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VALIDITY AND RELIABILITY STUDY OF THE PROBLEM SOLVING INVENTORY FOR CHILDREN (PSIC) IN PRIMARY EDUCATION

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Abstract

The purpose of this study is an updated revision of the "Problem-Solving Inventory for Children" (PSIC)—designed to measure primary school students' self-perceptions regarding their problem-solving skills—and to conduct a validity and reliability analysis of the instrument. The study sample consisted of 748 primary school students (55.21% girls, n=413; 44.79% boys, n=335) selected via random sampling from various socio-economic regions in the Turkish Republic of Northern Cyprus and the Republic of Türkiye (Izmir province). Following the revision and the validity and reliability analysis, the final instrument was found to comprise 24 items distributed across three factors: "Confidence in Problem-Solving Skills" (12 items), "Self-Control" (7 items), and "Avoidance" (5 items). The Cronbach's alpha reliability coefficient for the entire inventory was determined to be .92. It is believed that this research will contribute to future studies on problem-solving skills among primary school students.

Keywords: problem-solving skills, perception levels, primary school students

INTRODUCTION

A problem is widely understood as an obstacle encountered while pursuing a goal, requiring navigation through cognitive and behavioral shifts (Bingham, 1983; Schoenfeld & Sloane, 2016). For upper-primary students (4th grade) and middle schoolers (grades 5, 6, 7, and 8)—who are navigating rapid developmental changes—these barriers span complex academic demands, social dynamics, and identity exploration (Davor et al., 2026). When facing such situations, young adolescents frequently transition from relying on familiar family routines and teacher-led directions toward building self-regulatory and metacognitive strategies (Karasar, 2005; Al Qatawneh & Al Zaq, 2024; Davor et al., 2026). Problem-solving refers to the cognitive, affective, and behavioral process a student undergoes—from the moment they recognize a difficulty in achieving a goal until they find a solution (Ülküer, 1988; D'Zurilla & Goldfried, 1971). For students aged 10–14—a period characterized by the emergence of abstract thinking skills and the search for identity—this process aims to facilitate adaptation to environmental conditions, reduce school-related anxiety, and restore internal balance (İlgün et al., 2024; Serin, 2025).

Children with underdeveloped problem-solving skills and low academic self-efficacy frequently experience heightened cognitive load, emotional strain, and test- or peer-related anxiety, as lower

confidence directly impairs strategy deployment and task persistence (Jerah et al., 1993; Arslan, 2020; Nurhidayah et al., 2026; Rizal et al., 2026). These cognitive and behavioral patterns are heavily shaped by developmental contexts—spanning from upper elementary through middle school—as well as family and school environments (Choi & Hannafin, 1995; Nurhidayah et al., 2026). While foundational problem-solving capacities can be systematically cultivated through targeted pedagogical approaches like problem-based learning (Larkin et al., 1980; Rizal et al., 2026), formal curricula remain tightly bound to rigid, exam-centric paradigms (such as high-stakes high school transition systems) that prioritize decontextualized rote memorization over functional reasoning (Ataizi, 1999; Ulusoy & Şahiner, 2017; Nurhidayah et al., 2026). Fostering real-world adaptability requires shifting instruction toward active metacognitive regulation and independent problem formulation rather than the mechanical recall of formulas (Özbay, 2002; Kavak & Baysal, 2022; Rizal et al., 2026; Nurhidayah et al., 2026).

Within the Turkish national education system, the lack of systematic training for resolving interpersonal conflicts in school environments—particularly during the middle school years, when children begin their transition into adolescence—represents a significant area of concern. A substantial portion of peer bullying or communication issues in schools can escalate into the use of force and coercion—an ineffective method for conflict resolution (Kenç, 2004; Korkut-Owen & Çelik, 2018). Although educators recognize the development of problem-solving skills as a fundamental objective of primary and middle school education (Aşkar, 1988), limited time is still allocated to the direct instruction of these skills or to related guidance activities in today's classroom settings (Terzi, 2024). The core mission of primary and middle school education is to cultivate generations who are not merely individuals trained to solve test questions, but rather individuals who can question and produce knowledge, identify problems, and resolve them in a constructive manner (Fidan & Erden, 1997; Serin et al., 2012; Fidan & Serin, 2021; Ozdemir & Gelbal, 2022).

