Cooperative Learning Scale : Validity and Reliability Study

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ABSTRACT

The purpose of this study is to adapt the Cooperative Learning Scale (EL-Deghaidy & Nouby, 2008) into Turkish. The scale adapted within the framework of the study was applied to 415 high-school and 356 university students. The 1 dimensional model consisting of 20 items was observed to be representing a good rapport in the confirmatory factor analysis. Internal consistency, item and factor analysis studies were performed in order to examine the psychometric attributes of the scale. The internal consistency analysis results of the scale showed values as 73 for high-school students and 80 for university students while throughout the analyses, reliability was reached for both paradigms of the adapted version of the scale. According to the item discrimination and factor analysis results, the original single factor structure of the scale was identified as suitable for both paradigms. The original single factor structure of the cooperative learning scale was identified to be suitable for the Turkish paradigm as a result of the results obtained from the confirmative factor analysis. (For the high-school students; $x2= 804.37$, sd= 170, RMSEA= .09, IFI=.89,CFI=.89,NNFI=.87,NFI=.85, SRMR=08;for the university students; $x2= 825,24$, sd= 170, RMSEA= .10, IFI=.83,CFI=.82,NNFI=.80, SRMR=0.11) In this case the scale is considered to be suitable to be applied in the high-school and university education process in the Turkish paradigm in order to identify the "Cooperation Learning" levels of the teachers.

INTRODUCTION

According to Artzt and Newman (1990), cooperative learning is an activity in which students in small groups work together in order to solve problems, complete tasks or realize aims.

Cooperative learning is a process of students in small groups working together; solving problems, completing tasks and realizing their learning while helping each other learn (Artzt and Newman, 1990, Açıkgöz, 2007). Johnson, Johnson and Smity (1991) state that learning focused on cooperative work is an educational use of small groups which aims to teach the students how to work together and maximize their learning.

The students maximize their individual learning and their friends' learning by working together, debating and helping each other. There is a positive relationship among the group members and one of the members reaching their aim depends on the other members reaching their aims as well (Yılmaz, 2001). In brief, the students will "Either swim together, or sink together" (Senemoğlu, 2013).

Cooperative learning is believed to hold an important place in raising the quality in education, however as a matter of fact creating cooperative learning environments requires a lot of effort from the teachers (Zheng, Niiya, & Warschauer, 2015).

Açıkgöz (2007), states that the cooperative learning method has a more positive effect on cognitive learning products and processes along with affective features such as motivation, anxiety, and behavior when compared to other methods, while also the cooperative learning applications do not require special arrangements and expenses and makes it easier to individualize the learning.

The students participate in the lesson actively in the cooperative learning method. The students work together in order to remedy each other's deficiencies. The students share a positive commitment. The group members study while debating on the materials at hand with their friends while under the supervision of the teacher. Therefore the most important contribution to the cooperative learning groups is considered to be the interaction among the students (Kasap, 1996).

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METHOD

Research Model

This study is a scale adaptation study, realized through the "screening model". The Turkish form of the Cooperative Learning Scale was applied to the students within the scope of the screening model.

Data Collection Tools

The Cooperative Learning Scale; developed by EL-Deghaidy & Nouby, (2008) consists of one dimension and 20 (twenty) items. The scale is prepared in the 5 Point Likert type and the items are graded from 1 to 5 as follows: "Strongly Disagree", "Disagree", "Indecisive", "Agree", "Strongly Agree".

Process Steps

The developers of the scale EL-Deghaidy & Nouby were contacted through e-mail and permissions required for the adaption process of the scale were obtained. The Cooperative Learning Scale was first translated into Turkish, the translations were then examined and the necessary editions were performed. The items translated into Turkish were then analyzed in terms of meaning and grammar, while the erroneous and deficient parts were fixed and the draft Turkish form was created. The construct validity as the validity study of the Cooperative Learning Scale was examined before beginning the validity and reliability studies. Confirmatory factor analysis was performed for the construct validity. The reliability of the Cooperative Learning Scale was performed through the internal consistency method and the item analysis was analyzed via edited item total correlation. SPSS 22.0 and LISREL 8.81 (Jöreskog & Sörbom, 1996) software were used for the validity and reliability analyses.

