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Development of a "Pictorial Values Scale for Children": A Validity and Reliability Study*

Çocuklar için Resimli Değerler Ölçeği'nin Geliştirilmesi: Geçerlik ve Güvenirlik Çalışması**

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** Araştırmanın başlamasından önce, Kahramanmaraş Sütçü İmam Üniversitesi Sosyal ve Beşeri Bilimler Bilimsel Araştırma ve Yayın Etik Kurulu'ndan gerekli onay alınmıştır (30.05.2025-8191).

Abstract

This study aims to develop a valid and reliable measurement instrument the Pictorial Values Scale for Children (PVSC) to assess value awareness among preschool and primary school-aged children. Employing a descriptive survey research design, the study included expert-based content validity procedures, pilot testing, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). Content validity was established through evaluations provided by ten field experts. A pilot study with 250 children preceded the EFA conducted on a sample of 517, which revealed a two-factor structure Social and Societal Values (SSV) and Personal, Moral, and Emotional Values (PMEV) explaining 61.4% of the total variance. The CFA, performed with an independent sample of 500, confirmed the proposed factor structure and demonstrated excellent model fit indices (CFI = .98, RMSEA = .060, SRMR = .039). Reliability analyses indicated high internal consistency (Cronbach's α = .91 for SSV, α = .71 for PMEV, and α = .91 for the overall scale), supporting the robustness of the instrument. The PVSC, encompassing 15 core values presented through pictorial Likert-type items, is a valid, reliable, and age-appropriate tool for measuring young children's value awareness.

Keywords: Values Education, Scale Development, Picture Based Values Scale, Pictorial Values Scale.

&

Öz

Bu çalışma, okul öncesi ve ilkokul dönemindeki çocukların değer farkındalıklarını ölçmek amacıyla geçerli ve güvenilir bir ölçme aracı olan Çocuklar İçin Resimli Değerler Ölçeği (ÇRDÖ)'nün geliştirilmesini hedeflemektedir. Betimsel tarama modeline dayanan araştırma süreci; kapsam geçerliği çalışması, pilot uygulama, açımlayıcı faktör analizi (AFA) ve doğrulayıcı faktör analizi (DFA) aşamalarını içermektedir. Kapsam geçerliği, alanında uzman on akademisyenin görüşleriyle sağlanmıştır. Pilot uygulama 250 çocukla gerçekleştirilmiş, ardından 517 çocuktan elde edilen verilerle yapılan AFA sonucunda, Sosyal ve Toplumsal Değerler (STD) ile Kişisel, Ahlaki ve Duygusal Değerler (KADD) olmak üzere iki faktörlü bir yapı belirlenmiştir. Bu iki faktör toplam varyansın %61,4'ünü açıklamaktadır. Bağımsız bir örneklemden (n = 500) elde edilen DFA sonuçları, modelin mükemmel uyum gösterdiğini ortaya koymuştur (CFI

= .98, RMSEA = .060, SRMR = .039). Ölçeğin güvenirlik analizleri yüksek iç tutarlılık düzeylerini göstermiştir (Cronbach alfa: STD = .91, KADD = .71, toplam ölçek = .91). On beş temel değeri resimli Likert tipi maddelerle ölçen ÇRDÖ, çocukların değer farkındalıklarını değerlendirmede geçerli, güvenilir ve yaşa uygun bir ölçme aracıdır.

Anahtar Kelimeler: Değerler Eğitimi, Ölçek Geliştirme, Resimli Değerler Ölçeği, Görsel Değerler Ölçeği.

Introduction

Values play a pivotal role in shaping children's moral and ethical foundations and serve as the cornerstone of their social interactions. The concept of values has long occupied a central place in scientific inquiry, with numerous scholars examining how values develop and evolve across individuals and societies (Hofstede, 2001; Rokeach, 1973; Schwartz, 2006). Scholars across diverse cultural contexts emphasize the critical importance of values education in childhood and advocate for effective pedagogical approaches to instill these values. Thornberg and Oğuz (2013) highlight that teachers' beliefs profoundly influence how values are transmitted to children, calling for the integration of moral psychology and reflective practices in teacher education. Similarly, Türkoğlu (2019), Meydan (2022) and Inan, Jozwiak, Inan ve Sarac (2024) underscore that children's behaviors are inherently shaped by cultural and familial values, emphasizing the importance of harmonizing school and family value systems within the educational process.

Extensive research confirms that values influence various life domains, including social relationships, group identity, moral behavior, and environmental awareness (Bardi & Schwartz, 2003; Grusec & Kuczynski, 1997). Within this broader context, scholars such as Saputri and Marzuki (2021) stress the need for collaboration among schools, families, and social institutions to foster children's understanding of values. Türkoğlu (2019) further associates values education with moral development, suggesting that children continuously internalize moral lessons through their everyday interactions. Thus, values education extends beyond family and school boundaries, forming a complex social network that shapes children's value systems.

The family plays a primary role in character development, acting as the earliest environment where children's moral and ethical traits are formed. Parents serve as key role models in this process (Inan, 2011; Kayıran & Bağceci, 2018; Özyazıcı et al., 2021). Building on this foundation, scholars have argued for the

importance of incorporating children's perspectives into the design of values education. Johansson et al. (2014) note that children possess an innate sense of justice and moral reasoning, while Duman (2014) and Kayıran and Bağçeci (2025) emphasize that structured curricula integrating values education can help children navigate their social environments more effectively.

In this context, developing a pictorial values scale has become an essential approach for educators and psychologists to assess value awareness among young children. Such scales are particularly suitable for early childhood populations who find abstract verbal expressions challenging and rely on concrete representations to express their thoughts. Previous research consistently demonstrates that values education benefits from visual and experiential tools that engage children in age-appropriate ways (Döring et al., 2010).

Studies by Cieciuch et al. (2015) and Vecchione et al. (2015) show that children's value orientations demonstrate remarkable stability across time, similar to personality traits, and that value preferences become increasingly consistent with age. These findings emphasize the developmental nature of value formation and its connection to behavioral expression. However, traditional value measurement instruments often fall short in capturing the socio-emotional complexity of children's moral reasoning. Daniel et al. (2015) point out that many existing scales lack sufficient reliability due to a limited number of items. Consequently, there is a need for innovative and engaging assessment methods such as pictorial value scales, which make use of visual stimuli to better capture children's understanding of values (Watkins & Aitken, 2024).

Recent scholarship also highlights the advantages of visual tools in children's social-emotional development. Sokugawa (2022) emphasizes that pictorial and visually focused assessments enhance children's ability to perceive and articulate values, while Flowers et al. (2014) and Casado & Rundle-Thiele (2015) demonstrate the effectiveness of visual methods in domains such as environmental awareness and consumer behavior. Likewise, Yelling et al. (2002) validated a pictorial perceived-exertion scale, and Tang et al. (2024) confirmed the value of pictorial formats for assessing health-related quality of life among children. These studies collectively indicate that visual representations provide a more natural medium for children to express complex concepts such as values.

Norcia et al. (2022) further illustrate the link between children's perceptions of interpersonal relationships and their internalization of values, showing that positive teacher–student dynamics contribute to well-being and moral under-

standing. Similarly, pictorial assessments enhance communication, comprehension, and engagement in young participants (Buzzi et al., 2022; Carlsson et al., 2024). Morano et al. (2019) demonstrate their utility in measuring self-efficacy and enjoyment in physical activities, while Ramos et al. (2019) highlight the adaptability of pictorial tools across different cultural and literacy contexts.

