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Research

Primary School Teachers Cannot Give What They Do Not Get: The Teacher Care Scale[1]

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Abstract:

Achieving the goal of education depends essentially on the primary school teachers who will run the system. It is essential to recognize the damage that the teaching profession can cause to teachers and to provide them with care services. This study aims to develop the "Teacher Care Scale (TeCaS)" for teachers. The scale was gradually applied to two separate sample groups, consisting of a total of 620 randomly selected people. To ensure the content and face validity, the scale, with 33 items, was carried out by consulting expert opinions in the first application. Following the factor extraction method (principal axis factoring), the scale items were identified as a result of exploratory factor analysis for construct validity. As a result of the factor analysis, a nested structure consisting of 25 items and six factors was obtained, parallel to the literature. The results of confirmatory factor analysis on the data showed that the sample to which the scale was applied demonstrated compliance at an acceptable level. This scale revealed the structure of teacher care. Clarifying the complex professional care situations of teachers will be useful in understanding the teacher variable, which is the fundamental component of the education system.

Keywords: Teacher care, scale development, primary school teachers.

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INTRODUCTION

Students, teachers, and teaching have recently become the focus of policymakers and researchers. Teaching is important. However, the question unasked or only implicitly answered is why teaching is important. Education is a tripod: student, parent or external variables, and teacher. In this system, parent or external variables are generally accepted as factors that educators cannot control. Indeed, the teacher variable is not static but rather dynamic, due to the uniqueness of the individual and is affected by the environment. Despite this, researchers and policymakers position the teaching profession within standardized frameworks. In this context, there is a mistake in thinking that the effect of a tried teaching method, an educational approach, or a teaching material on the student is independent of the teacher's situation. This misconception weakens the process of solving problems in the field of education. Since teaching is a profession, periodic maintenance and eliminating small problems that may cause major educational damage ensures that the teacher works in accordance with the regulations and curriculum and carries out an efficient education process for the students. These systematic checks are indicative of teacher care, and it is important to discover their level.

Teacher care can be defined as the interest and support shown towards the psychological, emotional, and professional well-being of teachers. This concept is grounded in the understanding that increasing teachers' job satisfaction leads to an improved quality of life. To better understand teacher care, it is necessary to focus on how strategies for teacher care are shaped by its basic definition. Teacher care strategies are methods that are shaped according to teachers' needs, and aimed at increasing their professional development, mental health and motivation.

Care for teachers includes various strategies to support their professional development, help them cope with work stress, and increase their overall quality of life. This approach advocates that teachers work in an environment where they not only convey information to students, but also where they are managed, supported, and valued in a way that is sensitive to their own needs. The well-being of teachers can affect their performance in the classroom and determine their contributions to the education system in general. Teacher care includes various strategies such as professional development programs for teachers, psychological support, workload reduction measures, and the creation of positive work environments.

In the context of teacher care, it is important to clarify the distinction between the concept and the strategies used to support it. The term "teacher care" refers to a broad concept that involves providing emotional, mental, and physical support to teachers. This support is essential for improving teachers' well-being and, ultimately, their performance in the classroom (Skaalvik and Skaalvik, 2018). On the other hand, the strategies mentioned in the text are specific actions or practices designed to achieve the overarching goal of teacher

care. These strategies aim to address various aspects of teacher well-being, including job satisfaction and professional development (Brant, 2022; Hattie, 2003).

Teacher care is a two-way concept: the care provided by the teacher to the student and the care provided by the student to the teacher themselves. Noddings (2012) conceptualized teacher care as the degree to which teachers recognize the needs and priorities of their students, value their thoughts, and accept their academic efforts. Ramberg et al. (2019) defined teacher care in terms of understanding, empathy, and sensitivity. Teven and McCroskey (1997) found that teacher care positively affects learning and improves teachers' performance. Caring for students' needs, desires, and preferences has improved their mental health (Lavy and Naama-Ghanayim, 2020) and positively affected their well-being (Stallman et al., 2018).

Another dimension of teacher care is the internal/external support provided to the teacher. The term teacher care refers to support for teachers. This concept plays an important role in increasing teachers' job satisfaction and reducing professional burnout (Johnson, 2006; Skaalvik, and Skaalvik, 2018). At the same time, teachers' overall work efficiency largely depends on the quality of this support. The teaching profession is dynamic and reshaped according to the uniqueness of each student (Day and Gu, 2007). In this context, both the care that teachers provide themselves and the care provided by external sources directly affect teachers' success in the classroom (Kelchtermans, 2009). Brant (2022) emphasizes that, for teachers to perform excellently in the classroom, they must be supported equally and adequately in society. Teachers' professional development and motivation should be built on the fact that they cannot give what they do not receive. Each teacher is unique in his or her professional journey, and thus, the relationship established with the profession is not fixed. Apart from the genetic code, the variable that has the most impact on student success is the teacher (Hattie, 2003). Success in education depends on the role of teachers in the system. Therefore, supporting them in a way that is sensitive to their needs directly contributes to the effectiveness of the education system (Darling-Hammond, 2010). It has been found that teachers contribute to improving students' mental health and positively affecting their well-being (Lavy and Naama-Ghanayim, 2020; Stallman et al., 2018). This critical role of teachers complicates problems in education due to factors that are difficult to control, such as constraints in human resources. This complexity can have long-term effects on education policies and the level of support provided to teachers (OECD, 2018).

The Present Study

Based on the literature, the basic variables of the problems in education have been identified. One of these is "Human Resources," which is difficult to control (Şişman and Arı, 2009; Selimoğlu and Yılmaz, 2010; Tanjung, 2020). Therefore, achieving the goal of education essentially depends on the teachers who will run the system. In all studies conducted on the problem, teacher identity is an important and essentially uncontrollable variable.

Teacher care is a critical phenomenon in terms of the quality and sustainability of the teaching profession. Teaching is a profession where commitment is of vital importance; however, in recent years, turnover rates have been increasing significantly (Ingersoll, and Strong, 2011; UNESCO, 2021). Research on teachers' burnout levels in Turkey indicates a decrease in job satisfaction and an increase in intentions to leave the profession (Yıldırım, 2020; TÜİK, 2023). International reports support these findings as well; according to the TALIS 2018 report by OECD, more than 20% of teachers report low professional motivation (OECD, 2019).

