



ADAPTATION AND PSYCHOMETRIC ANALYSIS OF THE ATTITUDES AND PERSPECTIVES TOWARD PERSONS WITH DISABILITIES SCALE AMONG HUNGARIAN TEACHERS IN TRANSYLVANIA

Bernadette GÁLFI

Abstract: The successful inclusion of students with special educational needs (SEN) in mainstream education depends not only on systemic and infrastructural factors, but also on teachers' attitudes. This study aimed to adapt and psychometrically evaluate the Hungarian version of the Attitudes and Perspectives toward Persons with Disabilities (APPD) scale, with a specific focus on affective and behavioral components. A total of 233 Hungarian-speaking teachers from Romanian schools participated in the study. Following a rigorous translation process, the scale was administered along with a demographic questionnaire. An exploratory factor analysis (EFA) initially suggested a four-factor structure; however, due to low reliability of the affective subscales, a more parsimonious two-factor model, comprising cognitive and affective dimensions, was tested and validated using confirmatory factor analysis (CFA). The final structure demonstrated acceptable model fit ($\chi^2/df = 1.687$, CFI = .960, GFI = .956, RMSEA = .054) and internal consistency ($\alpha = .734$ for emotional stance; $\alpha = .704$ for cognitive attitude). The findings suggest that the adapted scale is a reliable and valid tool for assessing Hungarian teachers' attitudes toward the individuals with SEN, with important implications for teacher training and inclusive educational practices.

Key words: special education needs, teacher attitudes, psychometric analysis, exploratory factor analysis, confirmatory factor analysis

1. Introduction

The integration of students with special educational needs (SEN) into the public education system has become one of the most important objectives of educational policy and pedagogical practice in recent decades. According to the perspective of inclusive education, every child has the right to learn in a mainstream school environment alongside their peers, regardless of their physical, intellectual, emotional, or social characteristics (Hay et al., 2025; UNESCO, 1994). This approach not only calls for the acceptance of diversity but also its active support, requiring a differentiated learning environment and a rethinking of traditional teacher roles (Wahsheh, 2024).

However, the success of SEN students' inclusion is not solely dependent on systemic factors such as infrastructural adaptation, curricular differentiation, or the extent of professional support (European Agency for Development in Special Needs Education, 2014). Teachers' attitudes and dispositions also play a crucial role (Florian & Black-Hawkins, 2011; Yang et al., 2024). Teacher attitudes directly influence inclusive pedagogical practices and their relationships with students, including learning opportunities, expectations, and the emotional climate in the classroom (Forlin, 2010).

From a social psychological perspective, an attitude is an internal psychological disposition toward a given object, person, or phenomenon, comprising three components: cognitive (knowledge, beliefs), affective (emotional responses), and behavioral (tendency to act) (Ajzen, 2001). When interpreting attitudes toward SEN students, the interaction of these three components is particularly important: a teacher may cognitively support the idea of inclusion, while still experiencing emotional reactions

Received September 2025.

Cite as: Gálfi, B. (2025). Adaptation and Psychometric Analysis of the Attitudes and Perspectives Toward Persons with Disabilities Scale. *Acta Didactica Napocensia*, 18(2), 53-59, <https://doi.org/10.24193/adn.18.2.5>

such as discomfort, anxiety, pity, or a sense of psychological burden that may hinder genuine inclusion (Loreman, 2010). Numerous empirical studies have shown that teachers' attitudes are often ambivalent. While there is growing theoretical support for inclusion, in everyday practice, uncertainty, anxiety, and resistance frequently appear, especially when teachers feel they lack adequate professional preparation, resources, or support to effectively integrate SEN students (Dignath et al., 2022; Roslyakova et al., 2024).

To identify, measure, and improve these attitudes, reliable and valid measurement tools are needed. Although several attitude scales have been developed in recent decades to examine perceptions of inclusion and SEN students (Forlin, 2014). These instruments often focus predominantly on the cognitive component, i.e., general beliefs and theoretical support. However, mapping teachers' emotional and behavioral responses is essential for obtaining a practically relevant picture of their approach to inclusive education (Forlin, 2010; Loreman et al., 2014).

2. Methodology

2.1. Objectives

The aim of the present study is to adapt and psychometrically analyze the Hungarian version of an attitude scale that specifically measures teachers' attitudes toward students with SEN, with a particular focus on affective and behavioral components. The examined scale captures the attitude structure along four dimensions: attitude toward community integration, discomfort, charitability, and sense of burden. Examining the psychometric properties of this scale has both scientific and practical significance. It can help map teachers' attitudes, identify areas that may require further sensitization, training, or professional support, and ultimately contribute to the support of a more inclusive educational system.

