

Research Article

# Application of Deep Learning-Based Tolerance Values to Support Classroom Management in Class VI SDN Beji 01 Ungaran Timur

Reva Adelya Wulan Dari<sup>1\*</sup>, Nur Aini Pusvitasari<sup>2</sup>, Aulia Nur Laila<sup>3</sup>, Nimas Puspitasari<sup>4</sup>

<sup>1</sup> Faculty of Teacher Training and Education, Darul Ulum Islamic Centre Sudirman University, Indonesia; e-mail: [revaadelya0608@gmail.com](mailto:revaadelya0608@gmail.com)

<sup>2</sup> Faculty of Teacher Training and Education, Darul Ulum Islamic Centre Sudirman University, Indonesia; e-mail: [ainitata20@gmail.com](mailto:ainitata20@gmail.com)

<sup>3</sup> Faculty of Teacher Training and Education, Darul Ulum Islamic Centre Sudirman University, Indonesia; e-mail: [aulianurlaila23@gmail.com](mailto:aulianurlaila23@gmail.com)

<sup>4</sup> Faculty of Teacher Training and Education, Darul Ulum Islamic Centre Sudirman University, Indonesia; e-mail: [nimaspuspitasari@gmail.com](mailto:nimaspuspitasari@gmail.com)

\* Corresponding Author: Reva Adelya Wulan Dari

**Abstract:** This study aims to describe the application of deep learning based tolerance values with a pedagogical approach in supporting classroom management in grade VI of SDN Beji 01 East Ungaran. The deep learning approach is understood as a pedagogical strategy that emphasizes the cognitive, affective, and social engagement of students through meaningful learning experiences. This study uses a descriptive qualitative approach with data collection techniques in the form of semi-structured interviews, observations, and documentation. The research subjects include grade VI teachers, principals, and students with diverse social and cultural backgrounds. The results of the study show that the application of tolerance values through deep learning strategies is able to create an inclusive, safe, and conducive classroom climate. The implementation is reflected through the practice of random seating arrangements, a culture of sharing learning media, deliberation in conflict resolution, fair study timing, and strengthening mutual respect between students. These findings confirm that the integration of deep learning-based tolerance values contributes significantly to the effectiveness of classroom management and the strengthening of the social character of elementary school students.

**Keywords:** Classroom Management; Deep Learning; Inclusive Education; Pedagogical Approach; Tolerance Values

Received: July 16, 2025

Revised: September 10, 2025

Accepted: November 5, 2025

Published: December 31, 2025

Curr. Ver.: December 31, 2025



Copyright: © 2025 by the authors.  
Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>)

## 1. Introduction

The development of technology in the world of education in the 21st century demands the pedagogical renewal of qualified teachers not only to improve students' cognitive competence but also to strengthen the character values that are very important in diverse life backgrounds. One of the learning approaches that is increasingly receiving attention in the educational literature is the deep learning pedagogical approach, which places students as active parties in the learning process, so that they can understand, analyze, and apply science in the context of real social life (Biggs & Tang, 2003; Weng et al., 2022).

Deep learning in the field of education is not just learning techniques or artificial intelligence, but refers to a pedagogical approach that encourages students' cognitive, affective, and metacognitive involvement to understand the meaning of values and the relationships between concepts in depth (Janisch et al., 2021). This approach is particularly relevant to tolerance education in primary schools, especially in diverse classroom contexts such as at SDN Beji 01 Ungaran Timur, where students routinely interact in diverse cultures, religions, and social backgrounds.

Tolerance is an important component of effective classroom management, as tolerance can strengthen the harmony of social interactions between students and support a positive

and holistic classroom atmosphere. Habituation of the value of tolerance helps students to minimize conflict and collaborate in diverse digital and non-digital experiences (Liantori, Yatim & Fitri, 2025).

Research by Liantori et al. (2025) shows that the application of deep learning-based tolerance values in elementary school students with high diversity levels includes three main practices: structured experiences of diversity through digital media, students' personal reflection through visual narratives such as journals and vlogs, and cross-identity collaboration in digital projects that encourage interaction and empathy between students. These results show that deep learning can integrate cognitive, affective, and social aspects in character-value learning.

The implementation of deep learning-based tolerance values also has an impact on classroom management. When students engage in meaningful and personally relevant learning, the level of engagement, interpersonal communication, and conflict resolution ability in the classroom increases, creating a more organized and conducive learning environment. In addition, students also have a sense of mutual respect in every difference so that classroom management arrangements will be easier and more organized without any conflict between students, teachers will also be more flexible in providing learning and rules in the classroom. This is in line with findings that deep learning approaches can improve social emotional competencies, including collaboration and perception of diversity, which are important indicators of effective classroom management (Learning Policy Institute, 2021).

