Adapting a Portion of the Patterns of Adaptive Learning Scales for Research in Turkish Schools

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ABSTRACT: As research on achievement goals has increased, so has the number of ways to measure goal orientation. In this article, we focus on the Patterns of Adaptive Learning Scales. A translated and adapted version of a subsection known as the Teacher Scales: Perceptions of the School Goal Structure for Students is examined in terms of factorial validity, internal consistency reliability, and distributional characteristics among Turkish teachers. The results show that the Turkish version of the subsection exhibits a construct similar to that of the original; internal consistency reliability was also sufficient. In this context, the adapted version of the Teacher Scales can be used as a valid and reliable instrument in related fields in Turkey.



The poet Ralph Waldo Emerson said, "The world makes way for the man [*sic*] who knows where he is going." As this implies, determination and persistence will lead an individual to success. This expression emphasizes the importance of motivation, a subject that has been studied extensively by educators and psychologists. Attitudes, motivation, and other affective characteristics are important factors in effective learning, in addition to cognitive characteristics. Today, it is widely accepted in all fields—especially, education—that motivation is a crucial factor directing the future of society (Arias, 2004; Kaplan & Maehr, 2007).

As cognitive theory came onto the scene in the second half of the 20th century, researchers began to do more study on the role of internal factors, as opposed to external ones. Studies about the effects of motivation in learning have an important role in this framework. Particularly important were efforts to explain the impact of motivation on achievement, as Weiner (1990) noted. Studies showed that achievement goal orientation is one of two motivational factors related to achievement beliefs that affect learning (Leondari & Gialamas, 2002). Developmental and educational psychologists developed goal orientation theory to explain achievement behavior (Pintrich & Schunk, 1996). Midgley and colleagues (1998) described this theory as a research field unto itself within the area of studies on motivation. Moreover, the theory provided new guidance and inspiration in the study of achievement motivation (Jagacinski & Duda, 2001).

Goal orientation theory was proposed as a useful framework for understanding why performances differ when students participate in learning and school activities (Pintrich & Schunk, 1996). The theory seeks to explain the intentions involved in student behavior related to achievement (Patrick, Anderman, Ryan, Edelin, & Midgley, 2001). The theory indicates that the main structure of goal orientation affects participation in achievement behavior (Pintrich & Schunk, 1996). According to Dweck and Elliot (1983) and Weiner (1986), the basic question guiding the learning and behavior of students as they participate in academic tasks is "Why do I do these academic tasks?" (cited in Dowson & McInerney, 2001). The answer to this question helps reveal a student's goal orientation.

Initially, proponents of this theory defined two kinds of goal orientation (Church, Elliot, & Gable, 2001; Jagacinski & Duda, 2001): mastery goal orientation, which focuses on the development of the abilities and skills related to the task, and performance goal orientation, which focuses on demonstrating the skills to others (Jagacinski & Duda, 2001). Self-learning is valuable in mastery goal orientation (Maehr & Midgley, 1991; Patrick et al., 2001). Those who have such a goal tend to evaluate themselves according to progress resulting from their competency. That is, they evaluate their success on the basis of self-assessment standards, and they focus on the perception of competency arising from the progress made by their effort (Jagacinski & Duda, 2001; Pintrich & Schunk, 1996). Achievement in performance goal orientation is defined by the norms or predetermined standards of others (Ames, 1992). A person who is mastery goal oriented is internally motivated and seeks out challenges rather than avoiding difficulties. A person who is performance goal oriented, in contrast to one who is mastery goal oriented, therefore has some negative traits, such as low internal motivation, avoidance of some challenges, and impatience in the face of failure (Jagacinski & Duda, 2001).

Apart from distinguishing these two classifications regarding goal orientation, the literature contains discussions of double classifications of goals, such as task/ego involved and task/ability focused (Jagacinski & Duda, 2001; Pintrich & Schunk, 1996). Elliot and colleagues (Church et al., 2001; Midgley et al., 1998) proposed a triple frame that revives learning- and performance-focused goal differentiation. In this context, they divided performance goal orientations into two subdivisions, as avoidance and approach, in addition to mastery goal orientation (Dowson & McInerney, 2001; Leondari & Gialamas, 2002). Performance–approach goal orientation refers to a propensity to make decisions that support the development of a learner's skills, whereas performance–avoidance goal orientation refers to a propensity to avoid these supportive decisions. Elliot and colleagues obtained evidence in support of their proposition (see Church et al., 2001).