Problem-solving skills, which begin to take root during childhood, start to mature from the fourth grade onward as cognitive schemas expand (Miller & Nunn, 2001). It has been observed that students in grades 4 through 8 who perceive themselves as competent in problem-solving tend to be more assertive in their interpersonal relationships, possess a higher self-perception, and employ more effective academic study methods (Şahin et al., 1993; Saygılı & Atahan, 2014). Topses (2006) describes this process—which children at the basic education level should develop—as consisting of four fundamental stages: understanding the problem, planning a solution, executing the plan, and evaluating the results. Students who are effective problem-solvers are characterized as individuals capable of independent and creative thinking, possessing high social competence, and demonstrating the ability to tolerate new or ambiguous situations (Dow & Mayer, 2004). For students in this age group to initiate the problem-solving process, they must first accept their role within the problem; approaches that involve avoiding responsibility hinder both academic and social development (Raphel, 2003; Güçlü, 2019).

The purpose of this study is to revise the Children's Problem Solving Inventory for Primary School Students (PSIC) and conduct its validity and reliability study, which measures primary school students' self-perception levels regarding problem-solving skills.

METHOD

This study involves the revision of the "Problem-Solving Inventory for Children" (PSIC) for the primary education level, as well as an assessment of its validity and reliability. The revision process for the measurement instrument included Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and an analysis of its validity and reliability.

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Study Group

The study group consists of 748 students—55.21% female (n=413) and 44.79% male (n=335)—selected via random sampling from various socio-economic regions within the Turkish Republic of Northern Cyprus and the Republic of Türkiye (Izmir province).

Content Validity

A content validity study is necessary to examine whether a scale is appropriate for its intended measurement purpose and whether it effectively represents the construct it aims to measure. Content validity serves as an indicator of whether the items comprising a test are sufficient — in terms of both quantity and quality — to measure the intended construct (Büyüköztürk, 2006). To ensure content validity for the revision of the scale, the opinions of three academic experts and three classroom teachers were sought regarding the suitability of the scale items for the construct being measured. In light of these expert opinions, it was decided that the "Problem-Solving Inventory for Children (PSIC) — originally developed by Serin et al. (2010) and consisting of 24 items across three subscales ("confidence in problem-solving skills" [12 items], "self-control [7 items]", and "avoidance [5 items]") — would be more appropriately administered using a 3-point Likert scale rather than the original 5-point Likert scale. Each item is rated on a three-point scale: "I would never act this way (1)", "I sometimes behave this way (2)", and "I always behave this way (3)".

Implementation Process

The revision of the scale was conducted using data obtained from 748 students 55.21% female, (n = 413); 44.79% male, (n = 335) selected via random sampling from various socio-economic regions in the Turkish Republic of Northern Cyprus (TRNC) and the Republic of Türkiye (Izmir province). Data from students who completed the scale carelessly, responded insincerely, or made erroneous markings were excluded from the analysis. Sample size adequacy was evaluated based on established psychometric guidelines (Kline, 2000; Kline, 2018; Tabachnick & Fidell, 2001; Kyriazos, 2018). While traditional thresholds suggest that a sample size of 300 is adequate and 1,000 is optimal for factor analysis (Comrey & Lee, 2013), contemporary methodological studies emphasize that sample adequacy also depends on communalities and item-to-factor ratios rather than fixed numbers alone (MacCallum et al., 1999; Wolf et al., 2013).

Information regarding the gender and grade levels of the students in the sample is presented in Table 1. The “Problem-Solving Inventory for Children,” which consists of 24 items, was administered to 748 primary school students within the sample group during a single class period.

The revision of the scale was conducted using data obtained from 748 students—55.21% female (n=413) and 44.79% male (n=335)—selected via random sampling from various socio-economic areas in the Turkish Republic of Northern Cyprus and Republic of Türkiye (Izmir province). Data from students who completed the scale carelessly, failed to respond sincerely, or made erroneous markings were excluded from the study. In determining the sample size, the criteria for factor analysis established by Kline (2000) and Tabachnick and Fidell (2001) were taken into account. According to these authors, a sample size of fewer than 100 should be avoided for factor analysis, while 300 participants are considered "good" and 1,000 are considered "excellent" (Kline, 2000; Tabachnick & Fidell, 2001).