Findings

Item Analysis and Reliability

As a result of the analysis, the internal consistency reliability factor of the Cooperative Learning Scale for the high-school students was found as .73 for the whole of the scale while the same value for the university students was found as .80. Item analysis was performed in order to identify the discriminative strength of the items in the Cooperative Learning Scale. According to the results the analysis revealed, the edited item total correlation factors of the scale for the high-school students varied between .47 and .68 while the same value for the university students varied between .08 and .59. The findings are presented in Table 2.

Construct Validity

The fit index values revealed as a result of the confirmatory factor analysis applied for the one dimension model are as follows: $x2= 804.37$, sd= 170, RMSEA= .09, IFI=.89,CFI=.89,NNFI=.87, SRMR=.08. The factor loads of the confirmatory factor analysis are presented in Figure 1.
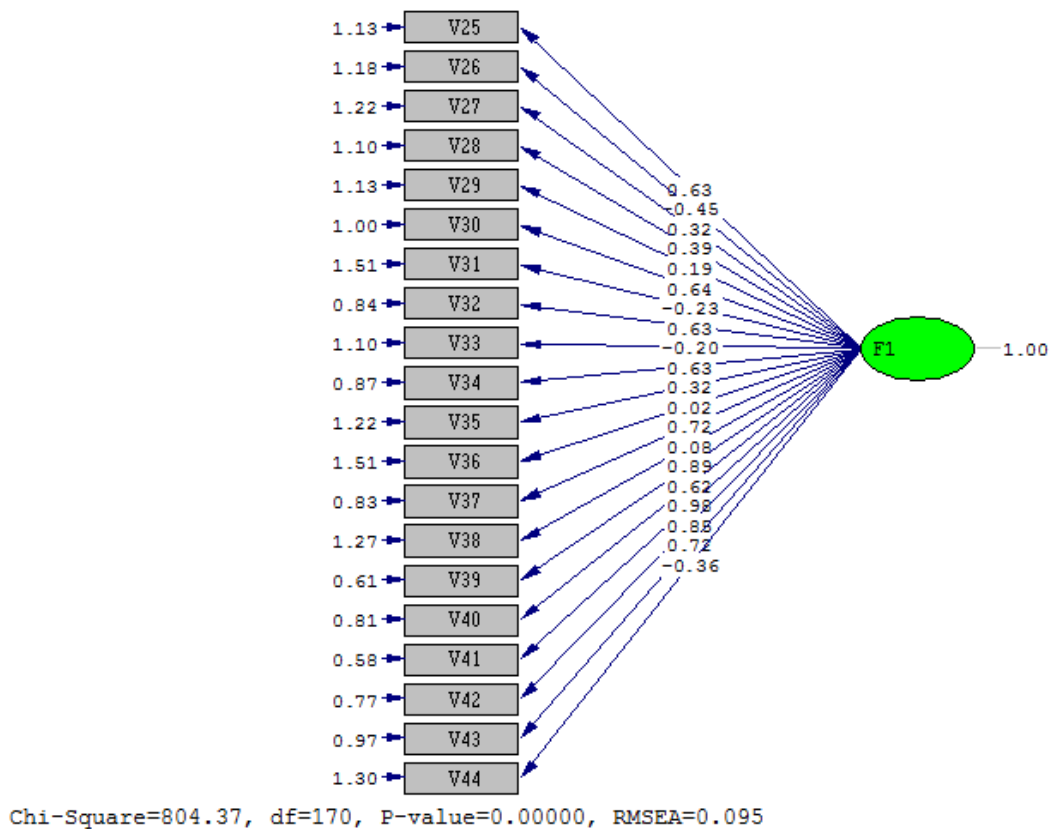
Figure 1. The factor loads of the confirmatory factor analysis (High-school Students)

2. Application to the University Students

The fit index values revealed as a result of the confirmatory factor analysis applied for the one dimension model were found as x2= 825,24, sd= 170, RMSEA= .10, IFI=.83,CFI=.82,NNFI=.80, SRMR=0.11 . The factor loads of the confirmatory factor analysis are presented in Figure 2.

