

Deficit Thinking Scale for teachers: A validity and reliability study in Turkish context

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Abstract: Deficit thinking is one of the theories developed to explain achievement gaps among different student groups. It attributes academic failure to perceived deficiencies within students, disregarding the role of structural inequalities in education. This study aims to develop a valid and reliable scale to measure Turkish teachers' attitudes toward deficit thinking, which has not previously been operationalized in Türkiye. Based on a rigorous scale development process, including literature review, expert consultation, pilot testing, exploratory and confirmatory factor analyses, the final version of the scale consists of 22 items and five dimensions. Exploratory factor analysis ($n = 323$; KMO = .87; Bartlett's $\chi^2 = 4983.99$, $p < .001$) revealed a five-factor structure (Blaming the Environment, Educability, Oppression, Blaming the Victim, and Pseudoscience) that explained 66.13% of the total variance. Confirmatory factor analysis ($n = 569$) supported this structure with good model fit ($\chi^2 / df = 2.58$, CFI = .95, TLI = .95, RMSEA = .053, SRMR = .043). The scale demonstrated strong reliability (Cronbach's $\alpha = .86$ overall; .93, .93, .88, .87, .91 for subscales). Item 20 is reverse-scored; total scores range from 22 to 110, with higher scores indicating stronger deficit-oriented attitudes. This context-specific scale offers a robust tool for investigating deficit-oriented beliefs in educational settings and provides a foundation for further research, teacher training, and policy development.

1. INTRODUCTION

Throughout history, the privileged structures of the dominant class have been legitimized through mechanisms that obscure reality. Within this context, the education system emerges as a structure that ostensibly allocates individuals to economic positions through an objective and seemingly meritocratic process (Bowles & Gintis, 2011). Contrary to these claims, however, education systems can significantly influence the outcomes that determine students' social positions. Educational institutions segregate students in ways that serve the interests of the dominant class, thereby shaping academic success within a social framework. As social class-based inequalities manifest as educational advantages and disadvantages in schools (Bourdieu & Passeron, 2015), millions of students from specific family backgrounds experience

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widespread and persistent academic failure (Valencia, 2010). In this regard, one of the key social determinants can be described as deficit thinking.

The origins of deficit thinking can be traced back to the colonization of Indigenous peoples, particularly by the British and other White populations, for economic gain. People of different racial and ethnic backgrounds were both disenfranchised through colonization and subjected to exploitation that was legitimized by attributing biological and cultural deficiencies to them. This ideology, used to justify the oppressor-oppressed relationship, has profoundly influenced the educational experiences of students from diverse racial and ethnic backgrounds (Menchaca, 1997). In this context, deficit thinking has evolved into one of the theories used to explain achievement gaps between advantaged and disadvantaged student groups. This mindset, which shapes education policies, attributes academic failures primarily to students and their families, largely ignoring the impact of societal and systemic factors on achievement (Valencia, 1997). Deficit theories assume that some children are inherently inferior to others due to genetic, cultural, or experiential differences and must overcome these deficiencies to learn effectively. Rather than examining the conditions provided to students, these theories place the blame for failure on perceived deficiencies within the students themselves (Nieto & Bode, 2018; Weiner, 2003). Consequently, proponents of deficit thinking fail to recognize the role of the existing education system in reinforcing social inequalities and shaping educational outcomes (Davis & Museus, 2019).

According to Valencia (1997), influenced by various theories such as Social Darwinism (Ornstein *et al.*, 2011; Russell, 1973), intelligence testing movements (Cronin *et al.*, 1974; Valencia & Suzuki, 2000) and “nature versus nurture” debates (Degler, 1991; Gillborn & Youdell, 2001; Payne, 2021), deficit thinking has six main themes. These include blaming the victim, oppression, pseudoscience, temporal changes, educability, and heterodoxy. Blaming the Victim, refers to the process in which a person who has been harmed by a crime is blamed for their victimization (The Canadian Resource Centre for Victims of Crime, 2022). Those who adhere to deficit thinking ignore the role of external and systemic factors in student success, instead claiming that academic failure is a result of cognitive or motivational deficiencies in the student (Valencia, 1997). Oppression, arises from power relations as a characteristic of social stratification and benefits the dominant culture (Marfin, 2019). Deficit thinking also represents a form of oppression, where power is used unfairly to maintain the position of a certain group (Gorski, 2010). Pseudoscience, refers to non-scientific practices based on ideological commitments or dogmatic thinking, yet it creates the illusion of science by using scientific language (Hyslop-Margison & Naseem, 2007; Thyer & Pignotti, 2016). Researchers who adopt deficit thinking also often violate scientific methods, attempting to rationalize deficit thinking with pseudoscientific data (Valencia, 1997). Temporal Changes, deficit thinking is shaped by the ideology of the time and the research climate, and the tools used to convey deficit thinking have undergone change over time (Valencia, 2010; Zammit, 2020). Educability, by attributing deficiencies or faults to students, deficit thinking particularly influences our views on the educability of students from lower socioeconomic backgrounds (Valencia, 1997). Although schools appear to have a mission to ensure every student’s learning, the actual practices and programs in schools reflect deficit thinking regarding the educability of children from low-income families (Scheurich & Skrla, 2004). Deficit thinking is based on orthodoxy, which refers to doctrines generally accepted and officially recognized within society. In contrast to the orthodox views that define deficit thinking, heterodox perspectives challenge this mindset and encourage the questioning of the status quo (Cormier, 2009). Heterodoxy, which opposes traditional norms and serves as a tool for adopting alternatives, plays a critical role in resisting deficit thinking by encouraging a re-evaluation of the conditions that foster and sustain this mindset (Huitt, 2023).

