

# Exploratory Factor Analysis of Cultural-Sensitive Pedagogy Questionnaire (CSPQ)

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## ABSTRACT

This study developed and examined the factor structure of the Culturally Sensitive Pedagogy Questionnaire (CSPQ) for Philippine basic education teachers. A 25-item instrument was administered to 152 teachers from public and private schools. Exploratory factor analysis using principal axis factoring with oblimin rotation supported a three-factor structure accounting for 60.05% of the variance. The retained factors were cultural inclusivity in teaching, culturally responsive teaching, and cultural accommodation and awareness. Internal consistency was high for the overall scale and acceptable to high for the subscales. The findings provide initial

evidence that the CSPQ has a coherent internal structure and acceptable reliability for assessing culturally sensitive pedagogy. The instrument may be useful in teacher development and in future validation studies using confirmatory factor analysis.

**Keywords:** *Culturally Responsive Teaching; Culturally Sensitive Pedagogy; Exploratory Factor Analysis; Scale Validation*

## INTRODUCTION

Contemporary classrooms are increasingly shaped by cultural, linguistic, and social diversity, making cultural sensitivity an essential dimension of effective teaching. In education, cultural sensitivity refers to the capacity of teachers to recognize, respect, and meaningfully respond to the cultural backgrounds, experiences, and perspectives that learners bring into the classroom. Rather than treating diversity as an obstacle to instruction, culturally sensitive pedagogy positions culture as a resource for teaching and learning. When students see their identities, experiences, and ways of knowing reflected in classroom practices, they are more likely to feel valued, participate actively, and engage more deeply in academic tasks. In this sense, cultural sensitivity is not merely an interpersonal trait; it is a pedagogical orientation that shapes curriculum choices, teacher–student relationships, classroom interaction, and the overall learning climate.

The importance of culturally responsive teaching has been widely emphasized in the literature. Gay (2000, 2010) argued that effective teaching for diverse learners requires the deliberate integration of students' cultural knowledge, prior experiences, communication styles, and community practices into instruction. In a similar vein, Ladson-Billings (1994, 1995, 2009) advanced the concept of culturally relevant pedagogy, which emphasizes academic success, cultural competence, and critical consciousness. These perspectives share a common assumption: teaching becomes more meaningful and equitable when it affirms learners' identities and connects instruction to the realities of their lives. Beyond improving academic engagement, culturally sensitive pedagogy also contributes to inclusion, empathy, and social awareness, helping create classrooms where difference is recognized and respected rather than ignored or marginalized (Banks, 2006, 2007; Nieto & Bode, 2008).

Later scholars further expanded this view by stressing that culturally responsive teaching requires more than goodwill or awareness alone. Villegas and Lucas (2002) and Howard (2012) underscored that teachers need specific dispositions, knowledge, and skills to work effectively with diverse learners. These include openness to multiple perspectives, awareness of one's own cultural assumptions, and the ability to design instruction that is responsive to students' lived experiences. From this perspective, culturally sensitive pedagogy is multidimensional. It includes how teachers perceive cultural difference, how they interact with learners, how they structure classroom environments, and how they translate cultural awareness into actual teaching practices. Because of this multidimensional nature, cultural sensitivity in teaching must be examined not only as an ideal but also as a measurable construct.

The present study is anchored primarily in the Seven Principles for Culturally Responsive Teaching proposed by Shade et al. (1997). These principles provide a practical and comprehensive lens for understanding culturally affirming teaching. They emphasize that students should be affirmed in their cultural identities, teachers should be personally culturally affirming, classrooms should be culturally inviting, learning should be empowered through cultural connections, culture should be integrated into curriculum and instruction, students' voices should be valued, and both teachers and learners should engage in reflection on multicultural practices. Taken together, these principles frame culturally responsive teaching as a continuing process of affirmation, inclusion, responsiveness, and reflection. They are especially useful for instrument development because they translate broad theoretical claims into observable pedagogical beliefs and practices.