Thus, this study aims to empirically describe how the application of tolerance values through deep learning strategies is carried out in grade VI of SDN Beji 01 Ungaran Timur and how the application affects classroom management, including in students' digital media use experience and experience of involvement in diversity. This study is important to provide concrete and practical evidence for educators and policymakers in integrating learning technology and value education in daily classroom practice.

## 2. Literature Review

### **The Value of Tolerance and its Relationship to Classroom Management**

Tolerance is an attitude of respecting differences, both in terms of opinions, culture, beliefs, and social behavior (UNESCO, 1995). In primary education, tolerance plays an important role in creating a participatory and psychologically safe learning environment, so as to minimize interpersonal conflicts between students (Banks, 2015). The application of tolerance values in grade VI of elementary school is very relevant to classroom management because students in this phase tend to form friend groups (blocks), which has the potential to cause social conflicts and friction between groups (Wentzel & Looney, 2007). Teachers who apply tolerance values as part of their classroom management strategies can promote healthy social interactions, humanistically strengthen classroom discipline, and build a conducive classroom climate (Evertson & Weinstein, 2013). Thus, tolerance is not only a moral value, but also a pedagogical instrument in managing class dynamics.

### **Deep Learning and its Relationship to Classroom Management**

Deep learning in the context of education refers to the use of artificial neural network models (Neural Networks) to recognize complex patterns from large amounts of data to support evidence-based decision-making (Le Cun, Bengio, & Hinton, 2015). Its application in classroom management is beginning to develop, especially in detecting student behavior, analyzing social interactions, and predicting potential learning disturbances and conflicts in the classroom (Zawacki-Richter et al., 2019). Deep learning technology allows teachers to obtain automatic thinking ideas related to classroom conditions in real-time, for example through the emotional analysis of students whether they are positive, negative, or neutral, detection of student communication patterns, or classification of social behaviors that affect the regularity of the classroom (Luckin et al., 2016). In class VI that has strong social dynamics such as at SDN Beji 01, deep learning can be a tool to map relationships between students and support classroom planning strategies, seating arrangements, and more precise social interventions (Baker & Inventado, 2014). Thus, deep learning does not replace the role of teachers, but strengthens the effectiveness of data-driven classroom management. The role of teachers is not lost but the role of teachers has changed to facilitators.

### **Integrated Classroom Management with Tolerance and Deep Learning Values**

Classroom management is a set of teachers' strategies in creating an effective learning environment through the physical, social, and emotional settings of the classroom (Evertson & Weinstein, 2013). In 21st century learning, classroom management not only emphasizes

discipline, but also strengthens social values such as tolerance so that students are able to interact positively in diversity (Banks, 2015; Banks & Banks, 2019). The integration of deep learning in classroom management allows the identification of students' social patterns related to tolerant attitudes, for example through the classification of interaction behaviors, analysis of social relationships, and the detection of potential discrimination or group discrimination (Zawacki-Richter et al., 2019; Baker & Inventado, 2014). This approach supports teachers in making more flexible, data-driven classroom management decisions that are aligned with the goal of cultivating tolerance character (LeCun et al., 2015; Luckin et al., 2016). Thus, tolerance functions as a pedagogical goal, deep learning as an analysis tool, and classroom management as a space for collaboration in the implementation of both.

### 3. Research Method

This study uses a descriptive qualitative approach, which aims to describe in depth the application of deep learning-based tolerance values in supporting classroom management in grade VI of elementary school (Creswell & Poth, 2021). The research was carried out at SDN Beji 01 East Ungaran, focusing on grade VI with a high level of student diversity based on social and cultural backgrounds. The data collection technique was carried out through semi-structured interviews with grade VI teachers and principals to gain an understanding of students' social dynamics and classroom management strategies, as well as through photo documentation of activities, and supporting observation notes.

Data analysis is carried out inductively with the stages of data summary, data presentation, and conclusion drawing to obtain the meaning of findings relevant to the research focus (Miles, Huberman, & Saldaña, 2020). The validity of the data is strengthened through triangulation of sources and the study of school documents so that the interpretation of results is more accurate and reliable (Carter et al., 2021). This method was chosen because it is able to match the social conditions of grade VI students who have a tendency to group friends, so that the application of tolerance and class management strategies can be analyzed naturally and based on field reality (Rukajat, 2022).