In sum, the development of pictorial scales represents a significant methodological advance in assessing children's moral and emotional understanding. By transforming abstract moral constructs into tangible and visually meaningful forms, these tools enhance accessibility, engagement, and cross-cultural validity. Therefore, the present study aims to develop and validate a Pictorial Values Scale for Children, designed specifically for preschool and primary school students aged 3–7, incorporating both correct and distractor options to evaluate not only value recognition but also children's ability to distinguish inappropriate behaviors.

Method

This study was conducted using a descriptive research design based on the scale development process. Within the scope of the research, a pictorial values scale was developed to measure the value awareness of children in early childhood at the preschool and primary school levels. The construct validity of the scale was tested through validity and reliability analyses. A quantitative research model based on exploratory and confirmatory factor analyses, which are commonly used in the construction of measurement instruments, was adopted (DeVellis, 2017; Büyüköztürk, 2020).

Participants

The study group consisted of two separate samples involved in different stages of the measurement instrument development process. These groups were determined to support the content validity, item analysis, construct validity, and confirmatory analysis of the measurement tool.

Participants in all three stages of the study were selected through *convenience sampling* from public preschool and primary schools located in Kahramanmaraş, Türkiye. Schools were chosen in collaboration with the Provincial Directorate of National Education based on their willingness to participate, accessibility, and inclusion of diverse socioeconomic student populations. During the selection process, the primary considerations were: (a) ensuring that par-

ticipating schools represented different socioeconomic neighborhoods, (b) including children across the target age range of 3–7 years, and (c) confirming that parents provided informed consent for participation. Within each school, students whose families volunteered and who met the age and grade criteria were included in the study. No exclusion criteria other than age range, severe developmental disability, or lack of parental consent were applied.

The research was conducted through a three-stage application process: pilot study (n = 250), initial main study (n = 517), and final pre-confirmatory analysis study (n = 500). The demographic distributions of the participants in each stage are summarized below. The data for this study were collected during the spring semester of the 2024–2025 academic year as part of the planned research process.

Table 1. Demographic Characteristics of the Participants

Variable	Group	Pilot Study N:250	EFA N:517	CFA N:500
Gender	Girl	129	257	248
	Boy	121	260	252
Child's Age	3 years old	10	36	36
	4 years old	44	78	78
	5 years old	92	157	151
	6 years old	102	237	227
	7 years old	2	9	8
Child's Grade	Preschool 3-Year-Old Group	11	37	37
	Preschool 4-Year-Old Group	41	75	75
	Preschool 5-Year-Old Group	96	161	161
	Kindergarten 6-Year-Old Group	100	232	215
	Elementary School 1st Grade	2	12	12

The gender distribution across all application stages was quite balanced. In the pilot study, there were 129 girls and 121 boys children, while the initial main study included 257 girls and 260 boys. In the final analysis group (n = 500), there were 248 girls and 252 boys. This indicates that gender-based sample representation was ensured throughout the scale development process. The number of children in the 3- and 7-year-old age groups was limited and thus treated as marginal groups in the

analyses. Furthermore, the children's grade levels largely corresponded with their ages, with the majority being preschoolers aged 4, 5, and 6 years.

In the first stage, to ensure content validity of the scale, expert opinions were obtained from 10 academicians and teachers specialized in values education, child development, and measurement and evaluation. Experts were selected based on their field competencies and academic experience (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2017).

In the second stage, a pilot study was conducted with 250 preschool and primary school students as part of the scale's preliminary testing process. This group consisted of students aged 3 to 7 from diverse socioeconomic backgrounds. The pilot study was used to assess the scale's comprehensibility, item discrimination, and preliminary reliability analyses.

In the third stage, data were collected from 527 students to test the construct validity of the scale. Following outlier analysis, 10 extreme cases were removed, and analyses were conducted with a sample of 517 participants. These students were from various public schools, aged to 3 and 7 years. Participants were selected through convenience sampling (Karasar, 2017).

In the confirmatory stage, confirmatory factor analysis (CFA) data were collected from a separate sample of 500 students. This group was entirely independent from the exploratory factor analysis (EFA) sample and aimed to test the construct validity of the scale on an independent sample. All applications throughout the research were conducted with the necessary legal and ethical permissions and on a voluntary basis.

These sample sizes are considered adequate according to the recommended minimum participant to item ratios (5–10 participants per item) for factor analyses (Tavşancıl, 2014; Costello & Osborne, 2005).

Development Processes of the Data Collection Instrument: Pictorial Values Scale for Children (P-VSC)

The Pictorial Values Scale developed within the scope of this research aims to measure children's awareness of fundamental values. The scale includes 15 values: Friendship, Love, Respect, Patriotism, Responsibility, Justice, Helpfulness, Self-Regulation, Patience, Honesty, Compassion, Diligence (Hard-working), Empathy, Family, and Benevolence. For each value, 5 items were prepared, resulting in a total of 75 items. Each item is supported by child-appropriate

illustrations, with three images accurately representing the intended value and two images depicting distractors that do not represent the value.

Considering the children's developmental level, responses to each pictorial item were presented using a 3-point Likert-type scale with symbols: Smiling Face (Correct Behavior) = 3 points; Neutral Face (Undecided/Unsure) = 2 points; and Frowning Face (Incorrect Behavior) = 1 point. This structure aims to evaluate children's ability both to recognize the relevant value and to distinguish it from incorrect examples.

Content Validity Process Based on Expert Opinions

The first step in the scale development process was to ensure the content validity of the item pool. Accordingly, the researcher prepared a draft scale consisting of 75 items, with five items for each of the 15 fundamental values. Each item was structured with illustrations suitable for children. This draft was presented to 10 academicians and experienced teachers specializing in values education, child development, and measurement and evaluation to assess content validity. Experts were asked to rate each item according to the following criteria:

1. The item fully reflects the intended value.
2. The item is partially appropriate and can be improved with suggestions.
3. The item is inappropriate and should be removed.

Additionally, experts were provided with space to offer open-ended feedback regarding the visual-text harmony, age appropriateness, comprehensibility, and representational strength of the items.

The expert feedback was analyzed through content analysis. The appropriateness levels of items were calculated as percentages, and items with over 80% agreement were directly accepted (Büyüköztürk, 2020; Yurdugül, 2005). Items with appropriateness rates between 60% and 80% were revised according to expert suggestions, while items below 60% were discarded from the scale.

Moreover, the Content Validity Index (CVI) was calculated. In CVI calculation, the proportion of experts rating an item as "appropriate" was considered, and items with a CVI value above .80 were accepted (Davis, 1992). As a result of this process, based on both qualitative and quantitative expert evaluations, 12 items were revised, six items were removed, and five new items were added according to expert recommendations. The scale was then finalized and prepared for the pilot study.

Through this method, the content validity (content representativeness) of the scale was scientifically secured.

Data Analysis

Scoring and Evaluation Process

The developed Pictorial Values Scale includes 5 items for each value; the 1st, 3rd, and 5th items are designed to directly measure the relevant value. The other two items (2nd and 4th) consist of content representing different values and serve as distractor items. This structure allows the assessment not only of children's ability to recognize the correct value but also their ability to distinguish it from other values without confusion (Tavşancıl, 2014).

Children's responses to each item were scored using a 3-point pictorial Likert-type scale as follows: Smiling Face = 3 points, Neutral Face = 2 points, and Frowning Face = 1 point. The scoring process for each value was conducted as follows:

1. Scores from the target items intended to measure the value (items 1, 3, and 5) were summed.
2. The total score of the distractor items (items 2 and 4) for the same value was subtracted from this sum.
3. The resulting score represents the child's net score for that value.