2.2. Participants

According to Kline (2015), conducting a valid and reliable factor analysis requires a minimum sample size of 200 participants. The study included 233 participants, the majority of whom were women (89.3%). Participants ranged in age from 24 to 65 years, with an average age of 39.5 years ($SD = 9.48$). Most worked in urban areas (54.9%), and were primarily employed in traditional educational institutions (85.4%). Participants taught across various educational levels, with the largest proportions in elementary (39.1%) and secondary schools (39.5%). While 87.1% had teaching experience with students with SEN, only 7.3% felt fully prepared for this task, and half of the respondents reported lacking or receiving insufficient preparation during their university training.

2.3. Instruments

2.3.1. Demographic Questionnaire

The demographic questionnaire gathered data on teachers' gender and age. Regarding their professional background, we asked about their years of teaching experience, the location of their workplace, and the type of educational institution where they are employed. In addition, items related to students with SEN explored areas such as prior teaching experience with SEN students, involvement in SEN-related professional training, contact with SEN individuals outside the school setting, university-level preparation for teaching SEN students, and self-perceived readiness to work with this student population.

2.3.2. Attitudes and Perspectives Toward Persons with Disabilities

The Attitudes and Perspectives toward Persons with Disabilities (APPD) is a self-report questionnaire developed to assess individuals' attitudes toward persons with SEN. The original instrument comprises 14 items rated on a 5-point Likert scale, where higher scores indicate more negative attitudes toward persons with SEN. Negatively worded items are reverse coded to ensure consistency in scoring. The scale consists of four subscales that capture different dimensions of attitudes: community integration, discomfort, charitability, and sense of burden. Example items include: "Persons with disability deserve to live where they want in ways they want" (community integration), "I feel uncomfortable being around persons with disability because I feel like I need to help them" (discomfort), "I feel bad for

persons with disability” (charitability), and “Persons with disability tend to leave difficult tasks for people without disability” (sense of burden). The statements were to be rated using a Likert scale (1 = not adequate, 2 = somewhat adequate, 3 = neutral, 4 = quite adequate, and 5 = highly adequate). Subscale scores are obtained by summing the relevant items, and a total score is calculated by aggregating all subscale items. The APPD demonstrated good psychometric properties, including acceptable model fit indices (CFI = 0.9123; RMSEA = 0.0753) and internal consistency (Cronbach’s α = 0.6376–0.8454) (Myong et al., 2021).

2. 4. Procedure

To assess the psychometric properties of the instrument, the original English version of the questionnaire was translated into Hungarian by three independent professionals. These individual translations were then synthesized into a unified version. The translators all held qualifications in psychology and special education, ensuring that the content was adapted with appropriate subject-matter sensitivity. The translation process adhered to the recommendations outlined by the International Test Commission (2017). For the purpose of data collection, an online questionnaire package was developed and distributed among teachers working in various Hungarian-language schools in Romania. Completing the survey took approximately 10–15 minutes, during which participants filled out both the Attitudes and Perspectives Toward Persons With Disabilities scale and a demographic questionnaire. The data analysis was carried out in two phases. Initially, an exploratory factor analysis (EFA) was conducted using IBM SPSS 24 to identify the underlying factor structure, assess the scale’s dimensionality, and categorize the items accordingly. Based on these results, a confirmatory factor analysis (CFA) was performed in the second phase using AMOS Graphics, with the aim of validating the model identified in the EFA.

3. Results

Before performing factor analysis, the suitability of the dataset was evaluated using Bartlett’s test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure (Pallant, 2011). Bartlett’s test examines whether the correlation matrix significantly differs from the identity matrix, which would indicate adequate correlations among the variables. A significant result ($p < .05$) confirms the presence of such intercorrelations. In this study, Bartlett’s test yielded a highly significant result ($p < .000$), confirming that the correlations among variables were sufficient to proceed with factor analysis. The KMO measure assesses sampling adequacy by determining the proportion of variance that might be attributed to underlying common factors. A higher KMO value reflects stronger inter-item correlations and better suitability for factor analysis. In our dataset, the KMO index was 0.689, which is interpreted as a moderate, but acceptable level of adequacy. Since both statistical indicators, Bartlett’s test and the KMO measure, supported the appropriateness of the data, we proceeded with the EFA. The analysis was conducted using the principal component extraction method combined with Varimax rotation, aiming to identify the factor structure that most accurately reflects the attitudes of Hungarian teachers in the Transylvanian context.

