

DEVELOPMENT OF THE SPANISH EDITION OF THE STATE-TRAIT ANXIETY INVENTORY¹

CHARLES D. SPIELBERGER, FERNANDO GONZALEZ-REIGOSA
AND ANGEL MARTINEZ-URRUTIA
Florida State University

LUIZ F. S. NATALICIO AND DIANA S. NATALICIO
The University of Texas at El Paso

U.S.A.

ABSTRACT. The goal of this study was to describe the construction of scales for measuring state (A-State) and trait (A-Trait) anxiety that would be suitable for use in interamerican, cross-cultural research. The State-Trait Anxiety Inventory (Spielberger, *et al.*, 1970) was translated into Spanish with the assistance of psychologists from 10 different Latin American countries. To evaluate the reliability and equivalence of the Spanish and English forms of the STAI, these scales were given in counterbalanced order to bilingual Ss in Texas and Puerto Rico. In both samples, high item-remainder correlations and alpha coefficients ranging from .82 to .95 established the internal consistency of the Spanish A-State and A-Trait scales. Evidence of the equivalence of these scales was provided by correlations between the Spanish and English forms that ranged from .83 to .94. High test-retest reliability was also found for the Spanish A-Trait scale but not for the A-State scale. As expected, the A-State scale was influenced by transitory situational stress, whereas the A-Trait scale was stable over time. It was concluded that the Spanish STAI provides internally consistent and reliable scales for measuring state and trait anxiety which are essentially equivalent to the English STAI A-State and A-Trait scales.

RESUMEN. La meta de este estudio es de describir la construcción de escalas para medir estado (A-State) y rasgo (A-Trait) de ansiedad, que sean adecuadas para uso en investigaciones transculturales. El State-Trait Anxiety Inventory (Spielberger *et al.*, 1970) se tradujo al castellano con asistencia de psicólogos de 10 diferentes países latino-americanos. Para evaluar la confiabilidad y la equivalencia de las formas del STAI en inglés y en español, estas escalas se administraron en orden contra-balanceado a Ss bilingües en Texas y Puerto Rico. En las dos muestras, correlaciones elevadas (item-remainder) y coeficientes alpha extendiéndose del .82 al .95 establecieron la consistencia interna de las escalas de A-Trait y A-State. Indicación de la equivalencia de las escalas fué proporcionada por correlaciones de .83 a .94 entre las versiones en inglés y en español. Como se esperaba, la escala A-State fué influida por stress transitorio situacional, resultando en índices de confiabilidad de test-retest bajos. Índices de confiabilidad de test-retest elevados fueron obtenidos para la escala A-trait, la cual se mantuvo estable a través del tiempo. Se concluyó que el STAI en castellano proporciona escalas internamente consistentes y confiables para medir estado y rasgo de ansiedad que son esencialmente equivalentes a las escalas A-State y A-Trait del STAI en inglés.

Anxiety is considered to be the "fundamental phenomenon and the central problem of neurosis" (Freud, 1936, p. 85), and it is widely regarded as the "most pervasive psychological phenomenon of our time" (Hoch & Zubin, 1950). Not only is anxiety a basic ex-

planatory concept in most current theories of personality, but the universality of anxiety phenomena is also clearly reflected in literature, the arts, religion and many other facets of contemporary life (May, 1950). Hence, it would seem that cross-cultural research on anxiety might be especially fruitful in contributing to a more comprehensive understanding of human nature.

Ambiguity in the conceptual status of anxiety arises from the more or less indiscriminate use of this term to refer to two different constructs. Anxiety is perhaps most commonly used to denote a complex emotional reaction or state that varies in intensity and fluctuates over time as a function of the intrapsychic or situational stresses that impinge upon an individual (Spielberger, 1966). It is generally agreed that anxiety, as an emotional state (A-State), consists of feelings of tension and apprehension and heightened autonomic nervous system activity.

The term "anxiety" is also used to refer to individual differences in anxiety-proneness as a personality trait. Persons who are high in trait anxiety (A-Trait) are more strongly disposed to manifest anxiety states than are nonanxious (low A-Trait) persons. Neurotic individuals, for example, are high in A-Trait and more likely to respond to situations that involve threats to self-esteem with greater elevations in A-State intensity than persons who are low in trait anxiety. Neurotics also have a greater tendency to worry than non-neurotics, even in circumstances where there is little or no external stress.