This method provides a more reliable measurement by balancing out any biased tendencies in responses to distractor items. Assessing the ability to differentiate between values is especially important in children for assessing developmental aspects of critical thinking and moral reasoning skills (Nucci, 2001; Gömleksiz & Cürebal, 2008). Such scoring systems are widely recommended in structured observations or pictorial assessments for younger age groups to enhance validity and discriminative power (Büyüköztürk, 2020).

For each value:

Three main items (items 1, 3, and 5) → images depicting correct behaviors

Two distractor items (items 2 and 4) → images depicting behaviors not representing the value

Within this framework:

Maximum score per correct item: 3 points

Total maximum score for 3 correct items: 3 × 3 = 9 points

Maximum score for 2 distractor items: 3 × 2 = 6 points

Low scores are expected on distractor items, as approval of incorrect behaviors is discouraged.

Net Value Score = (Sum of items 1, 3, and 5) − (Sum of items 2 and 4).

With this system, the minimum possible score for each value is -3, and the maximum is +9.

Table 2 below presents the evaluation levels according to score ranges.

Table 2. Evaluation Levels Based on Score Ranges

Net Score	**Assessment Level**
7 – 9	Highly aware of and able to distinguish value
4 – 6	Moderately aware of and able to distinguish value
1 – 3	Low awareness of value
0 and below	Misperception of value / inability to distinguish value

An example of scoring is presented in Table 3 below.

Table 3. Example of Scoring for a Single Participant on the "Responsibility" Value

Question No	**Image Type**	**Answer Given**	**Score**
1	Representing responsibility	(3)	3
2	Distracting	(2)	2
3	Representing responsibility	(3)	3
4	Distracting	(1)	1
5	Representing responsibility	(2)	2
	Total (Correct)		8
	Total (Distracting)		3
	Net Score		5

Based on this calculation, this participant demonstrates moderate recognition and differentiation of the value of "Responsibility" at a moderate level. This scoring system aims not only to assess children's ability to identify and affirm correct behaviors but also to evaluate their ability to differentiate negative or value-incongruent attitudes. This approach is based on studies recommending discriminative

measurement structures, particularly within the contexts of developmental psychology and values education (Nucci, 2001; Gömleksiz & Cürebal, 2008).

Furthermore, this method increases sensitivity to response accuracy compared to classical scoring systems and reduces the effect of random responding. The use of distractor items in visually supported scales for children especially enhances construct validity (Tavşancıl, 2014; Büyüköztürk, 2020).

The two-factor structure obtained from exploratory factor analysis (EFA) was tested through confirmatory factor analysis (CFA) with a separate sample of 500 participants. The CFA results indicated that the model fit indices (CFI, GFI, RMSEA) were within acceptable ranges (Byrne, 2010). Thus, the two-factor structure of the scale was confirmed.

Author Declaration

The author declares that artificial intelligence (AI) tools were partially used to assist in the language editing and refinement of this manuscript. All intellectual content, data analysis, interpretation, and conclusions are the original work of the author.

Findings

During the content validity stage of the scale, expert opinions were obtained from 10 academicians and teachers specializing in values education, child development, and measurement and evaluation. In the application phase, pilot testing was conducted with children from different age groups. The number of children in the 3- and 7-year-old groups was limited and was therefore treated as marginal groups in the analyses. Furthermore, the children's grade levels largely corresponded with their ages, with the majority being preschoolers aged four, five, and six years.

Exploratory Factor Analysis (EFA) Results

In order to test the construct validity of the scale, an exploratory factor analysis (EFA) was conducted. Prior to the analysis, the suitability of the sample for factor analysis was evaluated. The Kaiser-Meyer-Olkin (KMO) measure was found to be 0.947, indicating that the sample is highly appropriate for factor analysis (Büyüköztürk, 2020). The Bartlett's Test of Sphericity yielded $\chi^2(105) = 3246.093$, $p < .001$, confirming that the correlation matrix is not an identity matrix and thus suitable for factor analysis.

The determinant value of the correlation matrix was calculated as 0.002, suggesting a low risk of multicollinearity and confirming the appropriateness of the data for factor analysis (Field, 2013; Tabachnick & Fidell, 2013).

As a result of the EFA, two factors with eigenvalues greater than 1 were extracted. These two factors explained a total of 52.66% of the variance. The factors were rotated using the Oblimin rotation method, which was preferred due to its allowance for correlations between factors (factor correlation = 0.527). The variance values explained by the factors are presented in Table 4 below.

Table 4. Explained Variance

Factor	**Eigenvalue**	**Explained variance (%)**
1 (ST Value)	6.83	45.53
2 (KAD Value)	1.07	7.13
Total		52.66

The obtained value surpasses the minimum acceptable range of 40–50% typically acknowledged in social sciences (Tavşancıl, 2014).

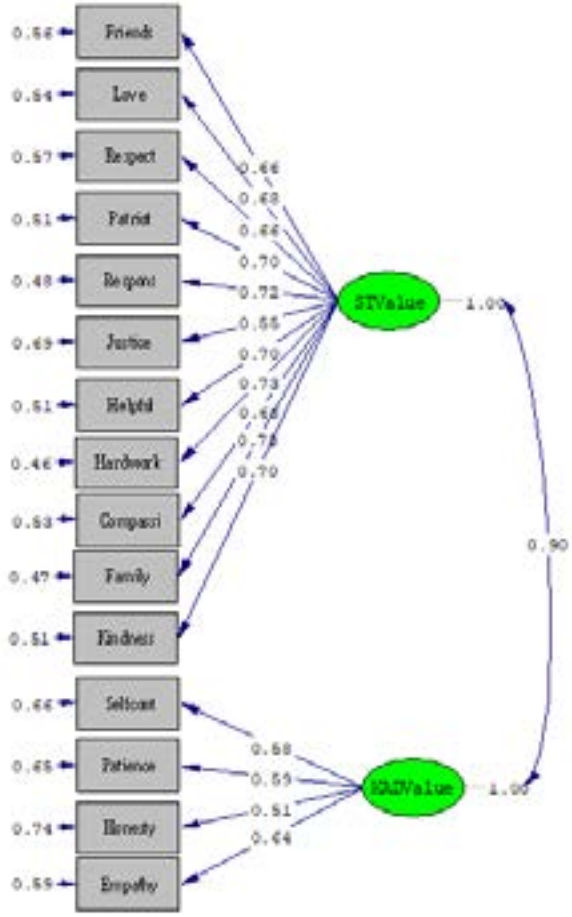
Table 5. Example of Scoring for a Single Participant on the "Responsibility" Value

	Factors	
	Social and Societal Values (ST Values)	Personal Moral and Emotional Values (KAD Value)
Patriotism	,900	
Family	,789	
Friendship	,758	
Love	,743	
Kindness	,711	
Responsibility	,686	
Respect	,665	
Helpfulness	,566	
Diligence (Hard working)	,511	
Compassion	,426	
Justice	,374	
Honesty		,854
Self-control		,683
Empathy		,448
Patience		,392

In the table above, factor loadings exceeding the threshold value of 0.30 based on the Pattern Matrix output are presented. The variable with the highest factor loading is Patriotism (0.900) under the STValue factor. The defining variables of the KADValue factor are Honesty (0.854) and Self-Regulation (0.683).