In the literature, variables such as teachers' well-being, attitudes, and self-efficacy perceptions have been widely discussed (Skaalvik, and Skaalvik, 2018; Klassen, 2010). However, the concept of teacher care, which encompasses internal and external support mechanisms ensuring the professional sustainability of teachers, remains underexplored. Teacher care is a multidimensional construct that includes individual, institutional, and societal factors (Hargreaves, 2000). Indeed, an educational environment where teachers feel cared for plays a crucial role in reducing negative outcomes such as burnout (Maslach, and Jackson, 1981), fatigue, and intention to leave, while simultaneously enhancing positive outcomes such as well-being, high motivation, and professional commitment (Bakker, and Demerouti, 2007; Day, and Gu, 2013).

However, the lack of a valid and reliable tool to measure this concept in the literature limits the examination of the phenomenon of teacher care. This gap in the literature requires the development of a scale that will determine the care levels of teachers. The measurement tool to be developed will create a scientific basis to support teachers' professional performance, their level of commitment to the profession, and their well-being. At the same time, it will be a reference point for practitioners and researchers by providing data-based outputs that can be used in planning educational policies and restructuring teacher training programs.

The “Teacher Care Scale (TeCaS),” developed to measure the care levels of teachers, aims to determine the impact of external factors on the teacher variable and to understand the results of this variable. Teachers and their care are a crucial support system on which a society can be lifted towards meaningful progress. If teachers are valued and trusted, teachers reciprocate by transferring this treatment to their students and empowering them to spread these values to the world (Brant, 2022). The importance of this study lies in a data collection tool to be developed to measure the care levels of teachers, it aims to determine the impact of external factors related to the teacher variable, understand the results of the teacher variable with programs support in future studies that meet these criteria, and act towards eliminating the problem. In this sense, the problem of recognizing the damage to teachers and providing them with care services has been determined, along with the aim of developing a "Teacher Care Scale (TeCaS)" for teachers. In this context, with the TeCaS, teachers can be supported by programs in future studies, thereby increasing their

contributions to education. Systematic and continuous support of teachers can guarantee the sustainability of the education system and social development (Fullan, 2015).

METHOD

This scale development study was structured within the framework of quantitative research methods. In this study, we aimed at developing a scale for a concept that is not included in the national literature and does not have a scale in the international literature. In the development of a scale for this concept, the survey design was used to ensure systematic data collection and analysis in line with the positivist paradigm (Cohen et al., 2018). Johnson (2014) emphasized that survey designs enable researchers to collect data from a target group to explore and measure specific concepts comprehensively. Validity in survey design refers to ensuring that the items are consistent with the literature and accurately represent the concept being measured. The items for this research were written based on the literature to develop the scale. Then, statistical operations were performed on the collected data to ensure the validity and reliability of the scale.

Process

After identifying the problem and determining the purpose, the process steps of the study were designed:

Table 1

Process of the research

Determining the Problem, and the Purpose	• Reviewing the literature
Item Pool	• Reviewing the literature • Authors' Cross-evaluation • 35-item item pool
Ensuring Content and Face Validity	• 2 field experts, 1 measurement and evaluation expert, and 1 language expert • 33-item item pool (Revision)
Determining the Population and Sample	• Population: 43,786 primary school teachers working in Istanbul. • Exploratory Sequential Sampling Design from Mixed Sampling Strategies (Non-Probability and Probability Sampling Strategies) • Sample: 620
Application-1	• 313 primary school teachers working in Istanbul through Non-Probability Snowball Sampling
Ensuring Construct Validity-1	• Factor extraction method: Factor analysis was run with 33 items using Principal Axis Factoring. • The factor analysis was run again with the 25 items obtained (as part of the Revision). • Performing exploratory factor analysis (EFA)
Reliability Calculation-1	• Cronbach-Alpha reliability coefficient

Application-2	• 307 primary school teachers working in Istanbul province, different from the first sample, with a systematic sampling strategy through randomness
Ensuring Construct Validity-2	• Performing confirmatory factor analysis (CFA)
Reliability Calculation-2	• Cronbach-Alpha reliability coefficient
Final Version of the Scale	• "TeCaS" scale consisting of 25 items with 6 factor

Creating the Item Pool: An item pool was created by the researchers based on the data collected through document review, consisting of three items for each sub-factor and each sub-dimension.

Ensuring Content and Face Validity: The item pool, which was cross-examined by two researchers, was presented to expert opinion as 35 items to ensure content and face validity. Information was obtained from two field experts working on program development and teacher needs in education, a Turkish linguist to ensure language validity, and a measurement and evaluation field expert to provide scale quality. Expert opinions were examined by both researchers, and then the researchers' revisions of the expert opinions were cross-checked and the scale was finalized before application.

Participants

Determination of the Population and Sample: 43,786 primary school teachers working in public and private primary schools affiliated with the Ministry of Education in Istanbul (MEB, 2023) constitute the population of the study. These data are from the 2022/23 academic year. Based on this data, teachers were recruited and left their jobs in the 2023-24 academic year. Generally, the number of teachers increases in this +/- system. Therefore, the number was rounded to 50,000. A 95% confidence level and a 4% confidence interval for the sample size are a common approach in public opinion poll studies in the field of social science (Cohen et al., 2018). This sample size is 593 people for a population of 50,000 people. Anticipating data loss, data were collected from 620 primary school teachers. Data from 620 people were collected in two separate applications. Data were obtained from over 300 teachers at each stage (This means that each application is more reliab

le than the confidence level being 90% and the confidence interval being 5% [271<].). Regarding the sample size in scale development studies, Kass and Tinsley (1979), Tabachnick and Fidell (2013) stated that the study group should be at least 300 and that 5-10 times more individuals than the number of items should be reached. The minimum number of people required for scale development studies in the literature was exceeded. In the first stage, the number of draft items was 35, and more than 10 times the number of individuals were reached compared to an earlier phase. In this context, the basic conditions for data analysis were provided (See: Data Analysis). Throughout the study, non-probability and probability sampling strategies were used sequentially. In this way, the aim was to prevent the limitation arising from the sampling strategy.

