The Teacher Anxiety Scale: The Study of Validity and Reliability

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Abstract

Teaching Anxiety Scale developed by Parsons (1973) is still considered the most effective way of measuring Teaching Anxiety, for both pre-service and in-service teachers. The purpose of the present study was to explore the validity and reliability of the Albanian version, of the Teaching Anxiety Scale applied to student teachers. Data in this study were collected from a total number of 92 students enrolled in the third year of the Bachelor study program: "Elementary Teacher" and "Preschool Teacher". Measurements were made at two stages of development Pedagogical Practice. Descriptive statistics, principal component with varimax factor analysis, and Scree Test were used to explore the data analyses. Results revealed that the Albanian version of the Teaching Anxiety Scale had high reliability coefficient which was α = .97 (before practice) and α= .95 (after practice), as estimated by Cronbach alpha coefficient. Factorial analysis found that, items of the teaching anxiety scale yielded a single factor with an eigenvalue of 16.52 and the unifactor solution accounted for 57% of the total variance.

Keyword: *Teaching Anxiety Scale, Teaching Anxiety, Student teachers, Validity, Reliability.*

1. Introduction and Theoretical Framework

Considerable evidence exists that anxiety can impair performance in a variety of tasks. It suspected that this evidence extends to impairment of teaching performance as well. Teaching Anxiety Scale (TCHAS) was designed by Parsons (1973), to provide a tool for measuring anxiety specific to the task of teaching. Although it was designed in 1973 is regarded today as the most effective way to measure teaching anxiety. Many researchers as: Cheung & Hui (2011), Al-Mehrzi, Al-Busaidi, Ambusaidi, Osman, Amat & Al-Ghafri (2011), Woullard (2003), Pigge & Marso (1997), Williams (1991), have applied the Teaching Anxiety Scale, TCHAS - Parsons (1973), as a measuring instrument in their studies.

This instrument is available:

- ✓ On the Internet:
  http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED079330
- ✓ Or in the book of: Lester, P.E. & Bishop L.K. (2001.) *Handbook of Tests and Measurement in Education and the Social Sciences. 2nd ed.*

The TCHAS contains a variety of self-report statement about teacher reactions to teaching. These reactions are two general kinds: first, emotional responses to a variety of different situations related to teaching, and second, attitudes toward teaching as a profession. 1

Parsons (1973) reports that:

> *"Extensive testing of the scale shows that (1) the TCHAS is a measure of teaching anxiety; (2) that the TCHAS measures reliably some quality distinct from what either the Manifest Anxiety Scale (MAS) or Test Anxiety Scale (TAS) measures; (3) that the TCHAS is stable (.95) over short periods of time; (4) that the validity of the TCHAS is not merely an artifact of similarities in method measurement; (5) that pre-service teacher responses teachers as observed and interpreted by their teaching supervisors; (6) that teaching anxiety as measured by the TCHAS is a unitary variable, and (7) that over several studies, anxiety as measured by the TCHAS consistently decreases as experience in teaching increases" (p. 21).*

1 Parsons, J. (1973). Assessment of anxiety about teaching using the Teaching Anxiety Scale: Manual and research report. The research and development center for teacher Education University of Texas. Paper presented at Annual Meeting of American Educational Research Association, New Orleans. Louisiana

1.1 Teaching Anxiety Scale

The TCHAS was developed initially at Stanford University in two equivalent forms TCHAS (1) -25 and TCHAS (2) -25 for use with pre-service, intern teacher. More recently, several slightly altered versions of the TCHAS (TCHAS (1)-24, TCHAS (1)-28, and TCHAS (1)-29) were made available for use. An attempt to increase the appropriateness of the TCHAS content for the study of in-service teacher resulted in the addition of three slightly altered version: TCHAS (1)-24, which is TCHAS (1)-25 minus item 16; TCHAS (1)-28, which is TCHAS (1)-24 plus four item; and TCHAS (1)-29 which is a composite of all items in TCHAS (1)-25 and TCHAS (1)-28. TCHAS (1)-29 has an advantage of being scored in a number of ways, depending upon the kind of teacher.

