Cross-cultural Reliability and Validity of the Attitude towards College Instructor Authority (ACIA) Survey

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Cross-cultural Reliability and Validity of the Attitude towards College Instructor Authority (ACIA) Survey

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ABSTRACT The attitude towards college instructor authority (ACIA) survey was adapted to Turkish and Taiwanese languages in this study. Two samples of university students were selected randomly from Turkish and Taiwanese universities. The ACIA survey was translated to Turkish and Taiwanese languages and administered to Turkish and Taiwanese university students. Exploratory and confirmatory factor analyses, item statistics and reliability test were performed individually for both the versions and cross-cultural comparison of these two versions were made through multiple group analyses using Amos and Stats Tools Package. The results show that both the versions of this survey are reliable and valid measures. However, one-factor model presented a better fit to the data in Taiwanese sample.

INTRODUCTION

For decades, the concept of authority has been discussed by social scientists, yet no overall definition has been proposed due to the complex relations among various layers of factors negotiating with each other at both societal and ideological levels (Metz 1978). The issue of authority in education has been explored in some depth by various scholars; yet as Kneller (1971) points out, authority is as a crucial characteristic of a successful teacher, who must have at least a minimal capacity to direct and structure the flow of classroom activities, the basis of knowledge of subject matter and methodology. Oyler (1996) defines teacher authority as teacher controllability and gaining of students' content within a learning environment. These two definitions underline the significant features of teacher authority which is vital for a teacher to be successful. Dunbar and Taylor (1982) emphasize that teacher authority is derived from two sources, formal authority and informal authority.

Dornhusch and Scott (1975) view formal authority as "authority attached to a position in an organization—that authority which exists regard-less of the characteristics of individual position occupants. Formal authority is the power possessed through law or through the quasi-legal force of the position or tradition. It is not as effective as informal authority on student. It has some drawbacks such as forcing the students to adhere to only minimum performance standards. As for informal authority, Dornhusch and Scott (1975) emphasize that it is often referred to as legitimate authority. It is dependent on and granted by the consent of the students. The keep saying that formal authority which is based on the personal characteristics or resources of an individual" (p. 43). Qualitative studies have displayed that authority relations both in education and social environment take different forms depending on various contextual factors (Pace 2003, 2006; Pace and Hemmings 2006, 2007; Hemming and Metz 1990).

Dunbar and Taylor (1982) carried out a research to examine teacher authority as perceived by 555 American children in grades one, three, and six. Factors that related to students' perceptions, such as geographic location, type of school, sex, IQ, and socioeconomic status, were also investigated. In their research, they found that grade level was not related to children's perceptions of formal teacher authority, but that sex, socioeconomic status, and IQ were. Grade level, IQ, and sex were related to children's perception of informal authority.

Li (2012) conducted a research on Chinese and American students to examine college students' perceptions of instructor authority, in-

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cluding their preference of formal and informal authority, the valued elements in instructor professional competence, as well as the relation between instructor's perceived demographic features and their authority power, by using The Attitude towards College Instructor Authority (ACIA). She found out that overall students rely highly on instructors' position-attached formal authority rather than professionally-oriented informal authority. Whereas there are culture-specified differences between Chinese and American college students' valued dimension of instructors' professional competence at the informal authority level.

Lee et al. (2009) conducted a study to develop a questionnaire—the Teacher Authority Survey (TAS), with actual and preferred versions—to explore students' perceptions/preferences regarding teacher authority in the earth science course. They investigated the relationships among students' perceptions/preferences for teacher authority, learning attitudes, and learning achievements. Six hundred and seventeen-Taiwanese high school students were administered the TAS, the earth science attitudinal questionnaire, and achievement assessment. In their research, correlation analysis indicated that the classrooms more oriented to learner-centredness were correlated with more favorable attitudes toward learning. Three clusters of preferred teacher authority—namely, teacher-centred authority, uncertain authority, and sharing authority—were identified. Students who preferred sharing authority tended to have more favorable learning attitudes, whereas students in the uncertain authority group seemed to have lower earth science attitudes and achievements.

Zhang (1996) carried out a study to explore Chinese and American children's perceptions of authority figures. Zhang found out that Chinese children between five to 13 years old were more obedient to parental authority than their American peers. During the classroom learning process, students from Korean, Japanese, and America indicated that Asian students tend to weigh authority attribute very differently to their American peers (Kim 1998).