In the EFA section, data were collected using the snowball sampling method, one of the non-probability sampling strategies. In snowball sampling, researchers identify a small number of individuals with the characteristics they are interested in. These individuals are then used as sources of information to identify or contact other individuals who are eligible to be included in the study (Cohen et al., 2018). In EFA, scales must be filled in sincerely and objectively in order for factors to emerge. Otherwise, inconsistently filled scales may disrupt the process and reveal the factors of the structure. To ensure validity, the snowball sampling method was preferred in the first stage of the scale development process to reach participants who would diligently fill in the scale by starting with a familiar network, without limiting the process to only the researchers' connections. On the other hand, the snowball sampling method can be open to biases due to the effect of "first contact" and the problem of only including volunteers in the sample (Heckathorn, 2002). In order to explore the question of whether the factoring process resulting from these biases is also valid in probability sampling strategies, the random stratified sampling method, was used in the CFA process of the study. When the population is quite large and scattered, creating a simple random sample creates administrative problems. In random stratified sampling, the universe is divided into homogeneous subgroups, which makes the process manageable (Cohen et al., 2018). Therefore, in terms of accessibility, gender, and the type of institution in which one works were taken as cross-strata in defining the universe in the study. These strata were selected in terms of separate, statistically accessible from the ministry databases, and known to be effective in the structure of the measurement tool being developed. In terms of percentage, they were also taken into account in the sample selection. Random stratified sampling is a blend of the benefits of randomization and categorization (Cohen et al., 2018).

Table 2

Population of Research

	Female	Male	Total
Population (N)	32.058	11.728	43.786
Total Samples (n)	440	180	620
Application-1 (n1)	242	71	313
Application-2 (n2)	198	109	307

Table 3

Application-1: Findings Regarding Demographic Variables of the Sample

Gender * Institution Type				
Gender \ Institution Type	Public	Private	Total	%
Famele	136	106	242	77.3
Male	53	18	71	22.7
Total	189	124	313	100.0
%	60.3	39.6	100.0	
Wage * Institution Type				

Wage \ Institution Type	Public	Private	Total	%
Below minimum wage	5		5	1.6
17.000-31.999	6	101	107	34.2
32.000-46.999	137	21	158	50.5
47.000-61.999	39	2	41	13.1
62.000-62.000+	2		2	.6
Total	189	124	313	100.0
%	60.3	39.6	100.0	

Age * Teacher Education

Age \ Teacher Education	Teacher training high school	Pedagogical formation training	Faculty of Education	No teacher training	Not specified	Total	%
20-29		3	33	1		37	11.8
30-39		6	104		1	111	35.5
40-49	1	7	83			91	29.1
50-59		9	37	1	1	48	15.3
60-60+	7		18		26	26	8.3
Total	8	25	275	2	3	313	100.0
%	2.6	8.0	87.9	.6	1.0	100.0	

Wage * Education Level

Wage \ Education Level	Associate Degree	Bachelor's Degree	Master's Degree	Doctorate	Not specified	Total	%
Below minimum wage		5				5	1.6
17.000-31.999	12	72	22		1	107	34.2
32.000-46.999	2	131	21	3	1	158	50.5
47.000-61.999		27	14			41	13.1
62.000-62.000+	1	1				2	.6
Total	15	236	57	3	2	313	100,0
%	4.8	75.4	18.2	1.0	.6	100,0	

Wage * Year of Seniority

Wage \ Year of Seniority	0-4 Year	5-14 Year	15-29 Year	30-39 Year	40-40+ Year	Total	%
Below minimum wage	2	3				5	1.6
17.000-31.999	10	56	21	5	15	107	34.2
32.000-46.999	7	48	82	17	4	158	50.5
47.000-61.999		9	29	2	1	41	13.1
62.000-62.000+		1	1			2	.6
Total	19	117	133	24	20	313	100.0
	6.1	37.4	42.5	7.7	6.4	100.0	

Table 4

Application-2: Findings Regarding Demographic Variables of the Sample

Gender \ Institution Type	Public	Private	Total	%
Female	180	18	198	64.5
Male	106	3	109	35.5
Total	286	21	307	100.0
%	93.2	6.8	100.0	

Wage * Institution Type

Wage \ Institution Type	Public	Private	Total	%
Below minimum wage	8		8	2.6
17.000-31.999	3	16	19	6.2
32.000-46.999	214	4	218	71.
47.000-61.999	60		60	19.5
62.000-62.000+	1	1	2	.7
Total	286	21	307	100.0
%	93.2	6.8	100.0	

Age * Teacher Education

Age \ Teacher Education	Pedagogical formation training	Faculty of Education	No teacher training	Total	%
20-29		27		27	8.8
30-39	1	73		74	24.1
40-49	4	96		100	32.6
50-59	24	71	5	100	32.6
60-60+	1	5		6	2.
Total	30	272	5	307	100.0
%	9.8	88.6	1.6	100.0	

Wage * Education Level

Wage \ Education Level	Associate Degree	Bachelor's Degree	Master's Degree	Doctorate	Total	%
Below minimum wage		8			8	2.6
17.000-31.999		16	3		19	6.2
32.000-46.999	6	192	20		218	71.
47.000-61.999	5	45	9	1	60	19.5
62.000-62.000+			1	1	2	.7
Total	11	261	33	2	307	100,0
%	3.6	85.	10.7	.7	100,0	

Wage * Year of Seniority

Year of Seniority / Wage	0-4 Year	5-14 Year	15-29 Year	30-39 Year	40-40+ Year	Total	%
Below minimum wage	4	3	1			8	2.6
17.000-31.999	5	10	3	1		19	6.2
32.000-46.999	6	55	121	35	1	218	71.
47.000-61.999		4	34	20	2	60	19.5
62.000-62.000+		1	1			2	.7
Total	15	73	160	56	3	307	100,0
%	4.9	23.8	52.1	18.2	1.	100.0	

Ethical Considerations

To conduct the research, ethics committee approval was received from Istanbul University-Cerrahpaşa Social and Human Sciences Research Ethics Committee on April 17, 2024. (Ethics Committee Approval numbered 2024-139). For the Ministry of National Education, MEB institutional permission was granted by the approval letter numbered E-59090411-44-104079614 dated 10.06.2024 from Istanbul Provincial Directorate of National Education and the approval letter numbered E-59090411-20-103917039 dated 06.06.2024 from Istanbul Governorship. After obtaining the application permissions from the necessary institutions, these were also obtained from the school administrations of the primary schools where data would be collected. Teachers were informed according to the Helsinki Declaration, and their written and verbal consent was obtained.