To combat the deficit thinking, which is rooted in systematic inequalities such as socioeconomic, racial, or ethnic differences (Sharma, 2009) and blames students for school

failure (Valencia, 2010), it is essential first to determine how this mindset manifests in teachers. Although several studies have investigated teachers' deficit thinking (Beasley, 2023; Cormier, 2009; Gray, 2015; Ireland, 2015; Lawrence, 2017; Marfin, 2019; Simone, 2012; Zammit, 2020), a significant limitation lies in the contextual specificity of their measurement tools. A review of the literature revealed that only one scale (Marfin, 2019) has been developed to directly measure deficit thinking. Other studies addressing deficit thinking have relied on related instruments, such as the Color-Blind Racial Attitudes Scale, Deficit-Oriented Questions, and the Attitude toward Poverty Scale (Accuardi-Gilliam, 2017; Austin, 2019; Gholson, 2015; Harper, 2010; Neville *et al.*, 2000; Simone, 2012; Yun & Weaver, 2010), which assess constructs that are conceptually aligned with or indicative of deficit-based perspectives. Moreover, the instruments used in these studies often include references that are culturally or racially grounded in the Western context, based on language, culture, race, ethnicity, and the Black-White dichotomy (e.g. students of color, Hispanic, Latino, African American, Black, or minority students)—that do not have meaningful equivalents in the Turkish context. For instance, Marfin's (2019, p. 156) questionnaire includes items such as "African American students and Hispanic students are more likely to be members of inappropriate groups than their White counterparts" or "In certain situations, I attribute a student's poor choices to the moral character of their ethnic or racial identity" or "Educators should be aware that students of color may not be able to reach a high level of academic achievement" which have no meaningful equivalents in Türkiye's demographic or cultural context. This cultural mismatch presents a major limitation for adapting these instruments directly to Türkiye. In contrast to Western countries, where ethnic or racial categories often serve as primary explanatory variables for educational disparities, in Türkiye, such differences are more commonly understood through a socioeconomic lens. That is, educational inequalities in Türkiye are predominantly attributed to students' socioeconomic background rather than to their racial or ethnic identity (Çiftçi & Çağlar, 2014; Education Reform Initiative (ERG), 2014; Ocak, 2024). Therefore, any attempt to measure deficit thinking in the Turkish context must focus primarily on attitudes related to class-based disadvantage, rather than ethnically coded attitudes. This contextual distinction is supported by a growing body of research. Studies conducted in Türkiye have consistently demonstrated a strong relationship between students' socioeconomic status and their academic performance, cognitive development, socio-emotional well-being, and long-term educational outcomes (ERG, 2014; Organization for Economic Co-operation and Development [OECD], 2018). Given these findings, measuring deficit thinking in Türkiye requires a context-specific instrument that accurately reflects the way teachers interpret and respond to class-based disparities in education. This study responds to that need by developing and validating a new scale that captures Turkish teachers' attitudes toward deficit thinking, grounded in both international theory and national sociocultural realities. It is hoped that this instrument will contribute not only to academic research but also to teacher training and policymaking efforts aimed at reducing educational inequalities. Specifically, this study was guided by the following two research questions (RQs):

RQ1. What are the underlying dimensions of Turkish teachers' deficit thinking as identified through empirical data?

RQ2. Can a valid and reliable measurement tool be developed to assess these dimensions within the Turkish educational context?

2. METHOD

This study, which involves a scale development process, was conducted using quantitative approaches. The research focuses on validity and reliability analyses, and the following steps were taken during the process in line with the scale development protocol proposed by DeVellis (2017). The present study followed a systematic, multi-step process. First, the construct to be measured—teachers' attitudes of deficit thinking—was clearly defined (Step 1). An extensive

literature review was conducted to generate a comprehensive item pool (Step 2), and Likert-type response options were selected as the measurement format (Step 3). The initial item pool was then reviewed by field experts specializing in social justice in education, educational inequality, and inclusive practices (Step 4). Informed by their feedback, items that were overly broad, redundant, or ambiguous were revised or removed. Although the inclusion of validation items (Step 5) was considered, the primary focus remained on the construct validity of the core scale. The revised scale was administered to a development sample (Step 6), and items were evaluated based on exploratory factor analysis (EFA) (Step 7). Items with low factor loadings and high cross-loadings were excluded during this phase. The final scale structure was optimized by removing non-performing items and ensuring conceptual clarity and parsimony (Step 8). Finally, the factor structure was evaluated through confirmatory factor analysis (CFA) to assess model fit and structural validity, in accordance with best practices for psychometric evaluation (Step 9). This rigorous protocol enhanced the construct validity and contextual relevance of the instrument. The details of the process have been explained below.

2.1. Definition of the Construct to be Measured

Deficit theories argue that student failure is attributed to deficiencies within the student, overlooking the underlying conditions that contribute to failure (Weiner, 2003). Teachers, who have an impact on student success, often continue to sustain deficit thinking towards disadvantaged students, even if it is not always the result of a conscious action (Gorski, 2010; Valencia, 2010). A review of the literature reveals that there is no measurement tool in Türkiye related to deficit thinking used to explain achievement gaps between student groups. As explained above, this study aims to fill this gap.

2.2. Item Pool Creation

According to Loevinger (1957), the items in the pool should be broad enough to encompass all alternative theories of the construct expected to be measured. Similarly, Clark and Watson (2016) emphasize the importance of systematically including all content relevant to the construct when developing an item pool. In their view, the initial item pool should be broad and comprehensive, and overinclusiveness should not be avoided at this stage. This is because psychometric analyses are strong in identifying irrelevant items that should be removed from the scale, but weak in identifying content that should be included (Boateng *et al.*, 2018). In line with this approach, based on the theoretical framework of deficit thinking, dimensions were identified, and a pool of 70 items was created by reviewing various studies. The items were formulated using a 5-point Likert scale, with response options ranging from "*Strongly Disagree* (1), *Disagree* (2), *Neutral* (3), *Agree* (4), to *Strongly Agree* (5)."

2.3. Expert Consultation

The draft form, consisting of 70 items, was first sent to a language expert for linguistic review, and the recommended revisions were implemented. Subsequently, to ensure content validity and gather feedback on the items, the form was reviewed by three academics with doctoral degrees specializing in social justice in education, educational inequalities, and inclusive education. The first academic identified items he found overly broad and recommended making them more specific. He also highlighted items with overlapping meanings and suggested their removal. Based on this feedback, the scope of the relevant items was narrowed, and redundant items were removed from the pool. The second academic emphasized that each item should express a single idea, drawing attention to the overuse of the conjunction "and." He also suggested replacing the phrase "is affected" with "is more affected" when comparing students from lower socioeconomic backgrounds with their peers (Final version of the scale: Items 12–16). In response, items were revised accordingly. The third academic offered suggestions to improve the clarity of two items (Final version: Items 13 and 18) and recommended the removal of one item. Revisions were made based on this feedback. The revised draft form was then resent to the three academics for further review. An online meeting followed, during which the

relevance, clarity, and cultural appropriateness of the items were evaluated, and consensus was reached. Finally, a researcher with a doctoral degree in measurement and evaluation reviewed the form. Based on this final review, the title of the scale was revised, and the finalized version of the scale consisted of 50 items.

