



Developing and Standardising a Gratitude Scale Based on Recognition, Appreciation, and Expression

Dr Dibakar Bordoloi

Assistant Professor, Department of Education, Nagaon University, Nagaon, Assam, India

* Corresponding Author: **Dr Dibakar Bordoloi**; Orcid ID: <https://orcid.org/0000-0002-2353-6620>

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Abstract

The study aimed to develop and standardise the gratitude scale, focusing on the indicators of recognition, appreciation, and expression. 272 undergraduate students aged 18 to 21, across genders, demographics, semesters, and socio-economic conditions in Nagaon, Assam, India, constituted the sample of the study. The structure of the gratitude scale and its indicators were examined using Exploratory Factor Analysis (EFA) and confirmed by Confirmatory Factor Analysis (CFA) using JASP open software. However, item-total statistics, Cronbach's alpha, Split-Half (Odd-Even) Correlation, and Spearman-Brown Correlation were computed to assess the internal consistency of the items by using SPSS Version 27. The study's findings show that the indicators are part of the same construct. The Cronbach's Alpha of 0.849 shows strong internal consistency. The split-half correlation of 0.718 indicates good reliability between the two halves of the scale. The Spearman-Brown coefficient of 0.836 confirms that the full scale has high overall reliability.

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Introduction

Gratitude is widely recognised as a positive emotional state that enhances overall well-being (Chauhan *et al.*, 2025; Diniz *et al.*, 2023; Skrzelinska *et al.*, 2024)^[4, 6, 20]. It promotes psychological resilience among individuals through positive emotions (Alamri & Abyadh, 2024)^[1]. It involves noticing and appreciating the kindness, support, or benefits one receives from others, leading to increased happiness and life satisfaction (Emmons & McCullough, 2003)^[7]. Research shows that people who regularly practise gratitude experience reduced stress and improved emotional balance because gratitude shifts attention from problems to the positive aspects of life (Wood *et al.*, 2010; Turner *et al.*, 2025)^[24, 21]. It also supports physical health by encouraging healthier behaviours and lowering stress-related symptoms (Hill *et al.*, 2013)^[13]. Gratitude strengthens social relationships, as grateful individuals tend to be more helpful, cooperative, and connected with others (Algoe, 2012). Exercising to express gratitude helps people become happier and more optimistic (Lin *et al.*, 2025)^[18]. Overall, gratitude is a meaningful inner experience that promotes psychological resilience and a healthier outlook on life.

Gratitude plays an important role in students' emotional, social, and academic development. Studies show that practising gratitude enhances well-being, improves emotional regulation, and strengthens decision-making abilities (Froh *et al.*, 2011; Zhang *et al.*, 2025)^[8, 25]. Grateful students also display higher levels of empathy, cooperation, and kindness, which support healthy relationships with peers, teachers, and family members (Algoe, 2012). Research further indicates that gratitude contributes to better mental health by lowering stress and negative emotions while fostering resilience and a positive mindset (Wood *et al.*, 2010)^[24]. In school settings, gratitude fosters respectful, constructive social interactions, helping students build friendships and resolve conflicts effectively (Watkins *et al.*, 2015)^[22]. On a personal level, gratitude enhances self-worth and reduces materialistic tendencies, enabling individuals to feel more satisfied with their lives (Lambert *et al.*, 2012)^[17].

2. Review of Related Literature

Gratitude is widely defined as a positive emotional response that arises when individuals recognise and appreciate benefits received from others or from life circumstances (McCullough, Emmons & Tsang, 2002) ^[19]. As a psychological construct, gratitude is linked to higher well-being, prosocial behaviour, emotional regulation, and overall life satisfaction (Emmons & McCullough, 2003; Wood, Froh & Geraghty, 2010) ^[7, 24]. These theoretical foundations have guided the development of several standardised instruments to measure dispositional and situational gratitude.

