

CAN ANXIETY ABOUT TEACHING BE MEASURED?

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ABSTRACT

The Teacher Anxiety Scale (TchAS) was developed to measure anxiety associated with teaching. The TchAS was administered to 250 preservice and qualified teachers. In a factor analysis ten interpretable dimensions were found. The multi-dimensional nature of the scale and the dimensions identified are consistent with predictions from theory and research. In a more detailed analysis subscale scores of the ten dimensions were examined for primary teacher education students, secondary teacher education students and experienced primary school teachers. Predictable differences were found between the groups with respect to the amount of anxiety experienced on the various dimensions.

Despite widespread recognition of the stresses associated in day to day teaching, little investigation has been made of the affective responses of teachers to those stresses. Anxiety appears to be an affective response that is particularly likely to occur in such circumstances and is also an emotional response that may be expected to affect teacher behaviour and pupil learning in important ways (Coates & Thoresen, 1976; Keavney & Sinclair, 1978).

In an earlier study (Sinclair & Nicoll, 1981) student teachers were interviewed in an attempt to identify common sources of teacher anxiety in classroom situations and the nature of any anxiety that was experienced. High levels of anxiety while teaching were found to be a common occurrence and such anxiety was found to be particularly associated with classroom control problems, with being evaluated by supervisors, with forming relationships with pupils and the cooperating teachers, and with achieving lesson goals.

In a further study (Sinclair, 1981) developmental trends involving anxiety about teaching were investigated. For that study a teacher anxiety scale (TchAS) was developed based on an early scale of Parsons (1973). Using a longitudinal design, anxiety as measured by the total score on that scale was found to drop over a one-year period for student teachers first measured at the end of the third and fourth years of their degree program and then retested at the end of the fourth year of their program or first year of actual teaching. Furthermore the scores of a separate group of qualified teachers with 2-4 years of teaching experience were even lower than those of the student teachers. The results supported the conclusion that anxiety is negatively correlated with amount of teaching experience.

In the present paper further exploratory analyses involving the TchAS are reported. A question of interest was whether the 54 item scale is unidimensional or multidimensional. Available theory (Sinclair, Heys, & Kemmis, 1974) and earlier research (Sinclair & Nicoll, 1981) suggested that the latter possibility was more likely. Anxiety reactions tend to be situationally specific; they are elicited by situations which through previous experience have become associated with threat to self-esteem. Some of the situations which are particularly likely to have threat potential for teachers are those involving classroom control problems, evaluation by peers and superiors, teaching in front of others and mastery of subject matter content. The scale had been developed to sample responses over a range of such situations but there was no systematic attempt to design a series of clearly identifiable subscales. It was possible, however, that the amount of anxiety elicited by any one such source would be relatively independent of that elicited by other sources.

Should the scale prove to be multidimensional it should also be possible to examine whether there are differences between primary student teachers, secondary student teachers and qualified teachers on the various dimensions identified. The results of the earlier study suggest that student teachers will have higher levels of anxiety about teaching than experienced teachers. Fuller (1969) suggests that the higher levels of anxiety in the student teachers may be particularly associated with experiences that challenge feelings of self-adequacy. Concerns about self-adequacy include concerns about "class control, their own subject adequacy, about the situations in which they teach and about evaluations by their

supervisors, by their pupils and of their pupils by themselves" (p.210). It is with threat-producing experiences and situations such as these that the student teacher is most vulnerable. With experience, Fuller believed, such concerns and associated anxiety are gradually brought under control although they may be replaced by concerns and worries about pupils and pupil progress.

There is also reason to predict that secondary student teachers will have lower levels of anxiety than primary student teachers. High school teachers appear to be much more subject-matter orientated in their teaching and more formal in their relationships with students given the range of classes and total number of students they have to teach. This situation might be expected to be associated with less anxiety than is the case with primary school teachers who tend to become more personally involved with their students and more concerned with facilitating the total development of their students. An analysis of subscale scores on the TchAS would make it possible to examine the specific areas in which anxiety differences between secondary and primary student teachers may be found.

