



Adaptation and Psychometric Evaluation of the Achievement Goal Questionnaire-Revised in Turkish for Middle School Students

Ortaokul Öğrencileri İçin Başarı Hedefi Anketi-Gözden Geçirilmiş Formunun Türkçe Uyarlaması ve Psikometrik Analizi

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Abstract:

This study aims to adapt the Achievement Goal Questionnaire-Revised Form (AGQ-R) into Turkish and to examine its validity and reliability among middle school students. The sample comprised 527 students in grades 5 through 8, aged 10 to 15, drawn from various public schools. The adaptation process employed the back-translation method, which is widely accepted in the literature, followed by a thorough review for grammatical and punctuation accuracy. To ensure cultural appropriateness, expert feedback was obtained from a multidisciplinary panel within the faculty of education, which facilitated the identification and removal of culturally specific content from the scale items. Validity and reliability analyses were conducted using SPSS 25 and AMOS 22. The internal consistency of the scale was supported by a Cronbach's alpha of $\alpha = 0.89$, and corrected item-total correlations ranged from 0.525 to 0.644 across all subscales. In addition, the convergent validity and internal consistency of the constructs were confirmed using Average Variance Extracted (AVE) and Composite Reliability (CR) values. Confirmatory factor analysis supported the hypothesized four-factor structure (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance), demonstrating a good model fit ($\chi^2/df = 2.145$; RMSEA = 0.047; CFI = 0.978). These findings indicate that the Turkish version of the AGQ-R is a psychometrically sound tool for measuring achievement goal orientations among middle school students. It is recommended for use by researchers and educators to better understand and support student motivation in the Turkish educational context.

Keywords: Achievement Goal Orientation, AGQ-R, Scale Adaptation, Mastery Goals, Performance Goals.

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Öz:

Bu çalışma, Başarı Hedefi Anketi-Gözden Geçirilmiş Formu'nun (AGQ-R) Türkçeye uyarlanmasını ve ortaokul öğrencileri üzerinde geçerlik-güvenirlik incelemesini amaçlamaktadır. Araştırmanın örneklemini, çeşitli devlet okullarında 5-8. sınıflarda öğrenim gören ve yaşları 10-15 arasında değişen toplam 527 öğrenci oluşturmaktadır. Uyarlama sürecinde alanyazında yaygın kabul gören geri çeviri yöntemi uygulanmış; takiben dilbilgisi, noktalama ve kültürel uygunluk açısından ayrıntılı değerlendirmeler yapılmıştır. Eğitim fakültesindeki farklı disiplinlerden uzmanların oluşturduğu grubun görüşleri doğrultusunda yapılan incelemelerde kültüre özgü ifadeler ölçekten çıkarılmıştır. Geçerlik ve güvenilirlik analizleri SPSS 25 ve AMOS 22 istatistiksel paket programları kullanılarak gerçekleştirilmiştir. Ölçeğin iç tutarlılığı Cronbach alfa katsayısı ($\alpha = 0.89$) ile sağlanmış ve düzeltilmiş madde-toplam korelasyonları tüm alt boyutlarda 0.525 ile 0.644 arasında bulunmuştur. Buna ek olarak, yapıların yakınsak geçerliliği ve iç tutarlılığı, çıkarılan ortalama varyans (AVE) ve bileşik güvenilirlik (CR) verileri ile doğrulanmıştır. Doğrulamalı faktör analizi, varsayılan dört faktörlü (ustalık-yaklaşma, ustalık-kaçınma, performans-yaklaşma ve performans-kaçınma olmak üzere) yapıyı istatistiksel olarak doğrulamış ve iyi model uyum değerleri sunmuştur ($\chi^2/df = 2.145$; RMSEA = 0.047; CFI = 0.978). Elde edilen bulgular, AGQ-R'nin Türkçe formunun ortaokul öğrencilerinin başarı hedef yönelimlerini ölçmede psikometrik açıdan geçerli ve güvenilir bir araç olduğunu göstermektedir. Bu bağlamda ölçeğin, Türk eğitim sistemi içinde öğrenci motivasyonunun kapsamlı bir şekilde incelenmesi ve desteklenmesine yönelik yürütülecek bilimsel araştırmalarda kullanılabileceği önerilmektedir.