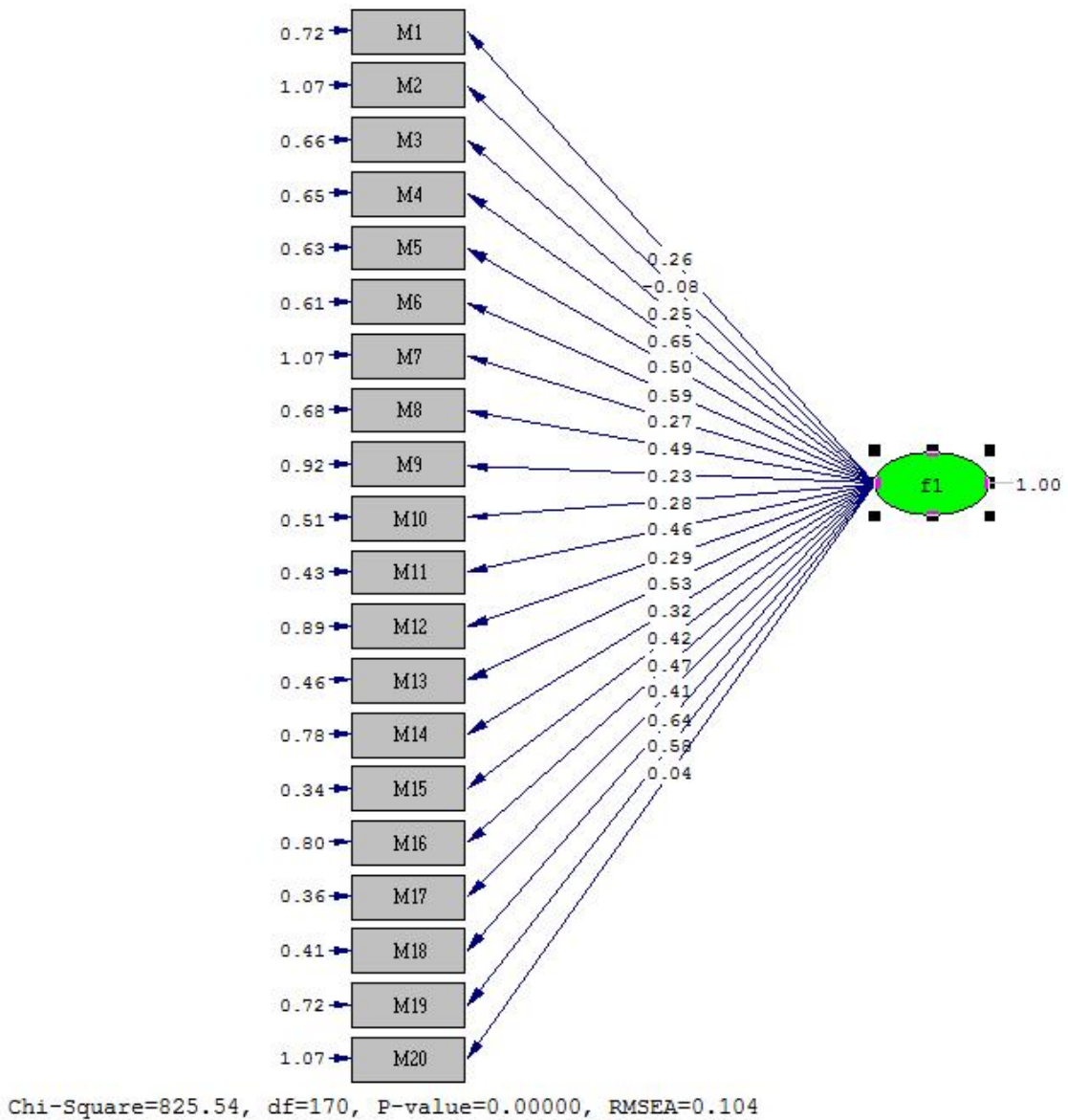Chi-Square=825.54, df=170, P-value=0.00000, RMSEA=0.104

Figure 2. The factor loads of the confirmatory factor analysis (University Students)

DISCUSSION AND RESULTS

The purpose of this study is to adapt the Cooperative Learning Scale developed by EL-Deghaidy & Nouby into Turkish and evaluate the validity and reliability of the Turkish form. The amount of members in the workgroup meet the requirements necessary for the analysis related to the validity and reliability (Tabachnick & Fidell, 2007). The construct validity of the Cooperative Learning Scale was examined via DFA. As a result of the DFA, the scale is identified as in its original form and the construct validity of the scale is ensured. In close inspection of the fit index values for the DFA, the model is observed as showing a great fit and the original factor structure of the scale can be considered as compatible with the factor structure of the Turkish form. The fact that the validity factors of the Cooperative Learning Scale are at the desired levels, is a sign that the reliability level of the scale corresponds to the criterion. The necessary

reliability level of measurement tools in order to be used in researches is .70 (Sipahi, Yurtkoru, Çinko, 2008). In accordance with this result, the Cooperative Learning Scale produced higher values than the reliability level.