#### Methodology

The TchAS is an extension and adaptation of a teacher anxiety scale developed by Parsons (1973). The scale consists of 54 items each of which is responded to on a 5-point scale ranging from never to always. The scale was administered to a total of 250 preservice and qualified teachers made up of 117 third and fourth year primary teacher education students, 74 secondary teacher education students engaged in the English method course of the post-graduate Diploma in Education and, by mail in a slightly modified version, to 59 qualified primary school teachers with 2 or 4 years experience. The qualified teachers had previously graduated from the same program as the primary teacher education students. Scores on a measure of general trait anxiety using the STAI (Spielberger, Gorsuch & Lushene, 1970) were also available for a portion of the primary and secondary teacher education students.

The SPSS factor analysis program was used to arrive at the varimax solution reported here. The varimax solution was confirmed by the application of several other factor analyses using various subgroups of the total sample and different rotation techniques. Decisions about subscale items were based on all of these analyses but principally on the varimax solution. Cronbach's coefficient alpha was used to support the final choice of items for inclusion in the subscales. The number of items varies from one subscale to another and several items contribute to scores on more than one factor.

#### Results

From the factor analysis 12 significant factors emerged accounting for 62.2% of the variance. Of those 12 factors, 10 were able to be interpreted satisfactorily (see Appendix A for the composition of those factors). The 10 factors were as follows.

##### Factor 1 Confidence about teaching competence

This is a general trait-like factor associated with feelings of confidence or lack of confidence about teaching competence.

##### Factor 2 Supervision anxiety

This factor is concerned with relationships with those in positions of authority and who are responsible for the supervision of teaching.

##### Factor 3 Anxiety about content mastery

This factor focusses on the teachers' understanding of subject matter content and their confidence in being able to answer student questions.

##### Factor 4 Concern about teaching as a career choice

This factor involves items expressing worry and concern about teaching as a career.

##### Factor 5 Anxiety about being observed while teaching

This factor focusses particularly on feelings about being observed by inspectors/supervisors, principals and parents.

##### Factor 6 Relating to other teachers

This factor is associated with getting on with other teachers and being accepted by them as a capable teacher.

Factor 7 Relating to students

This factor involves items about being accepted and liked by students.

Factor 8 Anxiety about classroom control

This factor focusses on concern about ability to maintain discipline.

Factor 9 Anxiety about lesson effectiveness

This factor is concerned with worries about whether students will understand lessons and about adequacy generally.

Factor 10 Anxiety about lesson presentation

While factor 9 appears to focus on lesson outcomes, this factor centres attention on lesson preparation and presentation as expressed in worry about keeping students interested and under control, and not forgetting lesson activities that had been planned.

By using scores based on subscales formed from factor items, it was possible to investigate differences between various subpopulations of teachers. In this analysis subscale scores were compared between 96 primary student teachers engaged in the third and fourth years of their B.Ed. program (tested in 1979), the 74 secondary student teachers engaged in the English Method course of the post-graduate Diploma in Education program (tested in 1980) and the 59 qualified primary school teachers who had graduated from the B.Ed. primary program 2 years and 4 years previously. All subjects completed the TchAS late in the academic year (November). Earlier in the year part of the primary student teacher group and of the secondary student teacher group also completed the Trait scale of the STAI. The respective means on that trait scale were 41.07 and 39.95 indicating similar levels of trait anxiety. Trait anxiety scores were not available for the qualified primary teachers.

A multivariate analysis of variance indicated the presence of significant group differences among the subscale scores of the TchAS ( $F = 16.68$   $p < .001$ ). Those differences were analysed further by a univariate analysis of variance and the application of the Newman-Keuls multiple range test for each subscale measure. Group mean scores (expressed as item mean scores to keep them comparable across subscales having different numbers of items) are presented in Table 1 together with the result of the Newman-Keuls test.