2.4. Pilot Study

To assess the applicability and clarity of the developed form, a draft version of the scale was administered to twenty teachers selected through convenience sampling. Teachers were asked to read the items and identify any potential ambiguities or confusion in meaning. Based on the feedback received, several items were revised linguistically.

2.5. Data Collection

The final version of the draft scale was administered to a total of 352 teachers selected through convenience sampling from public schools located in the districts of Mudanya, Nilüfer, Osmangazi, and Yıldırım in Bursa during the 2023-2024 academic year. In the second phase, the scale was administered to 616 teachers using a cluster sampling method. For this stage, schools rather than individual teachers were sampled, and all teachers in the selected schools were invited to participate.

Table 1. Demographic information of the study group.

Categories	EFA		CFA	
	<i>f</i>	%	<i>f</i>	%
Gender				
Female	164	50.8	344	60.5
Male	159	49.2	225	39.5
Age				
20-30	17	5.3	33	5.8
31-40	146	45.2	162	28.5
41-50	124	38.4	250	43.9
51-60+	36	11.1	124	21.8
Professional Experience				
1-5	18	5.6	42	7.3
6-10	75	23.2	75	13.2
11-20	145	44.9	179	31.5
20+	85	26.3	273	48.0
Education Status				
Undergraduate	228	70.6	433	76.1
Master's Degree	92	28.5	131	23.0
PhD	3	.9	5	.9
SES				
Low	122	37.8	182	31.98
Middle	169	52.3	226	39.72
High	32	9.9	161	28.30
Total	323	100	569	100

SES: The socioeconomic status of the area where the school is located.

Data collection was conducted in coordination with school principals. Depending on the infrastructure and logistical preferences of the schools, the survey was either distributed via an

online link (Google Forms) or administered as a printed form. Participants completed the scale during designated periods that did not interfere with instructional hours. All participants were informed about the purpose of the research, the voluntary nature of participation, and the confidentiality of their responses through an introductory statement. No incentives were offered for participation. Data was screened for completeness before proceeding to analysis and only fully completed responses were included. Further details on the demographic characteristics of the participants—including variables such as gender distribution, teaching experience, and education status—are presented in [Table 1](#).

2.6. Data Analysis

All statistical analyses were performed using IBM SPSS Statistics 29 and MPlus 8. Before the main analyses, the dataset was screened for missing values and outliers, and cases with incomplete responses or extreme values were removed. As a result, data from 29 participants in the first group and 47 participants in the second group were excluded (see [Table 1](#)).

Assumption checks were conducted prior to the main analyses. For the EFA sample ($n = 323$), the adequacy of the sample size and the factorability of the correlation matrix were examined using the Kaiser–Meyer–Olkin (KMO) test and Bartlett’s Test of Sphericity. The KMO value was .872, indicating meritorious sampling adequacy (Kaiser, 1974). Bartlett’s Test of Sphericity yielded a chi-square value of 4983.993 ($df = 253$, $p < .001$), confirming that the correlation matrix was significantly different from an identity matrix and suitable for factor analysis (Can, 2016).

Multivariate normality was assessed with Mardia’s test. The results indicated violations of multivariate normality (Mardia Skewness = 30672.03, Kurtosis = 31.59, $p < .001$). Consequently, Principal Axis Factoring (PAF) was selected as the extraction method. PAF does not require the assumption of multivariate normality and is therefore more appropriate for datasets where this assumption is violated (Fabrigar *et al.*, 1999; Osborne *et al.*, 2008). After deciding on the extraction method, in line with Thompson’s (2004) recommendation for research in the social sciences, Promax rotation was used as the preferred oblique rotation method. Promax is considered a more desirable choice when factors are expected to correlate, particularly in applied fields such as education and psychology (Thompson, 2004). Items with factor loadings below .40, communalities below .40, or cross-loadings with less than .10 difference were removed (Osborne *et al.*, 2008). The number of factors was determined based on eigenvalues > 1 , the scree plot, and parallel analysis.

For the CFA, data from an independent sample ($n = 569$) were used. Prior to CFA, multivariate normality was again examined using Mardia’s test, which indicated a violation of (Skewness = 5635.28, $p < .001$; Kurtosis = 69.39, $p < .001$), suggesting non-normality in the data distribution (Mardia, 1970). Given this result, the maximum likelihood robust method for CFA was employed in MPlus, which provides robust standard errors and chi-square statistics under non-normal conditions (Li, 2016). Additionally, the sample size ($n = 569$) was deemed sufficient based on recommended criteria for CFA exceeding the commonly recommended threshold of 200 participants or a ratio of at least 10 participants per estimated parameter for CFA (Hair *et al.*, 2019; Kline, 2016). Linearity among variables was assumed, and factor correlation values did not indicate multicollinearity, as no correlation exceeded .85 (Brown, 2015).

After the assumption checks, EFA and CFA were conducted sequentially to evaluate construct validity. Model fit in CFA was evaluated using χ^2/df (< 3 for perfect fit), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) ($\geq .95$), Root Mean Square Error of Approximation (RMSEA) ($\leq .08$), and Standardized Root Mean Square Residual (SRMR) ($\leq .05$) as recommended by Hu and Bentler (1999) and Kline (2016). Following factor analyses, convergent and discriminant validity were examined by calculating Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV), and internal consistency reliability was assessed using Cronbach’s α .

3. RESULTS

In this section, the results related to the analyses of validity and reliability are presented separately below.

