The Development and Validation of the Cultural Pluralism Perception Scale (CPPS)

*Lalita

Department of Education, Research Scholar, Panjab University, Chandigarh, India Corresponding Author: laitakashyap11@gmail.com Article history: received February 27, 2025; revised March 02, 2025; accepted March 05, 2025 This article is licensed under a Creative Commons Attribution 4.0 International License



Abstract: Cultural pluralism is the co-existence of subcultures with a dominant culture while maintaining their identity. India's higher education institutions offer a diverse learning environment due to this cultural pluralism, impacting student behavior based on their perceptions of these environments. Understanding students' perceptions of cultural pluralism is therefore crucial. This study aim to develop a scale to measure students' perceptions of cultural pluralism in higher education. Scale development involved item generation, expert validation, and pilot testing. The framework was drawn from Deardorff's Intercultural Competence Model (2006) and Chen and Starosta's Intercultural Communication Competence Model (1996). Initially, 128 items were generated, based on a literature review for content validity. The expert evaluation reduced these items to 47 items on a five-point Likert scale. Purposive sampling was used to select 152 undergraduate students from various departments at Panjab University, Chandigarh, India. The final scale had a three-factor structure with 21 items, validated through explanatory and confirmatory factor analyses. The scale proved reliable, with a Cronbach's alpha of greater than .70. Overall, this study contributes to the existing knowledge by providing a comprehensive and empirically validated instrument for assessing students' perceptions of cultural pluralism within academic settings.

Keywords: Cultural Pluralism, perception, undergraduate students, validity, reliability.

1. INTRODUCTION

Cultural pluralism acknowledges and values cultural diversity, fostering equality and social support among ethnic groups (Herman et al., 2020). Its significance is recognized in international policies, such as UNESCO, which link cultural diversity to progress (Rios & Wynn, 2018). In India, cultural pluralism acknowledges the nation's diversity but faces challenges from exclusionary nationalism and social inequalities (Vyas et al., 2022).

In education, cultural pluralism requires a reassessment of conventional methods to incorporate cultural diversity within institutions. This framework fosters equality and comprehension among students by acknowledging their various backgrounds (Schachner, 2017). Undergraduate students view cultural pluralism intricately, acknowledging its significance in acquiring skills that are essential in the current job market (Bayar, 2022). Multicultural education is vital for enhancing cultural awareness; however, students frequently experience a gap between theoretical concepts and the practical application of inclusivity (Enveart Smith et al., 2017). Students' perspectives on cultural values reflect a substantial cultural awareness that can beneficially influence their perceptions of cultural pluralism in academia (Dian Anggraini Kusumajati et al., 2017). Individual and organizational perceptions of cultural pluralism vary, influencing attitudes toward diversity. Research suggests that individuals may separately acknowledge the distinct advantages and disadvantages of diversity. Comprehending student perceptions of diversity and inclusion is essential for cultivating inclusive university environments, as evidenced by studies promoting inclusive higher education policies (Ozkara San, 2018). Examination of student perspectives on cultural pluralism in higher education reveals a complex array of influencing factors. Research identifies ongoing biases related to gender, socioeconomic status, class, caste, and language within academic settings, affecting evaluations and career paths (Easterbrook & Hadden, 2020). Studies emphasize the necessity to evaluate institutional support across diverse cultures and languages to ensure validity, potentially facilitating the development of a cultural pluralism scale (Dambi et al., 2018). Furthermore, the Threats and Benefits of Diversity Scale is essential for assessing perceptions of cultural diversity, providing a framework for understanding diverse viewpoints (Hofhuis et al., 2015).