These concerns are particularly relevant in the Philippine educational context. Philippine classrooms are marked by differences in language, ethnicity, locality, religion, socioeconomic status, and cultural traditions. Learners may come from urban and rural communities, speak different mother tongues, and bring varied cultural experiences that shape how they participate in school. Such diversity requires teachers to move beyond one-size-fits-all instruction and adopt pedagogical approaches that are inclusive, context-sensitive, and responsive to learners' realities. This need is consistent with broader educational efforts in the Philippines to promote inclusive, contextualized, and culturally responsive teaching, particularly in relation to indigenous education, mother tongue-based multilingual education, and learner-centered instruction. However, while cultural responsiveness is often discussed in policy and theory, it is

less often assessed through localized and psychometrically developed tools that can capture how teachers actually understand and enact culturally sensitive pedagogy in practice.

A major gap, therefore, lies in measurement. Although culturally responsive teaching has been widely studied in international literature, there remains limited empirical work on how the construct is operationalized and measured in Southeast Asian settings, especially in the Philippines. Existing instruments were largely developed in other contexts and may not fully reflect the pedagogical realities, language diversity, and cultural conditions that characterize Filipino classrooms. The absence of a localized instrument constrains both research and practice. Without a valid and reliable measure, it becomes difficult to examine teachers' culturally sensitive pedagogical orientations, identify areas for professional development, or generate evidence that can inform teacher education, curriculum work, and school policy. Addressing this gap requires the development of contextually grounded instruments that are theoretically sound and empirically tested.

In response to this need, the present study developed the Culturally Sensitive Pedagogy Questionnaire (CSPQ) for basic education teachers in the Philippines and examined its construct validity and internal consistency through exploratory factor analysis. Specifically, the study sought to identify the underlying dimensions of culturally sensitive pedagogy represented in the instrument, assess the reliability of the resulting factors, and provide initial empirical support for the use of the CSPQ in future research and teacher development initiatives. By developing and testing a localized measure, the study aims to contribute to the growing scholarship on culturally responsive teaching while also offering a practical tool for understanding and strengthening culturally sensitive pedagogy in Philippine basic education.

The primary objective of this study is to examine the construct validity and reliability of the Culturally Sensitive Pedagogy Questionnaire (CSPQ) using Exploratory Factor Analysis (EFA). Specifically, it aims to:

1. Identify the underlying factors that represent culturally sensitive pedagogy among basic education teachers in the Philippines;
2. Assess the internal consistency and reliability of each factor; and
3. Provide empirical evidence to support the use of CSPQ as a valid tool for future research and teacher development initiatives focused on cultural responsiveness

## **METHODOLOGY**

### **Research Context**

This study was conducted within the Philippine basic education context, where classrooms are shaped by linguistic, cultural, and socioeconomic diversity. In such settings, teachers are expected to adopt pedagogical practices that recognize and respond to learners' varied cultural backgrounds. Despite increasing attention to culturally responsive teaching in theory and policy, there remains limited localized

instrumentation for assessing how teachers understand and enact culturally sensitive pedagogy in classroom practice. In response to this gap, the present study developed the Culturally Sensitive Pedagogy Questionnaire (CSPQ) and examined its internal structure and reliability among teachers in the Philippines through exploratory factor analysis. The study was intended to provide an initial psychometric basis for a context-sensitive instrument that may be used in future research and teacher development initiatives.

### **Participants**

The study involved 152 teachers with classroom teaching experience from different educational levels and subject areas in the Philippines. Participants were selected to reflect varied teaching backgrounds and institutional settings relevant to culturally sensitive pedagogy. In terms of gender, most respondents were female (59.2%,  $n = 90$ ), followed by male respondents (37.5%,  $n = 57$ ), while 3.3% ( $n = 5$ ) preferred not to disclose their gender. In terms of teaching experience, most participants reported 1 to 10 years of teaching, followed by those with 11 to 15 years of experience, while fewer respondents reported less than one year, 16 to 20 years, or more than 20 years of teaching experience. Regarding school affiliation, 59.9% ( $n = 91$ ) were from public schools, 22.4% ( $n = 34$ ) were from private schools, and 17.8% ( $n = 27$ ) reported experience in both public and private institutions. The sample size was considered acceptable for an initial exploratory study. Tabachnick and Fidell (2007), citing Comrey and Lee (1992), described a sample of 100 as poor and 200 as fair for factor analysis. Although the present sample falls between those benchmarks, it remains suitable for preliminary scale development and exploratory factor analytic procedures.