### 4. Results and Discussion

#### Results

The results of the study show that the deep learning approach in instilling tolerance values is able to create an inclusive, empathetic, and organized classroom atmosphere through classroom management design and meaningful learning experiences. Based on data collected through interviews, observations, and documentation, five indicators of tolerance implementation were found that ran in harmony between the speakers: (1) comprehensive interaction through rolling rules, (2) empathy in the culture of sharing learning tools and media, (3) decisions in tolerant behavior were made deliberately, (4) emotional rules through learning time management, and (5) the creation of a fair classroom climate, safe, and respects diversity.

In the first indicator, the principal assessed that random seating arrangements prevented social isolation and helped students learn to interact without discriminating between abilities and identities. The teacher emphasized that rolling random seats once a week through a spin system effectively encourages interaction between characters and religions. This perception is reinforced by students who express comfort in having more friends, and choose to speak politely or report to the teacher when there is a disturbance with their classmates.

In the second indicator, schools actively encourage collaborative deep learning methods such as discussions and projects, accompanied by supervision of teaching modules and mentoring between teachers. Teachers recognize the potential of deep learning technology in monitoring digital engagement, but its implementation is still limited and still prioritizes supervision and class agreement. Meanwhile, students showed a willingness to share learning tools with the motive of helping friends, as well as providing peer help patiently when there were friends who had difficulties in using learning media.

In the third indicator, the principal assessed that deep learning helps understanding tolerance through project experiences and discussions that build empathy. The teacher stated that finding and correcting intolerant behavior is still more effective through agreement on rules and a direct approach. This is in line with the response of students who choose to reprimand politely, reject ridicule, and resolve differences of opinion in groups through deliberation and finding the best solution together.

In the fourth indicator, schools apply fair time management in the habituation of religious tolerance, for example morning prayers according to each religion with the same

facilities. Teachers set maple times per day so that the learning load does not trigger students' emotional fatigue. Students assessed that time discipline made the class more orderly and comfortable, as well as showing empathy by waiting and helping friends who took longer to understand the lesson without showing mocking behavior.

In the fifth indicator, classroom supervision by the principal is carried out at least once per semester to ensure safety, openness, and the implementation of character-based learning. The teacher emphasized that the cultivation of tolerance based on deep learning requires a long-term consistency process and it is impossible to immediately see the results in the near future so that it is strengthened by the application of Pancasila values through the Character Tree program. The impact is reflected in the statement of students who feel valued, treated fairly, not discriminated against, and begin to realize that each friend has differences that must be respected in the learning process and social interaction in the classroom.

### Discussion

The findings of this study confirm that deep learning in classroom management in elementary school not only has an impact on the academic aspect, but also on the cultivation of social values, especially tolerance that develops through diverse interaction experiences and reflection of students' social behavior. These results are in line with Vygotsky's theory of social constructivism, which states that social meaning is formed through active interaction, rather than passive receipt of information. Support for inclusive learning is also strengthened by Hoplock et al. (2021) and Somantri et al. (2024) who stated that a systematically designed diversity experience is able to increase students' empathy and openness to differences.

In the rolling seat indicator, the ever-changing practice of social mixing shows that this strategy is not just a physical arrangement, but also an intervention of social deep learning experiences. This is in line with Wiyani (2013) who emphasized that seating arrangements can foster healthy interaction and learning comfort. Kagan (2009) also emphasized that varied interactions in the classroom prevent students from permanent social grouping, thereby expanding social relationships and reducing the exclusion of friendships, a finding that was also corroborated by Putri et al. (2021).

In the tool and media sharing indicator, the responses of students who help friends patiently show the emergence of the caring dimension in the 6C of deep learning. Fullan, Quinn, & McEachen (2018) emphasized that deep learning is effective when it impacts the character and collaboration dimensions, not just content mastery. Siemens (2005) through Connectivism also emphasized that technology is a learning tool, but strengthening attitudes still requires human interaction. This supports the finding that deep learning technology in elementary school is complementary, while the ethical agreement on the use of digital media is more determinative of the success of instilling digital tolerance, as reinforced by Azizah & Dewi (2022).

In the behavior control indicator, the practice of democratic classroom management is reflected in students' choices in resolving conflicts through deliberation and polite reprimands without ridicule. Dreikurs (in Charles, 2011) states that behavioral control should ideally be built through democratic class agreements. Meanwhile, Bandura (1977) in Social Learning Theory asserts that tolerance is formed faster when students look at the direct model of a teacher or peers and practice it repeatedly. This strengthens the teacher's argument that the proximal and interpersonal approach is still the main controller in detecting and correcting intolerant behavior in elementary school, as also emphasized by Sari & Supriyadi (2020).