Most of the anxiety measures that are widely used in current research, such as the Taylor (1953) Manifest Anxiety Scale and Cattell's (1957) IPAT Anxiety Scale, provide reasonable measures of trait anxiety. Scheier and Cattell (1960) were among the first to recognize the need for a measure of day-to-day fluctuations in anxiety, and they developed the IPAT 8-Parallel Form Anxiety Battery for the "repeated measurement of change in anxiety level over time." Although the 8-PF has been in existence for more than a decade, there is little evidence of its validity as a measure of A-State. Instead, several of its subtests appear to measure A-Trait (Spielberger, 1971).

Zuckerman and his colleagues developed the Affect Adjective Checklist (AACL) to measure anxiety (Zuckerman, 1960; Zuckerman & Biase, 1962). They used the same set of 21 adjectives with different instructions to measure both A-Trait and A-State. In the assessment of A-State, the *S* is instructed to respond on the basis of how he feels *today*; in the assessment of A-Trait, the *S* is asked to respond according to how he *generally* feels. The AACL is widely used in current research on anxiety, and the validity of Zuckerman's

THE SPANISH EDITION OF THE STATE-TRAIT ANXIETY INVENTORY

A-State measure is impressive. However, the AACL A-Trait measure is not highly correlated with other measures of A-Trait (Spielberger, Gorsuch & Lushene, 1970).

The State-Trait Anxiety Inventory (STAI) was developed by Spielberger and his associates (Spielberger & Gorsuch, 1966; Spielberger, *et al.*, 1970) to provide reliable, relatively brief, self-report measures of both A-State and A-Trait. The STAI A-State scale consists of 20 statements which ask people to describe how they *feel at a particular moment in time*. The essential qualities evaluated by this scale involve the intensity of a person's feelings of tension, nervousness, worry and apprehension. The STAI A-Trait scale also consists of 20 statements to which Ss are required to respond by indicating, on a four-point rating scale, the frequency that they experience specific anxiety symptoms. This scale measures individual differences in anxiety-proneness; that is, the general tendency to worry, especially in social situations that pose some threat to self-esteem.

There is now considerable evidence that scores on the STAI A-State scale increase in situations characterized by either physical or psychological stress, such as the threat of electric shock, observing stressful motion pictures, giving a speech or receiving negative feedback about performance (Spielberger, *et al.*, 1970). It has also been found that STAI A-State scores are elevated prior to surgery and that these elevated scores decline during a post-surgical convalescence period (Auerbach, 1971). Another finding is that scores on the A-State scale increase when Ss perform on a difficult learning task, decrease on easy tasks (Spielberger, O'Neil, & Hansen, 1971), and drop even lower as a function of relaxation training (Lushene, 1970).

In contrast to the fluctuations observed in the STAI A-State scale in response to situational stress, scores on the STAI A-Trait scale are relatively stable over time and impervious to stresses such as those noted in the preceding paragraph (Spielberger, *et al.*, 1970). There is also a growing body of literature which indicates that persons who are high in A-Trait are more likely to respond with greater elevations in A-State to situations that involve ego threats or threats to self-esteem than low A-Trait persons, and that high and low A-Trait individuals do not respond differently to physical dangers such as the threat of electric shock or imminent surgery (Spielberger, 1971).

Are the findings of recent investigations of state and trait anxiety limited to the United States, or may they be generalized to other societies and cultures? In order to facilitate inter-American cross-cultural research on anxiety, a Spanish Edition of the STAI has been

developed. Our main goal in constructing the Spanish STAI was to build an instrument for measuring A-State and A-Trait that could be used in all Spanish-speaking, Latin American countries. In this paper, the procedures that were employed in the translation of the STAI into Spanish are described, and the results of two studies concerned with establishing the equivalence of the Spanish and English forms of the scale are reported.

METHOD

Translation of the STAI into Spanish

In the development of the Spanish Edition of the STAI, an attempt was made to provide a literal translation of each key word while endeavoring to preserve the "feeling tone" of each item. For items expressed in terms of English idioms, care was taken to translate the feeling connotations of the idiom rather than the literal meaning of individual words. For example, "take things hard" was translated into the Spanish idiom, "muy a pecho," which has a similar (but not identical) connotation of "taking things (to heart) seriously."