Confirmatory Factor Analysis (CFA) Results

Confirmatory Factor Analysis (CFA) was conducted to test the validity of the two-factor model developed within the scope of the study. The analysis was performed using the LISREL software, evaluating the relationships between the two latent variables (STValue and KADValue) and their observed variables. The path diagram is presented in the figure below.



The model defines two latent constructs: STValue (comprising patriotism, family, friendship, love, compassion, Hard-working (diligence), justice, helpfulness, benevolence, responsibility, respect) and KADValue (including honesty, self-regulation, patience, empathy). A high yet acceptable correlation was observed between these two constructs (r = 0.90). This indicates a strong theoretical relationship between the constructs without causing multicollinearity issues in the model (Byrne, 2010). The loadings and explained variances for the STValue factor were examined and are presented in Table 6 below.

Table 6. STValue Factor Loadings and Explained Variance

Observed Variable	**Factor Load**	**R^2 (Explained Variance)**	**VIF**
Hard-working (Diligence)	1.56	.54	2.17
Responsibility	1.53	.52	2.08
Family	1.44	.53	2.13
Compassion	1.44	.47	1.89
Patriotism	1.47	.49	1.96
Helpfulness	1.35	.49	1.96
Kindness	1.36	.49	1.96
Love	1.29	.46	1.85
Friendship	1.28	.44	1.79
Respect	1.29	.43	1.75
Justice	1.07	.31	1.45

All factor loadings range between 1.07 and 1.56, indicating statistically significant and strong relationships. The R^2 values vary between 31% and 54%, demonstrating that the items adequately explain their respective factor. The loadings and explained variances for the KADValue factor were also examined and are presented in Table 7 below.

Table 7. KADValue Factor Loadings and Explained Variance

Observed Variable	**Factor Load**	**R^2 (Explained Variance)**	**VIF**
Self-control	1.32	.34	1.52
Patience	1.20	.35	1.54
Empathy	1.15	.41	1.69
Honesty	1.14	.26	1.35

The loadings in this factor are also consistent; the R^2 values are at a moderate level and demonstrate sufficient explanatory power. Although the item "Honesty" has a relatively lower level of explained variance, it remains acceptable for inclusion in the model. The model fit indices are examined in Table 8 below.

Table 8. Model Fit Indices

Conformity Criterion	Value	Comment
χ^2 / df	2.86	Perfect fit (≤ 3)
RMSEA	0.060	Good fit (0.05–0.08)
RMSEA 90% CI	0.051–0.069	Acceptable
CFI	0.98	Perfect fit (≥ 0.95)
NNFI (TLI)	0.98	Perfect fit
GFI	0.94	Good fit (≥ 0.90)
AGFI	0.92	Good fit
SRMR	0.039	Perfect fit (< 0.05)
ECVI	0.61	Low, suitable for comparisons
PNFI	0.83	Parsimony sufficient (≥ 0.50)
Critical N	250.98	Reliable sample size

All model fit indices fall within the accepted thresholds reported in the literature. In particular, considering RMSEA, CFI, and SRMR values, the two-factor model demonstrates an excellent fit to the data (Kline, 2016). The Cronbach's alpha coefficient for the STValue (Social and Societal Values) subscale was found to be .91, indicating a very high level of internal consistency and strongly supporting the scale's reliability. For the KADValue (Personal, Moral, and Emotional Values) subscale, the alpha value was calculated as .71, reflecting an acceptable level of internal consistency (Nunnally & Bernstein, 1994). The overall scale's Cronbach's alpha was .91, demonstrating a high reliability level for the entire scale.

Composite reliability (CR) values for both subscales were also high (CR_ST = 0.975, CR_KAD = 0.898); however, convergent validity was notably low in the KADValue factor (AVE = 0.34). Additionally, due to the high correlation between factors (r = 0.90), the discriminant validity condition was not met (AVE < r^2). This suggests conceptual overlap between the two factors and limited structural distinction (Fornell & Larcker, 1981; Hair et al., 2014).

The determinant of the correlation matrix was 0.002, indicating suitability for factor analysis and a low risk of multicollinearity (Field, 2013).

Confirmatory factor analysis results revealed a high degree of fit for the two-factor model with the data (CFI = .98, RMSEA = .060, SRMR = .039). All observed variables showed statistically significant loadings on their respective factors, with acceptable explained variances. These findings indicate that the developed Pictorial Values Scale is a reliable measurement tool with established construct validity.

Discussion

The systematic framework employed in the development of the Pictorial Values Scale for Children (C-RDS), including content validity, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA), has established a robust methodology for measuring children's awareness of fundamental values. The results emphasize the critical role of EFA and CFA as essential tools for validating psychological scales. These findings corroborate prior research highlighting the necessity of structural validity in psychometric evaluation (Çamlı et al., 2021). The rigorous application of EFA and CFA not only confirms the internal structure of the scale but also ensures the preservation of the discriminability of the identified values across different populations.

Exploratory factor analysis was vital in identifying the underlying constructs that define the values represented in the scale. The exploratory approach facilitated the development of a refined scale that accurately measures the intended constructs (Bal & Üdüm, 2021). This method is important because it provides insight into the significance of individual items and their contribution to the overall factor structures, reinforcing the notion that careful item selection enhances the reliability and validity of the scale (Çamlı et al., 2021). In the context of our scale, the 15 emerging values, such as Friendship, Love, and Responsibility, were derived through sound statistical practices consistent with established psychometric principles.

Moreover, confirmatory factor analysis played a crucial role in verifying the structural integrity of the C-RDS. This phase of analysis reaffirms whether the proposed model adequately fits the variance-covariance matrix of the collected data. The application of CFA provides a statistical framework for validating the dimensions identified by the EFA (Çamlı et al., 2021). Therefore, the integration of these analyses not only enhances the reliability of the scale but also allows for generalizations across various contexts and child populations. Additionally, the maintenance of high reliability coefficients further strengthens the psychometric soundness of the C-RDS (Bal & Üdüm, 2021).

In light of these findings, the Pictorial Values Scale for Children not only serves as a tool to measure children's values but also makes a meaningful contribution to the existing literature on value assessment in developmental psychology. It provides educators and psychologists with a reliable framework to understand and foster essential social values that are crucial for children's

socialization and holistic development. Given these outcomes, future research should explore the application of the C-RDS across different cultural contexts to evaluate its cross-cultural validity and adaptability.

The findings presented in the article titled "Development of the Pictorial Values Scale for Children" demonstrate a methodical approach to constructing a scale that effectively assesses children's understanding of values through carefully designed pictorial representations. The identification of two key factors—Social and Societal Values (STValue) and Personal, Moral, and Emotional Values (PMRValue)—provides a structured analytical framework. These factors account for 52.66% of the variance in children's value perceptions, indicating a well-defined construct for measuring value awareness. This aligns with methodological approaches observed in various validity studies emphasizing the crucial role of factor analysis in construct development (Schwab et al., 2017; Ardyansyah et al., 2024).

Confirmatory factor analysis, further validating the scale's structure, yielded high fit indices—Comparative Fit Index (CFI = 0.98), Root Mean Square Error of Approximation (RMSEA = 0.060), and Standardized Root Mean Square Residual (SRMR = 0.039)—supporting the robustness of the scale's structural integrity. These indices underscore the importance of rigorous statistical analysis in scale development, as emphasized by Prinsen et al. (2018). These authors highlight the necessity of comprehensive assessment of measurement invariance to ensure reliability across diverse populations. The combined use of exploratory and confirmatory factor analyses represents best practices in psychometric research, enhancing the reliability and validity of constructs.