Studies developed and adapted towards cooperative learning were found during the literature review. Bay and Çetin (2012) in their study applied a Cooperation Process Scale (CPS) form consisting of 48 items to 177 prospective teachers. The findings of the study reveal that the developed measurement tool can be used for determining whether the cooperative learning process is actualized as per required. In addition, they stated that the measurement tool can be used with a single dimension and five dimensions.

Deghaidy and Nouby (2008), in their study where they researched the effects of cooperative working, were affected by the scale consisting of 20 items developed by Lu and Argyle (1991) and Neo (2004), and developed the Cooperative Learning Scale. Deghaidy and Nouby found that the cooperative learning technique applied to the experimental group increased the academic success levels of the teachers.

Following suggestions can be made in the light of the findings gathered from the Turkish form adaptation of the Cooperative Learning Scale. In order to identify the construct validity of the scale, the relations between scales which are proven to be valid and reliable while evaluating various psychological structures possibly related to problem oriented learning, communication skills, technology literacy with the Cooperative Learning Scale can be examined. On the other hand, the study group with which the validity and reliability studies of the scale were carried out consists of high-school and university students. Studies focused on different paradigms are important for the validity and reliability of the scale. Finally conducting studies which use this scale will contribute to the measurement strength immensely.

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ASPENDIX

Cooperative Learning Scale

	İŞBİRLİKLİ ÖĞRENME TUTUM ÖLÇEĞİ	Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
1	Eğitimin önemli bir rolü, başkaları ile geçinmeyi öğretmektir.	1	2	3	4	5
2	Yarışma okulda öğrencilere en iyi öğretme yoludur.	1	2	3	4	5
3	Fikirlerimi ve ders malzemelerimi diğer öğrencilerle asla paylaşmam.	1	2	3	4	5
4	Ders çalışmak için diğer öğrencilerle işbirliği yapmayı sevmem.	1	2	3	4	5
5	Genellikle diğer öğrencilerle birlikte çalışma konusunda zorlanırım.	1	2	3	4	5
6	Ortak projelerde yer almak benim için tatmin edicidir.	1	2	3	4	5
7	Genellikle bireysel çalışmak daha verimlidir.	1	2	3	4	5
8	Takım çalışması yapmak, iyi sonuçlar almanın daima en iyi yoludur.	1	2	3	4	5
9	Grupta aynı karara varmak zordur.	1	2	3	4	5
10	Aktif dinleme becerilerini kullanmak grubumda iletişimin kalitesini artırır.	1	2	3	4	5
11	Bir grubun üyesi olarak hareket etmek gelecekteki çalışmalarıma katkı sağlamaz.	1	2	3	4	5
12	Bireysel olarak alınan kararlar grupça alınan kararlardan daha iyidir.	1	2	3	4	5
13	Grup üyeleri ile işbirliği yapmak, başarı için bir anahtardır.	1	2	3	4	5
14	Bireysel olarak yapılan çalışmalar takım olarak yapılan çalışmalardan daha kalitelidir.	1	2	3	4	5
15	Gruba katılmak tecrübe paylaşımına yardımcı olur.	1	2	3	4	5
16	Gerekli olmasa bile grupla çalışmayı tercih ederim.	1	2	3	4	5
17	Grupta çalışmak diğer öğrencilerle arkadaşlığın gelişmesine yardımcı olur.	1	2	3	4	5
18	Bir gruba katılmak çalışma motivasyonunu artırır.	1	2	3	4	5
19	Bireysel çalışmadan ziyade, işbirlikli çalışmada daha fazla öğrenirim.	1	2	3	4	5
20	Grup çalışması diğer öğrencilere bağımlı kılar.	1	2	3	4	5

Zıt maddeler: 3, 4, 5, 7, 9, 11, 12, 14, 20