The initial phase of the translation of the STAI into Spanish was carried out by three psychologists: one native Puerto Rican and two native Cubans who attended college in Puerto Rico.² In addition, the English Form of the STAI was sent to a professional Spanish interpreter who was selected for the task of translating the scale into Spanish on the basis of his extensive experience in working with persons from a number of different Latin American countries.³ On the basis of inputs from these two sources, a tentative Spanish translation of the STAI was constructed, employing the same format and instructions that are used in the STAI. While there was substantial agreement in the translations of 33 of the 40 original items, fundamental differences in the translations for seven items (2 A-State, 5 A-Trait) required the development of alternative wordings for these items.

The second phase in the development of the Spanish Edition of the STAI involved obtaining evaluations of the Spanish translation from a group of leading Latin American psychologists. In the spring of 1969, the English Edition of the STAI and the Spanish translation (with alternative wordings for seven items) were sent to 20 eminent psychologists representing 10 different Latin American countries. The STAI Test Manual was also sent to these psychologists, all of whom were either members of the APA or held office in the Inter-American Society of Psychology at the time we wrote to them. They were asked to review each item in the Spanish translation, compare it with the corresponding STAI item, and then give their opinion re-

garding the adequacy of the translation. The cover letter contained the following information:

Enclosed you will find a copy of the STAI and the Test Manual for the inventory. You will also find a copy of the Spanish translation of the STAI. In both the English and Spanish versions, the first 20 items are state anxiety (A-State) items, and items 21-40 are trait anxiety (A-Trait) items. The concepts of A-State and A-Trait are discussed on pages 1 and 2 of the Test Manual.

While preparing the translation, we have tried to maintain the essential content of the original STAI items and, at the same time, to take advantage of some special psycholinguistic characteristics of the Spanish language. For example, the Spanish verbs "estar" and "ser," which fit so well the concepts of state and trait, have been used in the translation to correspond with the state and the trait parts of the STAI whenever this was possible. In our translation we have also tried to emphasize expressions which are generally used and understood by the average man on the street.

You will probably notice that some of the items in the Spanish version of the STAI are stated in terms that are characteristic of the Spanish language as it is spoken in Puerto Rico. This is because we plan to administer the scale this summer to college students and neuropsychiatric patients in Puerto Rico. However, our long range goal is to develop a scale that will be useful to all the Spanish speaking world, and we would very much appreciate your assistance in this project.

It would be extremely helpful to us if you would review each of the items on the Spanish version of the STAI and give us your sincere opinion with regard to the adequacy of the translation. You can do this by simply recording a "G" to the left of the number for each item that you believe to represent a "good" Spanish translation of the corresponding item in English. Please record an "S" for those items where you feel the translation is only satisfactory and a "U" for items for which you believe the translation is unsatisfactory. In addition, we would appreciate your providing us with a similar evaluation of the A-State and A-Trait items that are listed on the sheet marked "Alternate Items." The number for each alternate item corresponds to the item that it would replace if it is regarded as a better translation.

We would appreciate any suggestions you feel would improve the translation of the STAI or that would make it linguistically more acceptable to the people in your country. We would especially appreciate your indicating a translation for any item you have marked "U."

Responses were received from 13 of the 20 psychologists to whom

we wrote, representing eight different Latin American countries. More than two-thirds of the respondents rated the translation of 35 of the 40 original items (18 A-State and 17 A-Trait) as either good or satisfactory. Four of the original items (three A-State, one A-Trait) were replaced by their alternatives, which were rated as better translations by more than two-thirds of the respondents. Thus, except for one A-State item, most respondents considered the translations of individual items or their alternatives to be either good or satisfactory. The single controversial item ("I am regretful") was rated as good or satisfactory by eight of the 13 respondents, and as unsatisfactory by five. The translation of this item ("Estoy contrariado") was retained, however, because there was little agreement among our respondents in the formulation of a better alternative.