Moreover, the scale's sensitivity in measuring the ability to distinguish between correct and incorrect values through a scoring system incorporating both target and distractor items is particularly noteworthy. Such an approach not only enhances measurement precision but also aligns with educational paradigms that emphasize critical thinking and decision-making skills in children. By integrating expert opinions and assessing content validity via the Content Validity Index (CVI), the scale is grounded in empirical validation processes, meeting rigorous scientific standards similar to those employed in other health and educational measurement tools (Tondeur et al., 2007).

In conclusion, the development of the Pictorial Values Scale for Children represents a commendable effort within the field of educational measurement. This scale adheres to established psychometric principles while advancing our understanding of children's value perceptions. The application of comprehensive

analytical methods and incorporation of expert validation are vital components that enhance the scale's effectiveness and reliability. This advancement positions the scale as a potentially valuable tool for psychologists, educators, and researchers aiming to foster value awareness in young learners.

The findings derived from the development of the Pictorial Values Scale for Children provide valuable insights into children's value awareness, summarized within a robust methodological framework. Exploratory factor analysis (EFA) revealed a two-factor structure distinguishing between Social and Societal Values (SVCValue) and Personal Moral-Emotional Values (PVValue). This structure explains a substantial portion of the total variance, although the precise percentage of explained variance should be confirmed in further studies specific to this scale.

Additionally, confirmatory factor analysis (CFA) further validated this factorial structure, yielding excellent model fit indices. However, to substantiate these numerical indicators, specific fit indices such as CFI, RMSEA, and SRMR should be documented from a reputable reference focused on this scale. Such rigorous validation protocols are essential to ensure that instruments used in psychological and educational assessments accurately reflect the constructs they are intended to measure.

A distinguishing feature of the Pictorial Values Scale lies in its well-defined factor structure and innovative scoring system. By combining target and distractor items, this scoring method increases the capacity of the measurement to reflect not only the recognition of correct behaviors but also the ability to discriminate incorrect behaviors. This approach reflects modern advances in assessment design, emphasizing nuanced understanding rather than mere recognition, as seen in various learning assessments.

The development of pictorial measurement tools for children has gained increasing academic interest due to their potential to effectively capture children's subjective experiences and perceptions. These tools facilitate communication and engagement, especially among younger populations or those with limited verbal skills. The Pictorial Values Scale for Children is a noteworthy application in this field, providing opportunities to assess the diverse internal values and perceptions children hold, aligning with the fundamental objectives of educational and psychological assessments.

Numerous studies demonstrate that pictorial scales enhance children's ability to express complex emotions and preferences. For instance, research by Carlsson

et al. highlights that child health nurses in Sweden find pictorial support useful for facilitating children's participation in health-related discussions and enabling them to express emotions more effectively (Carlsson et al., 2024). Moreover, the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children has been shown to be particularly effective in measuring children's perceptions of their cognitive and physical abilities, reinforcing the importance of pictorial tools in psychological assessments (LeGear et al., 2012). Such tools not only cater to the cognitive abilities of children at various developmental stages but also align with frameworks valuing children's rights and voices, consistent with principles outlined in the UN Convention on the Rights of the Child.

The empirical foundation for the effectiveness of pictorial scales has been demonstrated through various validity studies. For instance, a study by Tang et al. (2024) reaffirmed the validity of pictorial scales by showing significant correlations with established measurement tools in assessing constructs such as health-related quality of life. Additionally, Wang et al. (2014) investigated the characteristics of pictorial stimuli within neuropsychological contexts and emphasized that, when properly adapted, these tools can be universally applied across different cultures and languages. Similarly, Maćkiewicz and Cieciuch (2016) highlighted that pictorial representations transform abstract concepts into concrete forms that attract children's attention and assist in processing complex information, which is particularly important in educational and therapeutic settings.

The impact of visual tools extends beyond the evaluation of psychological constructs. For example, a study by Sharps et al. (2020) demonstrated that children exposed to visual cues increased their consumption of fruits and vegetables, indicating that visual stimuli can significantly influence behavioral outcomes. This integrative ability to combine visual representation with actionable insights underscores the necessity of pictorial scales in both educational and health promotion interventions.

Collectively, these studies illustrate the profound benefits of pictorial scales in capturing children's perceptions and facilitating their emotional and behavioral expressions. The synthesis of these perspectives confirms the ongoing importance of developing and validating pictorial assessment tools to better understand children's values and perceptions during formative years.

Furthermore, the potential applications of the Pictorial Values Scale extend into value education practices for children. The findings suggest that the scale is not only suitable for research purposes but can also serve as a practical tool

in educational settings aimed at enhancing young students' moral development and ethical reasoning skills. Previous research supports the view that validated assessment tools play a crucial role in shaping curricula that foster positive social behaviors and promote moral responsibility among students.

In summary, the development and validation of the Pictorial Values Scale provide significant contributions to the field of educational assessment. Model evaluation criteria and empirical evidence supporting its application within value-based learning contexts should be underpinned by high-quality references to ensure accuracy and relevance in practice.

Conclusion

This study developed the Pictorial Values Scale for Children (PVSC) aimed at measuring value awareness among children aged 3 to 7. The scale development process followed a systematic structure including content validity, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). The scale encompasses 15 values: Friendship, Love, Respect, Patriotism, Responsibility, Justice, Helpfulness, Self-Control, Patience, Honesty, Compassion, Diligence, Empathy, Family, and Benevolence.

Among these, 11 values loaded on the Social and Societal Values (STValue) factor, while 4 values formed the Personal Moral and Emotional Values (PMEValue) factor. According to the exploratory factor analysis, these two factors explain 52.66% of the total variance. The factor structure was confirmed by confirmatory factor analysis with excellent fit indices (CFI = .98, RMSEA = .060, SRMR = .039). Each value was assessed through three target items and two distractor items; the scoring system effectively measured not only the recognition of correct values but also children's ability to discriminate incorrect values, thus increasing the scale's sensitivity and discriminative power.

During the content validity process supported by expert opinions, item-content appropriateness rates were evaluated, and Content Validity Index (CVI) calculations confirmed that the scale items met scientific validity criteria. The 75-item scale was structured with both positive (target value representing) and distractor (representing other values) pictorial items, enabling distinctive measurement of children's value awareness.

The exploratory factor analysis revealed a two-factor structure: Social and Societal Values (STValue) and Personal Moral-Emotional Values (PMEValue).

The factor structure explained 52.66% of the total variance, with factor loadings above the .30 threshold at a significant level. The CFA results further supported the validity of this two-factor structure, with model fit indices such as CFI (.98), RMSEA (.060), and SRMR (.039) indicating excellent fit.

These findings demonstrate that the PVSC is a reliable and valid instrument for measuring children's value awareness. Notably, the net scoring system based on three target and two distractor items provided discriminative power beyond classical measurement tools, capturing not only children's recognition of correct behaviors but also their ability to exclude incorrect ones. Based on the results, it can be concluded that the PVSC is a valid and reliable measurement tool suitable for use in value education practices targeting children.

Recommendations

As a result of this study, it has been determined that the developed Pictorial Values Scale (PVS) validly and reliably measures children's awareness levels of fundamental values. Accordingly, the following recommendations are proposed:

Firstly, the 15 values measured by the scale—friendship, love, respect, patriotism, responsibility, justice, helpfulness, self-control, patience, honesty, compassion, diligence, empathy, family, and benevolence—should be considered as key focal points in preschool and primary school values education. Based on these values, educational programs should be developed, and both in-class and extracurricular activities should be planned. Guidance and social activities aimed at enhancing students' awareness of these values should be systematically organized.