The PADAA suggests that while teachers have positive attitudes towards multicultural education, they resist cultural pluralism, which is constrained by their perceptions (Abdusselam et al., 2022). The CAS, adapted for higher education, shows reliable internal consistency for measuring cultural awareness among students, although it overlooks broader perception of cultural pluralism (Martines, 2015). A literature review of pharmacy education identified 12 validated tools for measuring cultural competence but highlighted the lack of a comprehensive tool for all dimensions, indicating a need for further development (Liang & Schartner, 2020). Additionally, qualitative studies emphasize the importance of cultural competence and awareness in education, revealing that teachers and students are often aware but face barriers to achieving



comprehensive awareness, albeit lacking quantitative rigor for broader assessments (Terkourafi, 2019). These results underscore the necessity of a robust Cultural Pluralism Perception Scale to measure students' perceptions of cultural diversity in educational settings, integrating awareness, knowledge, and skills to enhance multicultural competence (Mukhalalati et al., 2020). This paper examines the relevance and challenges of cultural pluralism in societal and educational contexts in India, evaluating undergraduate students' views on cultural pluralism in higher education and assessing measurement tools for these views while highlighting the need for a comprehensive Cultural Pluralism Perception Scale.

Research Question

How to develop and validate the Cultural Pluralism Perception Scale (CPPS) to accurately measure individuals' perceptions of cultural pluralism?

II. METHOD

Population and Sample

The study employed Purposive sampling was used to ensure participant diversity. This technique effectively selected informants from various backgrounds for a representative sample. Data were collected exclusively from first-year students to ensure novel interactions within diverse educational contexts. Demographic information was gathered to confirm the participants' varied states, castes, and mother tongues. In Likert-scale data collection, purposive sampling enhances the richness of data by capturing diverse perceptions and experiences.

Research Design

This study employed a quantitative survey methodology. This sampling strategy seeks to encompass a diverse population. The formulation of Likert scales influences data structure and fit. The use of a survey design is crucial for ensuring data reliability and validity, mitigating response bias, fatigue, and inaccuracies (Mirahmadizadeh et al., 2018). The application of the survey design in this research is motivated by the necessity to validate the reliability of the initial scale.

Tool Development Process

Reliability

The reliability of the scale reflects its measurement consistency. Research indicates that response options in Likert-scale surveys may influence the internal consistency reliability. Reliability assessments generally involve item-total correlations, Cronbach's alpha, and factor analyses for scale validations. Confirmatory factor analysis further validated the reliability of the scale. The initial Cronbach's alpha was computed for the draft scale and later for each dimension of the finalized scale post-validation. Cronbach's alpha consistently surpassed .70, corroborating the reliability of scale. For additional analysis, data from 149 students were collected on the same scale one month later. The test-retest reliability was evaluated and found to exceed .90, reinforcing the scale's reliability.

Content validity

Content validity is the precision of a measurement tool in depicting the construct being assessed. The evaluation of content validity on a 5-point Likert scale typically involves expert assessments and factor analysis (Ocak & Olur, 2019). A preliminary scale with 47 items, including 26 positive and 21 negative (reverse-scored) items, underwent expert refinement. Subsequently, the gauge was applied to an identified sample population, and a factor analysis was performed to investigate structural validity. This analysis played a crucial role in determining the item relevance and classification within the scale. Additionally, expert evaluations were vital in affirming the scale's capacity to effectively measure the intended construct. By combining expert insights with statistical techniques, such as factor analysis, researchers have successfully established the content validity of the 5-point Likert scale.

Construct validity

Construct validity is essential for ensuring that a test accurately measures its intended construct and is vital for scale development and assessment. Factor analysis is a key method for establishing construct validity in the social sciences (Tavakol & Wetzel, 2020). It reduces complex variables to uncover fundamental dimensions and enhances the comprehension of item-factor relationships (Vakili, 2018). This method is instrumental in creating and improving assessment tools and providing evidence of construct validity through internal structure and content analysis. The current study's draft scale aimed for an equal-item distribution across dimensions. Exploratory and Confirmatory factor analyses



were conducted to validate the construct. The Kaiser-Meyer-Olkin (KMO) and Bartlett test results surpassed .60, fulfilling exploratory factor analysis (EFA) prerequisites.