3.1. Exploratory Factor Analysis

While performing EFA using PAF with Promax rotation, Osborne *et al.* (2008) suggest that communalities above .40 are acceptable. Therefore, during the item retention process, items with factor loadings below .40 were excluded from the scale, as they were considered insufficiently representative of the underlying factors. Only Item 41's communality value was .38, but we chose to keep this item as it is important for theoretical considerations. Table 2 shows the communalities of the final version of the scale. In addition, to ensure distinct factor loadings, a minimum difference of .10 between an item's loadings on different factors was set as the threshold to identify and remove cross-loading items. As a result of these criteria, 27 items were excluded, leading to a scale composed of 23 items. However, in response to potential item redundancy within Factor 1, one item was excluded from the final scale. Subsequently, both the EFA and CFA were re-run with the revised 22-item scale. The results reported in this study are based on this final version. Further details regarding this decision can be found in the section for Reliability Analysis.

Table 2. Item communalities.

Item	Initial	Extraction	Item	Initial	Extraction
I1	.502	.499	I21	.786	.839
I2	.747	.868	I22	.820	.869
I3	.737	.813	I23	.762	.795
I11	.527	.511	I26	.486	.451
I12	.693	.694	I31	.532	.609
I13	.695	.732	I32	.574	.638
I15	.657	.696	I33	.623	.736
I16	.621	.656	I34	.410	.448
I17	.623	.607	I35	.625	.743
I18	.542	.534	I36	.611	.764
I20	.663	.668	I41	.360	.379

As shown in Table 2, all items included in the final version of the scale demonstrated acceptable levels of shared variance with the extracted factors. Specifically, communalities after extraction ranged from .379 to .869, indicating that a substantial proportion of each item's variance was explained by the factor structure. Although one item (I41) had a communality slightly below the commonly accepted threshold of .40 (Osborne *et al.*, 2008), it was retained due to its strong theoretical relevance to the construct. All other items met or exceeded the recommended .40 criterion, supporting the adequacy of their inclusion in the final factor model.

The number of factors to retain was determined based on multiple criteria: eigenvalues greater than 1.0, inspection of the scree plot, and the results of a parallel analysis. These criteria collectively suggested a five-factor solution, which was also theoretically meaningful. To determine the number of factors to retain, we adopted a multi-step procedure combining empirical criteria with theoretical judgment. Following the protocol by Yurt (2024), initially, we reviewed communalities and factor loadings to assess the suitability of each item. Items with low communalities or insufficient factor loadings were removed. After each round of item removal, the factor analysis was re-run to evaluate the updated structure. Following this

iterative process, a parallel analysis was conducted, the results of which, supported by a scree plot (See Figure 1), indicated a five-factor solution as the most appropriate.

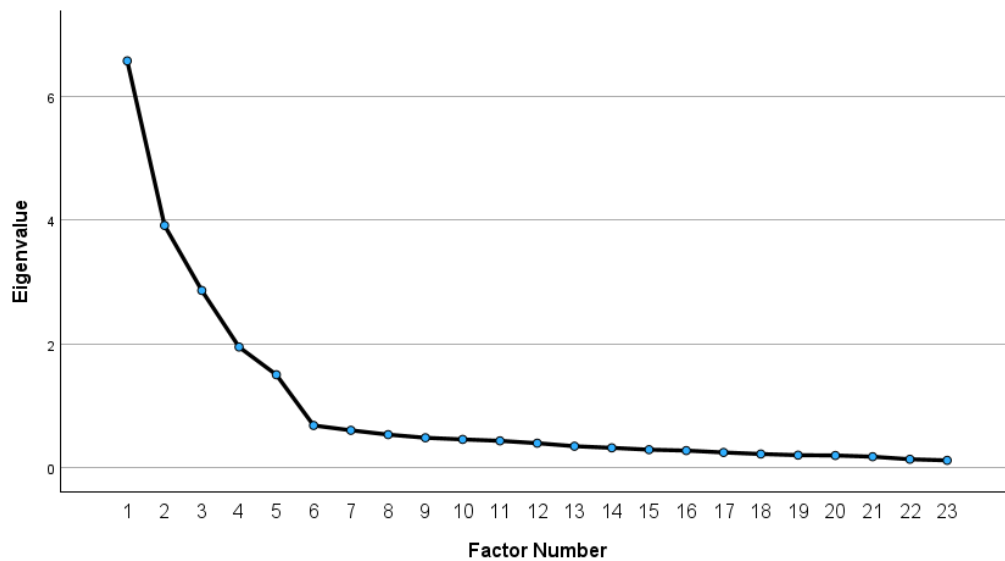


Figure 1. Scree plot for eigenvalues.

Upon examining the distances between each point representing the factors and the inflection points of the lines in the line graph in Figure 1, it can be concluded that a five-factor structure emerges. This finding is also consistent with the factor eigenvalues presented in Table 3. A final EFA was conducted using this predefined factor structure. During this stage, additional items were removed based on statistical and conceptual grounds. The final factor structure was reviewed and confirmed to be theoretically sound and empirically supported.

Table 3. Results of parallel analysis.

Real Data		Random Data	
Factor	Eigenvalue	Factor	Eigenvalue
1	8.284	1	1.626
2	4.781	2	1.539
3	3.589	3	1.470
4	2.105	4	1.417
5	1.814	5	1.369
6	1.255	6	1.325
7	1.021	7	1.284

One of the methods used to determine the number of factors in the data is parallel analysis, which operates based on randomly generated data. The core of the analysis involves comparing the eigenvalues of the randomly generated data with the eigenvalues obtained from the real data set. The point where the eigenvalue of the parallel data exceeds the eigenvalue of the real data provides information about the number of factors (Ledesma & Mora, 2007). According to this, when Table 3 is examined, it is observed that after the fifth dimension, the values in the parallel data exceed those in the real data. Therefore, the five-factor structure of the scale is also confirmed by the parallel analysis method. According to Table 4, the scale consists of 5 factors, which account for % 66.13 of the total variance of the scale. After rotation, it was observed that the first factor consists of 7 items, the second factor consists of 5 items, the third factor consists of 4 items, and the fourth and fifth factors each consist of 3 items. In alignment with the definitions in the literature, the first factor was named "Blaming the Environment," the second

factor "Educability," the third factor "Oppression," the fourth factor "Blaming the Victim," and the fifth factor "Pseudoscience".

Table 4. Pattern matrix and explained variances.