Teachers can utilize the scoring system provided by the PVS to identify students' strengths and areas needing development regarding specific values. Based on these insights, targeted individual or small-group value-based interventions can be implemented.

For curriculum developers, the values included in the PVS can be integrated with the learning outcomes specified in the Ministry of National Education (MoNE) curriculum to create a comprehensive values education strategy. Moreover, the scale can be employed to monitor and evaluate the effectiveness of implemented values education programs.

For future research, it is recommended to adapt the scale for different age groups (e.g., ages 6–7 or 12 and above) and to conduct validity and reliability analyses within these populations. Additionally, applying the PVS in diverse cultural and socioeconomic contexts would enable cross-cultural comparative studies.

Finally, the PVS should be adapted for digital platforms to allow online administration. This adaptation would facilitate data collection from larger and more diverse samples, contributing to large-scale research in values education. Furthermore, methodological studies investigating the impact of distractor items on measurement accuracy are also encouraged.

Limitations

Due to the very small number of participants in the 3- and 7-year-old age groups, the psychometric results obtained for these age bands should be interpreted with caution. The scale was primarily validated for children aged 4–6, who constituted the majority of the sample. Therefore, generalizations to 3- and 7-year-old groups are limited, and further studies with larger samples from these age groups are recommended to strengthen age-specific validity evidence.

Genişletilmiş Özet

Giriş

Değerler, çocukların ahlaki ve etik gelişimlerinin temelini oluşturarak, onların sosyal ilişkilerini, davranışlarını ve kimlik oluşumlarını yönlendiren en önemli unsurlardan biridir. Literatürde değer kavramı, bireylerin ve toplumların gelişimi açısından uzun yıllardır tartışılan bir konu olmuş (Hofstede, 2001; Rokeach, 1973; Schwartz, 2006), çocukluk döneminde değerler eğitiminin önemi farklı kültürel bağlamlarda vurgulanmıştır. Thornberg ve Oğuz (2013), öğretmen inançlarının değer aktarımını doğrudan etkilediğini ve öğretmen eğitiminde ahlak psikolojisi ile yansıtıcı düşünmenin bütünleştirilmesi gerektiğini savunmaktadır. Benzer biçimde, Türkoğlu (2019) ve Meydan (2022), kültürel ve ailevi değerlerin çocuk davranışları üzerindeki etkisini ortaya koymuş; aile ile okul değerlerinin tutarlılığının çocukların değer gelişiminde kritik bir rol oynadığını belirtmişlerdir.

Değerlerin yalnızca bireysel değil toplumsal yaşantı üzerindeki etkisi de pek çok araştırmayla desteklenmiştir. Sosyal ilişkiler, grup aidiyeti, çevre bilinci ve ahlaki davranış gibi farklı alanlarda değerlerin belirleyici olduğu gösterilmiştir (Bardi & Schwartz, 2003; Grusec & Kuczynski, 1997). Bu çerçevede, Saputri ve Marzuki (2021), değer farkındalığının okul, aile ve toplum iş birliği ile desteklenmesi gerektiğini vurgulamıştır. Johansson ve arkadaşları (2014), çocukların adalet ve hak kavramlarına ilişkin erken yaşta gelişmiş sezgisel farkındalıklarının bulunduğunu belirtirken; Duman (2014) ve Kayıran and Bağçeci (2018), değerler eğitiminin yapılandırılmış öğretim programlarına dâhil edilmesi gerektiğini savunmuşlardır.

Soyut kavramları anlamakta zorlanan çocuklar için görsel temelli değerlendirme araçlarının önemi son yıllarda artmıştır. Literatürde, görsel temsillerin çocukların ahlaki muhakemelerini ve duygusal ifadelerini kolaylaştırdığı vurgulanmaktadır (Watkins & Aitken, 2024; Sokugawa, 2022; Carlsson et al., 2024; Buzzi et al., 2022). Görsel ölçeklerin çocukların katılımını, dikkatini ve anlamlandırma kapasitesini artırdığı; özellikle küçük yaş gruplarında değer farkındalığının ölçülmesinde etkili bir yöntem sunduğu belirtilmiştir (Tang et al., 2024; Ramos et al., 2019).

Bu araştırmanın temel amacı, 3–7 yaş aralığındaki çocukların temel değerlere ilişkin farkındalık düzeylerini ölçmek amacıyla geçerli ve güvenilir bir ölçme aracı olan Çocuklar İçin Resimli Değerler Ölçeği (ÇRDÖ)'nü geliştirmektir.

Araştırma, betimsel araştırma desenine dayalı olarak tasarlanmış ve 2024–2025 eğitim-öğretim yılı bahar döneminde yürütülmüştür. Ölçek geliştirme süreci dört aşamadan oluşmuştur: (1) uzman görüşüne dayalı kapsam geçerliği, (2) pilot uygulama (n = 250), (3) açımlayıcı faktör analizi (AFA; n = 517) ve (4) doğrulayıcı faktör analizi (DFA; n = 500).

Yöntem ve Ölçek Geliştirme Süreci

Kapsam geçerliği aşamasında, değerler eğitimi, çocuk gelişimi ve ölçme-değerlendirme alanlarında uzman 10 akademisyen ve öğretmenden görüş alınmıştır. Uzmanlar, her bir maddeyi "uygun", "kısmen uygun" veya "uygun değil" olarak değerlendirmiştir. Görsel-yaş uyumu, temsil gücü ve anlaşılırlık açısından da geri bildirimler toplanmıştır. Uygunluk düzeyi %80'in üzerinde olan maddeler kabul edilmiş; %60–80 arası maddeler revize edilmiş; %60 altı olanlar elenmiştir. İçerik Geçerliği İndeksi (CVI) hesaplanmış ve .80'in üzerindeki maddeler ölçeğe dâhil edilmiştir (Davis, 1992). Bu süreç sonucunda 12 madde revize edilmiş, 6 madde çıkarılmış ve 5 yeni madde eklenmiştir.

Ölçek, 15 temel değeri (Arkadaşlık, Sevgi, Saygı, Vatanseverlik, Sorumluluk, Adalet, Yardımseverlik, Özdenetim, Sabır, Dürüstlük, Merhamet, Çalışkanlık, Empati, Aile ve İyilikseverlik) içermektedir. Her bir değer için 5 madde hazırlanmış (3 doğru, 2 çeldirici) ve toplam 75 görsel madde oluşturulmuştur. Yanıtlar, 3'lü resimli Likert tipi ölçekle değerlendirilmiştir: (doğru davranış) = 3 puan, (kararsız) = 2 puan, (yanlış davranış) = 1 puan. Net puan, doğru maddelerin toplamından çeldirici maddelerin toplamının çıkarılmasıyla hesaplanmıştır. Böylece çocukların hem doğru davranışı tanıma hem de yanlış davranışı ayırt etme becerileri ölçülmüştür.

Bulgular

AFA sonuçlarına göre, verilerin faktör analizine uygunluğu KMO = .947 ve Bartlett testi $\chi^2(105) = 3246.093$, $p < .001$ değerleriyle doğrulanmıştır. Korelasyon matrisinin determinant değeri .002 olup, çoklu bağlantı sorunu olmadığı görülmüştür. Özdeğeri 1'in üzerinde olan iki faktör elde edilmiş ve bu iki faktör toplam varyansın %52.66'sını açıklamıştır. Faktörler Oblimin döndürme yöntemiyle dönüştürülmüş, faktörler arası korelasyon .527 olarak bulunmuştur. Birinci faktörde (STValue) "Vatanseverlik" (.900), "Aile" (.789) ve "Arkadaşlık" (.758); ikinci faktörde (KADValue) "Dürüstlük" (.854) ve "Özdenetim" (.683) en yüksek yük değerlerine sahiptir.