Anahtar Kelimeler: Başarı hedef yönelimi, AGQ-R, Ölçek uyarlaması, Ustalık hedefleri, Performans hedefleri.

Introduction

Achievement goal theory provides a framework for understanding how individuals' goals influence their attitudes toward learning and performance, particularly in academic settings (Ames, 1992; Dweck & Leggett, 1988; Maehr & Midgley, 1991; Nicholls, 1984). The theory has evolved through the contributions of various theorists, who explored concepts such as cultural influence (Maehr, 1974), conceptions of ability (Nicholls, 1984), beliefs about intelligence (Dweck, 1986), and reward structures (Ames, 1992), leading to an extensive perspective on the topic (Urdan & Kaplan, 2020).

Early conceptualizations of the theory identified at least two types of achievement motivation: one focused on acquiring success and the other on avoiding failure (McClelland, 1951). These were termed task and ego involvement (Nicholls, 1984), learning and performance goals (Dweck & Leggett, 1988), and most commonly, mastery and performance goals (Ames, 1992), with the latter being the most frequently used terms in research (Huang, 2011; Senko et al., 2011).

Mastery goals are broadly focused on the development of competence, while performance goals are about its demonstration. The theory later incorporated valence, a dimension distinguishing approach and avoidance goals. Many early theorists (Dweck, 1986; Nicholls, 1984) focused solely on the approach dimension, overlooking the avoidance dimension.

The integration of valence is widely attributed to Andrew J. Elliot and his colleagues (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001; Elliot & Murayama, 2008). Elliot and Harackiewicz (1996) argued that performance goals were not a single construct but comprised two distinct motivations: performance-approach goals (seeking favorable competence judgments) and performance-avoidance goals (avoiding unfavorable ones). For instance, an example of performance-approach is trying to get a better grade than others, while performance-avoidance is trying to avoid a worse grade.

This distinction clarified inconsistencies in earlier research, in which performance goals were linked to both

positive and negative outcomes. This trichotomous framework (mastery, performance-approach, and performance-avoidance goals) was a major development, but not the last.

Elliot and McGregor (2001) extended the model by also bifurcating mastery goals. Their 2x2 framework classifies goals by the definition of competence (absolute/intrapersonal vs. normative) and valence (approach vs. avoidance), yielding a quadripartite model of four goal types: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance.

Mastery-avoidance goals are defined as the pursuit of an activity to avoid mistakes, competence deterioration, or the loss of previously acquired skills. Following this, scholars developed scales to operationalize these concepts into measurable constructs.

Despite earlier scale development studies (Ames & Archer, 1988; Dweck & Leggett, 1988), this study focuses on adapting and validating an existing instrument. The Achievement Goal Questionnaire (AGQ) and the Achievement Goal Questionnaire-Revised (AGQ-R) were chosen for their improved item wording, the separation of goals and motives, and their contemporary relevance.

Elliot and McGregor (2001) used factor analysis to determine if the four goals of the 2x2 framework were empirically distinct concepts. After initial pilot studies, they selected and devised items, using some from previous measures (Elliot, 1999; Elliot & Church, 1997) while developing new ones for the mastery-avoidance goal. Their study involved 180 students (49 males, 131 females) who responded to a 1-7 scale. An exploratory factor analysis (EFA) of 12 items, using principal components extraction with varimax rotation, revealed four factors with strong item loadings (0.70-0.97), confirming that the factors were internally consistent and separable. A subsequent confirmatory factor analysis (CFA) with 148 students (62 males, 86 females) strongly supported the hypothesized four-factor model, with fit statistics exceeding standard criteria. This led to the development of one of the most widely used achievement goal measures.

Subsequent studies continued to refine achievement goal measures. Elliot and Murayama (2008) developed the AGQ-R by addressing several concerns with the items in the original AGQ (Elliot & McGregor, 2001). First, some AGQ items contained prefixes that referred to a value rather than a goal; the AGQ-R resolved this by using the same three goal-based prefixes across all scales. Second, one AGQ performance-avoidance item confused the goal with a motive (fear of failure), so the AGQ-R removed this motive content to allow for independent evaluation and prevent item overlap. Third, an AGQ performance-approach item referencing grades, which can apply to both mastery and performance goals, was removed, and the word "just," which implicitly excluded other goals, was omitted. Furthermore, explicit normative content was added to all performance-avoidance items to ensure

consistency with performance-approach items, and the word *most* was removed to avoid undue emphasis on specific segments. Finally, all explicit affective content was removed from the items to resolve previous inconsistencies between mastery and performance subscales.