Table 1 TchAS Subscale item means

	No. of items	Coeff Alpha	Primary Student Teacher (Gp.1)	Secondary Student Teacher (Gp.2)	Qualified Primary Teacher (Gp.3)	Newman Keuls result
Confidence about teaching competence	21	.92	2.87	2.52	2.35	1>2,3
Supervision anxiety	6	.87	3.18	2.92	2.45	1,2>3
Anxiety about content mastery	8	.79	2.50	2.41	1.86	1,2>3
Teaching as a career choice	6	.81	2.13	2.35	1.88	2>1>3
Being observed while teaching	6	.79	3.27	2.84	2.99	1>2,3
Relating to other teachers	6	.79	3.04	2.67	2.41	1>2>3
Relating to students	4	.67	2.28	2.40	2.05	1,2>3
Classroom control	8	.81	2.65	2.35	2.14	1>2>3
Lesson effectiveness	6	.71	2.62	2.40	2.21	1>2>3
Lesson presentation	7	.78	2.82	2.57	2.54	1>2,3
Total TchAS scale	54	.95	2.70	2.53	2.25	1>2>3

In an earlier analysis involving a state anxiety measure (Sinclair & Nicoll, 1981) it was found that qualified primary school teachers generally experience lower levels of anxiety about teaching than primary student teachers. The subscales formed from the TchAS indicate that that generalization is consistent over the range of 10 teacher anxiety dimensions. On every subscale the qualified primary teachers were significantly lower on anxiety about teaching than the primary student teachers.

There are, however, interesting differences between the two groups of student teachers. Generally speaking, the secondary student teachers have lower anxiety scores than the primary student teachers. On three subscales, however, the secondary teachers score as high as the

primary teachers. The subscales are supervision anxiety, content mastery and relating to students. The first result, in particular, is to be expected. All student teachers no matter whether primary and secondary are particularly vulnerable with respect to supervision and the evaluation of their performance. It is perhaps surprising, however, that relating to students is such a great concern to the secondary student teacher (anxiety about that is even higher than for primary student teachers). Because of the greater subject matter orientation of the secondary school it had been expected that relating to students would not have been an area of especially great concern. Perhaps the lack of opportunity for forming closer relationships with students may itself induce anxiety. With respect to anxiety about teaching as a career the secondary student teachers scored significantly higher than both other groups. This result could be expected. While both groups of primary teachers made a commitment to teaching as a career at the beginning of their tertiary studies, the Secondary Diploma in Education students may not have done that until after they had graduated from a general arts, science, or economics program. In such circumstances it might be expected that a number of those graduates may still be unsure of their decision to take up teaching.

While scoring lower than the primary student teachers on many aspects of anxiety the secondary student teachers still typically score higher than the qualified primary teachers. The exceptions to this are confidence about teaching competence, being observed and lesson presentation where anxiety levels are similar to those of the qualified teachers.

Although there are clear and consistent differences within groups about the levels of anxiety experienced across the 10 dimensions, it is difficult to interpret the result unequivocally. The items in each of the different dimensions are not comparable and the different levels of anxiety experienced may be an artifact of the particular items incorporated in each subscale. Nevertheless a tendency may be observed for supervision anxiety, being observed and relating to other teachers to generate most anxiety and content mastery, teaching as a career and, interestingly, relating to students generating least anxiety.

#### Discussion

In this exploratory study characteristics of the TchAS were investigated. The main objective was to examine whether the TchAS was a multivariate or univariate scale and, if it was multivariate to determine whether the subscales identified could be used to distinguish between primary and secondary teacher education students and between those student teachers and qualified teachers.

Evidence was found that teacher anxiety is composed of a number of independent dimensions, many of which are associated with specific features of educational situations. This finding is consistent with conceptualizations which argue for the situational specificity of the anxiety response. Anxiety is elicited by specific stimuli which, through previous experience have become associated with threat to self-esteem (Sinclair, Heys & Kemmis, 1978). Teacher anxiety in this view will tend to arise in educational situations in which threats self-esteem are perceived. The threats will be such that the teacher is confronted by a situation in which there is a feeling that he or she should be able to cope but in which serious doubts are entertained about being able to do so.

From the factor analysis several factors emerged which are associated with threatening features of the task of teaching itself. These task-specific factors are anxiety about content mastery, classroom control, lesson effectiveness, lesson presentation and being observed while teaching. Each of these aspects of teaching appears to have the potential for providing threats to self-esteem and through this arousing anxiety. Another group of factors is associated with interpersonal relationships in educational situations. These factors include anxiety about relationships with other teachers, relationships with students and relationships with authorities who carry out supervision (supervision anxiety). In a recent review Pettegrew and Wolf (1982) make the distinction between task-related stress and role-related stress. The first group of factors appears to fall into the task-related stress category while the second group appear to be particularly associated with role-related stress.