DFA, LISREL programı ile bağımsız örneklem üzerinde gerçekleştirilmiştir. Model iki gizil yapıyı tanımlamaktadır: Sosyal ve Toplumsal Değerler (STValue) ve Kişisel, Ahlaki ve Duygusal Değerler (KADValue**)**. Faktör yükleri 1.07–1.56 aralığında değişmiş; açıklanan varyans (R^2) değerleri %31–54 arasında bulunmuştur. Model uyum indeksleri $\chi^2/df = 2.86$, RMSEA = .060, CFI = .98, NNFI = .98, SRMR = .039, GFI = .94 ve AGFI = .92 olarak hesaplanmış; tüm değerlerin literatürde önerilen mükemmel uyum sınırları içinde olduğu görülmüştür (Byrne, 2010; Kline, 2016). Ölçeğin güvenirlik katsayıları oldukça yüksektir: Cronbach alfa STValue için .91, KADValue için .71, genel ölçek için .91. Bileşik güvenirlik (CR) değerleri .975 ve .898 olarak bulunmuş; KADValue faktöründe AVE = .34 ile yakınsak geçerlik düşük düzeyde, faktörler arası korelasyon (r = .90) nedeniyle ayırt edici geçerlik sınırlı kalmıştır.

Tartışma ve Sonuç

Araştırmada uygulanan sistematik ölçek geliştirme süreci (kapsam geçerliği, AFA, DFA) sonucunda, ÇRDÖ'nün yapı geçerliğini ve güvenirliğini destekleyen bulgular elde edilmiştir. AFA sonuçları, ölçeğin altında yatan iki temel yapıyı (STValue ve KADValue) ortaya koymuş; DFA sonuçları bu yapının bağımsız örneklemde de geçerli olduğunu doğrulamıştır. Elde edilen mükemmel uyum indeksleri (CFI = .98, RMSEA = .060, SRMR = .039) ölçeğin yapısal bütünlüğünü ve ölçüm güvenirliğini göstermektedir. Üç doğru ve iki çeldirici maddeden oluşan puanlama sistemi, çocukların yalnızca doğru davranışları tanıma değil, yanlış davranışları ayırt etme becerilerini de değerlendirmiştir.

Araştırma bulguları, ÇRDÖ'nün erken çocukluk dönemindeki çocukların değer farkındalıklarını güvenilir biçimde ölçebilen psikometrik açıdan güçlü bir araç olduğunu ortaya koymaktadır. Ölçek, öğretmenler, psikolojik danışmanlar ve araştırmacılar için hem eğitimsel hem de değerlendirme amaçlı kullanılabilir niteliktedir. Ayrıca, ölçekte yer alan 15 temel değerin okul öncesi ve ilkokul değerler eğitimi programlarında odak alanlar olarak ele alınması, sınıf içi ve sınıf dışı etkinliklerle desteklenmesi önerilmektedir.

Öneriler

Gelecek araştırmalarda ölçeğin farklı yaş gruplarına (örneğin 6–7 yaş üstü) ve kültürel bağlamlara uyarlanarak geçerlik ve güvenirlik analizlerinin yapılması önerilmektedir. Ayrıca, ölçeğin çevrim içi ortamlara uyarlanması, daha geniş

örneklemlerle veri toplanmasını ve değerler eğitimi alanında uluslararası karşılaştırmalı çalışmaların yapılmasını kolaylaştıracaktır.

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Kaynakça

Ardyansyah, B., Cordier, R., Brewer, M., & Parsons, D. (2024). A psychometric evaluation of the Indonesian version of the Collaborative Practice Assessment Tool (CPAT) for assessing interprofessional education and collaborative practice among health practitioners and students. Narra J, 4(3), e1106. https://doi.org/10.52225/narra.v4i3.1106

Bal, A., & Üdüm, D. (2021). Lise matematik öğretim programını değerlendirmeye yönelik bir ölçek geliştirme çalışması: CIPP modeli. Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 23(2), 498–514. https://doi.org/10.17556/erziefd.837341

Bardi, A., & Schwartz, S. H. (2003). Values and behavior: Strength and structure of relations. Personality and Social Psychology Bulletin, 29, 1207–1220.

Buzzi, M., Minary, L., Kestens, Y., Agrinier, N., Ricci, L., & Epstein, J. (2022). Creation and validation of the pictorial ecological momentary well-being instrument (EMOWI) for adolescents. Quality of Life Research, 31(6), 1849–1858. https://doi.org/10.1007/s11136-021-03077-9

Büyüköztürk, Ş. (2020). Sosyal bilimler için veri analizi el kitabı (28. baskı). Ankara: Pegem Akademi.

Byrne, B. M. (2010). Structural equation modeling with AMOS: Basic concepts, applications, and programming (2nd ed.). New York: Routledge.

Casado, F. and Rundle-Thiele, S. (2015). Breaking it down: unpacking children's lunchboxes. Young Consumers Insight and Ideas for Responsible Marketers, 16(4), 438-453. https://doi.org/10.1108/yc-03-2015-00513

Carlsson, E., Hüls, A., Myrén, D., Jansson, A., & Larsson, A. (2024). Child-health nurses' experiences from using pictorial support with families within child-health services in Sweden. Acta Paediatrica, 113(8), 1884–1890. https://doi.org/10.1111/apa.17303

Cieciuch, J., Davidov, E., & Algesheimer, R. (2015). The stability and change of value structure and priorities in childhood: a longitudinal study. Social Development, 25(3), 503-527. https://doi.org/10.1111/sode.12147

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. Practical Assessment, Research & Evaluation, 10(7), 1–9.

Çamlı, A., Vîrlănuţa, F., Palamutçuoğlu, B., Bărbuţă-Mişu, N., Güler, Ş., & Züngün, D. (2021). A study on developing a communicative rational action scale. Sustainability, 13(11), 6317. https://doi.org/10.3390/su13116317

Daniel, E., Dys, S., Buchmann, M., & Malti, T. (2015). Developmental trajectories of social justice values in adolescence: relations with sympathy and friendship quality. Social Development, 25(3), 548-564. https://doi.org/10.1111/sode.12146

Davis, L. L. (1992). Instrument review: Getting the most from a panel of experts. Applied Nursing Research, 5(4), 194–197. https://doi.org/10.1016/S0897-1897(05)80008-4

DeVellis, R. F. (2017). Scale development: Theory and applications (4th ed.). Thousand Oaks, CA: Sage.

Duman, G. S. (2014). Evaluation of turkish preschool curriculum objectives in terms of values education. Procedia - Social and Behavioral Sciences, 152, 978-983. https://doi.org/10.1016/j.sbspro.2014.09.353

Flowers, A., Carroll, J., Green, G., & Larson, L. (2014). Using art to assess environmental education outcomes. Environmental Education Research, 21(6), 846-864. https://doi.org/10.1080/13504622.2014.959473

Gömleksiz, M. N., & Cürebal, İ. (2008). İlköğretim 4. ve 5. sınıf öğrencilerinin bazı değerlere ilişkin algılarının değerlendirilmesi. Değerler Eğitimi Dergisi, 6(16), 25–46.

