

Analysis of the Validity of Psycho-pedagogical Variable Constructs in Improving the Performance of Inclusive School Teachers in Indonesia

Vanda Estetika Siswandari, Erni Suharini, Sungkowo Edy Mulyono, Titi Prihatin

Universitas Negeri Semarang, Indonesia

*Corresponding Author: vandaestetikasis@students.unnes.ac.id

Abstract. This study aims to analyze the construct validity of psycho-pedagogical variables consisting of pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence in an effort to improve teacher performance in inclusive schools. The study was conducted with a quantitative approach using the SEM-PLS analysis technique. Data were obtained from 250 teachers who teach in inclusive schools in Semarang City. The results showed that all indicators in each construct had a loading factor value of > 0.7 , Average Variance Extracted (AVE) > 0.5 , and Composite Reliability (CR) > 0.7 , indicating that all variables had good construct validity. These findings contribute to the development of measuring instruments in the context of inclusive education and provide an empirical basis for policy making to improve teacher quality.

Keywords: construct validity, psycho-pedagogical, inclusive education, SEM-PLS, teacher performance.

INTRODUCTION

Inclusive education has become an important agenda in the global education system in response to the principles of equal rights and social justice (Kailash Chandra Pradhan & Sarbottam Naik, 2024). Many countries, including in Asia and Europe, have implemented inclusion policies to ensure that children with special needs can learn with their peers in the same environment (United Nations International Children's Emergency Fund, 2023). International organizations such as UNESCO and UNICEF continue to promote the inclusive education model as a sustainable and equitable approach to developing the education system (Sari et al., 2022).

In Indonesia, inclusive education has been regulated through various regulations such as Permendikbud Number 70 of 2009 and Government Regulation Number 13 of 2020. However, the performance of teachers teaching in inclusive schools still shows significant challenges. Many teachers are not fully prepared in terms of adaptive learning strategies, inclusive classroom management, or the ability to handle the diversity of student needs (Dewi, 2024). Previous studies have shown that self-efficacy, pedagogical competence, and organizational support play an important role in influencing their performance (Emur & Satrya, 2024).

The phenomenon that occurred in Semarang City, several inclusive elementary schools experienced challenges in improving the quality of inclusive learning services (Widyahastuti et al., 2024). The results of internal evaluations showed high variations in the quality of teaching, teacher involvement, and student learning achievements (Engida et al., 2024). This raises the need to empirically understand the psycho-pedagogical factors that influence teacher performance, such as pedagogical competence, school organizational culture, self-efficacy, and spiritual intelligence (Andriansyah et al., 2022) (Yusdarti & Novandy Aulia, 2020).

Based on this background, the main problem can be identified, namely the need to test the construct validity of the psychopedagogical variables to ensure that the measuring instruments used are truly able to describe the empirical reality of teacher performance in inclusive schools. Without strong construct validity, data-based policy and training interventions will be difficult to design in a targeted manner.

The formulation of the problem studied in this study is: (1) Do the constructs of the variables of pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence have adequate construct validity in the context of inclusive schools? (2) How do the indicators in each psychopedagogical variable reflect the construct that is measured empirically? (3) To what extent can the construct validity of the four psychopedagogical variables be used to explain teacher performance

in inclusive schools?

The objectives of this study are (1) To analyze the construct validity of the variables of pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence in the context of inclusive education. (2) Identifying the indicators that best represent each psychopedagogical construct. (3) Assessing the contribution of construct validity of psychopedagogical variables to the empirical understanding of the performance of inclusive school teachers in Indonesia.

Psycho-pedagogical variables such as pedagogical competence refer to teachers' ability to design and implement effective learning (Rojas-Valladares et al., 2024). Organizational culture influences the work atmosphere and motivation of teachers (Schein, 2010). Self-efficacy, according to Bandura (1997), reflects an individual's belief in their ability to face tasks (Waddington, 2023). Meanwhile, spiritual intelligence is considered to be able to improve the quality of ethical and emotional decision-making in inclusive learning (Zhou et al., 2024).