Another important and practical aspect of goal orientation theory is its potential to promote understanding about and development of learning and teaching (Pintrich & Schunk, 1996). Goal orientation theory addresses

classroom goal structures and school goal structures while addressing factors affecting personal goal orientation. In this context, the practices of teachers who manage the learning environment and the goal orientations of teachers who direct these practices are important issues (Ames & Archer, 1988; Baldwin & Coleman, 2000; Blumenfeld, 1992; Maehr & Midgley, 1991; Patrick et al., 2001).

One can observe two kinds of class goal structure in the relevant literature. In a class that emphasizes mastery class goal orientation, achieving an understanding of the subject studied is the objective, rather than the simple memorization of facts. Mistakes are seen as a part of the learning process; effort and progress are valuable and awarded; assignments are exceptional and stimulate creativity; learning is perceived as an enjoyable activity. As a result, the students' anxiety as related to their own competencies is expected to decrease in this goal orientation. In this orientation, students concentrate on achieving competency and self-development and do not need to use academic self-handicapping strategies in the event of failure in an effort to project a positive impression of themselves to their peers. In the focus of competency and development, students have no worries to create a positive impression of themselves on the other students' minds (Ames & Archer, 1988; Jagacinski & Duda, 2001; Middleton & Midgley, 1997; Urdan, Midgley, & Anderman, 1998).

However, in a setting in which class performance goal orientation is dominant, the teacher usually compares the students' skills and performance. Students compete with one another and describe their achievements by comparing themselves with others. The importance of grades and test scores is often emphasized in this kind of class. That is, the main problem for students in such a class is how their performances are perceived and seen by others. The students try to show themselves to be successful and talented and avoid being seen as unsuccessful and untalented. When low academic achievement or even failure occurs, students tend to use self-handicapping strategies to make others believe that these shortcomings resulted from a lack of time or effort and not a lack of skill. These contradictory goals have a consistent relationship with various affective, cognitive, and behavioral patterns (Jagacinski & Duda, 2001; Urdan et al., 1998).

Research shows that there is a positive relation between personal goal orientation and school goal structures. Results have been obtained from the research carried out in English and mathematics classes in elementary, middle, and high schools. According to the results, there are benefits in the areas of motivation and behavior when pupils perceive the classroom or school goal structure on the basis of learning. When pupils perceive the same structure on the basis of performance, it makes for potentially debilitating effects (Urdan & Schoenfelder, 2006).

Although much research has been done on the effect of classroom atmosphere on student goal structures and learning outcomes, many of these studies were carried out in America (Mucherah, 2008). Much less research

has been done in other cultures (Abrami & Chambers, 1994; Ghaith, 2003; Mucherah, 2008; Sexton-Radek & Paul, 2002; Shih, 2007). This disparity makes it difficult to generalize the findings to societies with significantly different ethnic compositions and gender roles (Mucherah, 2008).

Research scales developed in this field must be adapted for use in different cultures. The purpose of this study is therefore to adapt a subsection of the Patterns of Adaptive Learning Scales—Perceptions of the School Goal Structure for Students, part of the research instrument's Teacher Scales (Midgley et al., 2000)—for use in a Turkish setting and to investigate the evidence regarding psychometric characteristics and validity and reliability of the scale.

Method

Research Group

The scale was administered to 180 school teachers at 14 primary schools in districts of low and middle socioeconomic status within the borders of Ankara municipality—for example, Mamak, Yenimahalle, Kurtuluş, and Birlik. Because 10 scales were incomplete, the analyses were performed on data from 170 teachers—114 women (67%) and 56 men (33%).

Teacher Scales: Perceptions of the School Goal Structure for Students

The Teacher Scales were developed by Midgley and colleagues (2000) and include three dimensions: Teacher Perceptions of the School Goal Structure for Students, Approaches to Instruction, and Personal Teaching Efficacy. All the primary school teachers in the study completed the first scale. Mathematics teachers who teach in the sixth and ninth grades completed the second and third scales, respectively. In this study, the subsection Perceptions of the School Goal Structure for Students consists of two subdimensions and 13 items: Mastery Goal Structure for Students (7 items) and Performance Goal Structure for Students (6 items). The Mastery Goal Structure subscale gauges teachers' perceptions about whether "the school conveys to students that the purpose of engaging in academic work is to develop competence." The Performance Goal Structure subscale gauges the teachers' perceptions about whether "the school conveys to students that the purpose of engaging in academic work is to demonstrate competence."