The analysis resulted in the extraction of four factors, based on the eigenvalue > 1 rule (Field, 2009). Although the EFA originally suggested a four-factor structure (community integration, charitability, sense of burden, and discomfort) based on the eigenvalue > 1 criterion, the psychometric indicators - particularly the reliability values - did not support the applicability of the four-factor model. While the cognitive attitude factor showed satisfactory reliability (Cronbach’s $\alpha = .70$), the remaining three affective components (charitability, sense of burden, and discomfort) demonstrated low Cronbach’s α values ($< .60$), indicating that they are not reliable as independent factors. From a content perspective, these dimensions all capture different aspects of emotional responses, which theoretically justified the merging of the affective components. Therefore, a new two-dimensional structure (cognitive and affective dimensions) was tested, which proved to be not only psychometrically more stable but also theoretically more interpretable. Together, these factors accounted for 38.66% of the total variance. The rotated factor loadings are presented in Table 1.

Table 1. *The structure of items after the rotation*

Items	1	2
Az SNI személyek egy közösségben kéne éljenek a tipikusan fejlődő személyekkel. (<i>Persons with disability should live with those without disability in community.</i>)	.030	.498
Megfelelő támogatás biztosításával, az SNI személyek olyan társadalmi életet élhetnek, mint a tipikusan fejlődő személyek. (<i>If provided adequate support, persons with disability can lead social lives as people without disability can.</i>)	-.018	.705
Az SNI személyek megérdemlik, hogy ott éljenek, ahol akarnak, ahogy csak akarnak. (<i>Persons with disability deserve to live where they want in ways they want.</i>)	-.030	.719
Megfelelő végzettséggel és törvényes eljárás által, az SNI személyek is indulhatnak választásokon. (<i>With sufficient qualifications and through legitimate process, persons with disability can be elected.</i>)	-.013	.720
Nem engedem, hogy a gyermekeim SNI gyerekekkel töltsenek időt. (<i>I will not let my children hang out with children with disability.</i>)	.305	.588
Kényelmetlenül érzem magam SNI emberek körében, mivel úgy érzem segítenem kell nekik. (<i>I feel uncomfortable being around persons with disability because I feel like I need to help them.</i>)	.650	.163
Kényelmetlenül érzem magam SNI személyekkel való találkozáskor, mert nem tudom, hogyan kell kezeljem őket. (<i>I feel uncomfortable encountering persons with disability because I am not sure how to treat them.</i>)	.736	.068
Nehézséget jelent számomra az SNI személyek megközelítése, mert úgy érzem különböznek tőlem. (<i>It is difficult for me to approach persons with disability, because I feel like they are different from me.</i>)	.620	.319
Ha lenne a családban SNI személy, nem szeretném, ha az emberek tudomást szereznének róla. (<i>If I had a family member with disability, I would not want people to find out.</i>)	.223	.393
Az SNI személyek haszontalannak tartják magukat. (<i>Persons with disability would consider themselves unfortunate.</i>)	.274	.198
Sajnálom az SNI személyeket. (<i>I feel bad for persons with disability.</i>)	.671	-.087
Sajnálom az SNI személyeket, amikor extra erőfeszítést kell tenniük a napi feladatok elvégzéséhez. (<i>I feel sorry for persons with disability when they need to put extra effort to do daily tasks.</i>)	.697	-.263
Az SNI személyek különleges bánásmódot igényelnek a fogyatékosságuk miatt. (<i>Persons with disability usually ask special treatment for their disability.</i>)	.292	-.239
Az SNI személyek általában a nehéz feladatokat a tipikusan fejlődő személyekre hagyják. (<i>Persons with disability tend to leave difficult tasks for people without disability.</i>)	.431	.230

Consistent with the recommendations of Stevens (2002), only those items with factor loadings exceeding 0.5 were retained for the final factor structure. As a result, items 1, 9, 10, 13, and 14 were excluded from further analysis due to their insufficient loadings. The factor structure presented in Table 1 reflects this refinement. The first factor captures **emotional** stance toward individuals with SEN (e.g., charity or discomfort), while the second factor represents **cognitive** attitudes. This latter dimension refers to more deliberate, belief-based evaluations, such as perceived competence, rights, and inclusion of individuals with special educational needs in educational or social contexts.