Generally speaking the factors found are consistent with other findings about anxiety in teachers. Thompson (1963) found that student teachers were most anxious about mastery of

subject, devising lesson plans, pupil response, teacher standards, inability to answer questions, and student discipline. Fuller (1969) examined the concerns of student teachers and found that greatest concern was associated with classroom control, content mastery, and evaluation by students and supervisors.

The subscales formed on the basis of the factor analysis were found to be capable of distinguishing between the anxiety levels experienced about teaching by preservice and inservice teachers. Despite no differences being found between the primary and secondary student teachers on a general measure of trait anxiety, clear and reasonably predictable differences for these groups emerged with respect to anxiety about certain aspects of teaching. Secondary student teachers appear to have more anxiety than the other two groups about the choice of teaching as a career. They also appear to be as anxious as primary student teachers about supervision, relating to students and content mastery but less anxious about being observed, classroom control, and lesson presentation. Both groups of student teachers are typically more anxious about teaching than experienced primary school teachers.

In the further development of the TchAS there is a need for the existing subscale items to be refined and, in some instances, augmented in number to increase reliability. Confidence in the scale will also be enhanced if other studies were to replicate the factor structure reported herein, and to explore, further, subscale differences among a variety of groups of teachers. A major limitation of the present study is that the secondary student teachers were all training to become English teachers. Secondary teachers training in other subject matter areas such as mathematics or science may well have a different profile of scores on the 10 subscales.

The results of the present study suggest that a teacher anxiety scale providing subscores on dimensions such as the ones identified will be of considerable use in teacher education. The subscales with their focus on particular aspects of teaching, may be of use with pre-service and inservice teachers by helping to identify potential problem areas associated with anxiety. Special help could then be provided for the teacher to overcome those anxieties or to develop effective ways of coping with them.

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Appendix A - TchAS:Factor Structure - qualified teacher version  
with student teacher version in parentheses

<u>Factor I.</u>	<u>Confidence about teaching competence</u>	<u>loading</u>
44.	I feel I am as competent in the classroom as other (student) teachers (in my teacher education program.)	.67
25.	I feel other teachers think I am very competent.	.65
17.	I feel inferior to other (student) teachers (in my teacher education program.)	.60
34.	I feel sure about the adequacy of my lessons.	.59
36.	I find it easy to speak up in the staff room.	.58
33.	I am confident of my abilities and opinions about teaching when they are in conflict with other teachers.	.57
37.	I would feel sure of my teaching competence when challenged by parents.	.57
30.	I feel better prepared for teaching than other (student) teachers (in my teacher education program.)	.56
24.	I feel confident about my ability to improvise in the classroom.	.55
8.	I am worried whether I am (can be) a good teacher.	.47
51.	I am confident of meeting the needs of individuals in the class.	.46
42.	I feel I have good recall of the things I know when I am in front of a class.	.42
19.	I feel secure with regard to my ability to keep a class under control.	.41
46.	I am certain that my own personal 'hang-ups' do not hinder my teaching effectiveness.	.39
50.	Being accepted as a person by other teachers is a worry for me.	.38
3.	I worry that teachers may regard my teaching methods as ineffective.	.37
32.	I worry that my understanding of the subject matter of lessons is not adequate.	.37
41.	Deciding how to present information in the classroom makes me feel uncertain.	.36
6.	I feel calm when I am preparing lessons.	.34
12.	I worry about what an Inspector's judgement would be of my teaching ability.	.30
10.	I feel calm and collected when I think about holding parent-teacher conferences.	.29
<u>Factor II.</u>	<u>Supervision anxiety</u>	
52.	I worry that the principal's (University Supervisor's) attitudes and opinions are different to mine.	.79
29.	I worry that there is a personality clash between the principal (University Supervisor) and myself.	.77
45.	I feel anxious about relations with the principal (University Supervisor) because of his/her power in making an assessment of my teaching.	.75
40.	I am troubled about the principal (University Supervisor) judging my ability to control the class.	.56
22.	I feel nervous when I am being observed by my inspector (University Supervisor.)	.34
35.	I would feel anxious if the Principal informed me he/she was coming to my class to observe.	.32
<u>Factor III.</u>	<u>Anxiety about content mastery</u>	
27.	I feel panicky when a student asks a question I can't answer.	.64
1.	If I have trouble answering a student's question I find it difficult to concentrate on questions that follow.	.59
39.	I find it easy to admit to the class that I do not know the answer to a question a student asks.	.53
26.	I spend an excessive amount of time preparing lessons because I am anxious about how they will go.	.42
53.	I am worried about not preparing enough material to cover the full time of the lesson.	.42
32.	I worry that my understanding of the subject matter of lessons is not adequate.	.37
24.	I feel confident about my ability to improvise in the classroom.	.34
48.	I find myself lying awake at night worrying about lessons.	.34