The analysis of the construct validity of psycho-pedagogical variables in improving the performance of inclusive school teachers in Indonesia highlights the complex interactions between teacher readiness, attitudes, and the overall educational framework that shapes inclusive practices. The constructs of teacher efficacy, ongoing training, and a supportive environment are very important in encouraging improved teaching practices for students with special needs. Previous research shows that teacher readiness and training are very important in realizing effective inclusive education. Wahyuni et al. emphasized that teachers' views on inclusive education directly influence their awareness of diverse student abilities and require attendance at training sessions aimed at equipping them with the skills needed to support diverse learners in an inclusive environment (Wahyuni et al., 2021). Similarly, Juhairiah et al. emphasized the role of vocational schools in improving teacher competency through specialized training programs that target the unique needs associated with teaching children with special needs (Juhairiah et al., 2024). A systematic approach to teacher training not only encourages individualized teaching strategies but also enhances teachers' self-efficacy, which is critical to their ability to create a supportive learning environment for all students (Schwab & H. Alnahdi, 2020).

METHODS

Research Approach and Design

This study uses a quantitative approach with an explanatory survey design. This design was chosen to empirically test the construct validity of psycho-pedagogical variables and explain the relationship between variables in the context of inclusive education.

Population and Sample

The population in this study were all teachers who teach in inclusive elementary schools in Semarang City. The sampling technique used purposive sampling with the criteria of teachers who have taught at least one year in inclusive schools (Nyimbili & Nyimbili, 2024). The number of respondents successfully collected was 250 teachers from 10 inclusive elementary schools spread across Ngaliyan District, Semarang City.

Data Collection Technique

Data were collected using a 5-point Likert scale-based questionnaire. The research instrument was compiled based on indicators that had been tested in previous studies and developed according to the local context (Salmia, 2023). The questionnaire included items to measure pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence.

Data Analysis Techniques

Data analysis was conducted using the Structural Equation Modeling approach based on Partial Least Squares (SEM-PLS) through Smart PLS software version 4. The analysis process includes testing the outer model to assess construct validity (convergent and discriminant validity), as well as construct reliability (Cronbach's alpha and composite reliability), before continuing with testing the inner model to assess the strength of the relationship between constructs (Sarstedt et al., 2020) (Triwidyati & Tentama, 2020).

RESULTS AND DISCUSSION

RESULT

Outer model analysis was conducted to test the convergent validity and construct reliability of four psychopedagogical variables, namely: pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence.

Convergent Validity Test

Convergent validity is shown through the outer loading value, Average Variance Extracted (AVE), and composite reliability (CR). An indicator is said to be valid if the loading factor value is > 0.70 and the AVE value is > 0.50 .

Table 1. Convergent Validity and Reliability Test Results

Construct	Indicator amount	Loading Factor (range)	AVE	Composite Reliability	Cronbach's Alpha
Pedagogical Competence	6	0.731 – 0.865	0.612	0.890	0.854
Organizational Culture	5	0.743 – 0.891	0.635	0.902	0.872
Self-Efficacy	6	0.726 – 0.882	0.599	0.887	0.844
Spiritual Intelligence	5	0.751 – 0.880	0.621	0.891	0.859

The results above show that all constructs have $AVE > 0.5$, and composite reliability > 0.7 , which indicates adequate convergent validity and construct reliability. The loading factor of all indicators is also above the threshold value of 0.70.

Construct Reliability Test

Construct reliability is assessed based on the Composite Reliability and Cronbach's Alpha values. All constructs show Cronbach's Alpha values > 0.7 and $CR > 0.8$, which means that all constructs have good internal consistency (Cheung et al., 2024). The results of this outer model test strengthen the conclusion that the instrument used in this study is empirically feasible to measure the constructs of pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence (Ling et al., 2020). The next test, discriminant validity was tested with the Heterotrait-Monotrait Ratio (HTMT) value and all HTMT values between constructs were below 0.90. This shows that each construct has a different identity and does not overlap (Pandarthodiyil et al., 2024).

These findings strengthen the theoretical framework that psycho-pedagogical factors are proven construct valid in explaining teacher performance variables in inclusive schools. High pedagogical competence is positively correlated with teacher performance, as indicated by the significant path coefficient value. Likewise, a supportive organizational culture and high levels of self-efficacy and spiritual intelligence contribute to increased performance through motivational and affective mechanisms.

DISCUSSION

The results of the analysis show that the constructs of pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence have good construct validity. This can be seen from the AVE value which is above 0.5 and the composite reliability which exceeds 0.7. This finding is in line with the first research objective, which is to test the construct validity of psycho-pedagogical variables in the context of inclusive schools. High construct validity in the pedagogical competence variable supports the theory of Shulman (1987) and Hattie (2009) that the competence of managing learning is an important foundation in improving teacher performance. This shows that indicators such as the ability to design adaptive learning and manage inclusive classes truly reflect the constructs in question in the context of inclusive education.