Information regarding the gender and grade levels of the students in the sample is presented in Table 1. The "Problem-Solving Inventory for Children," which consists of 24 items, was administered to the 748 primary education students in the sample group during a single class period.

Table 1. Gender distribution of the students included in the sample

Independent variable	n	%
Girl	413	55.21
Boy	335	44.79
Total	748	100

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When the values in Table 1 are examined, it is seen that 55.21% of the sample consists of female students and 44.79% consists of male students.

Data Analysis

The collected data were analyzed using the SPSS 12.00 and LISREL 8.51 software packages. The analyses employed Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Cronbach's alpha for internal consistency, correlation analysis, factor analysis, and descriptive statistical techniques. A significance level of .05 was used as the criterion for interpreting the results.

FINDINGS and INTERPRETATION

In this section, the findings regarding the construct validity of the inventory — including factor analysis and Confirmatory Factor Analysis (CFA) — as well as the results of reliability analyses, are presented in sequence.

Construct Validity

To evaluate construct validity—determining whether an instrument measures a single underlying concept or multiple sub-dimensions—researchers commonly employ factor analysis techniques such as principal component analysis (Indu et al., 2025; Gabriel et al., 2024). Construct validity deals with the theoretical and philosophical nature of the attribute being measured (Kerlinger, 1973; Tabachnick & Fidell, 2001). Factor analysis remains a primary method for establishing construct validity by grouping strongly correlated variables into a parsimonious set of factors (Erkuş, 2003; Tavşancıl, 2005; Indu et al., 2025; Gabriel et al., 2024). This process is supported by evaluating internal consistency to verify that the scale's construct is homogeneous (Erkuş, 2003; Tavşancıl, 2005; Indu et al., 2025). An examine of the construct validity and sub-structures of the Problem-Solving Inventory for Children, exploratory factor analysis (EFA) is conducted. Before proceeding, sampling adequacy and inter-item correlations must be verified using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity (Adachi & van de Velden, 2025). A KMO value of .89—well above the standard .60 or .70 threshold—together with a statistically significant Bartlett's test of sphericity (χ^2 = 4682; $p < .001$), confirms that the correlation matrix is suitable and possesses sufficient shared variance to proceed with factor analysis (Peterson et al., 2000; Liu & Treagust, 2005; Ang & Huan, 2006; Adachi & van de Velden, 2025).

In the evaluation of factor analysis results, while it is desirable for the factor loadings of items within a scale to be .45 or higher, items with a factor loading of .30 may also be retained (Kline, 1998; Tabachnick & Fidell, 2001); furthermore, it is preferred that an item exhibits a high loading on only one factor (Tatlıdil, 1992). In this study, a criterion of a factor loading of .40 or higher on the first factor was used as the basis for deciding whether to include an item in the scale. The loadings of all items on the factors that demonstrated semantic coherence—specifically the first three factors—were determined, and items with loadings above .40 were included in a subsequent factor analysis. Additionally, it was ensured that the difference between an item's loading on the first factor and its loadings on other factors was at least .10. This prevented an item that showed a high loading on the first factor from also exhibiting a similarly high loading on a second factor.

Table 2 presents the distribution of the 24 scale items across factors, their commonalities, and their factor loadings—first from an unrotated Principal Component Analysis (PCA), and subsequently following the application of a Varimax orthogonal rotation.

Table 2. Factor analysis (Rotated Principal Component Analysis) results

Item No.	Common Factor Variance	Factor 1 Loading Values	Rotated Component Matrix		
			Factor 1	Factor 2	Factor 3
1	.479	.763	**.814**		
3	.432	.678	**.796**		
5	.475	.689	**.789**		

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Table 2 (Continued). Factor analysis (Rotated Principal Component Analysis) results

