The Validity and Reliability Study of the Turkish Version of the Motivated Strategies for Learning Questionnaire

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Abstract
The purpose of this study is to adapt The Motivated Strategies for Learning Questionnaire to Turkish. After examining and confirming equivalency between English and Turkish versions, the scale was administered to 852 students from two universities. In order to examine the validity and reliability properties of the questionnaire, exploratory factor analysis, confirmatory factor analysis, Cronbach Alpha correlation coefficients, corrected item-total correlations and t-tests between items’ means of upper 27%-lower 27% points were used. Results of these analyses show that the first subscale, Motivation, has six factors, and the second subscale, Learning Strategies, has nine factors. The Cronbach alpha coefficients varied between 0.86 and 0.41. Corrected item total correlations ranged 0.66 to 0.19. According to t-test results, differences between each item’s means of upper 27 % and lower 27 % points are significant.

Key Words
MSLQ, Motivation, Learning Strategies, Confirmatory Factor Analysis.

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There are lots of studies on the factors that affect students’ success in schools. Majority of such studies focuses on students’ motivation and the use of learning strategies (Pintrich & Smith, 1993; Garcia & Pintrich, 1996; Zimmerman & Martinez-Pans, 1990; Pintrich & De Groot, 1990; Pintrich, Smith, Garcia, & McKeachie 1991). According to these studies, students who have high motivation and exploit learning strategies are more likely to perform well and be more successful. Pintrich, Smith, Garcia, and McKeachie (1991) developed a self report instrument, the Motivated Strategies for Learning Questionnaire (MSLQ), to assess university students’ motivational orientations and their use of different learning strategies.

The scale is composed of a 6-factor motivation subscale and a 9-factor learning strategies subscale. Both subscales are modular that means that they can be used single or together depending on the researcher’s purpose. The motivational subscale is based on the general social-cognitive model of motivation. Its structure consists of Expectancy, Value, and Affect. Expectancy refers to students’ beliefs about whether or not they can accomplish a task. Two folds of Expectancy are students’ perceptions of self-efficacy and control beliefs for learning. Value focuses on the reasons why students engage in an academic task. Three folds of Value are intrinsic goal orientation, extrinsic goal orientation, and task value. Affect is measured by the scale of test anxiety, which taps into students’ worries and concerns over taking exams. The learning strategies subscale of the instrument is based on a general cognitive model of learning and information processing. The three types of scales included in this section are cognitive, metacognitive, and resource management. Cognitive strategies include students’ use of basic and complex strategies for the processing of information from texts and lectures. The scales measuring use of cognitive strategies are rehearsal, elaboration, and critical thinking. The second general category is metacognitive control strategies, which is measured by one subscale concerning the use of strategies that help students control and regulate their own cognition. The third general strategy category is resource management. These strategies include managing study environment and time as well as students’ regulation of their own effort. The last two factors are peer learning and help seeking.

The 81 items of the MSLQ are scored on a 7 point Likert scale, from 1 (not at all true for me) to 7 (very true for me). The motivation section consists of 31 items, and the learning strategy section includes 50 questions. Administering the instrument takes approximately 20-30 minutes.
Previous Applications of the MSLQ
The MSLQ is widely used in different studies investigating performance management, motivation, learning strategies, predictors of academic achievement, and self regulation; different domains such as educational psychology, teacher education, higher education, and vocational education; and in different countries such as Saudi Arabia, Australia, China, Japan, Canada, Taiwan, and USA (Chen, 2002; Pintrich & Groot, 1990; Higgins, 2000; Nevgi, 2001; Pokay & Blumenfeld, 1990; Sungur, 2004).

Method
The participants of the research consist of 852 undergraduate students of whom 14.1 % (n = 120) sophomores, 71.2 % (n = 607) juniors, and 10.7 % (n = 91) seniors. The necessary permission to adapt the Motivation and Learning Strategies Questionnaire (MSLQ) has been received from Paul Pintrich via electronic mail on 12 November 2002. Exploratory factor analysis (EFA) is performed to examine the factor structure of the scale according to the data obtained from the Turkish students and confirmatory factor analysis (CFA) is performed to examine the original scale’s structure approved by Turkish experts in Turkish culture. The correlations between the total scores of component-factor are calculated. In addition, the differences between items mean scores, and factor means of the upper 27% and lower 27% are examined by the t-test.

Results
The translation of MLSQ into Turkish
The MSLQ was translated into Turkish by the authors with the supervision of experts in English language. The views of 13 specialists were taken into consideration to verify content approval. To check out the equivalency between the original and Turkish scales, both forms are administered to 17 undergraduate Turkish speaking students at an English medium university, with interval of one week respectively. The correlations between the English and Turkish versions are found to be .85 for MS and .86 for LSS. ANOVA results revealed that the differences between the mean scores of the students in two applications were not significant at µ = .01. These results confirm that Turkish and English versions of the scales might be regarded equivalent.