Items	The factor loading values after rotation				
	1	2	3	4	5
I13	.874	-.057	.023	-.031	-.016
I12	.862	.033	-.017	-.059	.002
I15	.846	-.012	.090	-.049	-.053
I17	.816	-.037	-.005	.025	.016
I16	.729	-.009	-.027	.070	.058
I11	.726	.052	-.008	.004	.005
I18	.662	-.057	.023	-.031	-.016
I22	.008	.934	-.023	.005	.018
I21	-.031	.916	-.019	-.014	.001
I23	.003	.890	-.002	-.009	-.019
I20	.024	.814	-.017	.051	.003
I26	-.008	.656	.094	-.064	-.013
I33	.089	.023	.859	.012	.035
I32	.004	.038	.802	.060	.000
I31	-.010	.052	.779	.024	-.007
I34	.100	.108	-.621	.093	.044
I2	-.031	.010	.016	.951	-.045
I3	-.001	-.028	.013	.902	.023
I1	.152	-.012	-.012	.609	.018
I36	-.032	.026	-.017	.011	.880
I35	-.075	-.033	.075	-.032	.843
I41	.145	-.005	-.067	.006	.592
Explained Variance	%25.26	%16.65	%11.41	%7.28	%5.18
(Total: 66.13%)					

The initial item pool was informed by the six conceptual dimensions of deficit thinking described by Valencia (1997, 2010). Although we theoretically anticipated a multidimensional structure aligned with these dimensions, the EFA revealed a five-factor solution. Items related to temporal changes and heterodoxy did not demonstrate sufficient loadings and were excluded. Instead, a new factor, Blaming the Environment, emerged, which is consistent with environmental deficit perspectives discussed in prior research (Pearl, 1997; Valencia, 2020)

3.2. Confirmatory Factor Analysis

After EFA, the 22-item form of the scale was administered to 569 individuals for CFA to evaluate the structure of the 5-factors. Table 5 presents the fit indices of the model along with their respective value ranges. According to Table 5 the model demonstrated an overall good fit to the data: $\chi^2/df = 2.58$, CFI = .95, TLI = .95, RMSEA = .053, and SRMR = .043. The model fit was evaluated based on multiple fit indices following the recommended cut-off values by Hu and Bentler (1999), Hooper *et al.* (2008), and Kline (2016). According to established criteria values of CFI and TLI above .95 and SRMR below .05 indicate an excellent fit, while an RMSEA value between .05 and .08 suggests acceptable fit. These results support the adequacy

of the hypothesized factor structure in representing the data. Furthermore, the Akaike Information Criterion (AIC = 25840.88), the Bayesian Information Criterion (BIC = 26171.01), and adjusted BIC (25929.75) were reported to allow model comparison in future studies.

Table 5. CFA Results.

Fit Index	Perfect Fit Index	Acceptable Fit Index	Values for the Scale	Fit Result
χ^2 / df	< 3	< 5	2.58	Perfect
CFI	.95 ≤ CFI ≤ 1.00	.90 ≤ CFI ≤ .95	.95	Perfect
TLI	.95 ≤ TLI ≤ 1.00	.90 ≤ TLI ≤ .95	.95	Perfect
RMSEA	.00 ≤ RMSEA ≤ .05	.05 ≤ RMSEA ≤ .08	.053	Acceptable
SRMR	.00 ≤ SRMR ≤ .05	.05 ≤ SRMR ≤ .10	.043	Perfect

χ^2/df : Chi-Square / Degrees of Freedom.

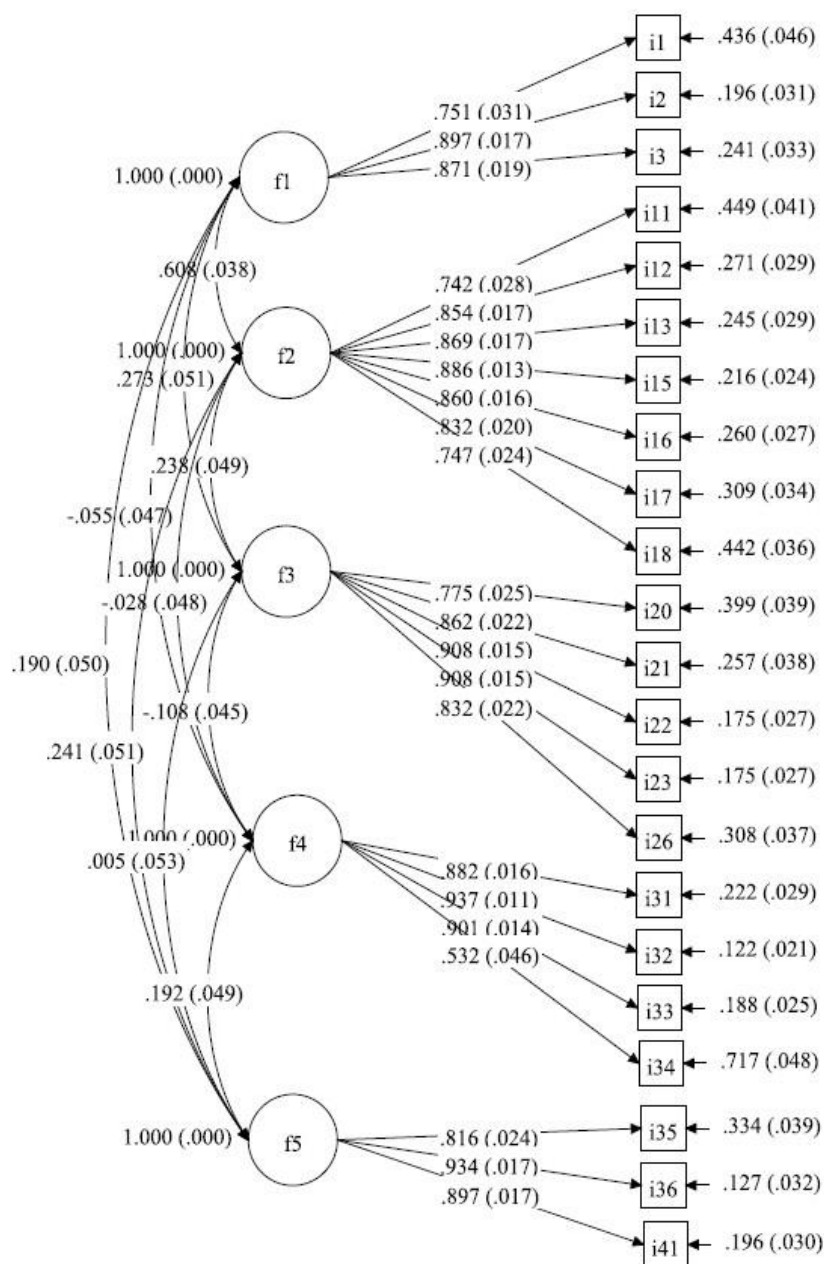


Figure 2. Standardized path diagram of the CFA.