Data Collection Process

Data were gathered manually by the researcher to ensure comprehensive student engagement. Student participation is voluntary in upholding data authenticity. Students had the option of omitting questions to avoid ambiguity and inaccuracies. A total of 152 students participated in the first phase, while 149 were engaged in the second phase during a one-month test-retest reliability period. The samples were diverse, including different castes (OBS, SC, ST, and GENERAL), 11 languages (Hindi, Panjabi, Himachali, Marathi, Haryanvi, Urdu, Bengali, Balti, Garo, Ladakhi, and Tamil) and 14 states (Punjab, Himachal Pradesh, Haryana, Uttar Pradesh, Maharashtra, Bihar, Uttarakhand, Chandigarh, West Bengal, Rajasthan, Ladakh, Gujrat, Meghalaya and Tamil Nadu).

Data analysis

The raw data underwent numerical coding and were subsequently analyzed using SPSS software. A total of 21 items (Items 3, 14, 17, 19, 20, 23, 24, 25, 26, 27, 30, 33, 34, 35, 36, 39, 43, 44, 45, 46, and 47) were subject to reverse coding. Each item contributed to the formation of a composite variable, which was achieved by summing the scores assigned by the participants to the respective items on the initial scale. The research encompassed assessments of validity and reliability in addition to exploratory and confirmatory factor analyses. Furthermore, we examined whether the scale exhibited normal distribution.

III. RESULTS AND DISCUSSIONS

Validity Findings

Findings of Normality Analysis

Statistical values, including the mean, mode, median, and standard deviation values for the total scores, are presented in Table 1. Furthermore, skewness and kurtosis values were computed within the range of +2 and -2, indicating the absence of a significant deviation in the scores.

	Ν	Mean	Mode	Median	Std. Deviation
Total score	152	167.18	167.00	168	19.559
Valid N (listwise)	152				

Table 1: Descriptive Statistical Values Obtained from The Scale

Findings of Content Validity

A comprehensive literature review was performed to explore students' views on cultural pluralism and diversity before item development for the scale. The investigation engaged university students in examining the cultural pluralism theory, resulting in a preliminary pool of 128 items. A language expert reviewed these items, leading to revisions and the removal of redundancies and ambiguities. Subsequently, the 55 items were evaluated by five subject experts for relevance and accuracy. Ultimately, the items were distilled to 47, representing empirical indicators across the four dimensions of cultural pluralism perception as detailed in Table 2.

Table 2. Items of the scale as per expert opinion						
Item at the initial stage	Item after expert opinion	Item number				
I engage with people from a language other than mine.	I am able to communicate easily with individuals who speak different languages.	1				
I like to be a part of a group where people come from my caste.	I prefer to be a part of a group where people come from my caste.	6				
I can be a friend to anyone unmindful of caste affiliations.	I can be a friend to anyone irrespective of their caste affiliations.	10				
I think the speaking institution & regional language is essential for effective communication.	Experts choose to remove this item	22				
I am bullied because of my caste.	Experts choose to remove this item	25				
I am bullied because of my food habits.	I am judged because of my food habits.	26				

Table 2: Items of the scale as per expert opinion



Teachers recognise the students coming from different cultures in the classroom.	Experts choose to remove this item	34
Teachers prefer to give tasks to the local regional students only.	Experts choose to remove this item	35
I think teachers pay less to students attention at the beginning of the semester.	Experts choose to remove this item	37
Teachers rarely listen to me regarding my adjustment problems.	Experts choose to remove this item	39
In youth festivals, there is the inclusion of cultural activities from different states.	I do not have any adjustment problems in the institution.	40
I am bullied by my classmates because of my socio-economic status.	Experts choose to remove this item	44
I got to know more about my culture when engaging with people from diverse cultures.	I got to know more about my culture when engaging with people from diverse cultures.	47
I do not have any adjustment problems in the institution regardless of my regional background.	Experts choose to remove this item	48

Findings of Construct validity

This study assessed the reliability of the 47-item preliminary scale prior to conducting construct validity investigations, revealing a Cronbach's alpha coefficient of α = .843. In addition, the reliability coefficient of each item was examined. Subsequently, an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to establish construct validity after ensuring reliability.