On the basis of the responses of the Latin American psychologists, a final set of 20 A-State and 20 A-Trait items was selected for the Spanish Edition of the STAI. Since the original translation of the STAI into Spanish was developed by psychologists from Cuba and Puerto Rico, the Spanish translation benefited from the judgments of psychologists from ten different Latin American countries.⁴

Equivalence of the Spanish and English Forms of the STAI

In order to establish the equivalence of the Spanish and English forms of the STAI, two studies were carried out with bilingual subjects, one at the University of Texas at Austin and the second at the Rio Piedras Campus of the University of Puerto Rico. The Ss at the University of Texas were 38 Spanish-English teachers and teacher aides who were enrolled in an institute concerned with the special classroom linguistic problems of non-native speakers of English. Spanish was the first language of all but one of these Ss. They ranged in age from 19 to 55, with a median age of 25. Of the 38 Ss, 20 had baccalaureate degrees and two had master's degrees.

The Ss at the University of Puerto Rico consisted of 31 undergraduate students. Most of them were juniors and seniors majoring in English Education. Spanish was the first language for all of these Ss. The age range for the Puerto Rico sample was from 20 to 51, with a median age of 22.

Procedure

The standard English Edition of the STAI (Form X), and the experimental Spanish Edition (Form SX) were administered on two different occasions, in counterbalanced order, to the Texas and Puerto Rican Ss. In the initial administration of the STAI, approximately half of the Ss in each sample were given the Spanish form first, followed by the English form, and the remaining Ss received the English form first, followed by the Spanish form. In the second

THE SPANISH EDITION OF THE STATE-TRAIT ANXIETY INVENTORY

test administration, both scales were given in reverse order. Those Ss who received the Spanish form first in the initial administration received the English form first in the second administration, and vice versa. The interval between test administrations was ten days for the Texas sample and seven days for the Puerto Rico sample.

In introducing the study, the Ss were informed that they had been selected because of their bilingual ability. They were also asked to complete a "Self-Evaluation Questionnaire" in both Spanish and English. They were told that some would be given the Spanish version first, while others would receive the English version, and that there were two parts to each questionnaire. The Ss were asked to respond to each item on the Spanish and English versions of the STAI without trying to remember how they had previously responded to the item. All questions that arose were answered by rereading appropriate parts of the instructions.

The Texas study was concerned only with determining the equivalence of the English and Spanish forms of the STAI. In the Puerto Rico study, the Ss were given a numer-series task prior to the administration of the STAI. This task was introduced as an intelligence test in order to increase the amount of situational stress. After the Ss worked on the number-series task for 20 minutes, they were interrupted and given the English and Spanish forms of the STAI.

RESULTS

Several representative STAI A-State and A-Trait items are presented in Table 1, along with their Spanish translations. For each A-State item, the Ss rated themselves according to "how you feel at

TABLE 1

Representative A-State and A-Trait Items from the English and Spanish Edition of the STAI and Item-Remainder Correlations.

STAI A-State Items	First Admin.		Second Admin.	
	Texas	P.R.	Texas	P.R.
1. I feel calm.	.56	.79	.77	.77
1. Me siento calmado.	.77	.77	.69	.77
3. I am tense.	.54	.64	.64	.83
3. Estoy tenso	.60	.71	.68	.78
12. I feel nervous.	.39	.67	.73	.29
12. Me siento nervioso.	.54	.77	.65	.41
20. I feel pleasant.	.47	.67	.59	.64
20. Me siento bien.	.68	.63	.55	.81
STAI A-Trait Items				
22. I tire quickly.	.68	.43	.41	.60
22. Me cansa rapidamente.	.56	.68	.46	.67
29. I worry too much over something that really doesn't matter.	.65	.74	.58	.62
29. Me preocupó demasiado por cosas sin importancia.	.62	.69	.66	.56
37. Some unimportant thought runs through my mind and bothers me.	.38	.62	.63	.66

37. Algunas ideas poco importantes pasan por mi mente y me molestan.	.56	.52	.75	.77
39. I am a steady person.	.58	.36	.69	.70
39. Soy una persona estable.	.51	.68	.61	.50

this moment" on the following four-point scale: (1) *Not at all*; (2) *Somewhat*; (3) *Moderately so*; (4) *Very much so*. For the A-Trait items, the Ss responded according to "how you generally feel" by checking one of the following alternatives: (1) *Almost never*; (2) *Sometimes*; (3) *Often*; (4) *Almost always*.