Analysis

In the analysis of the data, exploratory factor analysis and confirmatory factor analysis were used to separate the variables into groups and reveal the factors. Factor analysis is a variable grouping analysis method that determines the variables with common characteristics (EFA), and constructs the latent processes within the structure of the model structure predicted from the literature (CFA), for the variables (Cohen et al., 2018). Variables that are related to each other but largely independent of other variable sets are combined into factors. Factors are thought to reflect the underlying processes that create correlations between variables (Tabachnick and Fidell, 2013). Pallant (2001) evaluated the purpose of factor analysis as a simplification process by turning large data sets into smaller, more meaningful subsets. In this study, the literature determined that there were sub-factors, and items were developed to meet this large data set. First, EFA was carried out to group the draft scale items, and then CFA was carried out to test the factor structure of these groups based on the literature.

Based on the literature, a sufficient study group size greater than 300 was reached for the scale development study. The Kaiser-Meyer-Olkin (KMO) measurement technique, which is the most frequently used method for the adequacy of the sample size, was performed at the beginning of the analyses (Seçer, 2021). The KMO value ranges from 0 to 1

(Cohen et al., 2018). This value is at least 0.60, which means that the sample size is sufficient (Pallant, 2001; Cohen et al., 2018). When the KMO criterion value for sample adequacy was provided, Bartlett's Test of Sphericity, which examines the correlation between variables, was calculated to assess the multiple connectivity problem, an a priori requirement for EFA. After determining whether this value ($p<0.05$) was significant, the EFA process was started (Tabachnick and Fidell, 2013).

Ensuring Construct Validity-1: In order to ensure validity and reveal the latent structures in the data set, the principal axis factoring (PAF) data analysis method was used. PAF aims to reveal the underlying factors in reality and focuses on explaining the correlations between the original variables and these factors. Unlike principal component factoring (PCF), PAF was preferred because it focuses on the shared variance among the original variables, rather than all variance, in a predetermined factor structure. PAF tries to discover the underlying factors in reality (Hair et al., 2010) and determine the relationships of these factors with the original variables. Factors can generally be correlated with each other, and explain the common variance. After running the factor analysis on the SPSS 25.00 package program, items with eigenvalues less than one were eliminated using Kaiser normalization. In order to examine the factor structure, the scree plot was used in the study, and the number of factors was determined according to the diffraction points by the researchers. Since the relationship between the factors was assumed, the direct oblimin technique, which is one of the non-orthogonal oblique rotation techniques, was applied. Items were removed using the factor extraction method, and PAF was re-run. When the item removal status was fixed after the second EFA group, the next stage, CFA, was started.

Ensuring Construct Validity-2: After grouping the variables and testing the factors, CFA was performed to verify the scale, which had already achieved construct validity in a different study group. CFA is a multivariate statistical technique used by a researcher to test and verify a previously determined theoretical model (Brown, 2015). CFA is used to evaluate the extent to which certain factors fit the variables observed by measurement tools. This analysis helps evaluate the validity and appropriateness of the model by measuring the fit of a theoretical model with real data (Byrne, 2010). AMOS software was also used for CFA in this study. The statistical data obtained through this software are: chi-square statistics, fit indices (such as GFI, CFI, RMSEA), and other criteria (see the Table in the Findings section). When the model did not show the expected fit, the researchers applied various correction steps. As a modification, the measurement model was revised and the relationships between the factors were changed, thus improving the model. This process is intended to ensure that the CFA model fits the data better and strengthens its theoretical representation.

Validity, and Reliability

Theoretical foundations were built to ensure construct validity and the design of the measurement tool was founded upon the theoretical infrastructure from the literature. The construct validity of the measurement tool was increased through expert review and

feedback. To strengthen the validation processes, theoretical foundations were created and feedback from field experts was actively sought. These actions were taken as part of a comprehensive approach aimed at improving the reliability and accuracy of the measurement tool. Content validity was assessed by field experts to ensure that the items in the measurement tool covered all aspects of the concept being measured. Both researchers worked on the items individually to ensure rater reliability, and then a draft scale was developed by cross-referencing until the draft version of the measurement tool was designed. A sample that accurately represented the population for which the measurement tool would be used was determined based on the literature and the characteristics of the population. It was expected that the selection of the appropriate sample would have a positive effect on construct validity. After determining the appropriate sample, the draft version of the measurement tool was first tested in small-scale pilot studies. These studies helped to evaluate how the measurement tool performed in practice. Exploratory Factor Analysis, Confirmatory Factor Analysis, and internal consistency analyses were conducted to check the consistency of the items in the measurement tool, which were used in the data analysis. Validity and reliability were ensured with statistical data by calculating various statistical measures, Cronbach's alpha internal consistency coefficients, score reliability between two independent researchers, and independent groups t-test to distinguish whether the items reveal the difference between the upper and lower 27% groups.

RESULTS

Exploratory Factor Analysis

The prerequisites for its suitability for factor analysis were examined before its construct validity was assessed. The Kaiser-Meyer-Olkin (KMO) coefficient measurement technique was used to ensure the adequacy of the sample size. KMO value was calculated as 0.906. This value is understood to be a "pretty good" sample size for a construct validity study (Tabachnick and Fidell, 2013). The KMO criterion value was provided for sample size adequacy. To eliminate the primary problem of multicollinearity, Bartlett's Test of Sphericity, a sphericity test that examines the correlation between variables, was calculated. This value was found to be significant as $X2(528)= 4167.411$; $p<0.05$ (Tabachnick and Fidell, 2013). In line with this finding, the analysis showed that the correlations between the items were large enough for exploratory factor analysis (EFA).