There have been few studies focusing on the cross-cultural comparison of teacher student authoritative relationship in higher-level educational Institutions around the world. Especially, there have not been reliable and valid scales that measure both the Turkish and the Taiwan-

ese university students' perceptions of formal and informal instructor authority. This study is unique in this term. Although Turkey and Taiwan are Asian countries, they have different cultural, ideological and educational backgrounds. The finding of this study will shed light on the understandings of two nations' university students towards instructor authority and will provide the researchers in two countries with a reliable and valid scale to measure the university students' attitudes towards instructor authority. For filling this gap in the literature, the purpose of this study is to adapt "The Attitude towards College Instructor Authority Survey (ACIA)" to Turkish and Taiwanese languages and to provide cross-cultural reliability and validity of this scale with two samples of university students.

MATERIAL AND METHODS

Sample and Procedure

In Turkey, a total of 250 university students were selected randomly and 184 of them accepted to participate in this study with a response rate of 73.6%. In Taiwan, a total of 160 university students were randomly selected and 107 of them accepted to participate in this study with a response rate of 66.87%. The paper and pencil questionnaires were administered to selected university in both countries under the supervision of the researchers.

Instrument

The Attitude towards College Instructor Authority (ACIA) survey developed by Li (2012) was used in this study with permission. In her study, Li found that ACIA had had two dimensions such as formal and informal authority (item 11) and the informal authority (IFA) (item 1 through item 10). The informal authority (IFA) dimension had two sub-dimensions such as IFA-communication (item 1 through item 4) and IFA-content (item 5 through item 10).

Translation and Cross-cultural Adaptation

The ACIA survey was adapted to Turkish and Taiwanese within a few stages. *In the first stage*, the ACIA was translated to Turkish and Taiwanese individually by bilingual researchers.

In the second stage, the Turkish and the Tai-wanese translations were translated back into English by two different bilingual researchers. *In the third stage*, an expert committee, consisting of all these translators, two language experts and the authors of this study as the specialists of the field examined all these translations and back translations for composing the final versions of the Turkish and the Taiwanese questionnaires. *In the fourth stage*, the final versions of these two translated questionnaires were both administered to 35 university students in Turkey and 32 university students in Taiwan as a pre-application for detecting the problems and ensuring the excellence of these questionnaires. *In the fifth stage*, after the necessary improvements were made on the basis of the detected problems at the pre-application process, the questionnaires were administered to the real sample in both countries.

Analysis

For both the Turkish and the Taiwanese versions of the ACIA; exploratory factor analyses were performed using Maximum Likelihood approach, Cronbah's Alpha, Spearman Brown, and Guttman Split-Half coefficients and the correlations between the split-half parts of the questionnaires were calculated, and item statistics were performed.

Multiple group analysis was performed using Maximum Likelihood approach to compare the measurement models of each group. The matrices of Regression weights, standard errors of regression weights, critical ratios of regression weights of each group and critical ratios for differences between parameters of each group were used to analyze the differences between the parameters of each group. These matrices were all taken from the AMOS and entered to the Stats Tools Package to compare the measurement models of each group.

RESULTS

The Validity of the Questionnaires

Authority scale's Bartlett rest results, KMO, Eigenvalue and explained variance values for the single-factor model for the Turkish and Taiwanese version were given in Table 1. When the Bartlett Test result is significant and the KMO value is above .60, the scale is considered to be appropriate for factor analysis (Buyukozturk, 2003). For both the Turkish and the Taiwanese version of the scale, the Bartlett Tests were significant and the KMO values were above .80 that mean both the version are appropriate for factor analysis. For each scale, there was only one factor that has eigenvalue above 1 and the scree plots of each questionnaire also meant that the single-factor structure is the most suitable for this data. The second and fourth items were removed from each version of the scale for these items had lower communalities and lower factor loadings in the single-factor structure. The single-factor structure explained 41.136% of the variance in the Turkish version and 62.922 of the variance in the Taiwanese version.