Item-remainder correlations for each Spanish and English STAI A-State and A-Trait item were computed for both the first and the second administration of these scales to the Texas and Puerto Rico samples; these are reported in Table 1 for the representative items. For the entire scale, the item-remainder correlations for the individual Spanish STAI A-State and A-Trait items were generally quite high and comparable to those obtained for the English STAI items. Surprisingly, the correlations obtained for the bilingual Ss in the present study were higher than those reported for the normative samples in the STAI Test Manual (Spielberger, *et al.*, 1970). The finding that each individual Spanish STAI A-State and A-Trait item was moderately to highly correlated with the remaining items in the Spanish A-Trait and A-State scales provides strong evidence of the internal consistency of these scales.

The mean A-Trait scores for the Spanish and English Forms of the STAI obtained in the first and the second administrations of these scales with the Texas and Puerto Rico samples are reported in Table 2; standard deviations and alpha reliabilities for each scale computed by formula K-R 20 are also reported in this table. Four Ss in the Texas sample and seven in Puerto Rico were not present for both

TABLE 2

Mean A-Trait Scores and Alpha Reliabilities of the Spanish and English Forms of the STAI for the first and second administration of these scales with the Texas and Puerto Rico samples.

Study/Scale	N	1st Administration			2nd Administration		
		Mean	SD	Alpha	Mean	SD	Alpha
Texas, Spanish	34	34.00	7.67	.84	32.15	8.32	.89
Texas, English	34	35.91	8.57	.87	32.62	8.42	.91
P.R., Spanish	24	31.62	7.41	.82	29.92	8.06	.89
P.R., English	24	31.79	7.78	.86	30.62	7.49	.86

administrations of the STAI. The data for these Ss were excluded from the means reported in Table 2, and from all subsequent analyses. For both the Texas and Puerto Rico samples, differences in the mean scores obtained for the Spanish and English forms of the STAI A-Trait scale were evaluated for the first and second administrations of this test by analysis of variance procedures.

The tendency for scores to be slightly higher on the English

THE SPANISH EDITION OF THE STATE-TRAIT ANXIETY INVENTORY

form of the STAI A-Trait scale, which may be noted in Table 2, was found to be significant only in the first administration of these scales with the Texas sample ($p < .05$). Using F tests for repeated measures, the general tendency for Ss to obtain higher scores on the first administration of the Spanish and English forms of the scale was found to be significant for the Texas sample ($p < .05$ for both scales), but not for the Puerto Rico Ss. Thus, mean scores on the Spanish and English Forms of the STAI A-Trait scale were comparable during both administrations of these scales for the Puerto Rico samples but there was a tendency for the Texas Ss to score higher on both forms of the scale the first time it was given, and especially on the English form. Findings similar to those obtained with the Texas sample were recently reported by Mote, Natalicio, and Rivas (1971) for bilingual college undergraduates at St. Mary's University, San Antonio, Texas.

Additional evidence of the internal consistency of the Spanish and English STAI A-Trait scales is provided by the alpha coefficients reported in Table 2, which indicate that the items comprising these scales are homogeneous. Evidence of the equivalence of the Spanish and English Forms of the STAI is provided by the finding that the correlation between these scales in the first administration was .83 in Texas, and .85 in Puerto Rico. Similarly, in the second administration, the correlations between the Spanish and English forms of the STAI were .89 in Texas, and .85 in Puerto Rico. Finally, evidence of the stability of the STAI A-Trait scale is reflected in test-retest correlations of .84 (Texas) and .83 (Puerto Rico) for the Spanish form, and .81 (Texas) and .76 (Puerto Rico) for the English form.

The means and standard deviations of the Spanish and English STAI A-State scores are reported in Table 3, along with the alpha reliabilities for the two administrations of each scale. The Ss in both samples scored slightly higher on the Spanish A-State scale than

TABLE 3

Mean A-State Scores and Alpha Reliabilities of the Spanish and English Forms of the STAI for the first and second administration of these scales with the Texas and Puerto Rico samples.

Study/Scale	N	1st Administration			2nd Administration		
		Mean	SD	Alpha	Mean	SD	Alpha
Texas, Spanish	34	38.23	9.31	.91	33.65	7.88	.89
Texas, English	34	37.26	8.48	.85	32.56	9.84	.93
P.R., Spanish	24	42.04	13.53	.94	34.83	12.05	.95
P.R., English	24	40.54	12.14	.93	32.46	10.49	.92

on the corresponding English form, but only the difference between means in the second administration of scales with the Puerto Rico

sample was statistically significant. However, for both samples, A-State scores on the Spanish and English forms were significantly higher on the first administration of these scales than on the second administration. Thus, the mean scores on the Spanish and English forms of the STAI A-State scale tended to be comparable during a single testing session, but Ss in the Texas and Puerto Rico samples scored consistently higher on both forms of the scale the first time it was given than on the second administration.