Table 5

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.906
Bartlett's Test of Sphericity	Approx. Chi-Square	4167.411
	df	528
	Sig.	.000

Ensuring Construct Validity-1: The principal axis factoring (PAF) data analysis method, one of the factor extraction methods, was used to ensure construct validity and reveal hidden structures in the data set. Since the relationship between the factors is assumed, the direct oblimin technique, one of the non-orthogonal (oblique rotation) rotation techniques, was applied. PAF revealed a seven-factor structure with eigenvalues above 1 for 33 items. It was found that the contribution of these factors to the total variance was 57.542%. Table 6 shows the distribution of the items according to factors and factor loadings.

Table 6

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	9.433	28.586	28.586	8.956	27.140	27.140	5.645
2	3.012	9.128	37.714	2.532	7.673	34.812	5.421
3	1.662	5.037	42.751	1.193	3.614	38.426	5.248
4	1.442	4.369	47.120	.940	2.848	41.275	4.029
5	1.278	3.871	50.992	.694	2.103	43.378	3.891
6	1.131	3.428	54.420	.544	1.650	45.027	1.967
7	1.030	3.122	57.542	.462	1.401	46.429	.958
8	.977	2.961	60.503				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

When examining the pattern matrix, the distribution of the items into factors can be seen. Since they are contiguous items and the difference between their distributions to factors is less than 0.10, combination-based extraction operations were tried gradually. Initially, the distribution of 33 items according to factors and their factor loadings is given in Table 7.

Table 7

Pattern Matrix

	Factor						
	1	2	3	4	5	6	7
SMEANMD27	.633						
SMEANMD16	.624						
SMEANMD20	.563						
SMEANMD15	.479					.302	
SMEANMD9	.442						
SMEANMD19	.376						
SMEANMD4							
SMEANMD30		-.974					
SMEANMD31		-.667					

SMEANMD32	.345	-.505				
SMEANMD23	.442	-,458				
SMEANMD21		-.452				
SMEANMD10	.326	-.408				.311
SMEANMD2		-.333				.321
SMEANMD3			-.888			
SMEANMD18			-.757			
SMEANMD5			-.624			
SMEANMD6			-.479			
SMEANMD14			-.301			
SMEANMD28				.644		
SMEANMD25				.602		
SMEANMD29				.532		
SMEANMD26				.377		
SMEANMD7						
SMEANMD8					.513	
SMEANMD12					.503	
SMEANMD13			-.340		.464	
SMEANMD11					.338	
SMEANMD22						
SMEANMD33						.425
SMEANMD17						.396
SMEANMD1						.378
SMEANMD24	.349					-.366

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 21 iterations.

All combinations were tried, and repeated exploratory factor analyses were conducted until there were no items that did not fall under any factor or overlapped with others. Before starting the factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient value and Bartlett's Test of Sphericity were calculated based on 25 items. KMO value was calculated as 0.887 and Sphericity values were calculated as X2(300)= 2770.993 (significance: 0.000, .000, $p<0.05$). After testing that the prerequisites for factor analysis were ensured with 25 items, exploratory factor analysis was carried out again.

Table 8

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	2770.993
	df	300
	Sig.	.000

PAF revealed a six-factor structure with eigenvalues above 1 for 25 items. The contribution of these factors to the total variance was 58.815%. Table 9 and Figure 1 (Scree Plot) show the distribution of the items according to factors and factor loadings.

Table 9

Total Variance Explained

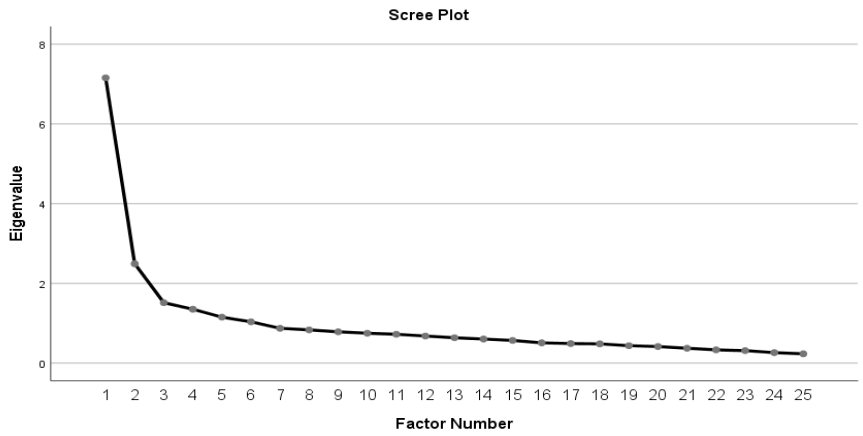
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.156	28.625	28.625	6.661	26.646	26.646	4.011
2	2.492	9.969	38.593	2.002	8.007	34.653	3.917
3	1.515	6.061	44.654	1.051	4.204	38.857	4.310
4	1.351	5.405	50.060	.831	3.324	42.181	2.610
5	1.153	4.613	54.672	.538	2.150	44.332	3.195
6	1.036	4.143	58.815	.452	1.808	46.139	1.727
7	.873	3.492	62.308				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Graphic 1

Scree Plot



In the final stage, a total of 8 items were removed because MD4, MD7, and MD22 were not included in any subscales; and MD23, MD24, MD13, MD15, and MD32 were overlapping items. Following the item extraction process, an exploratory factor analysis was conducted again with the remaining 25 items. The pattern matrix obtained after item extraction is given in Table 10.

Table 10

Pattern Matrix

	Factor					
	1	2	3	4	5	6
SMEANMD27	.637				-.328	
SMEANMD16	.595					
SMEANMD20	.568					
SMEANMD9	.512					
SMEANMD19	.399					
SMEANMD30		-.935				
SMEANMD21		-.574				
SMEANMD31		-.560				
SMEANMD10	.310	-.527				
SMEANMD2		-.459				
SMEANMD3			-.866			
SMEANMD18			-.769			
SMEANMD5			-.634			
SMEANMD6			-.503			
SMEANMD14			-.320			
SMEANMD8				.560		
SMEANMD11				.475		
SMEANMD12				.322		
SMEANMD28					-.575	
SMEANMD29					-.570	
SMEANMD25					-.570	
SMEANMD26					-.387	
SMEANMD33						.541
SMEANMD1						.421
SMEANMD17						.384

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 13 iterations.