Each participating teacher was asked to consider the statements in relation to the school at which he or she works and to react to the statements by selecting responses on a 5-point Likert-type scale (1 = *do not agree*, 5 = *totally agree*). Two were reverse-scored. The psychometric characteristics of the scale were presented in the Patterns of Adaptive Learning Scales handbook; as such, the Cronbach alpha reliability coefficients for the Mastery Goal Structure and the Performance Goal Structure were given as .80 and .70, respectively.

The item statements, originally written in English, were translated into Turkish by the researchers before determining the validity and reliability of the scale. A series of procedures was performed to test the linguistic equivalence of the translated items to the originals. First, the Turkish version of scale and the original version (English) were presented to a scientific evaluation group, which was established on the basis of criteria described by Hambleton and Patsula (1999). The criteria call for a group of specialists who are fluent in both languages, know both cultures well, study education and psychology, and are familiar with the process for developing the scale. Accordingly, the scale items were presented to a group of six specialists, including two measurement and evaluation specialists, one educational psychology specialist, two English-language lecturers, and one Turkish-language lecturer.

In their evaluation, group members strove to ensure that the meanings of the original (English) and translated (Turkish) statements were equivalent, and they considered whether the translated items appropriately reflected Turkish modes of expression. As a result of criticisms and suggestions arising from this evaluation, some modifications were made to the original items. For instance, Item 11 in the original version read "Students hear a lot about the importance of making the honor roll or being recognized at honor assemblies." In Turkish primary education, there is no academic reward exactly like "making the honor roll." Instead, there is a slightly different form of recognition known as a "certificate of appreciation." Thus, the corresponding statement was rephrased as "In this school, the importance of being among those who have received such appreciation certificates is strongly emphasized."

Once similar corrections were performed, the second phase of testing for linguistic equivalence was initiated. In this step, 15 teachers of English courses in two private elementary schools were asked to complete two bilingual forms of the scale. On Form 1, the first 7 items were in Turkish and the last 6 in English. On Form 2, the first 7 items were in English and the last 6 in Turkish. The scale scores of both sets of forms were calculated, and the Spearman rho correlation coefficient was computed to test the relationship between versions. The coefficient was found to be .71 ($P < .01$). Although there is no widely accepted standard for interpreting the strength of the Spearman correlation coefficient, one standard categorizes a high relationship (coefficients from .71 to 1.00), a moderate relationship (.30 to .70), and a low relationship (.00 to .29; Büyüköztürk, 2002). With a correlation coefficient of .71, the Turkish and English scale items could be accepted as being equivalent. The adapted scale was then given to 170 teachers working in elementary schools in areas of low and middle socioeconomic status, such as Mamak, Kurtuluş, Batikent, and Çankaya-Çukurca-Birlik, all within the borders of Ankara municipality. The scales were distributed to the teachers during their resting hours in the teachers' room, and the scales were returned to the researchers upon completion. The researchers' appreciation was expressed to the teachers for their cooperation.

Data Analysis

In construct validity studies, the factor structure of the scale is analyzed through exploratory factor analysis (EFA). To be able to use EFA, a commonly recommended ratio is 10 persons per item (Crocker & Algina, 1986), and that standard is met in this study. As an EFA, principal component factoring was applied to the data produced by the 170 participating teachers. A varimax rotation was applied to the correlation matrix from the initial analysis because factor analysis results cannot be interpreted without it (Tabachnick & Fidel, 1996). Once the subcomponents (subscales) were obtained, Cronbach alpha correlation coefficients were calculated as evidence of internal consistency reliability. The analyses were performed with SPSS 11.0.

Moreover, confirmatory factor analysis (CFA) was used to investigate the validity of the scale's factor structure based on theory or the EFA (Schumacker & Lomax, 1996). The roots of CFA are based on EFA (Schumacker & Lomax, 1996). In this study, CFA was used to determine whether the two-dimension structure described in the original version of the scale was verified in this group. CFA was carried out with LISREL 8.30, developed by Jöreskog and Sörbom (1986). Also, Cronbach alpha correlation coefficient was computed as a measure of internal consistency reliability among the overall scale and its subscales. These analyses were carried out in SPSS 11.0.