Following item selection, the factors demonstrated acceptable reliability for emotional stance (Cronbach's alpha = .734) and for cognitive attitude (Cronbach's alpha = .704), indicating that both factors reliably measure the intended constructs.

After selecting the final set of items, the analysis aimed to evaluate how well the hypothesized model aligned with the observed data, that is, to assess the model's representational accuracy. This step involved conducting a confirmatory factor analysis (CFA), a statistical technique used to test the fit between the theoretical model and empirical data (Byrne, 2010). Model adequacy was evaluated using

a range of fit indices. The structural components of the CFA are depicted in Figure 1.

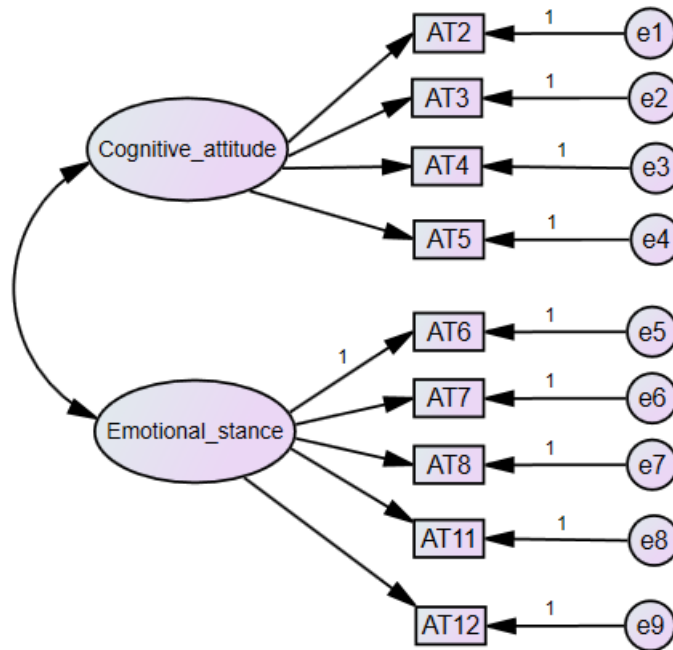


Figure 1. The factor structure of the Hungarian version of the APPD Questionnaire in confirmatory analysis

The χ^2/df ratio reflects the extent of discrepancy between the proposed model and the observed data, adjusted for the degrees of freedom. This adjustment helps to minimize the influence of sample size. According to Kline (2005), a value below 3 is generally considered indicative of an acceptable model fit. In this study, the χ^2/df value was 1.687, supporting the model’s adequacy. The Comparative Fit Index (CFI) evaluates the level of concordance between the model and the observed data, with scores exceeding .90 typically interpreted as demonstrating good fit (Byrne, 2010). The obtained CFI value of .960 meets this criterion, suggesting that the model captures the data structure reasonably well. Similarly, the Goodness of Fit Index (GFI) assesses the model’s capacity to reproduce the variance-covariance matrix of the data. GFI values range from 0 to 1, with values above .90 generally indicating satisfactory fit (Byrne, 2010). The GFI in our model was .956, reflecting an acceptable level of fit. We also assessed model fit using the Root Mean Square Error of Approximation (RMSEA), which focuses on the extent of approximation error in the model, rather than on its agreement with the data. Lower values suggest better fit, with thresholds below .08 considered acceptable (Byrne, 2010; Kline, 2015). Our RMSEA value of .054 falls within the recommended range, indicating no substantial misfit. Based on the findings, the model demonstrates an adequate fit, as all reported indices fall within the recommended ranges outlined by Kline (2005) and Byrne (2010). These results confirm that the two-factor structure provides a satisfactory representation of the underlying constructs. A summary of these fit indices is provided in Table 2.

Table 2. Summary of model fit indices

	<i>N</i>	χ^2/df	CFI	GFI	RMSEA
Optimal value		<3.0	>0.900	>0.90	<0.08
Model	233	1.687	.960	.956	.054

4. Conclusion

The present study aimed to examine the psychometric properties of the Hungarian adaptation of the Attitudes and Perspectives Toward Persons With Disabilities scale originally developed to assess attitudes towards persons with SEN. The original scale consisted of four subscales: community integration, discomfort, and charitability and sense of burdening (Myong et al., 2021). However, the results of the factor analysis in the Hungarian context supported a two-factor structure, with items loading onto factors best described as **emotional** stance and **cognitive** attitude towards individuals with SEN.