Exploratory factor analysis

Exploratory factor analysis (EFA) was performed using IBM SPSS version 26, resulting in the identification of 26 overlapping items that were subsequently deleted from the scale prior to repeating the EFA. The scree plot shown, in Figure 1 guides this process.



Fig 1: Scree Plot

The scree plot analysis identified three-four factors. Exploratory factor analyses focused on a four-factor solution, considering the scree plot and the total variance. An additional iteration examined the item overlap. The Kaiser-Meyer-Olkin (KMO) measure reached .802 when limiting the scale to three factors. A comparison of the findings supported the three-factor structure as the most suitable. Moreover, Bartlett's test and KMO scores were calculated, as shown in Table 3. A KMO value of nearing 1 signifies a sufficient sample size. The significance of Bartlett's test value was vital for factor analysis. In this case, the conditions for the test values were satisfied. Table 4 presents the total variance of the scale.



Table 3: KMO value for the scale

Kaiser-Meyer-Olkin Measure of Sampling Ade	.802	
Bartlett's Test of Sphericity	Approx. Chi-Square	973.929
	df	210
	Sig.	.000

Compone	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings			
nt	Total	% of	Cumulative	Total	% of	Cumulative	Total	% of	Cumulative
		Variance	%		Variance	%		Variance	%
1	5.033	23.967	23.967	5.033	23.967	23.967	3.795	18.069	18.069
2	3.079	14.664	38.631	3.079	14.664	38.631	3.380	16.097	34.166
3	1.545	7.358	45.989	1.545	7.358	45.989	2.483	11.823	45.989
4	1.158	5.515	51.504						
5	.986	4.696	56.200						
6	.928	4.421	60.621						
7	.899	4.281	64.902						
8	.850	4.047	68.949						
9	.797	3.793	72.742						
10	.745	3.546	76.288						
11	.706	3.364	79.652						
12	.612	2.914	82.566						
13	.569	2.707	85.273						
14	.543	2.586	87.859						
15	.502	2.389	90.248						
16	.426	2.028	92.276						
17	.397	1.892	94.168						
18	.355	1.688	95.857						
19	.322	1.534	97.391						
20	.296	1.410	98.801						
21	.252	1.199	100.000						
Extraction Method: Principal Component Analysis.									

Table 4: Total Variance Explained

As shown in Table 4, the 21 items from the scale analysis were categorized into three factors via EFA, accounting for 46% of the variance. An explained variance of 40- 60% indicates a strong factor structure (Petrowski et al., 2012). Three essential factors pertain to Cultural Pluralism: the first factor (access to diverse perspectives) contains eight items, the second factor (campus climate) consists of seven items, and the third factor (institutional support) has six items.

Confirmatory factor analysis

CFA was performed using IBM SPSS AMOS version 26 to validate the three-factor structure of the EFA. The CFAderived standardized values are shown in Fig. 2. The analysis in Fig. 2 reveals that all values surpassed 0.30. As shown in Table 3, the KMO value for the scale was 0.802. Additionally, Bartlett's test of sphericity indicated a chi-square value of approximately 973.929 (approx.) with 210 degrees of freedom (DOF). The EFA identified a three-factor structure in the cultural pluralism perception scale, which was affirmed by the CFA and consisted of 21 items.



Fig 2: Standardized values of the items.

Findings of Reliability

Prior to the validity analysis, the coefficient of reliability was .80. Because of the EFA, overlapping items were eliminated. Cronbach's alpha was 0.873 for the overall scale, .83 for dimension 1 (access to diverse perspective), .734 for dimension 2 (Campus Climate), and .700 for dimension 3 (Institutional support). The test-retest reliability was .970, as shown in Table 5.



		total score1	total score2	Cronbach's Alpha
total score1	Pearson Correlation	1	.970**	.985
	Sig. (2-tailed)		.000	
	N	152	149	
total score2	Pearson Correlation	.970**	1	
	Sig. (2-tailed)	.000		
	N	149	149	
Overall				.873
Dimension 1	Access to diverse perspectives			.83
Dimension 2	Campus Climate			.734
Dimension 3	Institutional Support			.700
**. Correlation is	significant at the 0.01 level (2-tailed).			