### **Survey Instrument**

The instrument used in this study was the Culturally Sensitive Pedagogy Questionnaire (CSPQ), a 25-item self-constructed scale designed to assess teachers' beliefs, attitudes, and practices related to culturally sensitive pedagogy in the Philippine basic education context. Item development was guided primarily by the Seven Principles for Culturally Responsive Teaching of Shade et al. (1997), which emphasize the affirmation of students' cultural identities, inclusive classroom climate, culturally connected instruction, valuing students' voices, and reflection on multicultural teaching practices. These principles served as the conceptual basis for generating items that reflect culturally affirming and responsive pedagogy. The development of the CSPQ also considered prior instruments that assessed related constructs. Existing measures by Holgate (2016), Hsiao (2015), and Whitaker and Valtierra (2018) informed the general structure, item density, and wording approach used in the present instrument. Drawing from these studies, the researcher developed 25 items intended to capture key dimensions of culturally sensitive pedagogy while maintaining relevance to Filipino classroom realities. Each item was answered on a five-point Likert scale: 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, and 5 = *Strongly agree*. The questionnaire was administered online through Google Forms to facilitate distribution and response collection across public and private school settings. Online administration also supported anonymity, convenience, and voluntary participation.

## Data Analysis

The data were analyzed using descriptive statistics and exploratory factor analysis (EFA). Descriptive statistics, including means, standard deviations, and frequencies, were first computed to summarize participant characteristics and provide an overview of response patterns across the 25 items. To examine the latent structure of the CSPQ, EFA was conducted using principal axis factoring as the extraction method and direct oblimin rotation as the rotation method. Principal axis factoring was selected because the study aimed to identify underlying latent dimensions rather than simply reduce data, while direct oblimin was used because the dimensions of culturally sensitive pedagogy were expected to be conceptually related. Prior to factor extraction, the suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Item retention was guided by commonly used psychometric criteria in scale development. Items with factor loadings of .40 or higher were considered for retention, following Holgate (2016). In addition, at least three items per factor were required to support interpretability and structural stability, consistent with the recommendations of Tabachnick and Fidell (2007) and Henson and Roberts (2006). The internal consistency of the retained factors and the overall scale was assessed using Cronbach's alpha coefficients.

## RESULT AND DISCUSSION

### Descriptive Statistics

**Table 1.**

*Descriptive statistics of each item of CSPQ*

Item	N	Mean	SD	Item	N	Mean	SD	Item	N	Mean	SD
1	152	4.52	.82	10	152	3.88	1.05	19	152	4.39	.94
2	152	3.89	1.07	11	152	4.29	.97	20	152	4.01	.87
3	152	4.22	1.00	12	152	3.96	1.00	21	152	3.92	1.03
4	152	4.55	1.00	13	152	3.91	.98	22	152	3.86	1.05
5	152	4.03	.91	14	152	3.16	1.07	23	152	4.28	1.00
6	152	2.61	1.12	15	152	1.32	1.32	24	152	4.57	.90
7	152	4.43	1.16	16	152	4.25	.88	25	152	4.43	.97