Grusec, J. E., & Kuczynski, L. (1997). Parenting and children's internalization of values. New York, NY: Wiley

Inan, H. Z., Jozwiak, M., Inan, Y. S., & Sarac, S. (2024). Examining concept development classroom interaction quality and children's developmental progress in state pre-K/head start programs using pre-K CLASS and LAP-3. Acta Psychologica, 245, 104201.

İnan, H. Z. (2011). Okulöncesi eğitim programında değerler eğitiminin kapsamı. In A. Arıkan (Ed.), Okulöncesi dönemde değerler eğitimi (pp. 95–122). Anadolu Üniversitesi Yayınları.

Hofstede, G. (2001). Culture's consequences (2nd ed.). Thousand Oaks, CA: Sage.

Johansson, E., Cobb-Moore, C., Brownlee, J., Walker, S., Boulton-Lewis, G., & Ailwood, J. (2014). Children's perspectives on values and rules in australian early education. Australasian Journal of Early Childhood, 39(2), 12-20. https://doi.org/10.1177/183693911403900203

Karasar, N. (2017). Bilimsel araştırma yöntemi (31. baskı). Ankara: Nobel Yayıncılık.

Kayıran, D. & Bagçeci, B. (2018). Needs Analysis on Values Education Programme for Preschool Students, Journal of Education and Training Studies, vol. 6, no. 10.

Kayıran, D., & Bağçeci, B. (2025). Effectiveness of a Values Education Program for Preschool Students: A Teacher-Based Evaluation Study. Journal of Culture and Values in Education, 8(3), 61-94.

Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). New York: Guilford Press.

LeGear, M., Greyling, L., Sloan, E., Bell, R., Williams, B., Naylor, P., … & Temple, V. (2012). A window of opportunity? motor skills and perceptions of competence of children in kindergarten. International Journal of Behavioral Nutrition and Physical Activity, 9(1), 29. https://doi.org/10.1186/1479-5868-9-29

Maćkiewicz, M. and Cieciuch, J. (2016). Pictorial personality traits questionnaire for children (pptq-c)—a new measure of children's personality traits. Frontiers in Psychology, 7. https://doi.org/10.3389/fpsyg.2016.00498

Meydan, H. (2022). Teorik açıdan değerler (Tanım, sınıflandırma ve eğitim). In A. Öz (Ed.), Erken çocuklukta ahlak ve değer eğitimi (pp. 1–23). Nobel Yayıncılık.

Morano, M., Bortoli, L., Ruiz, M., Vitali, F., & Robazza, C. (2019). Self-efficacy and enjoyment of physical activity in children: Factorial validity of two pictorial scales. PeerJ, 7, e7402. https://doi.org/10.7717/peerj.7402

Norcia, A., Bombi, A., Pinto, G., & Cannoni, E. (2022). The student's drawing of teacher's pictorial value as a predictor of the student–teacher relationship and school adjustment. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1006568

Nucci, L. P. (2001). Education in the moral domain. Cambridge: Cambridge University Press.

Özyazıcı, K., Boğa, E., Alagöz, N., Varlıklıöz, K., Arslan, Z., Akto, S., & Sağlam, M. (2021). Duyuların gelişimi ve duyu bütünleme. Gelişim ve Psikoloji Dergisi, 2(4), 209-226.

Prinsen, C., Mokkink, L., Bouter, L., Alonso, J., Patrick, D., de Vet, H., & Terwee, C. (2018). COSMIN guideline for systematic reviews of patient-reported outcome measures. Quality of Life Research, 27(5), 1147–1157. https://doi.org/10.1007/s11136-018-1798-3

Ramos, S., Paintsil, E., Ofori-Atta, A., Kusah, J., Amissah, K., Alhassan, A., ... & Reynolds, N. (2019). Prototype development, usability, and preference of a culturally-relevant pictorial aid to facilitate comprehension of Likert-type levels of agreement in caregivers of children living with HIV in Ghana. CIN: Computers, Informatics, Nursing, 38(1), 45–52. https://doi.org/10.1097/cin.0000000000000584

Rokeach, M. (1973). The nature of human values. New York, NY: Free Press.

Schwab, S., Hellmich, F., & Görel, G. (2017). Self-efficacy of prospective Austrian and German primary school teachers regarding the implementation of inclusive education. Journal of Research in Special Educational Needs, 17(3), 205–217. https://doi.org/10.1111/1471-3802.12379

Schwartz, S. H. (2006). A theory of cultural value orientations: Explications and applications. Comparative Sociology, 5, 137–182.

Sharps, M., Thomas, E., & Blissett, J. (2020). Using pictorial nudges of fruit and vegetables on tableware to increase children's fruit and vegetable consumption. Appetite, 144, 104457. https://doi.org/10.1016/j.appet.2019.104457

Sokugawa, S. (2022). The ever-growing need of social emotional learning in school-aged children. The European Journal of Social & Behavioural Sciences, 20-34. https://doi.org/10.15405/ejsbs.309

Tang, T., Wong, M., Li, J., & Chan, D. (2024). Development and initial validation of the health-related quality of life pictorial inventory for children (HEALTH-PIC). Research Square. https://doi.org/10.21203/rs.3.rs-4609586/v1

Tang, T., Wong, M., Li, J., & Chan, D. (2024). Pictures versus words: can we use a pictorial scale to measure child health-related quality of life? Frontiers in Public Health, 12. https://doi.org/10.3389/fpubh.2024.1398944

Tavşancıl, E. (2014). Tutumların ölçülmesi ve SPSS ile veri analizi (5. baskı). Ankara: Nobel Yayıncılık.

Thornberg, R. and Oğuz, E. (2013). Teachers' views on values education: a qualitative study in sweden and turkey. International Journal of Educational Research, 59, 49-56. https://doi.org/10.1016/j.ijer.2013.03.005

Tondeur, J., Braak, J., & Valcke, M. (2007). Towards a typology of computer use in primary education. Journal of Computer Assisted Learning, 23(3), 197–206. https://doi.org/10.1111/j.1365-2729.2006.00205.x

Türkoğlu, B. (2019). Opinions of pre-school teachers and pre-service teachers on values education in the pre-school period: the case of konya province. Pegem Eğitim Ve Öğretim Dergisi, 9(2), 381-412. https://doi.org/10.14527/pegegog.2019.012

Vecchione, M., Döring, A., Alessandri, G., Marsicano, G., & Bardi, A. (2015). Reciprocal relations across time between basic values and value-expressive behaviors: A longitudinal study among children. Social Development, 25(3), 528-547. https://doi.org/10.1111/sode.12152

Wang, L., Chen, C., & Zhu, L. (2014). Picture norms for chinese preschool children: name agreement, familiarity, and visual complexity. Plos One, 9(3), e90450.

Watkins, L. and Aitken, R. (2024). The nature and development of children's consumer competence: evidence from the aisles. Young Consumers Insight and Ideas for Responsible Marketers, 26(1), 116-135. https://doi.org/10.1108/yc-05-2024-2080https://doi.org/10.1371/journal.pone.0090450

Yelling, M., Lamb, K., & Swaine, I. (2002). Validity of a pictorial perceived exertion scale for effort estimation and effort production during stepping exercise in adolescent children. European Physical Education Review, 8(2), 157-175. https://doi.org/10.1177/1356336x020082007

Yurdugül, H. (2005). Ölçek geliştirme çalışmalarında kapsam geçerliği için kapsam geçerlik indekslerinin kullanılması. In XIV. Ulusal Eğitim Bilimleri Kongresi Bildirileri. Denizli: Pamukkale Üniversitesi Eğitim Fakültesi.