When Figure 2 is examined, it is observed that the factor loadings range from .53 to .94. These values indicate that the model is a good fit. Detailed information is provided below in Table 6.

Table 6. Standardized factor loadings, standard errors and critical ratios.

Item	Standardized Loading	SE	Critical Ratio	<i>p</i>	Item	Standardized Loading	SE	Critical Ratio	<i>p</i>
I1	.751	.031	24.58	.000	I21	.862	.022	38.64	.000
I2	.897	.017	52.38	.000	I22	.908	.015	61.37	.000
I3	.871	.019	46.30	.000	I23	.908	.015	61.06	.000
I11	.742	.028	26.82	.000	I26	.832	.022	37.44	.000
I12	.854	.017	50.65	.000	I31	.882	.016	53.46	.000
I13	.869	.017	52.30	.000	I32	.937	.011	83.85	.000
I15	.886	.013	66.28	.000	I33	.901	.014	63.74	.000
I16	.860	.016	55.39	.000	I34	.532	.046	11.69	.000
I17	.832	.020	41.01	.000	I35	.816	.024	34.21	.000
I18	.747	.024	30.92	.000	I36	.934	.017	54.52	.000
I20	.775	.025	30.55	.000	I41	.897	.017	54.28	.000

While evaluating the standardized factor loadings, .40 was applied as a minimum acceptable loading to ensure that each item contributed meaningfully to its latent construct in line with (Hair *et al.*, 2019; Osborne *et al.*, 2008). All items loaded significantly on their respective latent factors, with standardized factor loadings ranging from .532 to .937. All loadings were statistically significant at the $p < .001$ level. While I34, associated with Factor 4, exhibited the lowest loading value (.532), it remained statistically significant and did not substantially impair the overall model fit. Critical ratio values, which represent the parameter estimate divided by its standard error, ranged from 11.69 to 83.85, further confirming the precision and significance of the estimated loadings (Hair *et al.*, 2019). These findings indicate that the items demonstrate a strong and coherent representation of their respective constructs, supporting the internal consistency of each factor.

3.3. Convergent and Discriminant Validity

To evaluate the discriminant validity of the factors extracted, the factor correlation matrix was examined (see Table 7). As the analysis employed Promax rotation, which allows factors to correlate, the observed inter-factor correlations ranged from -.147 to .548. While moderate correlations (e.g., between Factor 1 and Factor 4) suggest conceptual relatedness, the overall low-to-moderate correlation values provide evidence that the factors are sufficiently distinct. These results support the notion that the identified factors represent separate dimensions of deficit thinking, which is consistent with the theoretical framework underpinning the scale.

Table 7. Factor correlation matrix.

Factors	1	2	3	4	5
F1	1				
F2	-.005	1			
F3	-.147	.043	1		
F4	.548	.016	-.135	1	
F5	.066	-.089	.160	.050	1

In CFA models, convergent validity refers to the relationship between the items that form the scale and their corresponding factor. Discriminant validity, on the other hand, refers to the

relationship between the items and their factor being stronger than their relationships with other factors (Gürbüz, 2021). The fact that subdimensions come together to form a structure depends on a certain level of correlation between them. Conversely, the ability of each dimension to form is dependent on the dimensions being distinct from each other, i.e., their separation. This necessitates the calculation of convergent and discriminant validity (Bülül & Demirer, 2008). For this purpose, the CR, AVE, MSV, and ASV values for the factors of the scale are presented. Specifically, AVE and CR values were calculated following the formulas recommended by Gürbüz (2021). AVE was computed by averaging the squared standardized factor loadings of the items associated with each latent construct. CR was calculated by summing the standardized loadings, squaring the sum, and dividing it by the squared sum plus the sum of error variances. The MSV and ASV values were obtained using inter-factor correlations. MSV represents the square of the highest correlation of a construct with any other construct in the model. ASV was calculated as the average of all squared correlations of a given construct with the remaining constructs. These values were used to assess discriminant validity by comparing them with the corresponding AVE values of Gürbüz (2021).

Upon examining Table 8, it can be observed that all factors exhibit high reliability ($CR > .7$). The AVE values for the factors, being above .5 and lower than the CR values, indicate convergent validity. Furthermore, the MSV and ASV values of the factors, being lower than the AVE values, confirm discriminant validity (Gürbüz, 2021).

Table 8. Convergent and discriminant scores.

Factors	CR	AVE	MSV	ASV
F1	.88	.71	.37	.12
F2	.94	.69	.37	.12
F3	.93	.74	.08	.04
F4	.89	.69	.04	.01
F5	.91	.78	.06	.03

3.4. Reliability Analysis

In addition to the CR coefficient provided in Table 8, Cronbach's Alpha coefficient has been calculated to determine the reliability of the scale and subdimensions. Moreover, McDonald's Omega (ω) was also computed to provide a more robust estimate of internal consistency for the full scale ($\omega = .874$). The reliability values for the scale and its factors, which were applied to 569 teachers for the CFA analysis, are presented in Table 9.

Table 9. Cronbach's alpha coefficients.

Factors	α
Total (22 items)	.86
Factor 1 (7 items)	.93
Factor 2 (5 items)	.93
Factor 3 (4 items)	.88
Factor 4 (3 items)	.87
Factor 5 (3 items)	.91

Cronbach's Alpha values above .70 are generally considered acceptable, while values above .80 indicate good reliability (Kline, 2016). Therefore, the total scale and its factors have good reliability. The McDonald's Omega (ω) value for the full scale was .874, further supporting the internal consistency of the instrument.