Since, on all forms of TCHAS, all the statements are presented with a 1-5 choice option format, from low agreement with an item (1 = "never") to high agreement with an item (5 = "always"). Other middle –range options are "infrequently", "occasionally" and "frequently" 2- 4 respectively. Approximately half of the items are phrased negatively (in terms of admission of anxiety); for examples: "I'm worried whether I can be a good teacher." A high degree of agreement with this negatively phrased item is scored "high anxious". The other items are positively phrased, for example: "I feel sure I can be a good teacher." A high degree of agreement with positively phrased items is scored "low anxious" (Parsons, 1973:1)

Approximately half of items are phrased positively and half are phrased negatively, reverse scoring of positively phrased item responses is used in order procedure item score with consistent meaning. After reverse scoring has been performed, a high score on all items reflects a high degree of admitted anxiety. Reverse scoring is accomplish by the following procedure: "1' s" are rescored "5' s"; "2' s" are rescored "4' s"; "3' s" remain the same; "4's" are rescored "2' s"; and "5' s" are rescored "1' s". The total TCHAS scale score is then calculate by summing the item scores.

1.2 Reliability and Validity of Teaching Anxiety Scale (Parsons, 1973)

All the alpha coefficients indicated that the internal consistency of TCHAS is high from .87 to 0.94. Confirmation of this high internal consistency was provided by Gregory (1976) 2 who reported reliability measures of .87and .86 for samples of 520 and 401 student teachers (p. 207). If so William Tattersall (1979) used the teaching anxiety scale, and resulted that TCHAS (Parson, 1973) had internal consistency as pre test (.87) and post-test (.91).

A factor analysis was done on the TCHAS by Parson. The items for the teaching anxiety were subjected to principal-components factor analysis to determine whether they represented a single construct. These items yielded a single factor with an eigenvalue of 4.20 and the unifactor solution accounted for 30% of the total variance. All items loaded between 0.27 and 0.72 with a mean of 0.53 on the factor, thus TCHAS results with the single factor structure. A similar single-factor structure was found by other studies (Albusaidi & Aldhafri, 2009).

2. Method

2.1 Participant

The sample of this study consisted of 92 students enrolled in the third year of the Bachelor study program: "Elementary Teacher" and "Preschool Teacher". 95 % are female and 5% are male. 84% of the samples are at the age of 22. 60% are students in Elementary Teacher program study and 40% are students in Preschool Teacher program study.

2.2 Procedures

Since TCHAS is not used in any similar study in Albania, and the source in the literature is available in English translation and adaptation was used in Albanian. After the translation process, which was made by a lecturer of English at the University, was taken expert opinion on the validity of the content.

Measurements were made at two stages of development Pedagogical Practice, at the end of serial practice and the end of 8-week practice.

2 Gregory, A. (1976), The effect of student teaching on the professional self-concept of student teachers – A study of student teachers in the professional program, Simon Fraser University.

2.3 Data analysis

The collected data were analyzed using Statistical Package for Social Sciences (SPSS), version 17th software. TCHAS reliability was evaluated using Cronbach's alpha and the internal consistency. For the structure validity of the scale, principal axis factor analysis with varimax rotations and Screen Test was used.

3. Results and Discussion

3.1 Reliability analysis of the TCHAS

Reliability is the degree of compliance that provides instrument with participants. To assess the reliability of Teaching Anxiety Scale was used Cronbach's alpha. Coefficient Cronbach's alpha is used to assess the reliability of the instrument as a whole and to test the reliability score for each category, but not for dichotomous responses. TCHAS complements this condition. Each item on the Teaching Anxiety Scale requires a response by choosing a level of five choices (1 for "never", 2 for "infrequently", 3 for "occasionally", 4 for "frequently", 5 for "always").

The Teaching Anxiety Scale have resulted in a high coefficient of reliability, as before practice (α = .97), and after performing pedagogical practice (α = .95). Henson (2001b), has recommended that for general research purposes, reliability should be at least 0.80. According to Field (2005), this is a good level of internal consistency.

Table 1: Results of Cronbach's alpha coefficient

	Before practice	After practice
TCHAS	.97	.95

By inspection of the item correlations containing TCHAS, it was concluded that there is no correlation under .30 and correlations generally ranging by moderate to strong (see Table 2).