The developers of the AGQ-R did not intend to invalidate previous measures, acknowledging their valuable contributions to the literature. Instead, they believed there was room for improvement, and their refinements would lead to more effective application of achievement goal findings. This study, by adapting and validating the AGQ-R for Turkish-speaking middle school students, aligns with this perspective and seeks to apply these advancements to a younger Turkish-speaking population.

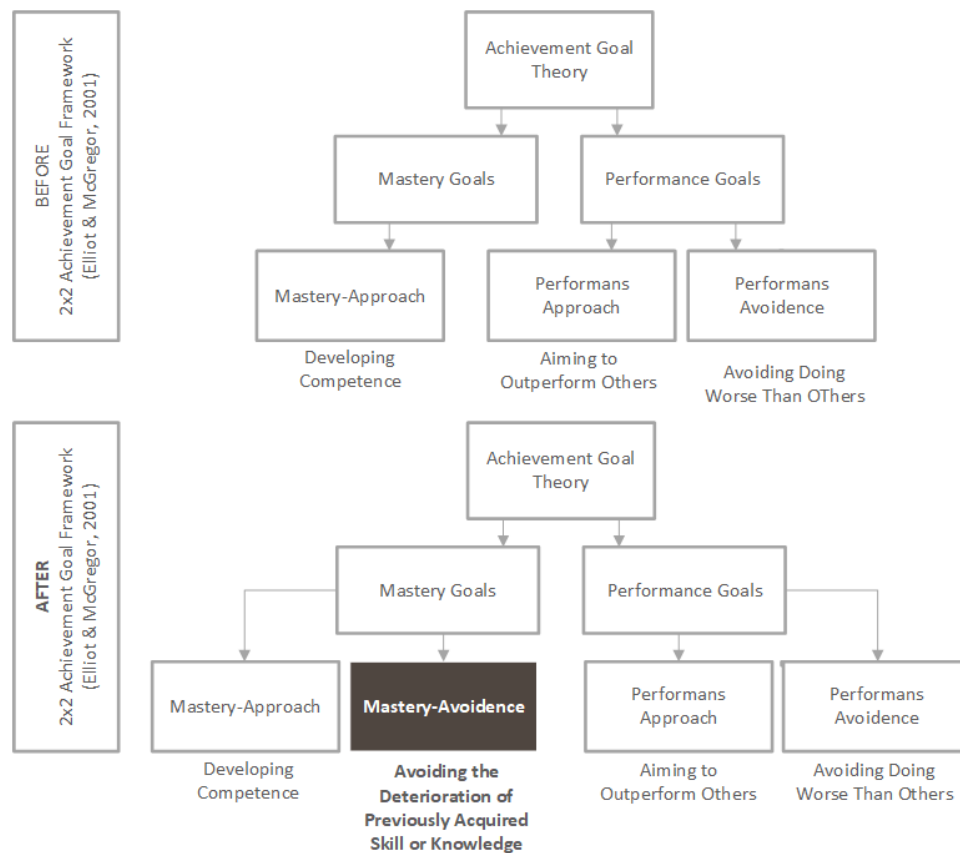


Figure 1. Before-After Comparison of 2x2 Achievement Goal Framework

Within the Turkish achievement goal literature, several studies have adapted measures based on the 2x2 framework. This review, limited to accessible studies, presents them in chronological order.

Akın (2006) conducted a validity and reliability study of the 2x2 framework with 728 university students. EFA yielded a 26-item, four-factor measure with strong item loadings (0.41 - 0.98), total item correlations (0.56 - 0.73), and high internal consistency (Cronbach's alpha 0.92 - 0.97), demonstrating its validity and reliability.