When Table 10 is examined, it can be seen that there are 5 items under each of the first, second, and third factors; 3 items under each of the fourth and sixth factors; 4 items under the fifth factor. Based on the contents of the items, the factors are named sequentially "social acceptance", "economy", "school climate", "social environment", "health", and "professional competence".

When Table 10 is considered in terms of factor loadings, it appears that the factor loadings on the scale are between .320, and .935. This finding shows that the factor loadings of the items are greater than 0.30, indicating that all items are at a sufficient level (Cohen et al., 2018). Following the exploratory factor analysis, the results of the item-total score correlation analysis were performed to reveal the validity coefficient of each item, and the values related to the analysis are shown in Table 11.

Table 11

Corrected Item-Total Correlation

SMEANMD1	.147	SMEANMD12	.455	SMEANMD26	.431
SMEANMD2	.400	SMEANMD14	.517	SMEANMD27	.568
SMEANMD3	.566	SMEANMD16	.666	SMEANMD28	.483
SMEANMD5	.525	SMEANMD17	.366	SMEANMD29	.431
SMEANMD6	.521	SMEANMD18	.528	SMEANMD30	.483
SMEANMD8	.416	SMEANMD19	.341	SMEANMD31	.594
SMEANMD9	.573	SMEANMD20	.467	SMEANMD33	.385
SMEANMD10	.526	SMEANMD21	.535		
SMEANMD11	.293	SMEANMD25	.466		

In examining the item-total correlation, items with a value of .30 or above are considered sufficient to distinguish the variable intended to be measured (Büyüköztürk, 2008). As seen in Table 7, item 11 was not removed because its .293, an item-total score correlation value, was close to .30. Although the first item was below .30 at .147, it was decided not to remove it based on the literature and the opinions of field experts. The correlation values between the factors in the scale are in the Table 12.

Table 12

Factor Correlation Matrix

Factor	1	2	3	4	5	6
1	1,000	-,475	-,362	,175	-,247	,175
2	-,475	1,000	,311	-,248	,153	-,060
3	-,362	,311	1,000	-,367	,396	-,242
4	,175	-,248	-,367	1,000	-,376	,267
5	-,247	,153	,396	-,376	1,000	-,310
6	,175	-,060	-,242	,267	-,310	1,000

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

When Table 12 is evaluated, there is a medium-level relationship between the factors. These findings support the view that factors measure different dimensions of the same structure.

Reliability -1: Exploratory Factor Analysis was used in data analysis, and internal consistency analyses were conducted to check the consistency between the items in the measurement tool. The reliability value was calculated as Cronbach's alpha internal consistency coefficient (Table 13).

Table 13

Reliability Statistics (EFA)

	Cronbach's Alpha	N of Items
TOTAL	.892	25
1. Factor	.781	5

2. Factor	.784	5
3. Factor	.803	5
4. Factor	.574	3
5. Factor	.724	4
6. Factor	.494	3

A generally accepted rule is that the size of the reliability coefficient should be greater than or equal to 0.70 for research purposes (Johnson and Christensen, 2014). According to these findings, it is understood that the scale items provide a reliability value of .892. Despite the lower reliability coefficient (Cronbach's alpha = 0.494) for Factor 6, this factor was retained in the scale due to its theoretical significance and its contribution to the overall construct. In scale development, particularly with smaller numbers of items, it is not uncommon for a factor to demonstrate slightly lower reliability (Kline, 1999). Factor 6 was carefully chosen for its relevance to the dimensions of the scale, as it covers an essential aspect that was deemed important for the conceptual framework of the instrument. Moreover, the overall Cronbach's alpha for the full scale remains strong at 0.892, indicating that the inclusion of Factor 6 does not undermine the reliability of the entire scale (Field, 2018). Additionally, the statistical analyses, including item-total correlations and t-tests, supported the inclusion of this factor, showing that it provides meaningful differentiation between groups, which enhances the scale's validity (Büyüköztürk, 2008). Therefore, despite the slightly lower reliability of this factor, it was retained because of its theoretical relevance and the validation provided by other analyses.

For item discrimination, the upper-lower 27% groups, (Table 14) method was applied. Validity and reliability were ensured with statistical data by calculating the independent groups t-test to identify differences between groups.

Table 14

Independent Samples Test

	Groups	n	Mean	s.s	Levene's Test for Equality of Variances		t	P
					F	p		
Teacher Care Scale (TeCaS)	Lower %27	85	63.2457	11.63675	.024	.877	-30.851	.000
	Upper %27	85	118.1439	11.56480				

The total scores obtained from the scale for 313 participants were first sorted from largest to smallest. Afterward, the lower and upper 27% groups were determined based on a score of 84.51, and independent sample t-test values were calculated. Examining Table 14 indicates a statistically significant difference between the lower and upper groups. This finding indicates that the items in the scale have distinctive features.

Confirmatory Factor Analysis

To test the construct validity of the scale used in this study, confirmatory factor analysis (CFA) was applied. CFA is an analysis technique used to test the extent to which the determined factor structure fits the data set (Kline, 2016). Many fit indices are used to demonstrate the adequacy of the model tested in CFA. In this study, Chi-Square Goodness of Fit Test (Chi-Square Goodness), Goodness of Fit Index (GFI), Adjustment Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Incremental Fit Index (IFI), Root Mean Square Error of Approximation (RMSEA), Parsimony Normed Fit Index (PNFI), and Parsimony Goodness of Fit Index (PGFI) were examined for the CFA performed. In this regard, the findings are presented below in Table 15

Table 15

Perfect and Acceptable Fit Values for the Fit Indexes Examined in the Research and Fit Index Values Obtained from CFA