Table 5: Correlation and Reliability Statistics

IV. CONCLUSION

This study aimed to create and validate a scale assessing students' perceptions of cultural pluralism in higher education, focusing on the awareness, sensitivity, and practice of cultural diversity in a conducive academic environment. A normal distribution assessment is vital for the reliability and validity of scale development studies. In this study, participant scores exhibited a normal distribution pattern. Validation efforts, including content and construct validity evaluations, were conducted to ascertain the robustness of the scale.

The development of the Cultural Pluralism Perception Scale was influenced by intercultural competence models, particularly those developed by Deardorff et al. Deardorff's structure highlights the significance of intercultural insights, competencies, and attitudes towards advancing inclusivity in educational frameworks (Liang & Schartner, 2020). This framework highlights the role of communication and cultural competence in language acquisition and intercultural engagement (Tosuncuoglu, 2019). The integration of these theoretical models into the scale's development enhances its effectiveness in measuring student perceptions and promoting awareness of cultural diversity, which is crucial for an inclusive educational environment. Collectively, these insights underscore the theoretical foundations necessary for a robust cultural pluralism perception scale, following which an item collection is created for expert evaluation. Adjustments based on expert feedback are shown in Table 1, which illustrates the evolution of the scale's content validity. Expert evaluations enhance research effectiveness by providing a clear language (Kaufmann, 2019). This study utilized EFA and CFA to validate the construct of the draft scale. The KMO value of 0.80 indicated a three-factor scale comprising 21 items that accounted for 46% of the total variance, with 40-60% signifying a robust factor structure. The factor structure was confirmed using CFA. Identified factors-access to diverse perspectives, campus climate, and institutional supportcorrespond to Cultural Pluralism dimensions. In diverse higher education settings, students must acknowledge cultural differences and demonstrate tolerance, acceptance, and appreciation to practice cultural pluralism. The alignment of the scale items and cultural pluralism definitions underscores the strong theoretical foundations of the developed scale.

Reliability analyses were performed before and after validity checks. The initial draft scale exhibited Cronbach's alpha reliability of 0.842. Each of the 47 items underwent a reliability coefficient evaluation. Literature examples show that item reliability coefficients have been verified prior to validity studies (Rangul et al., 2008). The analysis of validity included determining Cronbach's alpha for reliability purposes and assessing the test-retest reliability for both the conclusive scale and its constituent elements. The overall scale demonstrated a reliability of 0.873, while the factors yielded coefficients of 0.831, 0.782, and 0.700 for access to diverse perspectives, campus climate, and institutional support, respectively. The test-retest reliability of the overall scale was 0.985. Assessing item consistency within a factor through reliability coefficients for sub-factors is crucial (Deng & Chan, 2016). In scale development, measures such as test-retest reliability coefficients and Cronbach's alpha are vital for evaluating reliability (Svensson et al., 2011), although few education studies have incorporated these measures (Tanzer & Harlow, 2020). Internal consistency was assessed using Cronbach's alpha, while test-retest reliability was key in ensuring that the measurement remained stable and consistent. This study created a tool for evaluating students' perceptions of cultural pluralism in higher education, affirming reliability and validity for researchers and educators. The findings underscore the scale's adaptability and effectiveness across various contexts, thus yielding positive outcomes.

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Ethical compliance

All procedures performed in studies involving human participation were in accordance with the ethical standards.

Data Access Statement

Research data supporting the publication are available at https://drive.google.com/file/d/1H08DqUPsOJs4FSWzuiBX3KoS6uAfQX7b/view?usp=sharing

Conflict of Interest Declaration

The author declares that she has no affiliation with or involvement in any organization or entity with any financial interest in the subject matter or material discussed in this manuscript.

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