One of the earliest and most widely used measures is the Gratitude Questionnaire–Six Item Form (GQ-6), which conceptualises gratitude as a unidimensional personality trait. It demonstrates good internal consistency and construct validity but has been critiqued for limited coverage of gratitude's multidimensional nature (McCullough *et al.*, 2002) ^[19]. In contrast, the Gratitude, Resentment and Appreciation Test (GRAT) developed by Watkins *et al.* assesses three dimensions—simple appreciation, sense of abundance, and appreciation of others—providing a broader understanding of gratitude experiences (Watkins *et al.*, 2003) ^[23]. Later short forms, such as the S-GRAT and GRAT-RS, offer greater practicality but require stronger psychometric evaluation due to occasional inconsistencies in factor structure across samples (Hammer & Brenner, 2019) ^[11].

Recent studies have also focused on culturally adapted or domain-specific gratitude scales. Research from non-Western contexts, including South Asia, highlights the need for culturally aligned items that reflect the spiritual, relational, and familial aspects of gratitude that are not always captured in Western-developed tools (Chan, 2010; Haroon *et al.*, 2024) ^[3, 12]. These studies emphasise that linguistic translation alone is insufficient; cultural adaptation, qualitative item generation, and re-validation are essential for reliable measurement in local populations.

Across the literature, several methodological issues consistently emerge. Researchers note that gratitude scales often exhibit varying dimensionality across age groups, cultures, and contexts (Froh *et al.*, 2011) ^[8]. Moreover, many existing instruments lack robust normative data, especially for student populations. Consequently, scholars recommend comprehensive scale development procedures, including expert validation, exploratory and confirmatory factor analysis, reliability testing (alpha and test–retest), and assessment of convergent/divergent validity with related constructs such as well-being, empathy, and depression (DeVellis, 2017) ^[5].

Given these gaps—limited cultural relevance, inconsistent factor structures, and insufficient norms—the development and standardisation of a new gratitude scale tailored to the target population is justified. A standardised instrument grounded in both theory and empirical testing will strengthen research and educational practice by offering reliable tools to assess gratitude among students

3. Measured Indicators of Gratitude

Gratitude is commonly viewed as a multidimensional experience involving cognitive awareness, emotional appreciation, and behavioural expression. It reflects a person's ability to notice positive events and recognise that many benefits arise from external sources such as other people, circumstances, or life situations (McCullough, Emmons & Tsang, 2002) ^[19]. These elements combine to

create the feeling and outward expression of thankfulness. Studies show that gratitude includes appreciating what one receives, acknowledging others' contributions, and expressing this appreciation through words or actions, which supports well-being and strengthens social relationships (Wood, Froh & Geraghty, 2010; Emmons & McCullough, 2003) ^[24, 7, 19].

Recognition. Recognition involves noticing and becoming aware of the positive aspects of life. It includes acknowledging the kindness, support, or benefits received from others. This awareness reflects the cognitive foundation of gratitude and encourages mindfulness toward one's surroundings and relationships (McCullough *et al.*, 2002) ^[19].

Appreciation. Appreciation represents the emotional component of gratitude. It includes the feelings of warmth, happiness, and thankfulness that arise when individuals reflect on positive experiences or support from others. This emotional response reinforces a positive mindset and enhances psychological well-being (Wood *et al.*, 2010) ^[24].

Expression. Expression refers to communicating gratitude through words, actions, or gestures. It includes saying thank you, helping others, or showing appreciation in meaningful ways. Expressing gratitude strengthens social bonds and encourages positive interactions within relationships (Wood *et al.*, 2010) ^[24]. Expression of gratitude increases an individual's persistence (Jazaieri & O'Neill, 2025) ^[14].

4. Objectives of the Study

The main objective of the study is to develop and standardise a gratitude scale for students, focusing on the indicators of recognition, appreciation, and expression.

5. Method

After that, data were collected from 272 undergraduate students aged 18 to 21, across genders, demographics, semesters, and socio-economic conditions in Nagaon, Assam, India. This study employed a random sampling technique to collect data from participants at various higher education institutions via a Google Form. The structure of the gratitude scale and its indicators were examined using Exploratory Factor Analysis (EFA) and confirmed by Confirmatory Factor Analysis (CFA) using JASP open software. However, item-total statistics, Cronbach's alpha, Split-Half (Odd-Even) Correlation, and Spearman-Brown Correlation were computed to assess the internal consistency of the items using SPSS Version 27. Additionally, the scale's interpretation norms were measured using Mean \pm 1 α .