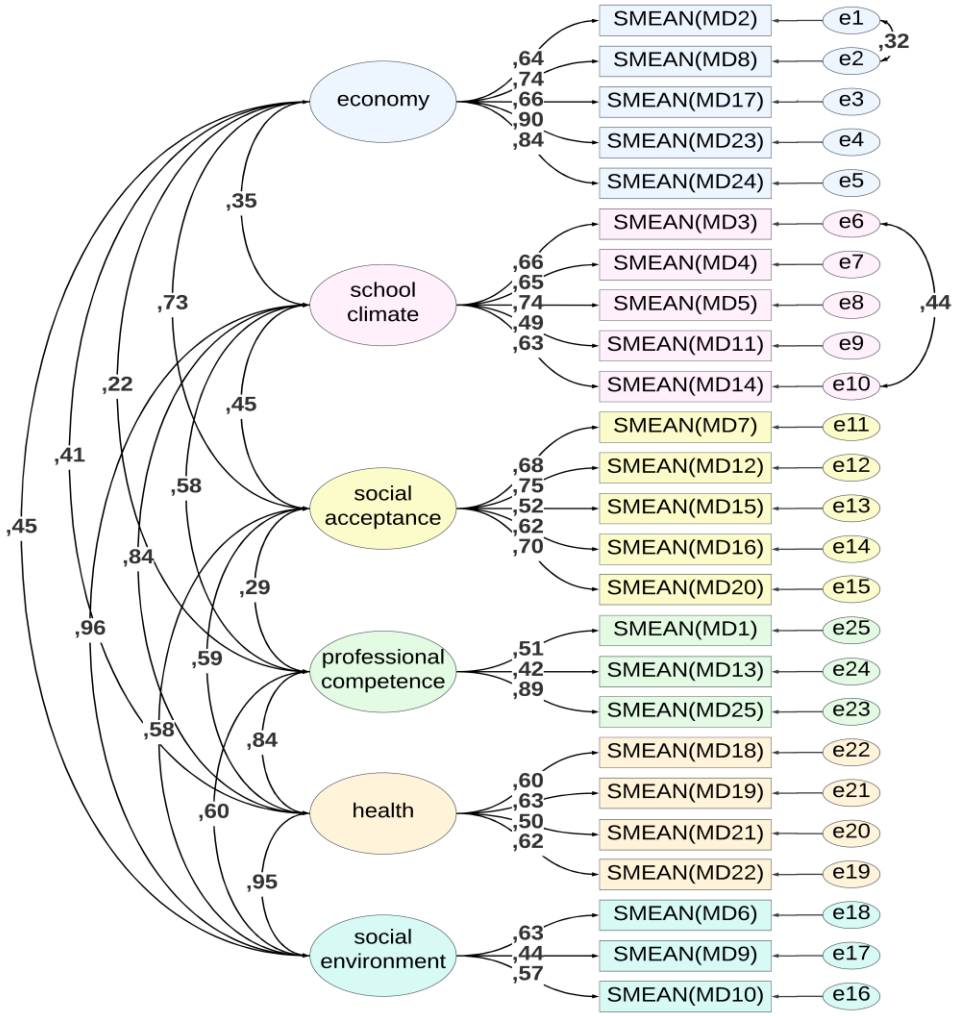
X2= 570.203, df = 258, p =.000, 90% Confidence Interval for RMSEA= (.056, .070)				
Examined Fit Indexes	Perfect Fit Criteria	Acceptable Fit Criteria	Obtained Fit Indexes	Conclusion
χ2/df	0 ≤ χ2/df ≤ 2	2 ≤ χ2/df ≤ 3	2,210	Acceptable Fit
GFI	.95 ≤ GFI ≤ 1.00	.90 ≤ GFI ≤ 95	,877	Acceptable Fit
AGFI	.90 ≤ AGFI ≤ 1.00	.85 ≤ AGFI ≤ .90	,845	Acceptable Fit
CFI	.95 ≤ CFI ≤ 1.00	.90 ≤ CFI ≤ .95	,897	Acceptable Fit
NFI	.95 ≤ NFI ≤ 1.00	.90 ≤ NFI ≤ .95	,828	Acceptable Fit
IFI	.95 ≤ IFI ≤ 1.00	.90 ≤ IFI ≤ .95	,898	Acceptable Fit
RMSEA	.00 ≤ RMSEA ≤ .05	.05 ≤ RMSEA ≤ .08	,063	Acceptable Fit
PNFI	.95 ≤ PNFI ≤ 1.00	.50 ≤ PNFI ≤ .95	,712	Acceptable Fit
PCFI	.95 ≤ PCFI ≤ 1.00	.50 ≤ PCFI ≤ .95	,771	Acceptable Fit

When Table 15 is examined, it can be said that the fit indices of the model based on the Confirmatory Factor Analysis (CFA) results are generally at an acceptable level of fit.χ^2/df (2.210): The ratio of the chi-square value to the degrees of freedom is 2.210. This value is within the acceptable fit range ($2 \leq \chi^2/df \leq 3$). The significance of chi-square ($p = .000$) may be related to the large sample, so it would be more accurate to focus on the χ^2/df value. GFI (0.877): GFI (Goodness of Fit Index) shows the fit of the model with the data. The value of 0.877 is within the acceptable fit range ($0.90 \leq GFI \leq 0.95$), but is insufficient for a perfect fit. AGFI (0.845): AGFI (Adjusted Goodness of Fit Index) corrects the GFI by taking into account the complexity of the model. The value of 0.845 is close to the lower limit of acceptable fit ($0.85 \leq AGFI \leq 0.90$). Cole (1987) states that the model can be considered acceptable when the AGFI value is between 0.85 and 0.90. It is stated that this index may not be evaluated very strictly, especially in modeling in social sciences, because this index can take lower values since it is arranged according to the complexity of the model. CFI (0.897): CFI (Comparative Fit Index) evaluates the fit of the model comparatively. A value of 0.897 is close to the acceptable fit limit ($0.90 \leq CFI \leq 0.95$), but it does not provide a perfect fit. Hu,