This deviation from the original four-factor model may reflect cultural differences in the way emotion-related experiences are conceptualized and expressed. In particular, items from the original discomfort, charitability or sense of burdening subscales did not form distinct factors in the Hungarian sample, but were instead integrated into the broader dimension of emotional stance. This suggests a possible overlap between feelings and emotional strain in this cultural context, which may influence how respondents interpret and respond to the items. Despite the structural divergence, the adapted scale demonstrated good psychometric properties. Both factors showed high internal consistency, and the model exhibited good fit indices. Moreover, the scale correlated in expected directions with related psychological constructs. These findings highlight the methodological relevance of re-evaluating the factorial structure of psychological instruments during cross-cultural adaptation. Rather than applying the original structure uncritically, exploratory and confirmatory analyses can ensure that the adapted version remains theoretically and empirically sound in the new context.

In conclusion, the Hungarian version of the Attitudes and Perspectives Toward Persons With Disabilities scale appears to be a reliable and valid tool for assessing emotional stance and cognitive attitude towards individuals with SEN among teachers. The modified two-factor structure may even offer greater conceptual clarity and applicability in local settings, making the instrument a useful resource for both research and clinical and educational practice.

References

- Ajzen, I. (2001). Nature and Operation of Attitudes, *Annual Review of Psychology*, 52, 27-58.
- Byrne, B. M. (2010), *Structural equation modeling with AMOS: Basic concepts, applications, and programming*, Routledge.
- Dignath, C., Rimm-Kaufman, S., van Ewijk, R., & Kunter, M. (2022), Teachers' Beliefs About Inclusive Education and Insights on What Contributes to Those Beliefs: a Meta-analytical Study, *Educational Psychology Review*, 34, 2609-2660.
- European Agency for Development in Special Needs Education. (2014), *Teacher Education for Inclusion - Profile of Inclusive Teachers*, European Agency for Development in Special Needs Education.
- Field, A. (2009), *Discovering Statistics Using SPSS*, SAGE Publications.
- Florian, L., & Black-Hawkins, K. (2011), Exploring Inclusive Pedagogy, *British Educational Research Journal*, 37, 813-828.
- Forlin, C. (2014), *International Perspectives of Inclusive Education*, Emerald Group Publishing Limited.
- Forlin, C. (2010), *Teacher Education for Inclusion*, Routledge.
- Hay, S., Beamish, W., & Chambers, D. (2025), Editorial: Advancing inclusive education for students with special educational needs: rethinking policy and practice, *Frontiers in Education*, 10.
- International Test Commission. (2017), *International Test Commission Guidelines for Translating and Adapting Tests*, International Test Commission.
- Kline, R., B. (2015), *Principles and Practice of Structural Equation Modeling*, The Guilford Press.

Loreman, T., Forlin, C., Chambers, D. J., Sharma, U., & Deppeler, J. (2014). Conceptualising and Measuring Inclusive Education, *International Perspectives on Inclusive Education*, 3, 3-17.

Loreman, T. (2010). *Inclusive Education: Supporting Diversity in the Classroom*, Allen & Unwin.

Myong, Y., Shin, H. I., Lee, J. E., Cho, W., & Yi, Y. G. (2021). Development and Validation of a New Scale to Assess Attitudes and Perspectives Toward Persons With Disabilities, *Annals of Rehabilitation Medicine*, 45(4), 331-340.

Pallant, J. (2011), *SPSS Survival Manual. A step by step guide to data analysis using SPSS*, Allen & Unwin.

Roslyakova, S. V., Sokolova, N. A., Sivrikova, N. V., & Chernikova, E. G. (2024), Teachers' Attitudes towards Inclusive Education in School, *Psychological Science and Education*, 29(5), 87-98.

Stevens, J. P. (2002), *Applied multivariate statistics for the social sciences*, Lawrence Erlbaum Associates Publishers.

UNESCO. (1994), *The Salamanca Statement and Framework for Action on Special Needs Education*, UNESCO.

Wahsheh, N. A. (2024). The inclusion of students with disabilities: Teachers'attitudes, *Multidisciplinary Science Journal*, 6(12), 1-9.

Yang, L., Pang, F. & Sin, K. F. (2024), Examining the complex connections between teacher attitudes, intentions, behaviors, and competencies of SEN students in inclusive education, *Teaching and Teacher Education*, 144, 1-16.

Authors

Bernadette GÁLFI, Babeş-Bolyai University, Cluj-Napoca (Romania), e-mail: bernadette.galfi@ubbcluj.ro