The communalities and factor loadings pertaining to the items of the Turkish and the Taiwanese versions of the Authority Scale for the single-factor model were given at the Table 2. The communalities of the all the items of Authority Scale are above .30 for both the Turkish and the Taiwanese version. As Zillmer and Vuz (1995) indicated, communalities that are lower than .30 means the related items had lower possibility of associating the remaining items under a common factor and those items may be removed from the scale.

It is advised that the factor loadings of each item to be above .45 but it would be acceptable that a few items had factor loadings above .30 (Buyukozturk 2003). The items at the Taiwanese version had factor loadings between .523 and .915. At the Turkish version, the items of 3, 7,

Table 1: Authority Scale's Bartlett, KMO, Eigenvalue and explained variance values for the single-factor model

Questionnaires	p	Bartlett Test χ²	KMO	Eigenvalue	Explained variance %
Turkish	.000	350.184	.816	5,434	41,136
Taiwanese	.000	714,002	.938	6,003	62,922

and 10 had factor loadings between .310 and .402 while the other items had factor loadings between .497 and .767. At the Taiwanese version, the items had higher communalities and factor loadings and the explained variance was higher for this version. This single-factor model fitted to the data better at the Taiwanese version of the Authority Scale when compared to the Turkish version.

Table 2: Communalities and factor loadings of the items of authority scale for the single-factor model

Item	Communalities		Factor loadings	
	Turkish	Taiwanese	Turkish	Taiwanese
1	.312	.837	.497	.915
3	.302	.606	.310	.779
5	.682	.762	.744	.873
6	.576	.756	.767	.870
7	.611	.544	.402	.737
8	.346	.331	.576	.523
9	.471	.575	.561	.759
10	.308	.627	.377	.792
11	.310	.682	.498	.826

The Reliability and Internal Consistency of the Questionnaires Alpha, Spearman Brown and Split-Half Reliability

The correlations between the two parts of the questionnaires (first part: the items of 1, 3, 5, 6, and 7; second part: the items of 7, 8, 9, 10, and 11) and the reliability coefficients of Cronbach's Alpha, Spearman Brown, and Guttman split-half were given in the Table 3. The reliability coefficients between .60 and .80 represent a quite reliability, while the coefficients between .80 and 1 represent a high level of reliability (Kalaycý 2006). The reliability coefficients of the Turkish version varies between .668 and .755 that mean this version is quite reliable. The reliability coefficients of the Taiwanese version varies between .888 and .936 that mean this version is reliable at a higher level. The correlation coefficients between the two forms of the questionnaires show that the Taiwanese version's internal consistency is higher than the Turkish version.

Table 3: Authority scale's reliability and internal consistency coefficients

Questio- nnaires	Cron- bach's Alpha	Spearman Brown	Guttman Split- Half	Correla- tion bet- ween forms
Turkish	.755	.674	.668	.508
Taiwanese	.936	.918	.888	.847

Item Statistics

For determining each item's importance for the scale, item discrimination (or item discriminability) and the internal consistency of the Authority Scale's Turkish and Taiwanese versions, item statistics were performed such as t-tests for comparing the upper 27% and the lower 27% of the groups, Alpha coefficient if each item was deleted and each item's correlation to the total point of the scale (Table 4).

T-test results were significant for each item for both the questionnaires that means each item discriminates the upper 27% and the lower 27% of the groups. In other words, each version has a high level of item discrimination and a high level of internal consistency. As Buyukozturk (2003) indicated, the item to total correlation above .30 means a high level of internal consistency. Item to total correlations of the items in each version varies between .330 and .912 that means each version has a high level of internal consistency. However, The Taiwanese version's items had higher correlations to the total and had a higher level of internal consistency. In both the version of the Authority Scale, when each item was deleted, all the Alpha coefficients were lower than the related scale's general Alpha coefficient (General Alpha for Turkish version was .755 and for Taiwanese version it was .936). That means all the items in these questionnaires are important and should not be removed from these questionnaires.