and Bentler (1999) emphasize that even when the CFI value is slightly below the 0.90 limit, an acceptable fit can be achieved. It has been stated that flexibility can be demonstrated by taking into account factors such as the complexity of the data structure and sample size, especially in models in social sciences. NFI (0.828): NFI (Normed Fit Index) is another index where fit is normed. A value of 0.828 is below the acceptable fit range ($0.90 \leq NFI \leq 0.95$). Bentler and Bonett (1980) emphasize that if the NFI value is below 0.90 but above 0.80, the fit can be considered acceptable. It has been stated that looser criteria can be applied in social sciences and the model can still be valid if the NFI value is just below the ideal limit. IFI (0.898): IFI (Incremental Fit Index) is a comparative fit index. A value of 0.898 is within the acceptable fit limit ($0.90 \leq IFI \leq 0.95$), but it does not reach a perfect fit. RMSEA (0.063): RMSEA (Root Mean Square Error of Approximation) shows the prediction errors of the model. The value of 0.063 is within the acceptable fit limits ($0.05 \leq RMSEA \leq 0.08$), but it does not provide a perfect fit. MacCallum et al. (1996) stated that a RMSEA value below 0.08 indicates a good fit, while values just above 0.05 are acceptable. In the social sciences, ranges of values rather than exact limits for RMSEA should be considered because this index can be affected by sample size and model complexity. PNFI (0.712): PNFI (Parsimony Normed Fit Index) evaluates the fit by considering the parsimony of the model. The value of 0.712 is within the acceptable fit range ($0.50 \leq PNFI \leq 0.95$). PCFI (0.771): PCFI (Parsimony Comparative Fit Index), similar to CFI, evaluates the parsimony of the model. The value of 0.771 is also within the acceptable fit range ($0.50 \leq PCFI \leq 0.95$). These values prove that the model has a good fit and that the scale is valid and reliable enough to be used on different sample groups (Graphic 2).

Grafic 2

Path Diagram for Confirmatory Factor Analysis of the Scale



Reliability-2: The reliability value was calculated as Cronbach's alpha internal consistency coefficient (Table 16).

Table 16

Reliability Statistics (CFA)

	Cronbach's Alpha	N of Items
TOTAL	.899	25
1. Factor	.873	5
2. Factor	.791	5
3. Factor	.768	5
4. Factor	.601	3
5. Factor	.676	4
6. Factor	.566	3

A generally accepted rule is that the size of the reliability coefficient should generally be greater than or equal to at least 0.70 for research purposes (Johnson, and Christensen,

2014). According to these findings, it is understood that the scale items provide a reliability value of 0.899 and are close to perfect.

CONCLUSION

In conclusion, the development of the Teacher Care Scale (TeCaS) has provided an important tool for understanding and evaluating the professional care needs of teachers, which are central to the success of the education system. With its six-factor structure, consisting of 25 items in total, the scale helps identify key areas where teachers require support, such as social acceptance, economic well-being, and professional competence. The findings contribute significantly to the literature by offering insights into how teacher care can be conceptualized and measured. Furthermore, the scale's practical implications are substantial for education policymakers and practitioners, as it provides a basis for planning targeted care services that address the multifaceted needs of teachers. By addressing these needs, the scale can help meet teacher needs, ultimately enhancing the effectiveness of the education system as a whole.

LIMITATIONS, AND FUTURE DIRECTIONS

This study has several unavoidable limitations due to sample, data collection method, time, and cultural influence:

- The study was conducted only among primary school teachers in Istanbul; therefore, the results obtained may not be generalizable to teachers in other cities or with different levels of education.
- The use of survey applications caused the teachers' responses to be based on their perceptions. This situation may affect the subjectivity of the responses and therefore the validity of the research results.
- Since the study was conducted in a specific period, the care needs of teachers, which may change over time, and the perception of these needs were not taken into account.
- The perception of teacher care may be affected by cultural and social factors. Therefore, the findings of the study may differ in a cultural context.
- A limitation of this study is the lack of test-retest reliability and criterion validity analyses, which are crucial for evaluating the temporal stability and predictive power of the scale. While the current research demonstrates robust internal consistency via Cronbach's alpha, these additional reliability and validity checks are necessary for a more comprehensive understanding of the scale's performance over time and its capacity to predict relevant outcomes (Cohen et al., 2018; Sijtsma, 2009).

Implications for educational research and practice: The findings of this study hold significant implications for both educational research and practice:

- The development of the Teacher Care Scale (TeCaS) provides a robust tool for future studies examining the concept of teacher care. Researchers can use this scale to explore various dimensions of teacher well-being and its impact on educational outcomes, fostering a deeper understanding of the teacher variable in education systems.
- Teacher care is a concept that should be addressed not only on a branch basis but also from a broader perspective. In this context, examining the levels of teacher care across branches before initiating support processes for teachers will be of great benefit in future studies. A better understanding of the differences and needs across branches will make it possible to plan teacher care more effectively and comprehensively. This approach has the potential to increase the overall efficiency of the education system.
- The results can inform policymakers about the critical importance of teacher care in enhancing educational quality. Recognizing the factors that contribute to teacher well-being can guide the development of targeted policies and initiatives aimed at improving the work environment for educators.
- It is recommended that future research include test-retest reliability and criterion validity studies to confirm the stability and external validity of the scale. These analyses would help solidify its utility and ensure its applicability across different contexts and populations (Nunnally and Bernstein, 1994; Kline, 1999).

In summary, the implications of this study highlight the vital role of teacher care in educational settings and encourage researchers and practitioners to prioritize teachers toward the goal of achieving educational excellence. In this context, supporting and caring for teachers is critical to improving the quality of the education system.

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Data Availability Declaration

Data Availability Upon Formal Request: While the primary datasets utilized in this study are not publicly accessible due to certain constraints, they are available to researchers upon a formal request. The authors have emphasized maintaining the integrity of the data and its analytical rigor. To access the datasets or seek further clarifications, kindly reach out to the corresponding author. Our aim is to foster collaborative academic efforts while upholding the highest standards of research integrity.

Author Contributions

All authors, Muhammet Baştuğ, Meltem Atasoy, and Burak Öncü, contributed equally to this work. They collaboratively handled the conceptualization, methodology design, data acquisition, and analysis. Each author played a significant role in drafting and revising the manuscript, ensuring its intellectual depth and coherence. All authors have thoroughly reviewed, provided critical feedback, and approved the final version of the manuscript. They jointly take responsibility for the accuracy and integrity of the research.

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