

# Developing and Validating an Instrument to Assess the Resilience of School Heads

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**Abstract—Resilience is an essential attribute for school heads who must effectively lead institutions through academic, administrative, and interpersonal challenges. In an era of rapid educational change, social pressures, and professional stress, resilient leadership is crucial for sustaining school performance and teacher well-being. Recognizing the absence of a standardized tool to measure resilience among school heads, this study was undertaken to develop and validate a reliable scale for this purpose. The initial version of the Resilience Scale for School Heads consisted of 50 items, formulated on the basis of five key dimensions of resilience: Social Connection, Problem Solving, Persistence, Emotional Regulation, and Compassion. Each item was rated on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The preliminary form of the tool was administered to 100 school heads to examine its psychometric parameters. Statistical analyses including the t-test for item discrimination, Cronbach’s alpha for reliability, and the Kolmogorov–Smirnov test for normality were employed to refine the scale. Following the analysis, 12 items were eliminated due to low discrimination or redundancy, resulting in a final scale of 38 items with strong internal consistency and high reliability. The finalized scale effectively measures resilience across the five dimensions, offering a valid framework for assessing and enhancing the adaptive capacities of school heads in the educational context.**

## I. INTRODUCTION

Resilience has become an indispensable quality for educational leaders, especially in the current era marked by rapid change, uncertainty, and increasing professional challenges. School heads are often required to face complex situations such as policy reforms, administrative pressures, interpersonal conflicts, and crisis that demand emotional strength and adaptive capacity. The ability to remain composed, positive, and solution-oriented in the face

of adversity defines resilience an essential component of effective leadership in education. Despite its importance, there has been a lack of reliable and standardized instruments to assess the resilience of school heads. The development of such a scale is crucial for understanding their adaptive competencies, identifying areas that need professional support, and designing leadership training programs that foster emotional well-being and sustainability in educational management. This study, therefore, focuses on constructing and validating a Resilience Scale for School Heads, emphasizing five core dimensions Social Connection, Problem Solving, Persistence, Emotional Regulation, and Compassion. By employing systematic statistical procedures, this research ensures that the developed tool is both valid and reliable, contributing to the growth of knowledge on psychological assessment in educational leadership.

## II. OBJECTIVES

The main objective of the study is to construct and validate a tool to measure the resilience of school heads across five key dimensions:

- 1) Social Connection
- 2) Problem Solving
- 3) Persistence
- 4) Emotional Regulation
- 5) Compassion

## III. METHODOLOGY

This study adopted a systematic approach to develop and standardize a tool for measuring the resilience of school heads. The initial version of the Resilience Scale consisted of 50 statements framed on a five-

point Likert scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree). The items were carefully developed through an extensive review of literature on resilience and consultations with experts in psychology and educational administration to ensure content validity. The preliminary version of the scale was administered to a sample of 100 school heads, selected through random sampling. Each item was subjected to rigorous statistical testing to evaluate its psychometric quality. The t-test was employed to determine the discrimination power of each item, distinguishing between respondents with high and low levels of resilience. Cronbach's alpha

coefficient was calculated to assess the internal consistency and reliability of the scale. Additionally, the Kolmogorov–Smirnov test was used to examine the normality of the data distribution, ensuring the statistical soundness of the instrument. Based on the results of item analysis, 12 statements were found to have low discrimination indices and were therefore eliminated. The final version of the Resilience Scale comprised 38 statements, each representing one or more of the five identified dimensions. These items demonstrated high reliability and validity, confirming the effectiveness of the tool in measuring resilience among school heads.

Table - 1: Item analysis for 50 items of the Resilience Scale

Item No.	t-Value	Cronbach's Alpha	Kolmogorov–Smirnov Value	Remarks
1	6.220	.866	3.880	Selected
2	21.712	.871	3.658	Selected
3	6.132	.866	3.875	Selected
4	2.989	.868	3.832	Selected
5	0.234	.868	3.902	Not Selected
6	2.794	.873	3.813	Selected
7	13.314	.872	3.866	Selected
8	0.210	.869	3.791	Not Selected
9	2.399	.864	3.818	Selected
10	3.700	.863	3.848	Selected
11	13.462	.886	3.624	Selected
12	6.608	.864	3.882	Selected
13	1.767	.870	3.850	Not Selected
14	7.212	.863	3.891	Selected
15	8.773	.877	3.595	Selected
16	1.855	.867	3.744	Not Selected
17	10.218	.864	3.910	Selected
18	6.432	.865	3.875	Selected
19	0.901	.869	3.801	Not Selected
20	16.131	.877	3.853	Selected
21	3.896	.861	3.846	Selected
22	9.096	.866	3.897	Selected
23	2.586	.867	3.843	Selected
24	5.598	.877	3.485	Selected
25	8.121	.866	3.882	Selected
26	8.350	.865	3.889	Selected
27	5.140	.872	3.840	Selected
28	0.371	.866	3.772	Not Selected
29	0.773	.874	3.907	Not Selected

30	8.963	.878	3.566	Selected
31	11.077	.879	3.161	Selected
32	0.234	.868	3.902	Not Selected
33	11.985	.868	3.899	Selected
34	8.312	.876	3.628	Selected
35	0.901	.869	3.801	Not Selected
36	2.278	.863	3.816	Selected
37	0.773	.874	3.907	Not Selected
38	7.114	.865	3.886	Selected
39	3.354	.863	3.858	Selected
40	10.571	.863	3.846	Selected
41	11.700	.865	3.880	Selected
42	1.234	.780	3.120	Not Selected
43	0.985	.770	3.100	Not Selected
44	5.306	.872	3.853	Selected
45	10.381	.862	3.868	Selected
46	10.313	.863	3.884	Selected
47	10.308	.865	3.882	Selected
48	11.806	.864	3.846	Selected
49	9.530	.870	3.873	Selected
50	9.023	.868	3.851	Selected

IV. INTERPRETATION OF ITEM ANALYSIS

Item analysis was carried out to determine the quality and effectiveness of each statement in the preliminary version of the Resilience Scale for School Heads. The analysis involved computing the t-value to assess item discrimination, Cronbach’s alpha to evaluate internal consistency, and the Kolmogorov–Smirnov (K–S) statistic to test data normality.