Results and Discussion

In this section, the results of the analysis are summarized as related to the psychometric characteristics of the scale adapted into Turkish. The Patterns of Adaptive Learning Scales–Teacher Scales, developed by Midgley and colleagues (2000), comprise two dimensions. Tables 1 and 2 report descriptive statistics and factor analysis results relating to the items within these dimensions.

According to Table 1, the scale item score averages of this study were relatively close to the original values. Standard deviations of the distributions belonging to the subscale item scores were lower than the original values, however.

After EFA, the two-factor construct of the scale was evident. Because the first solution of the factor analysis was not interpreted without performing rotation, varimax rotation was administered to the data (Tabachnick & Fidel, 1996). As a result of this analysis, two factors were obtained having factor eigenvalues greater than 1.00. Table 2 and Figure 1 show the results of EFA and the rank order of eigenvalues. As seen in the table and figure, the scale construct, which comprised two dimensions in the original version, was observed in this study as well.

CFA was used to verify the two-factor construct of the scale as revealed by EFA. Various index values from CFA are evaluated on the basis of

Table 1. Descriptive Statistics for Teacher Scales: Perceptions of the School Goal Structure for Students Subscales and Item Scores (Value of the Original Scale in Parentheses)

Scale: Item No.	*M*	*SD*
Mastey goal orientation		
1	4.08 (4.44)	1.00 (0.72)
2	3.39 (4.28)	1.30 (0.80)
6	3.50 (3.66)	1.30 (0.91)
8	3.06 (3.73)	1.29 (0.96)
9	3.67 (4.20)	1.30 (0.78)
10	3.43 (4.33)	1.28 (0.76)
12	3.24 (3.86)	1.28 (0.88)
Scale	3.48 (4.07)	1.25 (0.56)
Performance goal orientation		
3	3.87 (2.67)	1.05 (0.98)
4	3.31 (3.07)	1.32 (1.08)
5	3.57 (3.28)	1.20 (0.93)
7	3.54 (3.39)	1.23 (0.96)
11	2.97 (3.36)	1.26 (1.28)
13	3.15 (3.86)	1.17 (0.88)
Scale	3.56 (3.02)	1.20 (0.67)

Table 2. Results of Varimax-Rotated Factor Analysis for Teacher Scales: Perceptions of the School Goal Structure for Students

Item	*Factor 1*	*Factor 2*
1	.599	
2	.623	
6	.391	
8	.727	
9	.805	
10	.853	
12	.827	
13	.577	
3		.546
4		.680
5		.617
7		.563
11		.574
Explained variance (%)	34.56	24.38
Items (*n*)	8	5
Cronbach's alpha[a]	.85 (.81)	.71 (.70)

[a]Value in parentheses is the value of the original version scale.

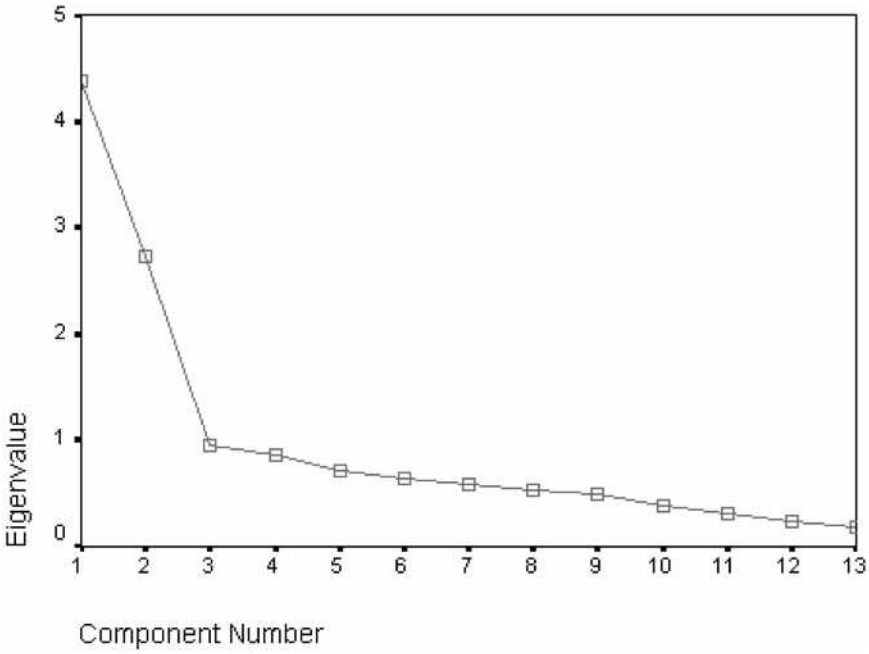

Figure 1. Scree plot of eigenvalues resulting from principal component factor analysis with varimax rotation.