6. Data Analysis and Discussion

Table 1: Factorial Validity

Component Loadings		
	RC1	Uniqueness
Recognition	0.903	0.185
Appreciation	0.883	0.221
Expression	0.877	0.232

Note: Applied rotation method is promax.

Source: JASP Open Software

In Table 1, the component loadings indicate that all three indicators, Recognition, Appreciation, and Expression,

strongly load on a single component, with loadings ranging from 0.877 to 0.903. These high values show that the items share a strong relationship with the underlying construct. The uniqueness values (0.185–0.232) are low, indicating that

most of the variance in each item is explained by the component. Overall, the results confirm that the three indicators form a coherent and reliable single-factor structure.

Table 2: Confirmatory Factor Analysis Results for the Gratitude Construct

Factor loadings						95% Confidence Interval	
Factor	Indicator	Estimate	Std. Error	z-value	p	Lower	Upper
Gratitude	Recognition	1.000	0.000			1.000	1.000
	Appreciation	0.796	0.056	14.32	< .001	0.687	0.905
	Expression	0.880	0.062	14.09	< .001	0.758	1.002

Source: JASP Open Software

In Table 2, the confirmatory factor analysis showed that the three indicators, Recognition, Appreciation, and Expression, contributed significantly to the measurement of the construct of Gratitude. Recognition is the reference indicator, with the latent indicator as recommended in CFA procedures (Gorsuch, 2014; Kline, 2016) ^[10, 16]. Appreciation demonstrated a strong and significant loading (0.796, $p < .001$), indicating that the emotional experience of feeling thankful is a key component of gratitude, consistent with

prior theoretical work (McCullough, Emmons & Tsang, 2002) ^[19]. Expression also showed a high and statistically significant loading (0.880, $p < .001$), reflecting the behavioural aspect of communicating gratitude through words or actions, which aligns with established multidimensional models of gratitude (Wood, Froh & Geraghty, 2010) ^[24]. These findings confirm that the three indicators collectively form a valid and reliable measurement of Gratitude.

Table 3: Item Total Correlations and Reliability Analysis of the Gratitude Scale

Sl. No	Statements	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
1	I believe it is important to recognise the kindness of others who show me	41.0147	78.081	.603	.897
2	I feel that being aware of others' support improves my well-being.	40.5368	78.154	.669	.894
3	I believe recognising small acts of kindness is meaningful.	40.6471	76.805	.745	.890
4	I feel that recognising others' efforts shows respect and warmth.	40.4779	76.900	.732	.891
5	I feel that appreciating others brings more positivity into life.	40.7206	79.789	.611	.897
6	I believe showing appreciation strengthens connections with people.	40.8676	82.447	.440	.905
7	I think appreciating others makes life more fulfilling.	40.8015	79.820	.597	.897
8	I feel that expressing appreciation is an important part of a good life.	40.7868	79.489	.634	.896
9	I believe expressing gratitude makes a healthier relationship.	40.5662	79.597	.603	.897
10	I believe expressing appreciation encourages kindness in others.	40.6765	77.961	.609	.897
11	I feel that sharing gratitude creates a positive atmosphere	40.7794	78.446	.629	.896
12	I think that expressing gratitude is a meaningful habit for personal growth.	40.4118	78.250	.678	.894

Source: SPSS Version-27

Table 3 indicates that the statements demonstrate strong internal consistency and reliable measurement properties. The corrected item–total correlations range from .440 to .745, suggesting that most items share a substantial positive relationship with the overall scale, consistent with recommended thresholds: values above .30 are acceptable, and those above .50 are considered strong indicators of construct alignment (Nunnally & Bernstein, 1994). Although

Statement 6 shows a comparatively lower correlation (.440), it still meets the minimum criterion and therefore contributes meaningfully to the underlying construct. Cronbach's alpha values, which range from 0.890 to 0.905 if any item is deleted, remain close to the overall reliability coefficient. This aligns with the understanding that alpha values above 0.70 represent acceptable reliability and values above 0.80 indicate strong internal consistency (DeVellis, 2017) ^[5].