The Motivation Scale (MS)
Considering the results of EFA, 31 MS items have 7 factors, but one item has a high loading on more than one factors. The item was removed, and then EFA is repeated for the other items by using Varimax rotation. Factor
loadings are 0.39 for one component, and 0.46 or higher for all the remaining components. The amount of total variance explained by seven factors is 56%. It is found that the factor structure designated by EFA is harmonized in a great degree with the factor structure of the original scale, but, only, four components that take place in the “Control Belief about Learning” factor of the original scale are divided into two different factors.

The first CFA results performed to examine the fit of the structural model of MS with 6 factors, and the real data showed that the model is well fit in general, and they also indicated that there is an appreciable relationship between the error covariance of item 9 and 25; and item 17 and 26. In this context, it is decided to test the high error correlations which are observed among the items that take place under the same factor (latent variable) in the scale, by adding them to the model, and to perform CFA again. Chi-Square value \((x^2=1866.55, N = 852, sd = 417, p =.0005)\) which is calculated for the adaptation of the model is found to be significant. However, since “\(x^2/sd\)” ratio is 4.47, it can be interpreted that the model has acceptable fit. The goodness of fit index values of the model are RMSEA=0.06, GFI=0.88, AGFI=0.85, CFI=0.82, NNFI=0.80, RMR=0.18, and SRMR=0.06. It is expected that RMSEA and RMR values will be close to 0, and the values that are equal to 0.05 or less indicate a good fit. When the complexity of the model is considered, the values under 0.08 (Sumer, 2000; Dilalla, n.d; Newsom, n.d.) and even 0.10 (Anderson and Gerbing, 1984; Cole, 1987; Marsh, Balla and McDonald, 1988) also can be accepted. When GFI and AGFI indices are 0.95 and over, it indicates a very good fit. According to Anderson and Gerbing (1984); Cole (1987); Marsh, Balla and McDonald (1988), it is also acceptable for the model when GFI value is 0.85 and AGFI value is over 0.80. When the values of CFI and NNFI are over 0.95, it indicates a very good fit. Garson, (n.d.) indicates that some researchers, more flexibly, take 0.80 value as the limit. When the results are considered as a whole, it can be said that the structural model of MS which consists of 6 factors is well fit to the Turkish culture.

The corrected item-total correlations of MS vary between 0.67 and 0.20. For each factor and each item, the differences between mean scores of upper 27% and lower 27% groups are significant \((p < .01)\). The Cronbach alpha values calculated for the 6 factors of the scale vary between 0.86 and 0.52.
The Learning Strategies Scale (LSS)

The EFA results of the Turkish version of the LSS indicated that there are 13 factors with eigenvalues higher than 1. Fourteen items in the scale that gave low factor loadings (lower than 0.30) were removed from the model and analysis was repeated by using Varimax rotation. Nine factors, eigenvalues of which are over 1 were extracted, and factor loadings of the items are found to be 0.38 and over, and the total variance is 53.45%. It is found that the factor structure of the LSS reshaped by EFA has become different from the original scale in items although it has the same amount of factors.

The results of CFA performed to examine the model fit of the original form of the LSS with 9 factors with the gathered data showed that there is a high level of correlation between the errors of the item 57 and 33, item 72 and 59 and, item 80 and 77. CFA is repeated by adding the error covariances for the pairs stated above. The results of repeated indicated that factor loadings vary between 0.19 and 0.29 for 7 items, and between 0.32 and 0.80 for the remaining 43 items, and all loadings are significant.

The following statistics are calculated to evaluate the goodness of fit of the model of the scale that consists of 9 factors: \( \chi^2 = 4.73 \) (N = 852, sd = 417, \( p = .0005 \)), RMSEA = 0.066, GFI = 0.80, AGFI = 0.77, NNFI = 0.97, RMR = 0.22 and SRMR = 0.06. The Cronbach alphas calculated for the LSS, examined by CFA vary between 0.41 and 0.75.

All the differences between the item mean-scores and the factor scores of the upper 27% and lower 27% groups are found to be significant.

Discussion

In this study, the factor structure of the Turkish version of the MSLQ developed by Pintrich, Smith, Garcia and McKeachie (1991) is examined via exploratory and confirmatory factor analyses. The CFA results showed that the factorial model of the scales of the MS that consists of 7 factors, and the LSS that consists of 9 factors of the MSLQ are at an acceptable degree of goodness of fit for Turkish university students. However, the Turkish version of the MSLQ needs to be improved. The alpha values of the factors of the MSLQ, although they are relatively low at some factors, show acceptable reliability especially when the complexity of the structure of the scale is considered. The results of item analysis of the scale showed that the items distinguished the individuals sufficiently in terms of relevant features of the items.

The Turkish version of the MSLQ can be utilized in experimental research to examine effects of various methods and applications, considering motivation and learning strategies. It can be also used in assessing to what extend students have motivation and use learning strategies at various educational institutions.
Kaynakça/References