Multiple Group Analysis

Multiple group analyses were performed to compare the factorial structure of the Authority Scale between these two countries. As the one-factor model yielded the best results in exploratory factor analysis, the confirmatory analysis measurement model was defined in AMOS according to this one-factor model. Stats Tools Package was used to determine the path by path differences between these two groups. Factor loading (regression weight) of the item 1 was set to 1 for determination purposes, so p-value and z-score was not calculated. For checking these results, in another model, the item 11 was set to 1; in this model z-score of item 1 was -0.301 (insignificant) and also the other values did not change significantly. After this verification, the model that the item 1 was set to 1 was reported

Table 4: Authority scale's item statistics results

	Turkish version (n=184; $n_{1(27\%)}= n_{2(27\%)}$=50)				Taiwanese version (n=107; $n_{1(27\%)}= n_{2(27\%)}$=29)		
ItemNo	t	r	α	ItemNo	t	r	α
1	9.189**	.595**	.735	1	8.602**	.912**	.922
3	4.512**	.330**	.774	3	8.215**	.808**	.930
5	11.822**	.728**	.703	5	8.008**	.871**	.925
6	10.153**	.738**	.700	6	7.908**	.877**	.924
7	6.003**	.511**	.746	7	9.043**	.786**	.931
8	9.810**	.635**	.723	8	2.746*	.597**	.935
9	9.110**	.638***	.720	9	9.042**	.803**	.930
10	7.194**	.484**	.751	10	6.922**	.821**	.928
11	8.779**	.598**	.729	11	8.236**	.834**	.928

Notes: r: item to total correlation, t: t-test results comparing the upper 27% and the lower 27% of the groups; α: Alpha if item deleted. **significant at 0.001 level, *significant at 0.01 level.

(Table 5, Fig. 1, Fig. 2). This multiple group measurement model yielded good fit indices (χ²=86.592, df=54, χ²/df=1.604, RMR=.061, RMSEA=.046, NFI=.921, CFI=.968, IFI=.969, the Model's AIC (158.592) was lower than both the one of the saturated model (180.00) and the independence model (1135.799), the Model's ECVI (.549) was lower than both the one of the saturated model (.623) and the independence model (3.930).

In the comparison of the measurement models, there were significant differences in the items of 3 and 8 (Table 5). In the item 3, Taiwanese university students perceive their instructors as showing more concern for the communication with individual student either in or out of the classroom (this is a reverse coded item). In item 8, Turkish university students perceive their workload, both in and out of class, as comparatively heavier in the course of their instructor they evaluated in comparison with the other courses.

DISCUSSION

In this study, the survey of ACIA developed by Li (2012) was tried to be adapted to Turkish and Taiwanese languages. In the current study, this survey was administered to the university students studying at universities in Turkey and Taiwan as it was originally developed on university students. Li (2012) found that ACIA had two dimensions such as formal and informal authority and the informal authority (IFA) had two sub-dimensions such as IFA-communication and IFA-content. Contrary to the original structure, the exploratory and confirmatory factor analyses showed that a one-factor structure consisting of nine items presented a good fit to the data in both countries.

In the current study, the Turkish and Taiwanese versions of the ACIA were both proved to be reliable and valid questionnaires to measure the attitudes of students towards the authority of their college instructors. However, compared to the Turkish version, the Taiwanese

Table 5: Multiple Group analysis measurement model comparison in Stats Tools Package

	Paths		Turkish		Taiwanese		
	from	to	Estimate	P	Estimate	P	z-score
Authority scale	→	Item 1	1.000	-	1.000	-	-
Authority scale	→	Item 3	.332	.021	.866	.000	3.238*
Authority scale	→	Item 5	1.185	.000	.944	.000	-1.165
Authority scale	→	Item 6	1.281	.000	.951	.000	-1.501
Authority scale	→	Item 7	.710	.000	.813	.000	.552
Authority scale	→	Item 8	1.080	.000	.505	.000	-2.629*
Authority scale	→	Item 9	.900	.000	.789	.000	-.594
Authority scale	→	Item 10	.667	.000	.824	.000	.864
Authority scale	→	Item 11	.857	.000	.918	.000	.317
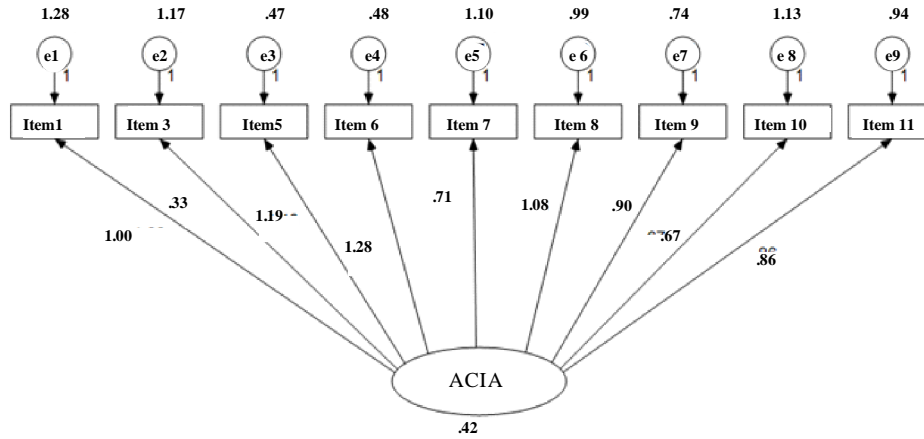
Fig. 1. Unstandardized results of confirmatory factor analysis measurement model: Turkish version of ACIA.

