experiential learning with client interaction was provided as part of classwork, a structured Level I experience was first assigned in the fourth semester of a five-semester academic program. The new curriculum is sequenced according to a developmental continuum with large blocks of 8 credit hours dealing with integrated content appropriate for specific developmental stages. Students are assigned to a structured Level I fieldwork in the first semester of a four-semester academic program.

The new curriculum has been fully accredited, but re-examination and development is an ongoing process. A comparative study of the two groups would offer empirical data with intervening variables—especially the variables of time and environment—under more stringent control than is customarily available. Ordinarily such comparisons must be made with groups graduating at different times or in different places or with different faculty.

Five measures were selected to provide quantitative information for supplementing theoretical assumptions. The study was initiated and three questionnaires administered before the students' departure from campus.

Among the measures used was the State-Trait Anxiety Inventory (STAI), developed by Spielberger, Gorsuch, and Lushene (1). The initial results from the administration of the STAI were of special interest and led to a separate investigation of anxiety as it related to Level II fieldwork. The purpose of the present report is to discuss the separate study of anxiety among occupational therapy students. It has been necessary, however, to place the anxiety research in its proper context as part of an overall curriculum evaluation.

The Problem

The STAI is discussed in detail in the Method section below, but in order to state the problem, it is necessary to briefly describe the instrument. The STAI measures two types of anxiety. Form X-1 assesses state anxiety—transitory feelings of apprehension with situational fluctuations. Form X-2 is concerned with trait anxiety—a relatively consistent degree of proneness to anxiety.

The inventory was initially used...
I. Do students from two occupational therapy curricula differ in anxiety levels related to an early introduction to Level II fieldwork (the new curriculum) as compared with students with a later introduction to Level I fieldwork (the old curriculum)?

II. Do the degree of anticipated anxiety differ from the anxiety present at the anticipated event? How do these two dimensions of anxiety differ in anticipation of Level II fieldwork than students with a later introduction to Level I fieldwork than students with a later introduction to Level I fieldwork (the old curriculum)?

III. Do the study results support the theoretical constructs and the reliability of the STAI?

Literature Review

Theoretical formulations on the nature of anxiety may differ, but they frequently include one or more of the following postulates: a. Fear is a salient component of anxiety (2-4); b. anxiety is more than a unidimensional trait (1, 2, 4, 5); and c. anxiety is strongly connected to future unknowns (3, 6). Arnold (2) pointed out the multidimensionality of anxiety and the fear connection in the theories of Freud and May. Freud viewed anxiety as a form of fear and distinguished normal anxiety as acute fear brought on by external danger; and neurotic anxiety as a chronic fear of internal impulses. Similarly, May distinguished normal anxiety as "proportionate to the objective danger," and neurotic anxiety, as "enduring and disproportionate." (2, p 269)

Lesse (4) showed that no distinction could be made between anxiety and fear; that anxiety is not a static condition, but must be studied in relationship to environmental change; and that anxiety has motor, affective, autonomic, and verbal components. Several writers implicated the unknown as contributing to anxiety. Rycroft (5), citing Shand and McDougal, felt that anxiety involves future unknowns and is reduced "when the future is now." (p 7) More recently, Gray (6) described anxiety as an internal state associated with fear and anticipatory frustration and stressed that novel stimuli contributed to this condition.

With the development of quantitative methods for defining constructs, Cattell and Sheier (5) called for the application of these methods in understanding anxiety, contending that qualitative approaches have not been effective and that constructs must be measurable. Their studies revealed two kinds of anxiety, state and trait, a distinction originally suggested as far back as Cicero (7). Spielberger, et al. (1) built upon Cattell's work and developed the State-Trait Anxiety Inventory to measure the two dimensions of anxiety: state anxiety and general propensity to apprehension (trait anxiety).