As may be noted in Table 3, the differences between mean A-State scores on the first and second administrations of the A-State scales were large and these differences were significant. In contrast, small but significant differences were found for the comparable A-Trait scores (See Table 2). We may speculate that Ss who are not accustomed to responding to personality tests such as the STAI ("Self-Evaluation Questionnaire") might be higher in transitory anxiety (A-State) when they are evaluated for the first time than on a subsequent evaluation in a similar experimental situation. This speculation seems to be borne out in part in the testing of the Puerto Rico sample since these Ss were given an "intelligence test" to introduce situational stress prior to the STAI.

The high level of internal consistency of the Spanish and English forms of the STAI A-State scale is reflected in the individual item-remainder correlations reported for representative items in Table 1, and in the large alpha coefficients reported in Table 3. Alpha correlations ranged from .89 to .95 for the Spanish A-State scale, and from .85 to .93 for the English scale. The equivalence of the Spanish and English forms of the A-State scale is reflected in correlations of .83 and .91 for the first and second administrations of these scales with the Texas sample, and .91 and .94 in the two administrations of the A-State scales with the Puerto Rico sample.

In contrast to the stability of the STAI A-Trait scale, as reflected in test-retest correlations which ranged from .76 to .84, the test-retest correlations for the A-State scale were somewhat lower (.49 to .63). Lower test-retest correlations were expected for the A-State scale, however, because valid measures of transitory anxiety should reflect the influences of unique situational factors that exist at the time of testing, whereas A-Trait measures should be less influenced by situational stress. Given the transitory nature of anxiety states, measures of internal consistency such as the alpha coefficient would seem to provide a more meaningful index of the reliability of A-State scales than test-retest correlations. As previously noted, the alpha coefficients and the item-remainder correlations for the A-State scale were high for both the Spanish and English forms of the STAI.

All of the analyses reported thus far have been concerned with

THE SPANISH EDITION OF THE STATE-TRAIT ANXIETY INVENTORY

comparisons *within* the Texas and Puerto Rico samples of the Spanish and English forms of the STAI. It may be noted in Table 2 that the A-Trait scores of the Texas Ss were slightly higher than those of the Puerto Rico Ss, and, in Table 3, that the A-State scores of the Puerto Rico Ss were somewhat higher than those obtained for the Texas Ss. However, *cross-sample* comparisons of the Spanish and English forms of the STAI A-State and A-Trait scales revealed no significant differences between these groups. Thus, it may be concluded that there was no systematic difference between the two samples in their scores on the Spanish and English forms of the STAI during either the first or second administration of these scales.

DISCUSSION

The major goals in this study were as follows: (1) to describe the procedures employed in the development of a Spanish Edition of the State-Trait Anxiety Inventory that would be useful in inter-American, cross-cultural research; and (2) to present evidence of the equivalence of the Spanish and English forms of the STAI. A total of 20 A-State and 20 A-Trait items were selected for the Spanish STAI on the basis of the collective judgments of psychologists from 10 different Latin American countries.

The internal consistency and test-retest reliability of the Spanish STAI A-State and A-Trait scales, and the equivalence of these scales, were evaluated in studies with Mexican-American and Puerto Rican bilingual Ss. Reasonably high item-remainder correlation coefficients were obtained for each individual item in the Spanish A-State and A-Trait scales on both administrations of these scales with the Texas and Puerto Rico Ss. For the Spanish A-Trait scale, alpha correlations of .84, .82, .89, and .89, were obtained in the first and second administrations of this scale with the Texas and Puerto Rico samples. The comparable alpha correlations for the corresponding administrations of the Spanish A-State scale were even higher: .91, .94, .89, and .95. These data clearly establish both the homogeneity of the individual items in the Spanish STAI A-Trait and A-State scales and the high internal consistency of these scales.

