**The International Journal of Social Sciences World**
TIJOSSW is Available Online at:
https://www.growingscholar.org/journal/index.php/TIJOSSW
Vol. 7 No. 1, January- June 2025, pages: 75~83
DOI: https://doi.org/10.5281/zenodo.14835665
ISSN **2690-5167**
Growingscholar Publisher

# Evaluation of the Implementation of Pedagogic Competence in the Development of HOTS Learning Tools: Case Study Analysis

**Dwi Murtopo [1], Winarno [2], Idam Ragil Widianto [3]**

Article history:
Received: January 02, 2025; Accepted: February 02, 2025; Displayed Online: February 08, 2025; Published: June 30, 2025

***Keywords***

*Pedagogical competence;*

*Learning tools;*

*HOTS;*

*Evaluation*

*Case Study*

**Abstract**

Starting with the problem of low pedagogic competence of teachers in developing learning tools based on Higher Order Thinking Skills (HOTS), which is characterized by dependence on internet sources, lack of contextual adjustment, and lack of continuous assistance. This study aims to evaluate the implementation of teachers' pedagogic competence in the development of HOTS learning tools. This study uses a qualitative approach with a single case study design. Data were collected through in-depth interviews, observations, and document analysis, with participants consisting of teachers, deputy heads of curriculum, and school principals. The results of the study show that although teachers have become aware of the importance of HOTS-based learning, their implementation still faces obstacles such as curriculum changes, time limitations, and differences in abilities between teachers. Efforts to improve through supervision and routine training have been carried out, but they have not been optimal. The findings of this study indicate the need for intensive mentoring programs and policies that support the development of teachers' pedagogic competencies in a sustainable manner.

## 1. Introduction

Pedagogic competence is a fundamental ability that teachers must have to carry out effective learning. Ideally, teachers need to have pedagogic competencies that include understanding student

[1] *Sebelas Maret University, Surakarta, Indonesia. Email : dwimurtopo@student.uns.ac.id*
[2] *Sebelas Maret University, Surakarta, Indonesia. Email: winarno_uns@yahoo.co.id*
[3] *Sebelas Maret University, Surakarta, Indonesia. Email: idamragilwa@staff.uns.ac.id*

characteristics, mastery of learning theories and principles, curriculum development, implementation of educational learning, development of student potential, effective communication, and evaluation and assessment of learning. However, in reality, there are still various problems related to teachers' pedagogic competence, especially in developing HOTS-based learning tools. Research (Syufrianti & Gustina, 2020) It shows that 39.1% of learning tools are still handwritten and many only adopt from other teachers without contextual adjustments.

This condition is strengthened by findings in the field based on the results of observations at SD Muhammadiyah Botok Superior Program. The results of interviews with the Principal and Deputy Head of Curriculum revealed that some teachers have not implemented and improved pedagogic competence to the maximum in the manufacture of learning tools, especially the Learning Implementation Plan (RPP). This is evidenced by the discovery of several lesson plans that are only limited to editing from files downloaded from the internet to meet administrative requirements, not as a reference in learning.

Some of the factors that cause low pedagogic competence of teachers in developing HOTS learning tools include: lack of understanding of curriculum development principles, limited ability to design learning that encourages higher-level thinking skills, and lack of continuous mentoring and evaluation. Research (Hamid, 2017)identified that only about 30% of learning tools were categorized as good, and there were still difficulties for school principals in assessing teacher achievement and learning outcomes.

Several previous studies have been conducted related to teachers' pedagogic competence. Research (Deviana & Kusumaningtyas, 2019) concluded that in order for learning to be successful, teachers need thematic learning tools that are in accordance with the 2013 curriculum which includes higher-level thinking skills or HOTS. Other research by (Karuna, 2023) It was found that the increasing pedagogic competence of teachers when compiling learning tools has an effect on innovative and varied student learning in the classroom. However, these studies have not examined in depth the evaluation aspects of the implementation of pedagogic competencies, especially in the development of HOTS-based learning tools.

Given the importance of these problems, an in-depth evaluation of the implementation of teachers' pedagogic competence in developing HOTS-based learning tools is needed. This evaluation is important as a first step to obtain a real picture of the teacher's pedagogic ability. Research (Widawati, 2021) concluded that teachers who mastered high pedagogic competence on average succeeded in classroom learning, while teachers with low pedagogic competence tended to be less successful. Through a comprehensive evaluation, the strengths and weaknesses of the implementation of teacher pedagogic competence can be identified as the basis for policy-making and future improvements.

This study aims to evaluate the implementation of teachers' pedagogic competence in the development of HOTS learning tools through case study analysis at SD Muhammadiyah Botok Superior Program. In contrast to previous research which focused more on the technical aspects of learning tool development, this study will comprehensively evaluate the implementation of pedagogic competencies including: 1) teachers' ability to understand the characteristics of students; 2) the ability to plan HOTS-based learning; 3) the ability to carry out learning in accordance with the plan; and 4) the ability to evaluate learning processes and outcomes. The results of the study are expected to provide a complete picture of the implementation of teachers' pedagogic competencies and produce recommendations for improving the quality of the development of HOTS-based learning tools in schools.