The STAI has been used to study anxiety in diverse settings. One or both of the STAI scales have been used with student groups to assess anxiety related to examinations, speech presentations, performance feedback, and task performance (1). The instrument has also been applied to patient populations in order to measure anxiety related to diagnostic tests, snake phobia, and pregnancy studies (1, 8). Lederman, et al. (8), for example, included the trait scale in a battery of measures to evaluate relationships among a number of psychological variables in pregnancy and progress during two stages of labor. The investigations found a significant correlation between trait anxiety and labor variables. Buros (9) lists 333 references on investigations who used the scale.

Published occupational therapy studies on student anxiety have been sparse. Butler (10) called attention to role stress or severe anxiety experienced by graduate students in occupational therapy. Her comparative study of 12 students enrolled in a graduate program and 15 employed occupational therapists recently graduated from the program...
revealed statistically significant differences in stress, with the students generally reflecting higher role anxiety than the working occupational therapists. Butler suggested that the implications of stress for professional education warranted continuing attention and research, but the suggestion failed to generate follow-up studies.

Subsequent reports on occupational therapy student anxiety were not found in the literature review, but widespread interest in personality characteristics of occupational therapy students were reflected in published studies directed to every program level.

A number of studies showed that personality attributes are considered prior to program entry (11-13). Investigators found that the screening process included assessment of student traits, using rating scales, personality inventories and interviews. A national survey of occupational therapy admission procedures indicated that personality characteristics were among the most frequently used criteria for program entry (12).

As part of the academic program, group process courses for improving self-awareness and interpersonal skills have been described (14, 15). The measurability of one such skill, empathy, has been validated with occupational therapy students (16). Changes in student empathy levels and social psychological beliefs during fieldwork have been investigated (15, 17).

The above occupational therapy reports cited above indicate a wide range of concerns with affective responses of occupational therapy students.

Method

Instrument. As stated above, the State-Trait Anxiety Inventory purports to measure two types of anxiety. Form X-1-State consists of 20 brief items to assess state anxiety. Directions request the selection from four alternatives to indicate "how you feel right now . . . at this moment." Form X-2 (A-Trait) consists of 20 items to assess trait anxiety, with directions requesting responses according to "how you generally feel." (1, pp 20-21)

Norms have been standardized on a number of groups, primarily college undergraduates, and include sex differences. Test-retest correlations for the A-Trait scale ranged from .73 to .86. As expected, test-retest correlations for the A-State scale were low (.16 to .54), since the scale measures transitory, situation-specific responses. Internal consistency and validity studies on both scales indicate high acceptability and a reliable index of either individual or group differences in proneness to anxiety or individual differences in transitory experience of anxiety." (18, p 6)

The STAI Manual (1) indicates the reliable use of the A-State scale under a number of different conditions: as an anticipatory measure, as a retrospective measure, in normal situations, in relaxed situations, and under stressful conditions.

The Eastern Michigan University (EMU) study was especially interested in the assessment of anticipatory state anxiety in relation to fieldwork. However, the A-Trait scale was also used and the scores on trait anxiety analyzed together with the state anxiety scores.

Population. Section I consisted of 32 female students completing the curriculum, then being phased out, the old curriculum. Section II consisted of 25 students (24 female, 1 male), the first class to complete the academic program of the new curriculum.

Section equivalencies in age and grade point average (GPA) were assessed through t-tests. As indicated in Table I, there were no significant differences between the two sections on the variables of age or the GPA attained in their EMU programs. The sections differed significantly in the cumulative (CUM) GPA at the .015 level, with Section I of the old curriculum showing the higher mean. The cumulative GPA takes into account grades from higher education classes in institutions other than EMU in addition to grades at EMU. The transferred grades were for classes

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<th>Variable</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td><strong>State 1 A-State on Campus</strong></td>
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<tr>
<td>Section I</td>
<td>56.17</td>
<td>10.77</td>
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<td>51.71</td>
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<td>Section I</td>
<td>36.43</td>
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<td>32.71</td>
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<td>Section II</td>
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\[ n = 23 \]
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completed prior to entering the occupational therapy program and are based on diverse standards of community colleges, 4-year colleges, and state universities. For this reason, the difference in the mean cumulative GPA was not regarded as mitigating against group equivalencies.