8	152	2.75	.97	17	152	3.96	1.01
9	152	3.88	1.14	18	152	2.83	1.08

Table 1 presents the descriptive statistics for the 25 items of the Culturally Sensitive Pedagogy Questionnaire (CSPQ). The item means suggest that respondents generally expressed favorable views toward culturally sensitive pedagogy. Several items received relatively high mean scores, indicating strong endorsement of inclusive and affirming classroom practices. In particular, Item 24 obtained the highest mean ( $M = 4.57, SD = .90$ ), followed closely by Item 4 ( $M = 4.55, SD = 1.00$ ) and Item 1 ( $M = 4.52, SD = .82$ ). These results suggest that many respondents reported strong agreement with statements reflecting respect, inclusion, and the valuing of students in the classroom. By contrast, some items yielded lower means, most notably Item 15 ( $M = 1.32, SD = 1.32$ ), Item 6 ( $M = 2.61, SD = 1.12$ ), and Item 8 ( $M = 2.75, SD = .97$ ), indicating either lower endorsement or stronger disagreement with those statements. The lower means of these items are noteworthy because they appear to reflect reverse-coded or potentially more critical aspects of cultural accommodation and awareness. Overall, the descriptive results suggest that teachers in the sample tended to report culturally affirming beliefs and practices, although the wider variability in some lower-scoring items indicates less consistency in responses to statements involving possible blind spots or limitations in practice.

### Assumption Check

**Table 2.**

*KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity*

Overall MSA	$\chi^2$	p
.898	3273	<.001

Before factor extraction, the suitability of the data for exploratory factor analysis was examined using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. The overall KMO value was .898, while Bartlett's test of sphericity was statistically significant,  $\chi^2 = 3273, p < .001$ . These results indicate that the inter-item correlations were sufficient for factor analysis and that the dataset was appropriate for examining the latent structure of the CSPQ. The high KMO value suggests that the items share enough common variance to justify extraction, while the significant Bartlett's test confirms that the correlation matrix is not an identity matrix. Taken together, these findings provide strong support for proceeding with exploratory factor analysis.

### Model Fit

**Table 3.**  
*Model fit measures*

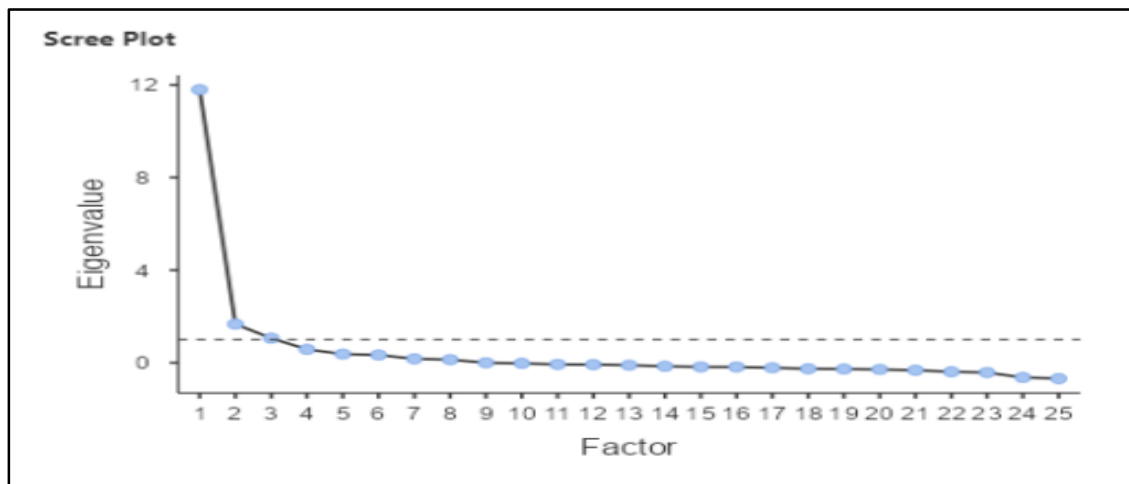
RMSEA	TLI	BIC	Model Test	
			$\chi^2$	p
.0898	.866	-640	347	<.001

The overall fit of the exploratory model was evaluated using several fit indices. The model test was statistically significant,  $\chi^2 = 347$ ,  $p < .001$ . Although a significant chi-square is often observed in models with multiple observed variables, additional indices were considered to assess practical fit. The reported RMSEA was .0898, the TLI was .866, and the BIC was -640.

These values suggest that the three-factor solution provided an acceptable, though not ideal, fit to the data. In exploratory work, especially during the initial development of an instrument, such fit may still be considered interpretable when supported by theoretically meaningful factors and acceptable internal consistency. Thus, the model fit results indicate that the CSPQ demonstrates an initial structure that is usable for exploratory purposes, while still leaving room for refinement in future confirmatory studies.