Notes: Factor loading for the variable of q1 was set to 1 for the purpose of determination. The parameters near the arrows are the regression weights (or factor loadings) and the parameters near the variables are the variances.
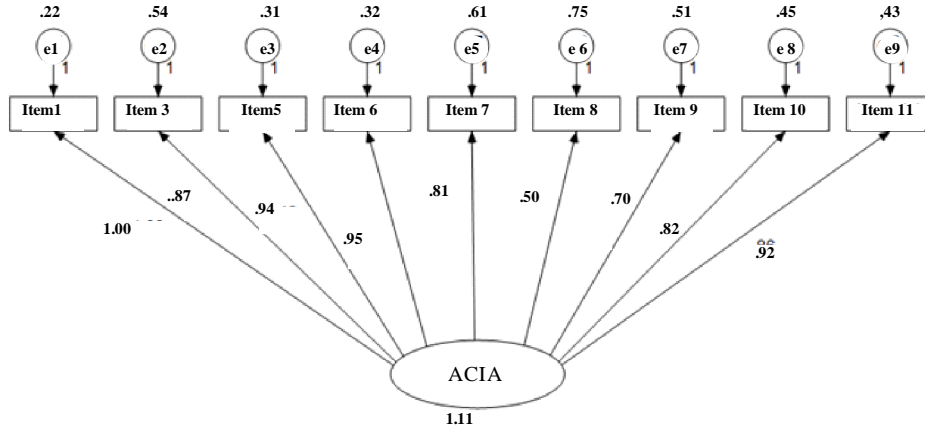
Fig. 2. Unstandardized results of confirmatory factor analysis measurement model: Taiwanese version of ACIA.

Notes: Factor loading for the variable of q1 was set to 1 for the purpose of determination. The parameters near the arrows are the regression weights (or factor loadings) and the parameters near the variables are the variances.

version of this survey had better reliability and validity parameters such as higher factor loadings, higher communalities, higher explained variance, higher reliability and internal consistency coefficients, and as item statistics showed that each item of this version were more consistent with the general measure.

Multiple-group analyses showed that one-factor measurement model fitted to the data well in both the Turkish and the Taiwanese versions of this survey. In the measurement model, there were significant differences between two versions in the items of 3 (an item of IFA-communi-

cation) and 8 (an item of IFA-content). Differently from this finding, Li (2012) found that there is not a significant difference between the American and Chinese university students on the sub-dimensions of IFA-communication and IFA-content. In the current study, along with the other items (except for the items of 3 and 8), in the item of 11 (that measure the formal authority perceptions) Turkish and Taiwanese university students have common perceptions. Similarly, Li (2012) found that there is not a significant difference between American and Chinese students' formal authority perceptions. Based on

these findings, Li (2012) asserted that cultural and ideological differences is not the main contributive factor in cross-cultural teacher-taught relationships and human beings have some common values and tendencies on how to respect their instructors as authority figures.

CONCLUSION

As a result it can be concluded that, both the Turkish and the Taiwanese versions of the ACIA survey are reliable and valid measures that can be confidentially used to measure university students' attitudes towards the authority of their instructors. The factorial structures of these two versions differ slightly between these two countries that have different cultural codes and different values. That implies this scale have a relatively consistent factorial structure that measure global issues on the matter of students' attitudes towards the authority of their instructors.

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