In the indicator of learning time management, it was found that humane regulation of learning rhythms helps students' emotional stability so that social behavior is easier to condition. This is reinforced by Pianta & Hamre (2009) in the study group who emphasized that emotional support and classroom organization (including the rhythm of learning time) strongly determine the classroom climate in primary education. Tomlinson (2014) also emphasized that giving students different time space in understanding the material is a form of academic difference appreciation that has an impact on class tolerance. The practice of students waiting and repeating explanations to friends shows a differentiated form of peer-scaffolding, which characterizes meaningful deep learning.

In the evaluation indicators of class conditions, the sense of respect and non-discrimination conveyed by students is an important foundation of class tolerance, as emphasized by Noddings (2012) in Ethics of Care that teacher appreciation and justice are the main basis for the formation of tolerant character in schools. Fullan (2018) also emphasized that deep learning must have an impact on instilling social values and forming classroom culture, not just academic achievements. Research by Adetia et al. (2024) and Septiani et al. (2022) also confirms that a reflective and structured school culture, especially based on Pancasila values, can

be strengthened by the use of narrative digital media to bridge the digital native learning style of students, although their study has not explicitly adopted random-based rolling seats as the findings of this study.

Overall, the findings of this study confirm that the deep learning approach contributes to strengthening the value of tolerance through experiences of diverse interactions, reflection, and meaningful collaboration. These practices have proven to be an important part of effective classroom management, particularly in the dimensions of learning environment settings, emotional support, and strengthening a classroom culture based on appreciation for differences. Thus, strengthening tolerance in elementary schools not only forms more empathetic social relations between students, but also strengthens the function of classroom management as a safe, comprehensive, directed, and character-building learning space for long-term character. This shows that the success of classroom management in primary education is more optimal when the value of tolerance is instilled constructively through deep learning experiences, which at the same time becomes the foundation for creating a harmonious and productive classroom climate.

## 5. Conclusion

This study concludes that the application of tolerance values based on deep learning pedagogical approach in grade VI of SDN Beji 01 Ungaran Timur plays an important role in strengthening the classroom management component, especially in the dimensions of organizing the physical environment, managing social interactions, and emotional support in the classroom. Implementations such as random rolling seats, a culture of sharing learning tools and media, and resolving differences through deliberation and collaboration have been proven to help teachers create a more orderly, safe, inclusive, and adaptive classroom atmosphere for student diversity.

These findings confirm that tolerance is not only a result of character learning, but also an operational instrument in classroom management that makes it easier for teachers to manage students' social interactions, prevent exclusion from friendships, reduce conflicts, and improve collaboration and empathy between students. This success is more optimal when classroom management is built in a constructivistic-humanistic manner, where teachers play the role of facilitators of meaningful learning experiences, while deep learning technology functions as a support for the analysis and mapping of classroom conditions, not as a substitute for teachers' pedagogical control.

Thus, this study confirms that classroom management in elementary schools will be more effective and sustainable when the cultivation of tolerance is integrated through contextual, reflective, and collaborative deep learning approaches, thereby forming a harmonious, productive, and long-term social character formation classroom culture. This model has the potential to be a relevant alternative strategy to strengthen the management of multicultural classrooms in elementary schools in the era of interaction and data-based learning.

**Author Contributions:** Conceptualization: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Methodology: Reva Adelya Wulan Dari, Software: Nur Aini Pusvitasari, Validation: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Aulia Nur Laila, Formal analysis: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Investigation: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Aulia Nur Laila, Resources: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Data curation: Reva Adelya Wulan Dari, Writing-original draft preparation: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Writing review and editing: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Aulia Nur Laila, Visualization: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Supervision: Nimas Puspitasari, Project administration: Reva Adelya Wulan Dari, Nur Aini Pusvitasari, Aulia Nur Laila.

**Funding acquisition:** Not applicable.

**Funding:** This research did not receive external funding.

**Data Availability Statement:** The data presented in this study are available from the relevant authors upon reasonable request. The data is not publicly available due to ethical considerations and the protection of participants' privacy.

**Acknowledgments:** The author would like to express his sincere gratitude to the academic supervisor for valuable guidance, advice, and ongoing support during the research process. Appreciation was also conveyed to the principal of SDN Beji 01 Ungaran Timur who had

given permission to conduct this study. The author thanked the teachers and sixth grade students for their cooperation, participation, and openness during data collection. Special thanks are also extended to all individuals who contributed directly or indirectly to the completion of this research.