Item No.	Common Factor Variance	Factor 1 Loading Values	Rotated Component Matrix		
			Factor 1	Factor 2	Factor 3
7	.486	.623	**.691**		
9	.479	.646	**.678**		
11	.537	.698	**.644**		
13	.333	.631	**.609**		
15	.589	.678	**.579**		
17	.369	.682	**.568**		
19	.355	.597	**.544**		
21	.372	.565	**.549**		
23	.469	.632	**.503**		
2	.554	.607		**.835**	
4	.396	.572		**.748**	
6	.452	.589		**.683**	
8	.489	.609		**.642**	
10	.473	.634		**.617**	
12	.506	.698		**.614**	
14	.488	.570		**.601**	
16	.332	.469			**.789**
18	.445	.534			**.734**
20	.456	.560			**.706**
22	.487	.423			**.683**
24	.406	.489			**.649**

Explained Variance, Total: 46.27%; Factor-1: 21.39%; Factor-2: 13.56%; Factor-3: 11.32%

Exploratory factor analysis reveals that the revised PSIC consists of three factors. The first factor accounts for 21.39% of the total variance, the second factor for 13.56%, and the third factor for 11.32%. Together, these three factors explain 46.27% of the total variance.

Following factor rotation, it was determined that the first factor comprises 12 items (1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, and 23), the second factor consists of 7 items (2, 4, 6, 8, 10, 12, and 14), and the third factor includes 5 items (16, 18, 20, 22, and 24). Factor loadings range from .503 to .814 for the first factor, from .601 to .835 for the second factor, and from .649 to .789 for the third factor. The factors were named based on the content of the items they contain. The items included in each factor and the names assigned to these factors are presented in Table 3.

Table 3. Scale subdimensions and related items

Subdimensions (Factors)	Item No.	Items
Factor 1 Confidence in problem-solving skills	1	I try to solve my problems instead of running away from them.
	3	I try to remain calm when problems arise.
	5	I believe that the problems I have experienced can happen to anyone.
	7	When I have a problem, I don't give up until the solution I found to solve it works.
	9	When I have problems, I always ask myself questions and look for solutions.
	11	I try all solutions without giving up to get rid of the problems I encounter.
	13	First of all, I try to find the root cause of my problems.
	15	Instead of running away from problems, I struggle until I find a solution that works.
	17	I am very patient and determined in the face of problems.
	19	When I cannot solve my problems, I seek help from my family or friends.
	21	I usually find creative and effective solutions to my problems.
	23	When I encounter a problem, I believe that I will solve it by thinking about all the solutions.

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Table 3 (Continued). Scale subdimensions and related items

Subdimensions (Factors)	Item No.	Items
Factor 2 Self-control	2	Whenever I have a problem, I always feel pessimistic and I can't pull myself together easily.
	4	When things get stuck in my head, I get angry and say things I don't want.
	6	I get upset quickly when a problem happens to me.
	8	When I have a problem, I can't get rid of its effect for a long time.
	10	When I can't solve my problems, I feel detached from everything.
	12	When I have a problem, I cannot focus on my lessons easily.
	14	When I have problems with my friends, I fight instead of talking.
Factor 3 Avoidance	16	I make up many excuses to avoid my work and responsibilities.
	18	When I have a problem, I think that no matter what I do, it will not be solved.
	20	I am usually not good at solving my problems.
	22	When I have problems, it's comforting to act like a little kid.
	24	When I have a problem, instead of looking for solutions, I leave everything as it is.

In this study, a confirmatory factor analysis (CFA) was conducted to test the validity of the three-factor structure identified through an exploratory factor analysis. While various statistics exist for assessing model-data fit (Jöreskog & Sörbom, 1993; Thangamuthu, 2024), the indicators typically examined include χ^2, χ^2/df, RMSEA, NNFI, CFI, and GFI (Sümer, 2000; Büyüköztürk et al., 2004; Atılgan, 2005; Voltan Acar & Öğretmen, 2007). An examination of the fit indices obtained from the CFA for the three-factor model reveals that all values—with the exception of the NNFI—align with the recommended criteria. When the NNFI value of .92 is considered alongside the other indices, the model-data fit can be deemed acceptable. The CFA results for the three-factor model yielded the following values: χ^2 = 556.05, df = 265, χ^2/df = 2.09, RMSEA = .046, NNFI (Non-Normed Fit Index) = .92, CFI (Comparative Fit Index) = .94, GFI (Goodness of Fit Index) = .92, and AGFI (Adjusted Goodness of Fit Index) = .89.