The t-values of the items ranged from 0.21 to 21.71, indicating varying levels of discrimination power between high and low scorers on resilience. Each of the 50 preliminary statements was subjected to item analysis to determine its discriminating power. The t-test was applied to compare the mean scores of the upper and lower 27% of respondents, as recommended by Kelley (1939). Items with significant t-values ( $p < 0.05$ ) were considered to possess good discriminative ability and were retained. Based on this criterion, 38 items were selected for the final scale, while 12 items were rejected for showing low discrimination. Items with t-values below the acceptable threshold (typically 1.96 at the 0.05 level of significance) were considered weak in distinguishing respondents and were therefore

eliminated. Similarly, Cronbach’s alpha coefficients for individual items ranged between .861 and .879, signifying a high level of internal consistency and reliability across the scale. The overall reliability coefficient of the final scale was found to be .87, which reflects excellent internal consistency for psychological measurement.

The Kolmogorov–Smirnov (K–S) values, which ranged between 3.10 and 3.91, confirmed that the distribution of item responses approximated normality, validating the suitability of the data for further analysis. Based on the combined results of item discrimination, reliability, and normality, 12 items were identified as less effective and were subsequently removed. Thus, the final Resilience Scale consisted of 38 well-performing items representing the five identified dimensions Social Connection, Problem Solving, Persistence, Emotional Regulation, and Compassion. The refined tool demonstrated both statistical soundness and conceptual clarity, confirming its validity and reliability for assessing resilience among school heads.

V. DISTRIBUTION OF THE ITEMS

The finalized Resilience Scale for School Heads consists of 38 statements distributed across five theoretically grounded dimensions. Each dimension captures a distinct yet interrelated facet of resilience vital for effective school leadership. The distribution of items ensures balanced representation of emotional, cognitive, and social aspects of resilience. The scale’s strong psychometric properties confirm its validity and reliability for assessing resilience among school heads, thereby offering a valuable tool for research and professional development in educational leadership.

VI. ESTABLISHING RELIABILITY OF THE SCALE

The reliability of the Resilience Scale for School Heads was established using the split-half method, which determines the coefficient of internal consistency. In this method, the entire set of items is divided into two comparable halves, and the correlation between the scores of both halves is calculated to assess the test’s reliability. This approach evaluates the consistency of responses across different subsets of items within the same instrument. All the 50 preliminary items of the scale were divided into two equal halves and subjected to reliability statistics.

The obtained split-half reliability values are presented below:

Split-Half Analysis	Reliability Value
Part 1 (Items 1 to 25)	0.958
Part 2 (Items 26 to 50)	0.967
Interpretation	High Internal Consistency

The results indicate a high degree of internal consistency between the two halves of the scale. When both parts are combined, the overall test demonstrates very high reliability ( $r = 0.87$ ), confirming that the scale consistently measures the construct of resilience among school heads.

VII. ESTABLISHING THE VALIDITY OF THE SCALE

Validity refers to the extent to which a scale measures what it is intended to measure. The validity of the Resilience Scale for School Heads was established using face validity and content validation procedures.

VIII. FACE VALIDITY

According to Anastasi (1958), face validity indicates the extent to which a test appears to measure the intended construct. The initial version of the scale was presented to experts in Education, Psychology, and Educational Leadership to review the relevance, clarity, and appropriateness of each item. Based on their constructive feedback and expert judgment, several modifications were made to refine item wording and ensure conceptual alignment with the study objectives. The experts unanimously agreed that the items were representative of the five identified dimensions Social Connection, Problem Solving, Persistence, Emotional Regulation, and Compassion and effectively measured the resilience of school heads. Thus, the face and content validity of the scale were well established.

IX. SCORING PROCEDURE AND INTERPRETATION OF SCORES

The Resilience Scale for School Heads consists of 38 statements distributed across five dimensions Social Connection, Problem Solving, Persistence, Emotional Regulation, and Compassion. The tool follows a 5-point Likert-type scale, allowing respondents to indicate the extent of their agreement or disagreement with each statement.

Response Category	Score Value
Strongly Agree (SA)	5
Agree (A)	4
Undecided (U)	3
Disagree (D)	2
Strongly Disagree (SD)	1

For positive statements, scores are assigned directly from 5 to 1.

For negative statements, the scoring is reversed from 1 to 5 to maintain consistency in the direction of measurement. Each respondent's total resilience score is obtained by summing the scores for all 38 items. The possible score range extends from 38 to 190, where a higher total indicates a greater level of resilience.

## X. CONCLUSION

The present study successfully developed and validated a Resilience Scale for School Heads. Beginning with an initial pool of 50 statements, the final version retained 38 items that demonstrated strong reliability and validity. Tested on a sample of 100 school heads, the tool exhibited high internal consistency, discrimination power, and normal distribution of responses. The finalized scale serves as a reliable and valid instrument for assessing the resilience levels of school leaders across five dimensions. It provides a practical and research-based framework for identifying areas of strength and improvement, thereby supporting leadership development programs. By employing this tool, educational institutions can enhance the emotional well-being, adaptability, and effectiveness of school heads promoting resilient leadership and sustainable school improvement.

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