Şenler and Sungur (2007) translated and adapted Elliot and McGregor's (2001) AGQ into Turkish and used it with 616 middle school students. The Turkish version showed internal consistency coefficients (alpha values of 0.81 for mastery-approach, 0.69 for performance-approach, 0.65

for mastery-avoidance, and 0.64 for performance-avoidance) and a validated four-factor structure via CFA (GFI = 0.92, CFI = 0.92, NFI = 0.90, SRMR = 0.07).

Arsilan and Akın (2015) adapted the AGQ-R (Elliot & Murayama, 2008) for 450 university students. The 12-item, four-factor measure showed acceptable internal consistency (Cronbach's alphas ranging from 0.62 to 0.72) and item correlations (0.50-0.70). CFA validated the model, with strong fit statistics ($\chi^2 = 172.08$, $df = 48$, $RMSEA = 0.076$, $NNFI = 0.97$, $NFI = 0.98$, $CFI = 0.98$, $IFI = 0.98$, $RFI = 0.96$, $GFI = 0.94$, $SRMR = 0.048$), confirming its reliability and validity.

Although several adaptations of AGQ and AGQ-R exist in Turkey, these studies focus on university students or earlier versions. No validated tool exists for middle school

students, a population undergoing critical motivational development. This study addresses this gap.

The primary aim of this study is to adapt and assess the validity and reliability of the AGQ-R in Turkish for middle school students. The scale was translated in accordance with international standards, and its construct validity, reliability, and item analyses were assessed. This work has the potential to provide a psychometrically sound tool for the Turkish educational context, enabling more rigorous research on achievement goal orientation and serving as a widely used resource in studies on instructional design, student motivation, and academic development.

Method

Participants

The study involved 527 middle school students (ages 10-15, grades 5-8) from several public schools. A semi-random sampling method was used, in which schools were selected based on administrative permissions, and then classes were randomly selected. The sample size of 527 is

considered *very good* and highly sufficient for a confirmatory factor analysis, aligning with scholarly recommendations from Comrey and Lee (1992) and Kline (2005), with the latter noting that samples over 200 are typically large and adequate for such analyses. Demographic data was also collected to create a comprehensive participant profile.

Ethical Considerations

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and relevant national regulations. Ethical approval for the study was obtained from the [Postgraduate Education Institute Ethics Committee], [Çanakkale Onsekiz Mart University] (Approval No: [E-84026528-050.99-2400021516- 01/01], Date: [18.01.2024]). In addition, permission to conduct the research in the participating schools was granted by the [Tekirdağ Province] Provincial Directorate of National Education, which is the competent authority responsible for all public schools in the province (Official Permission No: [E-43996270-44-99719843-99506596], Date: [25.03.2024])

Table 1. Participant characteristics

Variable	Demographics	(f)	%
Grade	5. grades	99	18,8
	6. grades	128	24.3
	7. grades	199	37.8
	8. grades	101	19.2
Gender	Female	248	47.1
	Male	279	52.9
Age	10	42	8
	11	118	22.4
	12	179	34
	13	129	24.5
	14	55	10.4
	15	4	0.8

Psychometric Properties of the AGQ-R Instrument

The Achievement Goal Questionnaire-Revised (AGQ-R) (Elliot & Murayama, 2008) was adapted into Turkish for the first time for middle school students. The 12-item scale uses a 5-point Likert format to measure the four goals of the 2x2 framework. The subscales showed strong internal consistency: Cronbach's alpha values were 0.84 (mastery-approach), 0.88 (mastery-avoidance), 0.92 (performance-approach), and 0.94 (performance-avoidance). Factor loadings were also high (0.73-0.93). CFA results indicated a good model fit: χ^2 (48, N=229) = 78.32, $p < 0.01$, χ^2/df = 1.63, CFI = 0.99, IFI = 0.99, and RMSEA = 0.053.

Adaptation Process

Permission was obtained from the original developers (Elliot & Murayama). The material was translated into Turkish by three English instructors (one with an academic post) and back-translated (Brislin, 1970) by two others, a technique widely employed in adaptation research (Direktör & Okray, 2023; Kadan et al., 2025; Tunç & Ümmet, 2025). Two Turkish teachers checked grammar and punctuation, and a multidisciplinary panel, comprising experts in Turkish language and literature, educational psychology, curriculum development, and educational measurement, ensured cultural neutrality and conceptual equivalence for middle school students. A pilot test confirmed item clarity and comprehension. The finalized version was subjected to confirmatory analysis of the

hypothesized model, with validity and reliability examined using SPSS 25 and AMOS 22.