The items in the first factor—referred to as "Confidence in Problem-Solving Skills"—reflect self-assurance, persistence, and determination when faced with problems; all the statements within this factor express confidence in one's own problem-solving capabilities.

The items in the second factor, termed "Self-Control," relate to the ability to manage oneself when confronted with a problem, the development of more autonomous behaviors and thoughts, and a predominance of internal-control characteristics.

The statements in the third and final factor, labeled "Avoidance," encompass tendencies such as procrastinating, ignoring the issue, failing to confront it, or distancing oneself from the actual problem rather than attempting to resolve it.

To examine the reliability of the dimensions under investigation, item-total correlations were calculated based on the items and the total scores of the sub-dimensions; these were found to be statistically significant at the .001 level (two-tailed). Furthermore, independent-samples t-tests comparing the lowest 27% and the highest 27% of the sample revealed significant differences ($p < .001$) across all three sub-dimensions of the inventory. Since the item-test correlation coefficients—calculated at both the item and factor levels—were neither negative, zero, nor near-zero (Lim et al., 2026; Tavşancıl, 2005), it can be concluded that the instrument possesses high internal consistency and, consequently, construct validity.

The PSIC is a 24-item self-assessment scale that measures an individual's self-perception regarding their problem-solving skills, utilizing a 3-point Likert-type format (scored 1–3). The total score range is 24–72. When calculating the total score, the items belonging to the second factor (items 2, 4, 6, 8, 10, 12, and 14)—which reflect self-control and avoidance tendencies—and the third factor (items 16, 18, 20, 22, and 24) are reverse-coded. A higher total score on the scale indicates that individuals perceive themselves as competent in problem-solving.

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Reliability

A valid scale is also a reliable one (Fraenkel & Kleinb, 1996). The Cronbach's alpha internal consistency coefficient was calculated as an indicator of the scale's reliability (Cronbach, 1990). Reliability serves as an indicator of the extent to which a measurement instrument measures the intended characteristics consistently and free from error (Tekin, 2000). The reliability of the scale—which consists of 24 items and three factors, as determined by an exploratory factor analysis conducted to test construct validity—was assessed by calculating Cronbach's alpha coefficients for both the sub-factors and the scale as a whole; these results are presented in Table 5. Furthermore, to demonstrate the stability of the scale, it was administered twice—with a four-week interval—to a separate sample group of 200 students (Büyüköztürk, 2006), and the correlation between the scores obtained was examined. The results are presented in Table 5.

Table 5. Cronbach's alpha analysis results for the sub-factors of the scale

	n	Confidence in problem-solving skills	Self-control	Avoidance	Total
Test-retest reliability	200	.89	.83	.87	.90
Cronbach's alpha	748	.81	.89	.76	.92

According to the results in Table 5, considering that the reliability coefficient must be .70 or higher for the scale to be considered reliable (Tavşancıl, 2005; Büyüköztürk, 2006; Büyüköztürk et al., 2008; Edelsbrunner et al., 2025), it is seen that the entire scale (.92) is reliable. Among the sub-factors that make up the scale, the first factor (Confidence in problem-solving skills) was found to be reliable (.81), the second factor (Self-control) was found to be reliable (.89), and the third factor (Avoidance) was found to be reliable (.76). It is seen that the test-retest reliability results of the scale are .89 for the 1st factor, .83 for the 2nd factor, .87 for the 3rd factor and .90 for the entire scale. The score range for the Problem-Solving Inventory for Children (PSIC) is 24–72. A higher mean score indicates positive problem-solving skills.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

"In the process of Confirmatory Factor Analysis (CFA), various fit indices are widely employed to evaluate model plausibility, including the Chi-Square goodness-of-fit test (χ^2/df), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), and Root Mean Square Error of Approximation (RMSEA)" (Sanders et al., 2005; Şimşek, 2007; Hoe, 2008; Bhale, 2023; Sideridis & Alghamdi, 2025; Szymkowiak, 2026).