		<u>loading</u>
<u>Factor IV. Concern about teaching as a career choice</u>		
11.	I (feel sure I will) find teaching a satisfying profession.	.80
21.	I am less happy teaching than I thought I would be.	.79
28.	I feel anxious because I do not know yet whether I really want to be a teacher.	.70
41.	Deciding how to present information in the classroom makes me feel uncertain.	.32
20.	I avoid preparing as much material for the lesson as I would like because I worry about how well the lesson will go.	.31
23.	I am sure that the students like me.	.29
<u>Factor V. Anxiety about being observed while teaching</u>		
35.	I would feel anxious if the Principal informed me he/she was coming to my class to observe.	.57
16.	I would feel calm and collected if a student's parent observed in my classroom.	.56
22.	I feel nervous when I am being observed by an Inspector (my University Supervisor.)	.56
4.	I feel uncomfortable when I speak before a group.	.46
10.	I feel calm and collected when I think about holding parent-teacher conferences.	.44
12.	I worry about what an Inspector's judgement would be of my teaching ability.	.31
<u>Factor VI. Relating to other teachers</u>		
7.	I am concerned about how other teachers may view my ability to maintain discipline (in the classroom.)	.51
14.	I worry that I do not get on with other teachers in the school.	.51
3.	I worry that teachers may regard my teaching methods as ineffective.	.49
2.	I am disturb if the principal (class teacher) rejects me as a person.	.48
50.	Being accepted as a person by other teachers is a worry for me.	.48
12.	I worry about what an Inspector's judgment would be of my teaching ability.	.33
<u>Factor VII. Relating to students</u>		
23.	I am sure that the students like me.	.58
31.	Lack of rapport with my students is one of my biggest worries.	.57
9.	I feel anxious that I am not able to relate to students.	.45
38.	I worry about being able to keep the students interested in what I teach them.	.40
<u>Factor VIII. Anxiety about classroom control</u>		
19.	I feel secure with regard to my ability to keep a class under control.	.47
18.	I feel that students will follow my instructions.	.44
40.	I am troubled about the principal (University Supervisor) judging my ability to control the class.	.34
6.	I feel calm when I am preparing lessons.	.28
44.	I feel I am as competent in the classroom as other (student) teachers (in my teacher education program.)	.22
37.	I would feel sure of my teaching competence when challenged by parents.	.18
49.	I feel anxious that parents may disapprove of my manner of discipline.	.16
7.	I am concerned about how other teachers may view my ability to maintain discipline (in the classroom.)	.11
<u>Factor IX. Anxiety about lesson effectiveness</u>		
13.	I am confident the students will understand the material of the lesson.	.57
6.	I feel calm when I am preparing lessons.	.30
10.	I feel calm and collected when I think about holding parent-teacher conferences.	.25
39.	I find it easy to admit to the class that I do not know the answer to a question a student asks.	.24

		<u>loading</u>
34.	I feel sure about the adequacy of my lessons.	.23
3.	I worry that teachers may regard my teaching methods as ineffective.	.20
<u>Factor X. Anxiety about lesson presentation</u>		
38.	I worry about being able to keep the students interested in what I teach them.	.52
40.	I am troubled about the principal (University Supervisor) judging my ability to control the class.	.40
15.	In the course of the lesson I find I have forgotten to do things I had planned.	.38
26.	I spend an excessive amount of time preparing lessons because I am anxious about how they will go.	.33
32.	I worry that my understanding of the subject matter of lessons is not adequate.	.33
53.	I am worried about not preparing enough material to cover the full time of the lesson.	.32
19.	I feel secure with regard to my ability to keep a class under control.	.29