Findings

The internal consistency of the scale and its subscales was evaluated using Cronbach's alpha. The overall scale had an alpha of 0.89, which is considered very good (Hair et al., 2009) and nearly excellent (Kline, 2005). Subscale reliabilities were also satisfactory, exceeding the standard of 0.70: Mastery-Approach ($\alpha = 0.79$), Mastery-Avoidance ($\alpha = 0.76$), Performance-Approach ($\alpha = 0.81$), and Performance-Avoidance ($\alpha = 0.70$). In addition to Cronbach's alpha, McDonald's omega (ω) was calculated to verify internal consistency (Dunn et al., 2013; McDonald, 1999). Since SPSS version 25 does not support this analysis, JASP software (version 0.95.4) was utilized. The results indicated good reliability for the overall scale ($\omega = 0.89$). The subscales also demonstrated satisfactory internal consistency: Mastery-Approach ($\omega = 0.79$), Mastery-Avoidance ($\omega = 0.75$), Performance-Approach ($\omega = 0.81$), and Performance-Avoidance ($\omega = 0.71$). Additionally, corrected item-total correlations across all subscales ranged from 0.525 to 0.644, confirming that each item was strongly associated with its respective total score (Clark & Watson, 1995; Streiner et al., 2015).

Table 2. Statistics related to internal consistency

Item Number	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's Alpha If Item Deleted
1	4.06	0.92	0.62	0.88
2	3.98	1.09	0.59	0.88
3	4.15	0.96	0.64	0.88
4	3.90	1.07	0.57	0.88
5	4.06	1.04	0.62	0.88
6	3.88	1.07	0.53	0.89
7	4.00	1.07	0.64	0.88
8	4.00	1.04	0.64	0.88
9	3.94	1.09	0.63	0.88
10	3.88	1.12	0.53	0.89
11	4.03	1.03	0.60	0.88
12	4.22	0.99	0.56	0.88

Item discrimination power was evaluated using a 27% upper-lower group comparison (Ebel & Frisbie, 1991). The discrimination indices ranged from 1.478 to 1.845 (*d*-index: 0.37-0.46). Items with statistically significant

mean differences ($p < 0.05$) between the top and bottom 27% of participants were considered to have good discrimination.

Table 3. Item discrimination indices based on 27% upper-lower group comparison

Item Number	Upper Group Mean	Lower Group Mean	Mean Difference	t-value	p-value	d-index
1	4.73	3.25	1.48	15.32	.001	0.37
2	4.77	2.98	1.80	17.22	.001	0.45
3	4.82	3.32	1.50	15.03	.001	0.38
4	4.70	3.00	1.70	16.39	.001	0.42
5	4.78	3.10	1.68	16.15	.001	0.42
6	4.71	3.00	1.71	17.16	.001	0.43
7	4.70	3.03	1.67	16.20	.001	0.42
8	4.77	2.99	1.78	17.68	.001	0.45
9	4.75	2.91	1.85	17.92	.001	0.46
10	4.65	2.96	1.70	15.04	.001	0.42
11	4.80	3.13	1.66	16.40	.001	0.42
12	4.86	3.35	1.51	14.14	.001	0.38

Construct Validity of the Adapted AGQ-R via Confirmatory Factor Analysis

Since a multidisciplinary expert panel confirmed the absence of culturally specific elements, a Confirmatory Factor Analysis (CFA) was conducted using AMOS 22 with maximum likelihood estimation to validate the hypothesized four-factor model. The model proposed four correlated latent factors: mastery-approach, mastery-avoidance, performance-approach, and performance-

avoidance goals. The Turkish names for the factors are shown in Figure 2. The hypothesized four-factor model demonstrated a good fit to the data across multiple indices: $\chi^2/df = 2.145$, $P = 0.001$, AGFI = 0.949, GFI = 0.969, NFI = 0.960, CFI = 0.978, IFI = 0.978, TLI = 0.970, RMSEA = 0.047, and SRMR = 0.030. These fit statistics are well within commonly cited threshold values (Table 4) (Hair et al., 2009; Hu & Bentler, 1999; Kline, 2005).