A non-significant Chi-square goodness-of-fit test, CFI, NNFI, NFI, GFI, and AGFI values greater than .90, a χ^2/df ratio of 3 or lower, and an RMSEA value of .05 are generally considered indicators of a well-fitting factor structure. In the initial Confirmatory Factor Analysis (CFA), the following values were obtained: χ^2 = 556.05, df = 265, χ^2/df = 2.09, RMSEA=.046, NNFI (Non-Normed Fit Index) = .92, CFI (Comparative Fit Index) = .94, GFI (Goodness of Fit Index) = .92, and AGFI (Adjusted Goodness of Fit Index) =.89. The results of the CFA—conducted to test the original factor structure of the instrument (which was also supported by expert opinion)—confirmed that the 24 items in the inventory exhibit a valid structure for primary school students. These values indicate that the model's fit to the data is sufficient (Kline, 2023; Kelloway, 1998; Heubeck & Neill, 2000; Corral & Calvete, 2000; Lewis et al., 2002; Olivares et al., 2004; Ingles et al., 2005; Sanders et al., 2005; Kahn, 2006; Şimşek, 2007; Hoe, 2008; Sathyanarayana & Mohanasundaram, 2025).

Reliability refers to the internal consistency and stability of a measurement instrument across administrations (Dorman & Knightley, 2006; Smolleck et al., 2006; Johnson, Stevens & Zvoch, 2007; Edelsbrunner et al., 2025; Zitzmann & Orona, 2026). Internal consistency, predominantly evaluated via Cronbach's alpha (α), remains the most widely applied reliability metric in empirical research

(Dorsah, 2026). Contemporary psychometric literature underscores that an alpha value of .90 or higher reflects excellent internal consistency (Bonett, 2002). The study yielded a reliable 24-item measurement instrument distributed across three distinct factors, demonstrating an excellent overall Cronbach's alpha reliability coefficient of .92 (Zitzmann & Orona, 2025; Dorsah, 2026).

Based on the characteristics of the items included in the factors, the first factor has been identified as "confidence in problem-solving skills," the second as "self-control," and the third as "avoidance."

The "Problem-Solving Inventory for Children (PSIC)"—revised in 2026 and confirmed to be valid and reliable based on the analysis results—stands as the first assessment tool developed in Turkey specifically to determine how primary school students perceive their own problem-solving skills.

Following a revision process involving primary school students, the "Problem-Solving Inventory for Children"—structured as a 3-point Likert scale and verified through validity and reliability analyses—has been shown to possess the psychometric properties necessary to measure primary school students' perceptions of their problem-solving skills via a three-factor structure.

It is considered that the "Problem-Solving Inventory for Children," revised into a 3-point Likert scale, possesses a valid and reliable structure; that the results obtained from its administration can provide meaningful feedback regarding how students perceive their own problem-solving skills; that this assessment tool could be examined at a meta-analytic level through future applications and studies involving diverse samples; and that the inventory can be utilized in both experimental and descriptive research aimed at determining how primary school students perceive their own problem-solving skills.

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Ethics and Conflict of Interest
This article is an updated revision of the study titled Developing Problem Solving Inventory for Children at the Level of Primary Education (PSIC), originally published in 2010 (Serin et al., 2010). The authors adhered to ethical standards throughout all stages of the research. Furthermore, the authors declare that they have no financial, professional, or personal conflicts of interest that could have influenced the design, execution, or reporting of this study.

Author Contribution
All authors contributed equally to this study. All authors read and approved of the final manuscript.

Data Availability
The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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APPENDICES

Appendix 1: Scoring information for the Problem-Solving Inventory for Children (PSIC)
The score range for the Problem-Solving Inventory for Children (PSIC) is 24–72. A higher mean score indicates positive problem-solving skills.

The Problem-Solving Inventory for Children (PSIC) is a measurement tool that uses a 3-point Likert scale. "I would never act this way (1)", "I sometimes behave this way (2)", and "I always behave this way (3)".

Problem-Solving Inventory for Children (PSIC) is an assessment tool consisting of three subscales: "Confidence in Problem-Solving Skills," "Self-Control," and "Avoidance."

In the measurement instrument, items are scored as follows: "Positive items: a=1, b=2, c=3", and "Negative items: a=3, b=2, c=1."

"Confidence in Problem-Solving Skills" (1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, and 23)

"Self-Control" (2, 4, 6, 8, 10, 12, and 14) (All items in this factor are negatively worded; therefore, they will be reverse-scored during calculation.)