For the organizational culture variable, good construct validity results indicate that the norms,

values, and practices in inclusive schools are truly reflected in indicators such as collaboration, leadership support, and internal communication. This is in line with Schein's (2010) theory on the importance of organizational culture in shaping individual behavior in the work system. Self-efficacy has also been proven valid as a construct, which confirms that teachers' beliefs in their abilities in managing students with special needs are important determinants of teaching performance. These results strengthen Bandura's (1997) theory and research by Mahmudah & Sarino (2016) which shows the mediating role of efficacy in improving teacher performance. Spiritual intelligence shows strong construct validity, indicating that the values of transcendence and spiritual awareness in the practice of inclusive teachers do have a real influence. This strengthens Rozalina's (2020) findings that spiritual intelligence supports ethical and relational decision making in the context of inclusive education. Overall, these results support the findings in previous studies and provide empirical evidence that psychopedagogical constructs have valid structures and measurements. Thus, the second and third objectives of this study were also achieved: identifying valid indicators and confirming that the four constructs are relevant to explaining teacher performance in inclusive schools

Implications for Academic Professionals

The results of this study provide important contributions for academic professionals, especially in the fields of education and educational psychology, by providing a validated measurement tool to evaluate psycho-pedagogical factors in the context of inclusive education. The construct validity of the variables of pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence provides a strong empirical basis for use in further research, development of learning instruments, and more accurate and theoretical assessment of teacher performance. For lecturers, researchers, and developers of teacher education curriculum, these findings can be a basis for compiling evidence-based training modules that are more contextual to challenges in the field. This validated instrument can also be used as teaching materials or case studies in courses related to educational management, teacher professional development, and learning assessment. Thus, this study is not only applicable but also strengthens the capacity of academic science in the realm of inclusive education.

CONCLUSION

Based on the results of the analysis and discussion, it can be concluded that the four psycho-pedagogical variables, namely pedagogical competence, organizational culture, self-efficacy, and spiritual intelligence have good construct validity in the context of inclusive education. All indicators in each construct meet the criteria for convergent validity and reliability, so they can be used to explain and evaluate teacher performance in inclusive schools validly. These results indicate that the measurement of psycho-pedagogical factors in the context of inclusive schools can be carried out scientifically and accurately.

Therefore, it is recommended that education managers and policy makers use this validated construct in designing training, teacher performance assessments, and ongoing professional development in inclusive schools. In addition, further research can develop predictive models based on these constructs to improve the effectiveness of inclusive education nationally. It is also important to conduct external and cross-regional validity tests to ensure the generalizability of the instrument in different cultural and geographical contexts.

REFERENCES

- Andriansyah, E. H., Rafsanjani, M. A., & Priastuti, D. N. (2022). The Importance of Emotional, Spiritual Intelligence, and Self Efficacy on The Principal's Performance in Sekolah Penggerak Program Based on Merdeka Curriculum. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 8(4), 922. <https://doi.org/10.33394/jk.v8i4.5910>
- Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2024). Reporting reliability,

- convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. In *Asia Pacific Journal of Management* (Vol. 41, Issue 2). Springer US. <https://doi.org/10.1007/s10490-023-09871-y>
- Dewi, A. E. R. (2024). Effectiveness of Implementing Inclusive Education: Challenges and Opportunities in Culturally Diverse Classrooms. *Journal of Pedagogi*, 1(3), 1–7. <https://doi.org/10.62872/k2k0zs91>
- Emur, A. P., & Satrya, A. (2024). Examining Perceived Organizational Support , Work-Life Balance , and Role Breadth Self-Efficacy in Predicting Employee Adaptive Performance. *OURNAL OF THEORETICAL AND APPLIED MANAGEMENT*, 17(3), 486–503.
- Engida, M. A., Iyasu, A. S., & Fentie, Y. M. (2024). Impact of teaching quality on student achievement: student evidence. *Frontiers in Education*, 9(2010). <https://doi.org/10.3389/educ.2024.1367317>
- Juhairiah, S., Yuwono, D. T., & Sabela, W. (2024). The Role of Vocational Schools in Enhancing Teacher Competence for Inclusive Education of Special Needs Children in Central Kalimantan. *Tunas: Jurnal Pendidikan Guru Sekolah Dasar*, 9(2), 162–166. <https://doi.org/10.33084/tunas.v9i2.7430>
- Kailash Chandra Pradhan, & Sarbottam Naik. (2024). Inclusive Education: A Foundation for Equality and Empowerment at the Elementary Stage. *International Journal of Multidisciplinary Research in Arts, Science and Technology*, 2(2), 1–8. <https://doi.org/10.61778/ijmrast.v2i2.36>
- Ling, F. C., Kartar Singh, J. S., & Arumugam, T. (2020). Employee Contextual Performance, Social Intelligence, Spiritual Intelligence: A quantitative Study in Malaysia. *International Journal of Psychosocial Rehabilitation*, 24(02), 968–981. <https://doi.org/10.37200/ijpr/v24i2/pr200404>
- Nyimbili, F., & Nyimbili, L. (2024). Types of Purposive Sampling Techniques with Their Examples and Application in Qualitative Research Studies. *British Journal of Multidisciplinary and Advanced Studies*, 5(1), 90–99. <https://doi.org/10.37745/bjmas.2022.0419>
- Pandarathodiyil, A. K., Mani, S. A., Veerabhadrappe, S. K., Danaee, M., & Zamzuri, A. T. Bin. (2024). Cross-cultural validation of Malay version of perceived professionalism among dental patients. *BDJ Open*, 10(1), 1–9. <https://doi.org/10.1038/s41405-024-00234-3>
- Rojas-Valladares, A. L., Montano-Rodríguez, F., & Monteros, M. del P. L.-E. de los. (2024). TRAINING OF THE TEACHER , A NECESSITY IN THE CURRENT. *Revista Científica Multidisciplinaria de La Universidad Metropolitana de Ecuador*, 7(3), 270–277.
- Salmia, S. S. (2023). Development of Quality Instruments and Data Collection Techniques. *Jurnal Pendidikan Dan Pengajaran Guru Sekolah Dasar (JPPGuseda)*, 6(1), 119–124. <https://doi.org/10.55215/jppguseda.v6i1.7527>
- Sari, Z. P., Sarofah, R., & Fadli, Y. (2022). The Implementation of Inclusive Education in Indonesia: Challenges and Achievements. *Jurnal Public Policy*, 8(4), 264. <https://doi.org/10.35308/jpp.v8i4.5420>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2020). Handbook of Market Research. In *Handbook of Market Research* (Issue July). <https://doi.org/10.1007/978-3-319-05542-8>
- Schwab, S., & H. Alnahdi, G. (2020). Do they practise what they preach? Factors associated with teachers' use of inclusive teaching practices among in-service teachers. *Journal of Research in Special Educational Needs*, 20(4), 321–330. <https://doi.org/10.1111/1471-3802.12492>
- Triwidyati, H., & Tentama, F. (2020). Validity and Reliability Construct of Subjective Well-Being Scale. *International Journal of Sciences: Basic and Applied Research*, 51(2), 191–200. <http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>
- United Nations International Children's Emergency Fund. (2023). Children with Disabilities in Europe and Central Asia: A statistical overview of their well-being. In 2023.

- Waddington, J. (2023). Self-efficacy. *ELT Journal*, 77(2), 237–240. <https://doi.org/10.1093/elt/ccac046>
- Wahyuni, T., Sowiyah, & Hariri, H. (2021). Implementation of Inclusive Education in Indonesian Regular School. *Social Science Studies*, 1(2), 65–77. <https://doi.org/10.47153/sss12.1932021>
- Widyahastuti, Karsono, & Yulisetiani, S. (2024). Challenges in Emerging an Inclusive Learning Environment: A Case Study in an Elementary School. *Jurnal Ilmiah Sekolah Dasar*, 8(4), 772–783.
- Yusdarti, M., & Noviandy Aulia, I. (2020). the Influence of Emotional Intelligence and Self-Efficacy on Organizational Culture and Its Impact on Teacher Performance in Public Senior High Schools in Pesanggrahan and Kebayoran Districts. *Dinasti International Journal of Digital Business Management*, 2(1), 69–86. <https://doi.org/10.31933/dijdbm.v2i1.637>
- Zhou, Z., Tavan, H., Kavarizadeh, F., Sarokhani, M., & Sayehmiri, K. (2024). The relationship between emotional intelligence, spiritual intelligence, and student achievement: a systematic review and meta-analysis. *BMC Medical Education*, 24(1), 1–11. <https://doi.org/10.1186/s12909-024-05208-5>