The overall curriculum study was presented to the students as an opportunity to provide input for curriculum development, and interest was high. All of the students agreed to participate in the study. Population attrition developed when the STAI questionnaires were sent to the students at their fieldwork centers for retest on site. Of the 57 original participants, 40 (71%) returned the completed retest scales. The percentage of respondents was similar for both groups (see Table 2).

The reasons for nonresponse were identified in many cases, and in a majority of cases they were attributed to conditions other than willingness to respond. Seven of the students started their field placement at different times and therefore did not receive the on-site questionnaires at the beginning of their fieldwork. In four cases, postal delivery of the questionnaires in time for completion was complicated. The reasons for no response were not identified in only six cases. There was no reason to believe that the nonrespondents differed significantly from the respondents in anxiety levels.

Procedure. The STAI, together with other self-report measures, was administered to both sections in classroom settings before their departure from campus, which was approximately 2 months before beginning their Level II fieldwork. Although the details of the instruments were not discussed in order to minimize respondent bias, the general nature of the study was presented and the cooperation of the students requested. The same instructor administered the questionnaire to both groups.

Because the A-State scale (Form X-1) of the STAI was being used as an anticipatory measure, the students were asked to complete the Form X-1 questionnaire with the following instructions:

Answer the questions according to the following hypothetical situation. You are reporting to your Level II fieldwork placement. It is your first day in this new experience. Complete Items 1 through 20 in accordance with the way you believe you will feel at that time.

After the completion of Form X-1, the students were instructed to follow the standard questionnaire directions for Form X-2 (A-Trait).

Before the assigned fieldwork date, retest STAI questionnaires were mailed to the students at their fieldwork centers, and they were requested to again complete the STAI this time following the questionnaire directions for both forms. It was stressed that they would be used only if they were completed the first or second day of fieldwork, and that the questions should be answered independently of earlier responses. At the same time, letters were sent to the fieldwork supervisors, advising them of the study and the mailing of the questionnaires to the students.

Pearson product-moment correlations and t-tests were computed for both the A-State and the A-Trait scales and a significance level of .05 predetermined. Missing data were deleted listwise. With this option, cases are omitted from calculations in all of the statistical procedures if they are missing from one variable Thus the results of each procedure are derived from the same number of cases.

Results and Discussion

The first question addressed was: do students from two occupational therapy curricula differ in anxiety levels related to the first Level II fieldwork? Four separate t-tests for independent measures were run to test the group differences and the results entered in Table 3. Two t-tests compared the means of the old and new curriculum students on the state and trait anxiety scales administered on campus; similarly, two t-tests compared the measures completed on site, when the students first reported the fieldwork.

The standard deviations showed small group differences in variability, but tests for homogeneity of variance indicated these differences were not significant. In three of the four tests, the means for Section I of the old curriculum were somewhat higher that for Section II of the new curriculum. Upon reporting for fieldwork, however, the differences in state anxiety changed, with the A-State on Site (State 2) mean slightly higher for Section II students (40.53) than for Section I students (38.78). One might speculate that the old curriculum students were somewhat more anxious in anticipating fieldwork, an anxiety that dissipated when actually starting the experience.

However, the probability levels indicated the differences were most likely chance occurrence. The magnitude of the t values was not large enough to attain statistical significance. With 38 degrees of freedom, a t value of 2.03 is required to meet the .05 significance level.

The two sections representing the old and new curricula showed no significant difference in either state
or trait anxiety. This was consistent for both the on-campus measures and the on-site measures. Therefore, it must be concluded that, with the groups studied, the earlier introduction of Level I fieldwork did not significantly affect anxiety levels related to Level II fieldwork.

The second question stated: Does the degree of anticipated anxiety prior to fieldwork differ significantly from the anxiety present at the anticipated event? Three t-tests for repeated measures were used to assess differences in the STAI scores under two conditions. The first condition was on campus, when the STAI was completed approximately 2 months before entering Level II fieldwork. The STAI was again completed on site, during the first 2 days of the fieldwork experience (the second condition). Table 4 summarizes the data.