Table 4. References on the threshold values of model-data fit

Index (Result)	Thresholds	Reference
RMSEA (.047)	Perfect <.05; Good <.06; Acceptable <.10	(Brown, 2006; Byrne, 2016; Hu & Bentler, 1999; Schumacker & Lomax, 2016)
SRMR (.0305)	Perfect <.05; Good ≤ .08; Acceptable ≤ .10	(Brown, 2006; Byrne, 2016; Hu & Bentler, 1999; Schumacker & Lomax, 2016)
NFI (.960)	Perfect ≥.95; Good ≥ .95; Acceptable ≥ .90	(Byrne, 2016; Hu & Bentler, 1999; Schermelleh et al., 2003; Schumacker & Lomax, 2016)
CFI (.978)	Perfect ≥.97; Good ≥ .95; Acceptable ≥ .90	(Byrne, 2016; Hair et al., 2009; Hu & Bentler, 1999; Schermelleh et al., 2003)
GFI (.969)	Perfect ≥.90; Good ≥ .90; Acceptable ≥ .85	(Byrne, 2016; Hair et al., 2009; Hu & Bentler, 1999; Schermelleh et al., 2003; Schumacker & Lomax, 2016)
AGFI (.949)	Good ≥ .90; Acceptable ≥ .85	(Byrne, 2016; Schermelleh et al., 2003; Schumacker & Lomax, 2016;)
P (.000)	Good ≤ .01; Acceptable .01–.05	
TLI (.970)	Good ≥ .95	(Byrne, 2016; Schermelleh et al., 2003; Schumacker & Lomax, 2016)
χ^2/df (2.145)	Perfect ≤ 2; Good ≤ 3; Acceptable ≤ 5	(Hair et al., 2009; Kline, 2005)

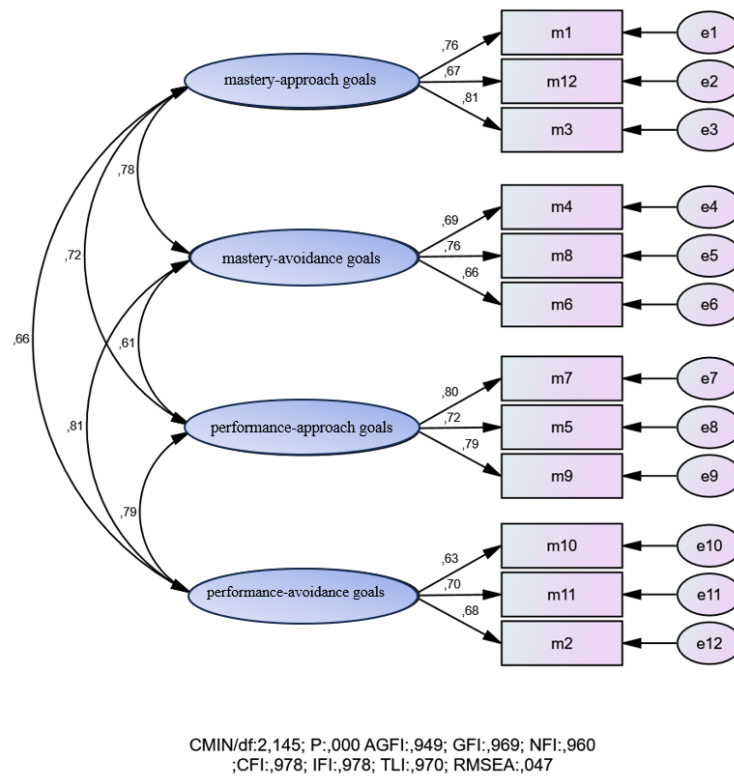


Figure 2. Confirmatory factor analysis result of the hypothesized model

To further assess construct reliability and convergent validity, Average Variance Extracted (AVE) and Composite Reliability (CR) values were calculated (Fornell & Larcker, 1981; Hair et al., 2019; Huang et al., 2013). CR values were acceptable across all subscales (0.71 – 0.81), exceeding the recommended 0.70 threshold. AVE values exceeded 0.50 for mastery-approach (0.56) and performance-approach (0.59), supporting convergent validity. Mastery-avoidance (0.49) and performance-avoidance (0.45) fell slightly below the 0.50 cutoff; however, their CR values were above 0.70. According to Fornell and Larcker (1981), and later confirmed by Huang et al. (2013), constructs can still demonstrate adequate convergent validity when AVE is below 0.50, provided that CR exceeds 0.60. These results therefore support the psychometric robustness of the Turkish AGQ-R.