### Exploratory Factor Analysis

**Figure 2.**  
*Scree Plot*



The number of factors to retain was determined using both the Kaiser criterion and visual inspection of the scree plot. Three factors had eigenvalues greater than 1.00, and the scree plot showed a clear elbow after the third factor. The three-factor solution accounted for 60.05% of the total variance. Factor 1

explained 28.30% of the variance (SS loading = 7.07), Factor 2 explained 24.38% (SS loading = 6.10), and Factor 3 explained 7.89% (SS loading = 1.96). The correlation between Factor 1 and Factor 2 was .718, indicating that the two dimensions were related. This supports the decision to use an oblique rotation procedure, specifically direct oblimin, because the factors were not expected to be entirely independent.

**Table 4.**  
*EFA Summary and Inter-factor Correlations*

Factor	SS Loadings	% of Variance	Cumulative %	Inter-factor Correlation		
				1	2	3
1	7.07	28.30	28.3		.718	-.1245
2	6.10	24.38	52.7			-.0613
3	1.96	7.89	60.05			

The factor analysis yielded a coherent three-factor structure for the CSPQ. The first factor, Cultural inclusivity in teaching, represents the dispositional and relational dimension of culturally sensitive pedagogy. It reflects how teachers create an inclusive environment, establish respectful relationships with students, and affirm cultural diversity in the classroom. The second factor, culturally responsive teaching, captures the instructional dimension of the construct. This factor reflects the extent to which teachers adapt teaching practices, use culturally relevant examples, and align instruction with diverse learner needs. The third factor, Cultural accommodation and awareness, represents the practical and managerial dimension of cultural sensitivity. It appears to reflect teachers' awareness of possible cultural blind spots and the extent to which they attend to classroom management and environmental considerations related to cultural difference. Together, these three factors suggest that culturally sensitive pedagogy is not a single trait but a multidimensional construct involving inclusive dispositions, responsive instruction, and practical classroom awareness.

**Table 5.**  
*Factor Loadings*

Item	1	2	3
<b>Factor 1: Cultural Inclusivity in Teaching</b>			
8. Everyone in class feels valued.	.812		
24. I manage the class with respect for all cultures.	.805		
25. I build strong relationships with my students.	.797		
5. I try to understand each student's cultural background.	.794		
1. I integrate Filipino culture in my classes.	.733		

23. I share my culture with the class.	.704	
19. I celebrate everyone's achievements.	.703	
3. Students connect what we learn with their own cultures.	.696	
11. Teamwork across cultural diversity is important in my teaching.	.674	
14. I do not often use Filipino cultural examples in lessons. *	.548	.480**
2. I look for teaching materials from different cultures.	.530	
16. I consider students' cultures when solving classroom issues.	.513	
20. My teaching suits students from any culture.	.443	

**Factor 2: Cultural Responsive Teaching**

17. Class activities showcase our diverse cultures.	.848	
21. Students show their culture through class tasks.	.834	
12. I adapt teaching methods for different cultural preferences.	.815	
13. My lessons include examples from many cultures.	.806	
10. We discuss different cultural viewpoints.	.791	
22. Learning materials relate to our cultures.	.778	
6. My classroom displays cultural diversity.	.697	
4. I learn about students' cultural celebrations.	.613	

**Factor 3: Cultural Accommodation and Awareness**

18. Cultural teamwork is rare in class activities. *		.719
7. My classroom setup does not reflect students' cultural needs. *		.716
9. I often miss connecting lessons to students' cultural backgrounds.*		.659
15. My class management may overlook cultural differences. *		.408

*Note: \*Negatively stated items; \*\*Cross-loading.*

The structure also points to one area that may need refinement. Item 14 (“I do not often use Filipino cultural examples in lessons”) showed cross-loading on Factor 1 and Factor 3. This suggests that the item may be capturing more than one domain at the same time. On one hand, it may reflect classroom inclusivity and cultural affirmation; on the other hand, it may indicate a limitation in accommodation or awareness.