4. DISCUSSION and CONCLUSION

The purpose of the study was to develop a valid and reliable scale to determine teachers' deficit thinking. To achieve this goal, a literature review was first conducted, and the content of deficit thinking was explored. This led to the creation of a draft form consisting of 70 items. After expert consultations, the number of items in the draft form was reduced to 50. The 50-item draft form was administered to 352 teachers, followed by EFA. After EFA, the 5-dimensional, 22-item form was administered to 616 teachers. Data from 76 participants were removed from the dataset after outlier and missing data checks. Ultimately, validity and reliability studies were conducted on data from 892 teachers. After the analyses, the "Deficit Thinking Scale for Teachers" was developed, which is both valid and reliable for teachers.

The 22-item Deficit Thinking Scale for Teachers is a 5-factor scale with a 5-point Likert type scale ([Appendix 1](#)). Item 20 in the scale should be reverse-coded. The Cronbach's Alpha reliability coefficient for the entire scale is .86, and for the subdimensions, it is .93 for the first factor, .93 for the second factor, .88 for the third factor, .87 for the fourth factor, and .91 for the fifth factor. The lowest possible score on the scale is 22, and the highest possible score is 110. As the score on the scale increases, it is assumed that the teachers' deficit thinking also increases.

The factors of the scale are named as Blaming the Environment, Educability, Oppression, Blaming the Victim, and Pseudoscience. For the Blaming the Environment factor, representative items include statements such as "Families of low socioeconomic status participate less in parent-teacher meetings than other families." which reflect how failure is attributed to family-related variables. In this dimension, it is claimed that families are blamed for students' academic failure due to their inadequacies or dysfunctions. The Educability factor includes items like "The academic achievement of students from low socioeconomic backgrounds is more affected by the teacher's individual attention than that of other students" or "The academic achievement of students of low socioeconomic backgrounds is more affected by the teacher's feedback than that of other students" emphasizing perceived limitations in students' learning potential. In this dimension, it is argued that students' failure is independent of the conditions in society and schools, and if no intervention is made, this failure will continue. The Oppression factor is represented by items such as "The education system provides the necessary learning conditions for students from low socioeconomic backgrounds" or "The education system provides opportunities for students from low socioeconomic backgrounds to succeed" reflecting the so-called meritocratic discourse that responsibility is fulfilled at the system level. This dimension is based on the idea that the education system, particularly for students with certain backgrounds, serves to condemn them to poverty, thus controlling the flow of social status. The Blaming the Victim factor features statements such as "Students from low socioeconomic backgrounds are more likely to exhibit aggressive behavior than other students" or "Students from low socioeconomic backgrounds are more likely to exhibit disruptive behavior than other students" attributing failure directly to student characteristics. This dimension is based on finding fault in those who are victims of inequality, justifying the inequality, and in this dimension, students are blamed for educational outcomes. Lastly, the Pseudoscience factor includes items like "The academic failure of students from low socioeconomic backgrounds stems from their failure to make the necessary effort" or "The academic failure of students from low socioeconomic backgrounds stems from their lack of motivation to learn" capturing the tendency to explain failure through individual traits while ignoring structural factors. In this dimension, academic failure is attributed to a lack of students' abilities, intelligence, or effort, without considering the social structure as a variable affecting educational outcomes.

Although the theoretical framework of deficit thinking includes six core dimensions as identified by Valencia (1997, 2010)—namely blaming the victim, oppression, pseudoscience,

temporal changes, educability, and heterodoxy—the final structure of the “Deficit Thinking Scale for Teachers” consists of five empirically derived factors. During the EFA, items related to the dimensions of *temporal changes* and *heterodoxy* did not demonstrate sufficient factor loadings or distinctiveness and were therefore removed to ensure construct validity. This outcome may reflect the more abstract and philosophical nature of these two dimensions, which can be conceptually rich but difficult to translate into attitudinal indicators for a Likert-scale instrument. For example, the elimination of the notion of deficit based on orthodox views requires the adoption of heterodox perspectives or the questioning of what is considered unquestionable. According to Bourdieu (1977), such transformation typically occurs through a debate or crisis within a class society, which necessitates a fundamental re-evaluation of the structure of mindset (Huitt, 2023). However, it may often be difficult to observe or measure such ideological shifts through standardized items. Similarly, *temporal changes* refer to the variation in the vehicles through which deficit thinking is transmitted, depending on the spirit and conditions of the time (Valencia, 2010). For instance, while students' deficits were attributed to genetics, they were later linked to culture—showcasing the historically changeable nature of deficit thinking. Yet, this dynamic and diachronic aspect may not manifest clearly in present-day teacher attitudes. Additionally, the findings of the present study are also consistent with those of Marfin (2019), who developed a similar Deficit Thinking Questionnaire. In Marfin's study as well, the dimensions of heterodoxy and temporal changes were not included in the final structure. Their exclusion in both studies reinforces the notion that certain abstract or philosophical aspects of deficit thinking may not readily translate into measurable attitudinal indicators. In contrast, while the original theoretical model did not include *Blaming the Environment* as a separate dimension, its empirical emergence as an independent factor is both theoretically and sociologically meaningful. Although *blaming the victim* is the most prominent feature that captures the core logic of the deficit mindset and illustrates how this ideology is enacted in practice, the deficit perspective extends beyond the individual. Those who adopt this mindset also direct blame toward the victim's family, culture, and broader environment (Valencia, 2010). Notably, during the 1960s, an *accumulated environmental deficit model* was developed to explain school failure, particularly among poor children and minority groups, attributing their academic underachievement to accumulated deficits in their home and family environments (Pearl, 1997; Valencia, 2020). Furthermore, this finding is consistent with localized sociocultural dynamics and the existing literature on teacher discourse in the context of Türkiye, where student underachievement is frequently attributed to parental negligence or lack of involvement (Aydoğdu-Bilgiç, 2024; Dinçer, 2015; Orman, 2012).

4.1. Limitations

This study had several limitations. First, convenience sampling was used in the first phase in order to collect data quickly and easily, especially considering that the large number of items in the draft form required voluntary participation from teachers. Second, as this study was designed to measure attitudes toward deficit thinking, it may involve limitations specific to attitude research. Although attitudes can be predictors of behavior, it should be acknowledged that they may be influenced by social pressure (Shrigley, 1983) or participants may provide responses that are socially desirable rather than ones that genuinely reflect their personal attitudes (Callegaro, 2008; DeVellis, 2017). Third, the reliability estimates for some factors exceeded .90, which may suggest potential item redundancy (Streiner, 2003). Therefore, future research may consider revisiting those factors for possible scale refinement.