Discussion

The primary purpose of this study was to adapt the Achievement Goal Questionnaire-Revised (AGQ-R) into Turkish and to test the hypothesis that its original four-factor structure comprising mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goals would be a valid and reliable construct for Turkish middle school students. This initiative is anticipated to facilitate more comprehensive investigations into achievement goal orientation among middle school students, particularly by assessing the scale's relevance within the Turkish educational system. To accomplish this, the scale's translation was completed in precise accordance with international adaptation standards.

The four-factor model of the AGQ-R was successfully validated, aligning with the original conceptualization. The instrument also demonstrated strong reliability, with a

Cronbach's alpha of $\alpha = 0.89$ for the overall scale and values ranging from 0.70 to 0.81 for its subscales. This high level of internal consistency is consistent with findings from the original scale development study (Elliot & Murayama, 2008) and other adaptations of the achievement goal framework (Arslan & Akın, 2015; Senko et al., 2011), indicating that the Turkish version preserves the construct's theoretical integrity.

Item discrimination was evaluated using a 27% upper-lower group comparison (Ebel & Frisbie, 1991). The results indicated that all items significantly differentiated the upper and lower groups ($p < .05$). Discrimination statistics ranged from 1.48 to 1.84, corresponding to d-index values between 0.37 and 0.46, suggesting acceptable to good discrimination.

CFA yielded factor loadings of 0.63 to 0.81, which meet or exceed criteria for ideal values (Brown, 2015; Hair et al., 2009). The four-factor model showed a strong fit to the data, as evidenced by multiple indices: $\chi^2/df = 2.145$, $p < 0.001$; AGFI = 0.949; GFI = 0.969; NFI = 0.960; CFI = 0.978; IFI = 0.978; TLI = 0.970; RMSEA = 0.047; and SRMR = 0.0305. No items were removed or modified, attributable to the expert-validated absence of culturally specific elements. The confirmation of the four-factor structure in the Turkish context aligns with the theoretical arguments presented by Urdan and Kaplan (2020), who emphasize the distinctiveness of approach and avoidance dimensions in different cultural settings. Furthermore, these fit indices are comparable to those reported in meta-analytic reviews of achievement goal measures (Huang, 2011), supporting the cross-cultural validity of the 2x2 framework.

This study addresses two key gaps in the Turkish literature. First, while Akın (2006) and Arslan and Akın (2015)

validated 2x2 frameworks with university students, and Şenler and Sungur (2007) with middle school students, all studies used either outdated scales or samples that didn't match the AGQ-R's target demographic. Second, the AGQ-R itself was developed to address issues with the earlier AGQ, as noted by Elliot and Murayama (2008). Our study also found that previous translations, unlike ours, included negative phrasing that hindered comprehension in younger students, further highlighting the need for this current adaptation.

This study makes several key contributions. Most notably, it is the first adaptation and validation of the AGQ-R for Turkish-speaking middle school students, filling a significant gap in the literature. A core strength is its successful resolution of comprehension issues from earlier translations (e.g., negative phrasing), making the instrument culturally and developmentally appropriate. The empirical findings strongly support the four-factor structure with high construct validity and reliability. This provides a rigorously validated tool that educators and researchers can use to inform interventions for this critical age group.