Table 2. The correlations between the 29 items of TCHAS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	1																												
2	,739**	1																											
3	,457**	,306**	1																										
4	,478**	,413**	,586**	1																									
5	,562**	,593**	,510**	,391**	1																								
6	,552**	,574**	,478**	,519**	,717**	1																							
7	,535**	,498**	,394**	,417**	,722**	,708**	1																						
8	,566**	,557**	,435**	,530**	,691**	,722**	,835**	1																					
9	,634**	,583**	,436**	,488**	,676**	,684**	,794**	,872**	1																				
10	,611**	,613**	,418**	,467**	,625**	,673**	,730**	,793**	,919**	1																			
11	,623**	,541**	,464**	,542**	,601**	,612**	,617**	,694**	,681**	,701**	1																		
12	,606**	,562**	,534**	,491**	,599**	,598**	,588**	,654**	,680**	,683**	,787**	1																	
13	,675**	,574**	,481**	,575**	,624**	,644**	,619**	,658**	,709**	,690**	,775**	,764**	1																
14	,615**	,553**	,497**	,595**	,614**	,625**	,516**	,620**	,605**	,558**	,681**	,738**	,831**	1															
15	,638**	,505**	,525**	,537**	,559**	,555**	,577**	,655**	,659**	,620**	,689**	,715**	,769**	,750**	1														
16	,614**	,569**	,484**	,589**	,601**	,638**	,579**	,667**	,680**	,665**	,695**	,758**	,813**	,770**	,751**	1													
17	,576**	,534**	,481**	,552**	,515**	,580**	,514**	,629**	,619**	,648**	,681**	,703**	,769**	,717**	,692**	,865**	1												
18	,531**	,547**	,407**	,554**	,446**	,554**	,492**	,568**	,532**	,575**	,584**	,648**	,695**	,639**	,563**	,808**	,840**	1											
19	,522**	,514**	,419**	,424**	,465**	,565**	,544**	,544**	,524**	,535**	,599**	,641**	,640**	,612**	,576**	,721**	,727**	,742**	1										
20	,598**	,585**	,400**	,560**	,460**	,513**	,509**	,572**	,579**	,597**	,598**	,591**	,694**	,589**	,603**	,774**	,805**	,786**	,739**	1									
21	,476**	,514**	,389**	,559**	,407**	,469**	,468**	,468**	,496**	,458**	,504**	,573**	,639**	,562**	,475**	,633**	,658**	,674**	,562**	,650**	1								
22	,373**	,251**	,400**	,349**	,283**	,280**	,279**	,383**	,330**	,310**	,374**	,381**	,426**	,407**	,471**	,545**	,543**	,555**	,438**	,472**	,514**	1							
23	,547**	,448**	,313**	,537**	,332**	,469**	,493**	,517**	,570**	,557**	,481**	,597**	,639**	,586**	,550**	,611**	,635**	,674**	,612**	,673**	,611**	,299**	1						
24	,491**	,434**	,377**	,456**	,372**	,355**	,352**	,404**	,410**	,410**	,560**	,580**	,644**	,572**	,480**	,638**	,682**	,694**	,624**	,651**	,646**	,469**	,538**	1					
25	,481**	,457**	,365**	,451**	,467**	,481**	,469**	,521**	,546**	,518**	,537**	,539**	,618**	,549**	,496**	,719**	,633**	,677**	,628**	,737**	,609**	,474**	,522**	,663**	1				
26	,391**	,306**	,327**	,378**	,288**	,251**	,352**	,369**	,403**	,403**	,483**	,453**	,446**	,357**	,383**	,428**	,497**	,456**	,410**	,534**	,543**	,412**	,394**	,546**	,625**	1			
27	,491**	,551**	,396**	,470**	,392**	,518**	,387**	,503**	,513**	,498**	,560**	,531**	,562**	,491**	,473**	,634**	,581**	,595**	,573**	,602**	,590**	,474**	,501**	,478**	,612**	,431**	1		
28	,371**	,250**	,322**	,452**	,184	,256**	,238**	,345**	,345**	,329**	,373**	,530**	,510**	,511**	,451**	,613**	,574**	,573**	,535**	,587**	,464**	,357**	,511**	,511**	,581**	,361**	,532**	1	
29	,486**	,449**	,330**	,477**	,379**	,474**	,414**	,498**	,560**	,547**	,473**	,510**	,596**	,558**	,501**	,651**	,640**	,646**	,612**	,678**	,534**	,386**	,616**	,513**	,716**	,480**	,599**	,558**	1

** Correlation is statistically valid at the 0.01 level (2-tailed)..

3.2 Factorial analysis of TCHAS

The 29 items of the TCHAS (Parsons, 1973), which was adapted in Albanian were includes in a factorial analysis (Principal axis factoring with varimax-rotation), to identify possible factors associated with teaching anxiety.