The first t-test included all students (40) responding to both sets of measures—the total group. The second t-test was for Section I students from the old curriculum; and the third t-test was for Section II, students from the new curriculum. In each test, whereas the trait anxiety measures remained relatively stable, state anxiety showed significant changes at less than the .001 level. The mean score for the total group dropped from 54 (State 1) to 40 (State 2); for Section I, from 56 to 39; and for Section II, from 52 to 41. In anticipating the first level II fieldwork experience while still on campus, the students in both sections showed elevated state anxiety that dropped sharply when starting the anticipated event, Level II fieldwork. This was true in students who had extensive Level I experience (new curriculum) as well as those with more limited Level I fieldwork (old curriculum). Although the on-campus state anxiety mean for new curriculum students was somewhat less than for the old curriculum students, the reduction of state anxiety in the on-campus measure for the more experienced class was also highly significant.

The consistency of these findings suggests their application to student counseling. It would be helpful to the students, during the heavy demands and the tension present while completing their campus programs, to receive reassurance that the high anxiety in anticipation of their Level II fieldwork would likely be reduced when they actually begin their fieldwork.

The findings lend support to those theories that posit a relationship between anxiety and fear of future unknowns (3, 6). As the repeated measures indicated, when the future became the present, that is, when students reported for the anticipated fieldwork, state anxiety was reduced. This was true even when the on-site state anxiety was assessed during the first 2 days after arrival before fully experiencing the feared event.

It is interesting to note that the norm group of female undergraduates reported in the STAI Manual (1) showed state anxiety in stressful situations ranging from means of 43.69 to 60.94. The occupational therapy students, in their A-State scores, showed a similar range, but with generally lower scores, from 38.78 (Section I on site) to 56.17 (Section I on campus). A comparison of trait anxiety scores for the norm group and occupational therapy students showed similar differences. The trait mean for the norm female undergraduates was 38.25; for occupational therapy students, the trait means ranged from 32.71 (Section II on campus) to 36.43 (Section I on campus). Although the norm group comparisons were not subjected to statistical testing, the occupational therapy students generally showed lower trait anxiety as well as state anxiety in stressful situations than the norm group of undergraduates.

The third question tested was: Do the study results support the theoretical constructs and the reliability of the STAI? Spielberger, et al. (1), in developing the instrument, built upon the work of Cattell and earlier theorists who believed in the multidimensional nature of anxiety (2, 4, 5, 7). The resulting State-Trait Anxiety Inventory purported to assess two anxiety conditions: A-State (Form X-1) and A-Trait (Form X-2).

The data in Table 4 offered construct validity for the STAI. Results demonstrated the presence of two types of anxiety. State or situational anxiety, which fluctuated from time to time, and trait anxiety, a stable proneness to apprehension. State anxiety for both classes, as measured by Form X-1, changed significantly between the on-campus condition and the on-site condition. As discussed below, the fluctuation was somewhat systematic. Although the A-State scores on site averaged significantly lower than on-campus scores, the order of individual scores varied with moderate consistency, resulting in a higher reliability coefficient than that reported in the STAI Manual.

On the other hand, trait anxiety, as measured by Form X-2, remained stable for both sections. There were no significant changes in general proneness to anxiety in the repeated questionnaires. The stability of the A-Trait scores and the significant change in the A-State scores supported the theoretical base of the STAI, as well as those theories that view anxiety as more than a unidimensional entity.
The repeated measures provided an opportunity to evaluate the reliability of the STAI. Pearson product-moment correlations between the on-campus and on-site scores are entered in Table 5. Data from Sections I and II were pooled for this analysis.

The .66 correlation coefficient for State 1 and State 2 (on-campus and on-site state anxiety) and the .63 coefficient for Trait 1 and Trait 2 (on-campus and on-site trait anxiety) were both significant at less than the .001 level. The magnitudes of the coefficients differed from that reported in the STAI Manual (1). The occupational therapy students' trait coefficient of .63 was smaller than the norm female coefficient of .77. The lower reliability for the A-Trait scale in the occupational therapy group may have been idiosyncratic to the sample since test evaluators (9) viewed A-Trait reliabilities as high and the instrument as stable.