Evidence of the equivalence of the Spanish and English forms of the STAI is provided by the high correlations obtained between these forms in both administrations of the scales to the Texas and Puerto Rico samples. For the A-Trait scale, the Spanish-English correlations were: .83, .89, .85, and .85. The correlations between the Spanish and English forms for the corresponding administrations of the A-State scale were even higher: .83, .91, .91, and .94. Mote, *et al.*, (1971) reported correlations between the English and Spanish forms of the STAI A-State and A-Trait scales of .94 and .94 respectively. They also noted that the correlations between the Spanish and En-

lish forms of the STAI tended to be higher when the scales were given in the following sequence: English-Trait, Spanish-Trait, English-State, Spanish-State.

The stability of the Spanish STAI A-Trait scale was reflected in the test-retest correlations of .84 and .83, obtained with intervals of ten days for the Texas Ss and one week for the Puerto Rico Ss. Bauermeister⁵ obtained a similar test-retest correlation of .96 for undergraduate students at the University of Puerto Rico who were retested after an interval of approximately four weeks. For the English form of the STAI, test-retest correlations for college Ss reported in the STAI Test Manual were approximately .80 after a 20 day interval, and .75 for a 104 day interval (Spielberger, *et al.*, 1970). Further evidence of the stability of the Spanish A-Trait scale in the present study is reflected in the fact that there was relatively little change in the A-Trait means for this scale from the first to the second administration. Thus, the stability of the Spanish A-Trait scale over time is quite good and compares favorably with the test-retest stability of the English A-Trait scale.

Test-retest correlations for the Spanish A-State scale were consistently lower than those obtained for the A-Trait scale. This instability in A-State scores was expected, however, since the A-State scale was designed to be sensitive to the influence of unique situational factors which typically change over time. Actually, the test-retest A-State correlations in the present study (.49 to .63) were considerably higher than those usually found, which can probably be attributed to the fact that the Ss were retested under similar circumstances. Test-retest correlations reported in the STAI Test Manual for the English A-State scale for college Ss retested after varying time intervals and circumstances range from .16 to .54, with a median r of only .32 (Spielberger, *et al.*, 1970, Table 5, p. 9).

The internal consistency and test-retest reliability of the Spanish STAI appear to be reasonably well established, and the Spanish and English A-State and A-Trait scales may be regarded as essentially equivalent forms. Because of the recent development of the Spanish STAI, there is as yet little evidence with respect to its construct validity. The finding in the present study, however, that scores on the Spanish A-State scale were significantly elevated on the first administration is consistent with the assumption that this scale reflects transitory changes in A-State, especially for the Puerto Rican Ss who were given the STAI after an "intelligence test." The finding that scores on the Spanish A-Trait scale were not influenced by situational stress is also consistent with results obtained for the English STAI A-Trait scale (Spielberger, 1971; Spielberger, *et al.*, 1970).

THE SPANISH EDITION OF THE STATE-TRAIT ANXIETY INVENTORY

Further evidence of the construct validity of the Spanish STAI was reported in recent study by Martinez (1971). He gave the scale to psychiatric patients at the San Juan Veterans Administration Hospital along with the Escala de Inteligencia Wechsler para Adultos (EIWA), the Spanish version of the Wechsler Adult Intelligence Scale, and found that HA-Trait Ss showed higher levels of A-State while performing on the EIWA than LA-Trait Ss. Martinez' HA-Trait Ss also tended to increase in A-State as they worked on the EIWA, whereas the A-State of his LA-Trait Ss remained relatively constant from the beginning to the end of the test. Martinez also found significant negative correlations between the Spanish A-Trait and A-State scales and EIWA Full Scale, Verbal, and Performance IQ Scales, and with scores on all but one of the individual subtests. It is interesting to note that the highest correlations in Martinez' study were found for the Spanish A-State scale given with instructions for Ss to respond according to how they felt while working on a particular subtest.

The Spanish STAI was constructed with the hope that its availability will serve to stimulate cross-cultural research on anxiety phenomena in Latin American countries. Cross-cultural investigations of factors that influence the arousal of anxiety states would be especially interesting and worthwhile. Investigations of the relationship between transitory (A-State) and trait (A-Trait) anxiety and learning in different cultures would also help to establish the generality of the findings of a large number of studies in the USA that have demonstrated the influence of individual differences in anxiety on the learning process.