certain fit indexes: goodness of fit, adjusted goodness of fit, and root mean square error of approximation. Each index has different strong and weak features in determining the goodness of fit between the real data and the theoretical model (Cole, 1987). The goodness of fit, adjusted goodness of fit, and root mean square error of approximation indexes and their criterion values were used to describe the goodness of fit between model and the data in this study (Anderson & Gerbing, 1984; Cole, 1987; Marsh, Balla, & McDonald, 1988). The CFA results indicate an acceptable fit to the two factor model, as seen in the Table 3. Except for the root mean square error of approximation, all related index values computed from CFA met the criterion values. Therefore, there is a relatively sufficient fitting between the theoretical and observed structures of the scale. As presented in Figure 2, the relationship between the mastery goal orientation and the performance

Table 3. Results of Confirmatory Factor Analysis

Index	*Group (n = 170)*	*Criterion Value*
χ^2 (*df*)	190.65 (64)	
χ^2 / *df*	2.98	χ^2 / (*df*) $\leq$ 5.00
Goodness of fit index	.86	$\geq$ .85
Adjusted goodness of fit	.80	$\geq$ .80
Root mean square error of approximation	.10	$\leq$ .05

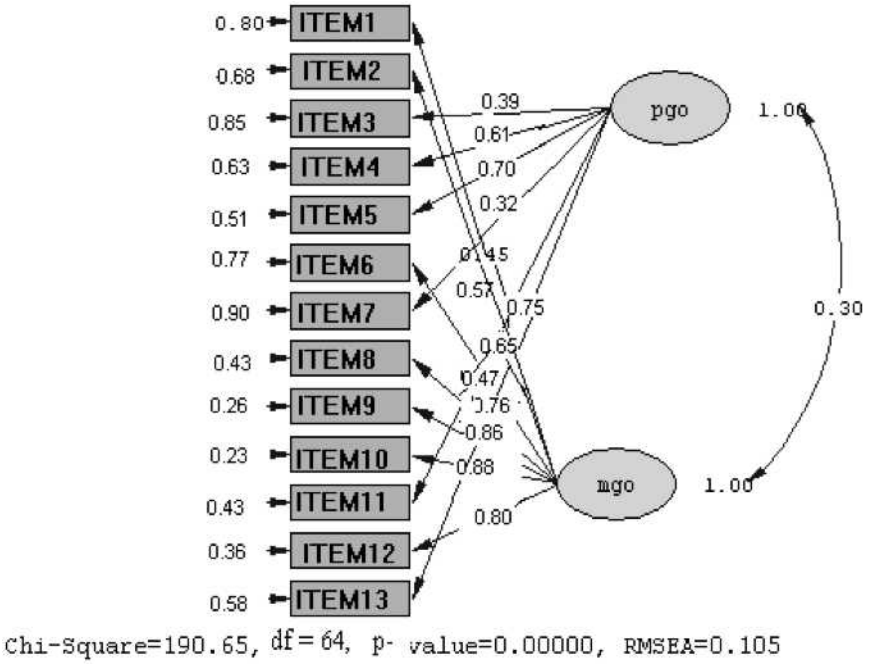

Figure 2. Path diagram indicating factor structure of the Teacher Scales: Perceptions of the School Goal Structure for Students. c^2 = 190.65, *df* = 64, *p* = .00, root mean square error of approximation = .105. mgo = mastery goal orientation; pgo = performance goal orientation.

goal orientation was low (.30), and the relationships between these scales and their items were high (.32 to .88).

As a result of EFA and CFA of the Teacher Scales: Perceptions of the School Goal Structure for Students, the factor structure of the scale in Turkish teacher group was found to be similar to the original one. Moreover, the Cronbach alpha reliability coefficients of the internal consistency of the two subscales were similar to the original values. Apart from this, the reliability evidence for the short- and long-term consistency of the scale needs to be searched. Thus, this scale is a valid and reliable instrument that can be used in future studies of goal orientation in the Turkish educational system. IJER

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