Additionally, the scale's mean and variance show minimal fluctuation when any item is deleted, suggesting that each

item fits well within the scale's overall structure.

Table 4: Reliability Test

Cronbach's Alpha	Part 1	Value	.849
		No of Statements	6 ^a
	Part 2	Value	.844
		No of Statements	6 ^b
	Total N of Statements		12
Correlation Between Forms			.718
Spearman-Brown Coefficient	Equal Length		.836
	Unequal Length		.836
Guttman Split-Half Coefficient			.836

Source: SPSS, Version 27

Table 4 shows that the scale has strong internal consistency and stability. The Cronbach's Alpha value of 0.849 indicates that the items in the scale are highly consistent and effectively measure the same underlying construct. The split-half (odd–even) correlation value of 0.718 further confirms that both

halves of the test have good internal reliability. The Spearman–Brown coefficient of 0.836, which adjusts the split-half result to represent the reliability of the full scale, also falls within the high-reliability range.

Table 5: Norms of Interpretation

Levels of Gratitude	Raw Scores			
	Recognition	Appreciation	Expression	Overall
High	19 and above	17 and above	19 and above	54 and above
Average	12 to 18	12 to 16	12 to 18	34 to 54
Low	11 and below	11 and below	11 and below	33 and below

Source: Microsoft Excel 2021

In Table 5, the normative categories of the scale were established using the Mean \pm 1 SD method, a widely accepted statistical approach for classifying individual scores into meaningful performance levels. This method is commonly recommended in psychological measurement because it provides a simple, distribution-based framework for interpretation (Anastasi & Urbina, 1997) ^[2]. In the present analysis, the sample showed a mean score of 44.42 with a standard deviation of 9.64. Following the Mean \pm 1 SD rule, scores below 34.78 (Mean – 1 SD) were classified as Low, indicating performance noticeably below the normative group average. Scores falling between 34.78 and 54.06 (Mean \pm 1 SD) were categorised as Average, representing typical or expected performance within the population. Scores above 54.06 (Mean + 1 SD) were categorised as High, reflecting performance substantially above the sample norm. Additionally, indicator-wise interpretation norms were calculated using a similar formula. This method offers a statistically valid and clear framework for interpreting individual differences, aligning with standard practices in educational and psychological assessment (Kaplan & Saccuzzo, 2019) ^[15].

7. Implications and Limitations

The findings show that the scale is reliable and can be used to understand students' experiences of gratitude. Teachers, counsellors, and researchers can use the scale to identify students who may need support in developing positive attitudes and emotional skills. The results can also help schools design programmes that promote kindness, appreciation, and emotional well-being. Since the scale has clear scoring categories. Overall, the scale provides a useful tool for promoting positive mental health and building a healthier school environment.

Although the scale shows good reliability, the study was done

with a specific group of students, so the results may not fully represent all age groups or regions. The sample size may limit the extent to which the findings can be generalised. The study relied on self-report responses, which can sometimes be influenced by social desirability or personal mood. Cultural differences may also affect how people express gratitude, and these aspects were not explored in detail. Future studies should include larger, more diverse samples and consider additional methods, such as interviews or observational data, to further validate the scale.

8. Conclusion

The study confirmed that gratitude is a multidimensional construct comprising cognitive, emotional, and behavioural components, which align with established theoretical models of gratitude (McCullough, Emmons & Tsang, 2002; Wood, Froh & Geraghty, 2010) ^[19, 24]. The scale developed in this study showed strong internal consistency and reliable item performance, indicating that all items contributed meaningfully to measuring the construct. The confirmatory factor analysis further supported the three core components, recognition, appreciation, and expression, consistent with earlier research on the structure of gratitude (Emmons & McCullough, 2003) ^[7]. Normative data based on the Mean \pm 1 SD method provided clear categories for interpreting individual scores, making the scale useful for educational and psychological settings. Overall, the findings suggest that the scale is a valid and reliable tool for assessing gratitude and can support future studies and interventions aimed at enhancing emotional well-being.

9. Conflict of Interest

The investigator has no conflict of interest, and all the results are based on survey data.

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