Because cross-loading weakens interpretive clarity, this item should be reviewed in future revisions of the questionnaire, either through rewording or removal.

### Internal Consistency

**Table 6**  
*Cronbach Alpha of the Three-factor Model*

Factor	Number of Items	$\alpha$	Interpretation
Factor 1: Cultural Inclusivity in Teaching	13	.937	High reliability
Factor 2: Cultural Responsive Teaching	8	.944	High reliability
Factor 3: Cultural Accommodation and Awareness	4	.726	Acceptable reliability
Overall	25	.927	High reliability

The reliability pattern is also meaningful conceptually. The strong alpha values for the first two factors suggest that teachers' inclusive dispositions and culturally responsive instructional practices were measured consistently by the retained items. By contrast, the lower reliability of the third factor may indicate that cultural accommodation and awareness are more difficult to capture using only a few reverse-coded items. This pattern suggests that while the questionnaire already performs well as an exploratory measure, the third factor would likely benefit from the development of additional items in future validation studies. Doing so may help improve the breadth and consistency of this dimension without changing the overall three-factor structure suggested by the present analysis.

Overall, the findings support the initial construct validity and reliability of the CSPQ. The results indicate that culturally sensitive pedagogy among the sampled teachers may be understood through three related dimensions: inclusivity in classroom relationships, responsiveness in instructional practice, and accommodation and awareness in classroom management and learning environments. The relatively high item means on inclusive and affirming statements suggest that respondents generally perceived themselves as culturally sensitive in their teaching. At the same time, the weaker performance of the third factor and the presence of a cross-loading item indicate that the instrument remains in an early stage of development and would benefit from refinement. Even so, the present findings provide a useful empirical basis for future confirmatory factor analysis and for the continued development of localized tools that assess culturally sensitive pedagogy in Philippine education.

## CONCLUSION AND RECOMMENDATIONS

This study examined the construct validity and internal consistency of the Culturally Sensitive Pedagogy Questionnaire (CSPQ) among teachers in the Philippine basic education context using exploratory factor analysis. The findings supported a three-factor structure consisting of cultural inclusivity in teaching, culturally responsive teaching, and cultural accommodation and awareness. The overall scale demonstrated high internal consistency, while the subscales showed acceptable to high reliability. These results provide initial evidence that the CSPQ has a coherent internal structure and may be used as a preliminary measure of culturally sensitive pedagogy among teachers.

The findings also suggest that culturally sensitive pedagogy may be understood as a multidimensional construct. It involves not only inclusive teacher dispositions and respectful classroom relationships, but also responsive instructional practices and practical awareness of cultural differences in classroom management and learning environments. In this sense, the CSPQ may be useful in research and teacher development contexts where there is a need to examine how cultural sensitivity is reflected in pedagogical beliefs and practices. At the same time, the present results should be interpreted as exploratory rather than final evidence of the instrument's psychometric quality.

Several limitations should be acknowledged. First, the study relied only on exploratory factor analysis using a single sample. Although the three-factor solution was interpretable, the structure still requires confirmation through confirmatory factor analysis using an independent sample. Second, the third factor yielded lower reliability than the first two factors, which may be related to the smaller number of items retained under this dimension. Third, Item 14 showed cross-loading across two factors, suggesting that its wording may not clearly represent only one construct. Finally, because the participants came from a specific educational context, the findings cannot yet be generalized to all teacher populations or educational levels.

Based on these findings, several recommendations are proposed. Future studies should conduct confirmatory factor analysis to test the stability of the three-factor structure using a new sample. Researchers may also revise or remove Item 14 to improve factor clarity and discriminant validity. In addition, more items may be developed for the cultural accommodation and awareness factor in order to strengthen its internal consistency and broaden its coverage of classroom management and environmental accommodation practices. Finally, the CSPQ may be tested in other educational settings and demographic groups to examine its applicability across different teaching contexts. These steps may help refine the instrument and provide stronger evidence for its use in future studies on culturally sensitive pedagogy.

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