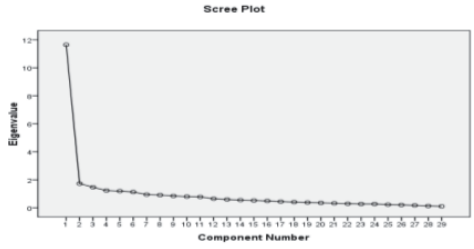
It is proven if the data are suitable for conducting factorial analysis. The sample included in this study exceeds the minimum ratio 1 to 5 (5 persons for a variable), defined by Tabachnick and Fidell (2007). Index Kaiser-Meyer- Olkin for sample suitability for conducting factorial analysis was .93. This index is significantly higher than the minimum level .6, allowed to perform factorial analysis of defined by Kaiser (1974). Bartlett's Test, resulted statistically valid (p <.05) (see Table 3). The data are suitable for conducting factorial analysis.

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.930
Bartlett's Test of Sphericity	Approx. Chi-Square	2514.361
	Df	406
	Sig.	.000

Factorial analysis of 29 items revealed three factors with a characteristic value (eigenvalue) over 1, which explain the respectively 57%, 7.7% and 3.7% of the variance. By inspection of the Scree Test (Catell, 1996), it was concluded a clear interruption after the second component (Figure 1).

Figure 1. Scree Test



This was later supported by the results of the Parallel Analysis, which showed that there are only two factors with a characteristic value (eigenvalue) that exceed the corresponding values of the data matrix generated randomly for the same number of variables and one the same sample size (29 variables x 92 respondents). Based on this, factorial analysis was repeated with two factors. It failed to point out the presence of the simple structure where the two components show a number of variables to strongly correlation with each of them.

So, the structure factor was not distinguishable and therefore, was judged the best solution for this sample teaching students was a single factor. For this reason, factorial analysis was conducted again and was requested to be extradited only one factor. This factorial analysis showed that, all items in the Teaching Anxiety Scale correlation with this single factor that explained 57% of variance with a characteristic value (eigenvalue) of the 16.52 (see Table 4).

Table 4. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.523	56.976	56.976	16.523	56.976	56.976
2	2.223	7.667	64.643			
3	1.071	3.692	68.335			
4	.937	3.231	71.567			
5	.810	2.793	74.360			
6	.770	2.656	77.015			
7	.742	2.560	79.575			
8	.644	2.219	81.794			

9	.608	2.095	83.889			
10	.508	1.751	85.641			
11	.476	1.642	87.283			
12	.425	1.466	88.749			
13	.400	1.380	90.128			
14	.353	1.216	91.345			
15	.319	1.100	92.444			
16	.269	.928	93.372			
17	.249	.859	94.231			
18	.228	.786	95.017			
19	.217	.749	95.766			
20	.210	.725	96.491			
21	.181	.624	97.115			
22	.160	.553	97.667			
23	.151	.520	98.188			
24	.139	.478	98.665			
25	.111	.383	99.048			
26	.091	.315	99.364			
27	.083	.287	99.651			
28	.060	.208	99.859			
29	.041	.141	100.000			

Extraction Method: Principal Component Analysis.

Correlations between the items and the factor ranging from 0.55 to 0.88 (see Table 5.)

Table 5. Component Matrix[a]

Item	Component 1
1	.746
2	.693
3	.585
4	.677
5	.695
6	.742
7	.722
8	.797
9	.810
10	.794
11	.809
12	.832
13	.883
14	.819
15	.795
16	.901
17	.872
18	.832
19	.786
20	.835
21	.738
22	.553
23	.730
24	.712
25	.764
26	.574
27	.710
28	.604
29	.729

Extraction Method: Principal Component Analysis.
a. 1 component extracted.

Factorial analysis found that, items of the teaching anxiety scale yielded a single factor with an eigenvalue of 16.52 and the unifactor solution accounted for 57% of the total variance. A similar factorial with a single factor is identified as well and in other studies (Parsons, 1973; Albusaidi and Aldhafri, 2009).

Findings about the validity and reliability of the Teaching Anxiety Scale (Parson, 1973), Albanian version, are an added contribution to of the research literature in Albania. It is recommended to use this scale, in similar studies in Albanian reality.

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