The occupational therapy students' A-State coefficient (.66) was surprising. The STAI Manual reported female undergraduate A-State test-retest reliabilities of .51 and stressed that low coefficients for this scale were to be expected because it measures fluctuating factors. It was true that the occupational therapy class means fluctuated significantly between the two tests as expected (see Table 4). However, the individual scores on the two tests varied more consistently than the norm sample, as reflected in the .66 coefficient. The higher scorers in one test administration were likely to be the higher scorers in the second test.

Data from the study supported construct validity for the STAI with evidence that Form X-1 measured a fluctuating type of anxiety and Form X-2 a relatively stable proneness to anxiety. Whereas the A-State sample means plummeted significantly between the on-campus and on-site measures, the A-Trait scores showed little change. The test-retest reliabilities differed from the norm group with the occupational therapy A-State coefficients showing greater consistency and the A-Trait scores less consistency than the reported reliabilities.

**Summary**

The State-Trait Anxiety Inventory was administered to separate groups of occupational therapy students as part of a study comparing two different curricula. The STAI measures two types of anxiety: Form X-1 assesses state anxiety (A-State), transitory feelings of apprehension with situational fluctuations. Form X-2 is concerned with trait anxiety (A-Trait), a relatively consistent degree of anxiety proneness.

The major purpose of the anxiety inventory...
substudy was to test the hypothesis that students from the new curriculum, who had an early introduction to Level I fieldwork, would have significantly less state anxiety in anticipation of Level II fieldwork than students of the old curriculum with a later introduction of Level I fieldwork. The tests of anticipatory state anxiety given on campus before entering the first Level I fieldwork did not support the hypothesis. Although the less experienced students from the old curriculum had somewhat higher anticipatory anxiety scores than the new curriculum students, the difference was not significant. Furthermore, the difference in group means disappeared when the A-State scales were repeated when students first reported for fieldwork. If anticipatory anxiety toward Level II fieldwork while on campus was higher in students with a later introduction to Level I fieldwork, it dissipated upon entering the anticipated event.

The study also addressed the question: Does the degree of anticipatory anxiety differ significantly from the anxiety present at the anticipated event? Results indicated a significant reduction in state anxiety for both classes when the measure was repeated on site during the first 2 days of Level II fieldwork experience.

A third purpose of the anxiety study was to assess the construct validity and test-retest reliability of the STAI. Data supported the premise of two separate constructs, a fluctuating measure (A-State) and a stable measure (A-Trait). Although the A-State scores decreased significantly between the on-campus and the on-site tests, the A-Trait scores showed little change. The reliability results were puzzling. The correlation of scores on the two test administrations yielded a larger coefficient for A-State and a smaller coefficient for A-Trait than the reliabilities reported for the norm group and favorably reviewed by test evaluators (9). Further studies would be desirable to ascertain the reliability of the STAI for occupational therapy groups. The present report may have some heuristic value in simulating such studies.

Implications for educators relate to the nature of anxiety and the testing of assumptions. In keeping with postulated theory, anticipatory anxiety in both classes was sharply higher than state anxiety present at the actual event. Such anxiety may unduly affect student performance during the completion of the academic program. Student reassurance that anticipatory anxiety is likely to dissipate might be helpful in counseling. Anxiety is an important personality characteristic affecting fieldwork, but it is one of many elements in curriculum planning. A range of additional considerations enter into decision making about the optimum time for the introduction of fieldwork. The assumption that an early introduction to Level I fieldwork would result in significantly less anxiety toward Level II fieldwork was not supported. Possibly other assumptions related to curriculum planning require submission to empirical examination and quantitative analysis.

Acknowledgment
The guidance and support of Lyla Spelbring, Ph.D., OTR, in initiating and continuing the overall curriculum study are acknowledged. Appreciation is also extended to the study participants, now EMU alumni, who contributed to an objective program evaluation. This paper, in part, was presented to the Commission on Education, San Antonio, May 1981.

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REFERENCES