REFERENCES

- Auerbach, S. M. An investigation of the effects of surgery-induced stress on state and trait anxiety. Unpublished doctoral dissertation, Florida State University, 1971.
- Cattell, R. B. *Handbook for the IPAT Anxiety Scale*. Champaign, Ill.: Institute for Personality and Ability Testing, 1957.
- Freud, S. *The Problem of Anxiety*. New York: Norton, 1936.
- Hoch, P. S., & Zubin, J. (Eds.) *Anxiety*. New York: Grune & Stratton, 1950.
- Lushene, R. E. The effects of physical and psychological threat on the autonomic, motoric, and ideational components of state anxiety. Unpublished doctoral dissertation, Florida State University, 1970.
- Martinez-Urrutia, A. On the relationship between anxiety and intelligence: A state-trait distinction. Unpublished Master's thesis, Florida State University, 1971.
- May, R. *The Meaning of Anxiety*. New York: Ronald Press, 1950.
- Mote, T. A., Natalicio, L. F. S., & Rivas, F. Comparability of the Spanish and English editions of the Spielberger State-Trait Anxiety Inventory. *Journal of Cross Cultural Research*, 1971, 2, 2, 205-206.
- Scheier, I. H., Cattell, R. B., & Horn, J. L. Objective test factor U. I. 23: Its measurement and its relation to clinically-judged neuroticism. *Journal of Clinical Psychology*, 1960, 16, 135-145.
- Spielberger, C. D. Theory and research on anxiety. In C. D. Spielberger (Ed.), *Anxiety and Behavior*. New York: Academic Press, 1966, 3-20.

SPIELBERGER ET AL.

- Spielberger, C. D. Anxiety as an emotional state. In C. D. Spielberger (Ed.), *Anxiety: Current Trends in Theory and Research*. New York: Academic Press, 1971 (in press).
- Spielberger, C. D. & Gorsuch, R. L. Mediating processes in verbal conditioning. Report to National Institute of Mental Health, 1966.
- Spielberger, C. D., Gorsuch, R. L. & Lushene, R. E. *The State-Trait Anxiety Inventory (Test Manual)*. Palo Alto, California: Consulting Psychologists Press, 1970.
- Spielberger, C. D., O'Neil, H. F. & Hansen, D. N. Anxiety, drive theory, and computer-assisted learning. In B. A. Maher (Ed.), *Progress in Experimental Personality Research*, Vol. 6. New York: Academic Press, 1971 (in press).
- Taylor, J. A. A personality scale of manifest anxiety. *Journal of Abnormal and Social Psychology*, 1953, 48, 285-290.
- Zuckerman, M. The development of an Affect Adjective Check List for the measurement of anxiety. *Journal of Consulting Psychology*, 1960, 24, 457-462.
- Zuckerman, M. & Biase, D. B. Replication and further data on the Affect Adjective Check List measure of anxiety. *Journal of Consulting Psychology*, 1962, 26, 291.

FOOTNOTES

¹We would like to express our gratitude to Rafael Garcia-Palmieri and Angel Velez-Diaz of the San Juan, Puerto Rico VA Hospital, and to Jose Bauermeister of the University of Puerto Rico, for their assistance in the development and validation of the Spanish STAI. In addition, we wish to acknowledge, with appreciation, the contributions of a number of colleagues from Latin American countries who helped us to evaluate the Spanish translation of the STAI. These included: Maria A. Carbonell de Grompone (Uruguay), Victor H. Carpio Gonzalez (Venezuela), Elliot R. Danzig (Mexico), Elena Granell (Venezuela), Rogelio Diaz Guerrero (Mexico), Luis Estrada de los Rios (Peru), Carlos M. Malgrat (Panama), Daniel V. Maloney (Chile), Julio Moros Guerrero (Venezuela), Rafael Nunez (Mexico), Francisco del Olmo (Venezuela), Emilio Ribes Inesta (Mexico), Alvaro Villar Gaviria (Colombia).

²The original translation of the STAI into Spanish was performed by Fernando Gonzalez-Reigosa under the supervision of C. D. Spielberger. This translation was subsequently revised and modified by Angel Martinez-Urrutia and Angel Velez-Diaz.

³The helpful suggestions and constructive comments of Mr. Nelson Duran, Latin American Interpreter for the International J. C., are gratefully acknowledged.

⁴Copies of the Spanish and English Editions of the STAI may be obtained for research purposes by writing to Charles D. Spielberger, Professor of Psychology, Florida State University, Tallahassee, Florida 32306, U.S.A.

⁵Personal communication, August, 1970.