The validation of this psychometric tool also provides academicians and educators with a valuable resource for identifying students' motivational profiles, particularly achievement goals among Turkish-speaking middle school students. This, in turn, can facilitate the development and implementation of differentiated instructional strategies tailored to meet diverse learning needs. According to Ames (1992) and Dweck (1986), fostering such mastery-oriented environments is crucial for sustaining long-term student engagement and deep learning strategies. By using this scale, educators can identify students prone to performance-avoidant goals, which are often associated with maladaptive outcomes (Elliot & Church, 1997), and intervene accordingly. Also, integrating goal-setting and metacognitive strategies into instruction can be beneficial for curriculum designers aiming to develop curricula that reduce fear of failure. Furthermore, understanding students' dominant goal orientations can help educators create supportive settings that promote perseverance-driven learning. Regarding participants' age range, middle school students are typically in a critical period for motivational development (Anderman & Midgley, 1997), and early identification of goal orientations may help reverse undesirable motivational motives and foster effort-based intentions.

Limitations

Despite its valuable contributions, the study has certain limitations that should be noted. First, its cross-sectional design precludes drawing conclusions about the longitudinal stability of achievement goal orientations or the scale's predictive power for academic outcomes and classroom management over time. Second, because the sample is limited to Turkish-speaking middle school students, the findings may not generalize to other age groups, educational settings, or cultural contexts without further validation. Finally, the exclusive use of self-report data may introduce response biases, particularly given the absence of methods to control for social desirability or similar effects.

Conclusion

The results of this study confirm that the Turkish adaptation of the Achievement Goal Questionnaire-Revised (AGQ-R) is a valid and reliable instrument for assessing the achievement goal orientations of middle school students. The confirmatory factor analysis successfully replicated the original four-factor structure: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance within the Turkish cultural context. This finding is significant as it demonstrates the cross-cultural applicability of the 2x2 achievement goal framework developed by Elliot and Murayama (2008). Furthermore, the rigorous translation and adaptation process has ensured that the scale is linguistically and developmentally appropriate for students aged 10-15. By filling a critical gap in the literature, this adapted scale provides a psychometrically sound foundation for future motivational research in Turkey, enabling scholars to measure the distinct dimensions of achievement goals with greater precision than previous instruments allowed.

Recommendations

Based on the findings of this study, several recommendations are offered for educators, practitioners, and researchers to enhance student motivation within the Turkish educational context.

For educators and practitioners, the primary recommendation is to identify motivational profiles. Teachers and school counselors can utilize the Turkish version of the AGQ-R to systematically identify students' dominant goal orientations. Recognizing students who prioritize performance-avoidance goals, such as those driven by a fear of failure, is crucial for providing early intervention and targeted support. Furthermore, regarding instructional design, educators are encouraged to cultivate classroom environments that foster mastery-approach goals. Instead of solely emphasizing normative comparisons and grades, instructional strategies should focus on the intrinsic value of learning, individual effort, and self-improvement to promote adaptive motivational patterns.

For researchers, future studies should consider employing longitudinal designs to examine how achievement goal orientations evolve as students transition from middle school to high school, providing insights into developmental trajectories. Additionally, correlational research is recommended to investigate the relationships among the four goal orientations and other critical educational variables, such as academic achievement, test anxiety, self-efficacy, and metacognitive strategies, within Turkish culture. Finally, methodological extensions, such as incorporating mixed-methods approaches and including indicators of social desirability, would help reduce potential self-report bias and strengthen the interpretation of findings in future investigations.

Declarations

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Ethics Approval

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and relevant national regulations. Ethical approval for the study was obtained from the [Postgraduate Education Institute Ethics Committee], [Çanakkale Onsekiz Mart University] (Approval No: [E-84026528-050.99-2400021516- 01/01], Date: [18.01.2024]). In addition, permission to conduct the research at the participating schools was granted by the [Tekirdağ Province] Provincial Directorate of National Education, the competent authority responsible for all public schools in the province (Official Permission No: [E-43996270-44-99719843-99506596], Date: [25.03.2024]).

Conflict of Interest

The authors declare that they have no competing interests.

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Informed Consent

The participants' informed consent has been obtained. This manuscript does not contain any individual person's data in any form (including images, videos, or other identifying personal details).

Data availability

The datasets available from the corresponding author upon reasonable request.

Authors' contributions

All authors contributed to the conception and design of the study. Material preparation, data collection, and statistical analyses were performed by [EK] and [DG]. [EK], as a PhD student, conducted the research and drafted the initial version of the manuscript. [DG] supervised the study, contributed to data interpretation, and critically revised the manuscript for important intellectual content. Both authors read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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