"Avoidance" (16, 18, 20, 22, and 24) (All items in this factor are negatively worded; therefore, they will be reverse-scored during calculation.)

Appendix 2: Problem-Solving Inventory for Children (PSIC)

	Problem-Solving Inventory for Children (PSIC) *"I would never act this way (a)", "I sometimes behave this way (b)", and "I always behave this way (c)".*	(a) would never act like this way	(b) I sometimes behave this way	(c) I always behave this way
1	I try to solve my problem instead of running away from them [*Sorunlarımdan kaçma yerine sorunumu çözmeye çalışırım*].			
2	Whenever I have a problem, I always feel pessimistic and I can't pull myself together easily [*Ne zaman sorun yaşasam içimde hep bir karamsarlık olur ve kendimi kolay kolay toplayamam*].			
3	I try to remain calm when problems arise [*Karşıma sorunlar çıktığında sakin olmaya çalışırım*].			
4	When things get stuck in my head, I get angry and say things I don't want [*Kafama bir şeyler takıldığında sinirli olurum ve istemediğim sözler söylerim*].			
5	I believe that the problems I have experienced can happen to anyone [*Yaşadığım problemlerin herkesin başına gelebileceğine inanırım*].			
6	I get upset quickly when a problem happens to me [*Başıma bir problem geldiğinde çabucak üzülürüm*].			
7	When I have a problem, I don't give up until the solution I found to solve it works [*Sorun yaşadığımda onu çözmek için bulduğum çözüm yolu işe yarayana kadar vazgeçmem*].			
8	When I have a problem, I can't get rid of its effect for a long time [*Sorun*			

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	yaşadığımda uzun süre etkisinden kurtulamam].			
9	When I have problems, I always ask myself questions and look for solutions [*Sorunlarım olduğunda hep kendi kendime sorular sorarım ve çözüm yolları ararım*].			
10	When I can't solve my problems, I feel detached from everything [*Sorunlarımı çözemediğim zaman her şeyden soğurum*].			
11	I try all solutions without giving up to get rid of the problems I encounter [*Karşılaştığım sorunlardan kurtulmak için vazgeçmeden bütün çözüm yollarını denerim*].			
12	When I have a problem, I cannot focus on my lessons easily [*Sorun yaşadığımda kendimi kolay kolay derse veremem*].			
13	First of all, I try to find the root cause of my problems [*Öncelikle sorunlarımın neden kaynaklandığını bulmaya çalışırım*].			
14	When I have problems with my friends, I fight instead of talking [*Arkadaşlarımla sorun yaşadığımda konuşmak yerine kavga ederim*].			
15	When I have a problem, I don't run away; I look for a way to fix it. [*Sorunlardan kaçmak yerine işe yarayan bir çözüm yolu bulana kadar uğraşırım*].			
16	I make up many excuses to avoid my work and responsibilities [*İş ve sorumluluklarımdan kaçmak için bir çok bahane uydururum*].			
17	I am very patient and determined in the face of problems [Sorunlar karşısında oldukça sabırlı ve kararlı davranırım].			
18	When I have a problem, I think that no matter what I do, it will not be solved [*Bir sorunum olduğunda ne yaparsam yapayım çözülmeyeceğini düşünürüm*].			
19	When I cannot solve my problems, I seek help from my family or friends [*Sorunlarımı çözemediğim zamanlarda ailemden ya da arkadaşlarımdan yardım isterim*].			
20	I am usually not good at solving my problems [*Sorunlarımı çözme konusunda genellikle başarılı değilimdir*].			
21	I usually find creative and effective solutions to my problems [*Sorunlarım karşısında genellikle yaratıcı ve etkili çözüm yolları bulurum*].			
22	When I have problems, it's comforting to act like a little kid [*Sorunlarım olduğunda küçük çocuk gibi davranmak beni rahatlatır*].			
23	When I encounter a problem, I believe that I will solve it by thinking about all the solutions [*Bir sorunla karşılaştığımda tüm çözüm yolarını düşünerek çözeceğime inanırım*].			
24	When I have a problem, instead of looking for solutions, I leave everything as it is [*Bir sorunum olduğunda çözüm yolları aramak yerine her şeyi oluruna bırakırım*].			

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