**Conflicts of Interest:** The author states that there is no conflict of interest. Fanders has no role in the design of the research, in the collection, analysis, or interpretation of the data, in the writing of the manuscript, or in the decision to publish the results.

## References

- Bank, J. A. (2015). *Cultural diversity and education: Foundation, curriculum, and teaching* (6th ed.). Routledge.
- Bank, J. A., & Bank, C. A. M. (2019). *Multicultural education: Issues and perspectives* (10th ed.). Wiley.
- Baker, R. S., & Inventor, P. S. (2014). Educational data mining and learning analytics. In J. A. Larusson & B. White (Eds.), *Learning analysis: From research to practice* (pp. 61–75). Springer.
- Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2021). The use of triangulation in qualitative research. *Oncology Nursing Forum*, 48(3), 234–243. <https://doi.org/10.1188/21.ONF.234-243>
- Charles, C. M. (2011). *Building classroom discipline* (10th ed.). Pearson.
- Creswell, J. W., & Poth, C. N. (2021). *Qualitative inquiry and research design: Choosing between five approaches* (4th ed.). SAGE Publications.
- Dreikurs, R. (2011). Democratic classroom management. In C. M. Charles, *Building classroom discipline* (10th ed.). Pearson.
- Evertson, C. M., & Weinstein, C. S. (2013). *Classroom management handbook: Research, practice, and contemporary issues*. Routledge.
- Fullan, M., Quinn, J., & McEachen, J. (2018). *Deep learning: Engage the world, change the world*. Corwin.
- Hamre, B. K., & Pianta, R. C. (2009). *Class Assessment System (CLASS) Manual: Basic*. Paul H. Brookes Publishing.
- Hoplock, L., Evans, A., & Stewart, M. (2021). Learning digital diversity to foster social empathy in primary education. *Journal of Educational Technology Development and Exchange*, 14(1), 45–59.
- Kagan, S., & Kagan, M. (2009). *Pembelajaran kooperatif Kagan*. Penerbitan Kagan.
- LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. *Nature*, 521(7553), 436–444. <https://doi.org/10.1038/nature14539>
- Levinson, M., & Bolgrien, J. (2020). Visual narrative learning for the teaching of social values in schools. *Journal of Moral Education*, 49(3), 289–304.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: Arguments for AI in education*. Pearson.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative data analysis: Method source book* (4th ed.). SAGE Publications.
- Mustafiz, M., & Dugan, J. P. (2020). Project-based learning for character education in elementary schools. *Journal of Character Education*, 16(2), 67–82.
- Putri, A., Suyanto, S., & Rahmawati, D. (2021). Dynamic seating arrangements and social interaction in elementary school classrooms. *Journal of International Instruction*, 14(3), 233–248.
- Rawani, F., Kurniawan, R., & Saputra, H. (2023). Technology-based character learning in multicultural basic education. *Journal of Multicultural Education*, 17(2), 98–113.
- Riyanti, D., & Hartono, H. (2024). Cross-identity project collaboration in basic digital learning tasks. *Journal of Educational Innovation*, 21(1), 45–60.
- Riyanti, D., Hartono, H., & Sulastri, S. (2022). Crossing the boundaries of identity in the collaboration of digital projects of elementary students. *International Journal of Basic Education*, 6(2), 134–146.
- Rukajat, A. (2022). *Qualitative research approach*. Deepublish.
- Sari, D., & Nugroho, A. (2022). Internalize the values of tolerance through visual media in elementary schools. *Journal of Character Education Research*, 8(1), 55–66.
- Septiani, R., Lestari, D., & Wahyuni, S. (2022). Reflective digital media in basic character education. *Journal of Educational Media and Technology*, 6(2), 89–102.
- Siemens, G. (2005). Connectivityism: Learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10.
- Tomlinson, C. A. (2014). *Different classes: Responding to the needs of all learners* (2nd ed.). ASCD.

UNESCO. (1995). Declaration of principles on tolerance. UNESCO publications.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wentzel, K. R., & Looney, L. (2007). Socialization in the school environment. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization* (pp. 382–403). Guilford Press.

Zawacki-Richter, O., Marin, V. I., Bond, M., & Gouverneur, F. (2019). A systematic review of the applications of artificial intelligence in higher education. *International Journal of Educational Technology in Higher Education*, 16(39), 1–27.  
<https://doi.org/10.1186/s41239-019-0171-0>