4.2. Practical Implications

School administrators can use this study to evaluate teachers' attitudes toward deficit thinking and identify their schools' professional development needs accordingly. The quantitative data obtained from the scale can serve as an evidence-based resource for developing policies focused on social justice in education. Additionally, the scale can be employed within undergraduate

teacher education programs to monitor pre-service teachers' attitudes toward deficit-oriented thinking. By administering the scale at the beginning and end of the academic year, it becomes possible to track changes in these attitudes over time.

4.3. Recommendations for Future Research

Future research could establish a conceptual framework for uncovering the sociocultural and psychological structures associated with deficit thinking. In this context, it is essential to investigate the antecedents that give rise to deficit-oriented perspectives, as well as the consequences such frameworks produce within institutional, educational, and interpersonal domains. Moreover, both the direct and mediated effects of deficit thinking should be subjected to rigorous empirical investigation, enabling a more nuanced understanding of its role in reproducing structural inequalities and shaping individual-level outcomes. This study employed a quantitative research method. In order to gain deeper insights into how deficit thinking manifests within educational settings in Türkiye, qualitative research methods should also be utilized in future studies to complement quantitative findings. This research was conducted in the central districts of Bursa. To identify potential regional differences in deficit thinking and to enable more comprehensive interpretations at the national level, it is recommended that similar studies be carried out in other regions of Türkiye, involving a broader and more diverse sample of teachers. This study developed a scale to measure teachers' attitudes toward students' attributed deficits. However, as emphasized in the literature, individuals who are subjected to domination may unknowingly contribute to or even consent to their own domination (Bourdieu, 2019; Gramsci, 1999). In this regard, developing scales to assess students' attitudes toward their own attributed deficits, as well as parents' attitudes toward their children's attributed deficits, could offer a more comprehensive understanding of the multidimensional nature of deficit thinking. Such studies would provide deeper insights into the role of students and parents in the reproduction of this mindset. Despite its limitations, the items developed in this study may serve as a valuable foundation for future research on deficit thinking in educational contexts.

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Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors. **Ethics Committee Number:** Bursa Uludağ University, 01.26.2024 / 2024-01 / Decision Number 32.

Contribution of Authors

Abide Ocak: Writing-original draft, Investigation, Resources, Methodology, Analysis, Validation, and Visualization. **İsmail Çimen:** Resources, Software, Analysis, Critical review, Methodology.

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APPENDIX

Appendix 1. Deficit Thinking Scale for teachers-Turkish version.

ÖĞRETMENLER İÇİN EKSİKLİK DÜŞÜNCESİ ÖLÇEĞİ						
Madde No	MADDELER Aşağıdaki ölçek formlarında yer alan cümleler için 1.Tamamen katılmıyorum, 2.Katılmıyorum, 3.Kararsızım, 4.Katılıyorum, 5.Tamamen katılıyorum şeklinde seçenekler sunulmuştur. Doğru veya yanlış cevabın bulunmadığı sadece derecelemenin yapıldığı formlarda görüşlerinize uygun olan cevabı (X) işareti ile işaretleyiniz. Lütfen maddeleri BOŞ BIRAKMAYINIZ .	Tamamen katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen katılıyorum
		KURBANİ SUÇLAMA				
Sosyoekonomik düzeyi düşük olan öğrencilerin diğer öğrencilere göre;						
1	Uygun olmayan arkadaş çevresine sahip olma ihtimali daha yüksektir.	1	2	3	4	5
2	Agresif davranışlar sergileme ihtimali daha yüksektir.	1	2	3	4	5
3	Disiplini bozan davranışlar sergileme ihtimali daha yüksektir.	1	2	3	4	5
ÇEVRESİNİ SUÇLAMA						
Sosyoekonomik düzeyi düşük olan aileler diğer ailelere göre;						
4	Veli toplantısına daha düşük katılım gösterir.	1	2	3	4	5
5	Çocuklarının akademik başarısına daha az ilgi gösterir.	1	2	3	4	5
6	Çocuklarının ders çalışmasını daha az teşvik eder.	1	2	3	4	5
7	Çocuklarının yaşadığı sorunlara karşı daha az duyarlıdır.	1	2	3	4	5
8	Çocuklarını ödevle ilgili konularda daha az destekler.	1	2	3	4	5
9	Çocuklarını toplumsal kuralları öğrenme konusunda daha az destekler.	1	2	3	4	5
10	Öğretmenlerle iletişim kurmakta daha fazla zorlanır.	1	2	3	4	5
EĞİTİLEBİLİRLİK						
Sosyoekonomik düzeyi düşük olan öğrencinin diğer öğrencilere göre akademik başarısı;						
11	Öğretmenin onunla birebir ilgilenmesinden daha fazla etkilenir.	1	2	3	4	5
12	Öğretmenin onu motive etmesinden daha fazla etkilenir.	1	2	3	4	5
13	Öğretmenin onunla iyi iletişim kurmasından daha fazla etkilenir.	1	2	3	4	5
14	Öğretmenin ona geri bildirim vermesinden daha fazla etkilenir.	1	2	3	4	5
15	Öğretmenin onunla ilgili akademik beklentilerinden daha fazla etkilenir.	1	2	3	4	5
BASKI						
Eğitim sistemi sosyoekonomik düzeyi düşük olan öğrenciler için;						
16	Gerekli öğrenme koşullarını sağlar.	1	2	3	4	5
17	Dezavantajları ortadan kaldıracak gerekli tedbirleri alır.	1	2	3	4	5
18	Başarılı olmalarını sağlayacak olanaklar sunar.	1	2	3	4	5
19	Gerekli öğrenme koşullarını sağlamakta yetersizdir.	1	2	3	4	5
SAHTE BİLİM						
Sosyoekonomik düzeyi düşük olan öğrencilerin akademik başarısızlığı;						
20	Öğrencinin gerekli çabayı göstermemesinden kaynaklanır.	1	2	3	4	5
21	Öğrencinin öğrenmeye istekli olmamasından kaynaklanır.	1	2	3	4	5
22	Öğrencinin eğitimi yeterince önemsememesinden kaynaklanır.	1	2	3	4	5

Note. Item 20 will be reverse-coded.