## 2. Methods

This study adopts a qualitative approach with a single case study design, following the paradigm put forward by (Creswell, 2013) about qualitative research as an approach to explore and understand meaning. The selection of a single case study design is in line with the thinking (Yin, 2018)which emphasizes that case studies are the right strategy when the research question relates to the how or why. The research was carried out at SD Muhammadiyah Botok Excellence Program which is located at Al Ikhlas Botok Mosque Complex, Botok Hamlet RT 003 RW 001, Botok Village, Kerjo District, Karanganyar Regency, Central Java Province from June 19 to 24, 2023. Research participants were selected using purposive sampling based on criteria relevant to the research objectives (Patton, 2015)

The data source includes the research place, namely SD Muhammadiyah Botok Superior Program with a focus on the implementation of teachers' pedagogic competence in compiling HOTS-based learning tools. The research informants consisted of teachers (GSTB, AL, CAS, EBS), deputy heads of curriculum (FMB), and school principals (AB), as well as documents in the form of lesson plans, questionnaire sheets, and interview sheets. Data collection uses a multi-method approach according to the principle of triangulation (Denzin, 2017) includes semi-structured in-depth interviews (Seidman, 2019), assessment questionnaires, and documentation and field notes (Merriam & Tisdell, 2016) The validity and reliability of the research are guaranteed through triangulation of techniques and sources. Data analysis adopts the Miles & Huberman interactive model (Huberman & Saldana, 2014) which consists of data collection, data reduction, data presentation, and verification and conclusion drawing (Huberman & Saldana, 2014).

## 3. Results and Discussions

### *3.1 Evaluation of the Implementation of Teacher Pedagogic Competencies in the HOTS Learning Tool*

The results of the evaluation show that the implementation of teacher pedagogic competence in the development of HOTS learning tools still needs to be improved. Based on the results of observations at SD Muhammadiyah Botok Superior Program, it was found that some teachers have not implemented and improved pedagogic competence to the maximum in making learning tools. This is evidenced by the discovery of several lesson plans that are only limited to editing from files downloaded from the internet to meet administrative requirements, not as a reference in learning.

In the aspect of understanding the characteristics of students, teachers have shown awareness of the importance of adapting learning to the characteristics of students. Questionnaire data shows that 100% of teachers strongly agree that understanding the characteristics of students is important in the development of HOTS learning tools.

"Before making a learning tool, pay attention to the characteristics of students so that the chosen approach is suitable for students. This will ensure that teachers can understand the material easily." (GSTB)

However, in planning and implementing HOTS-based learning, teachers still face various obstacles.

"The obstacle I face when compiling learning tools if I compile them in the school environment is related to the time of nggih mas, I am in elementary school almost until 15.00 if there are no other activities." (AL)

"I have problems in my time, usually I make devices because I use the 2013 curriculum for one semester 1x, I usually do it at school." (CAS)

The situation becomes more complex for certain classes.

"Class VI is different from other classes, if in the first semester I have no problems. The problem I faced when compiling the learning tools in the second semester was because the exams for class VI were carried out in a row." (EBS)

Moreover, the Deputy Head of Curriculum identified several key obstacles:

"What is their obstacle is 1) if the curriculum changes to adjust again, 2) the problem of working time if they are at school; 3) for new teachers related to the preparation of school standards which are sometimes different from the theory on campus." (FMB)

"The understanding for new teachers and teachers who are old is different, but the theory and understanding of learning are different." (AB)

Despite facing various obstacles, the questionnaire data shows that there is awareness among teachers of the importance of developing HOTS-based learning. As many as 87% of teachers agree on the need to prepare HOT-based teaching materials, and 100% agree that the development of learning tools requires HOTS-based indicators. The RPP documentation shows that teachers have tried to integrate HOTS elements in learning planning, although its implementation still needs to be improved. The assessment rubric developed has also included aspects of attitudes, knowledge, and skills according to the 2013 curriculum, but it still needs to be strengthened in measuring students' higher-level thinking skills.

### *3.2 Factors Affecting the Implementation of Pedagogic Competence*

The results of the study show that there are several factors that affect the implementation of teachers' pedagogic competence in the development of HOTS-based learning tools. Based on the results of data analysis, these factors can be grouped into supporting and inhibiting factors. In terms of supporting factors, the results of the questionnaire show that there is awareness and understanding of teachers on the importance of developing HOTS-based learning. The data shows that 100% of teachers strongly agree on the importance of understanding the theory and principles of HOTS-based learning. In addition, 50% of teachers strongly agree and 50% agree that planning and structuring HOTS-based materials need to be done correctly according to the approach and characteristics of students.

"Applying learning theories and principles in making learning tools using a scientific approach in the 2013 curriculum with high-level thinking skills (HOTS)" (GSTB)

Meanwhile, for the inhibiting factors, there are several main obstacles identified from the interview results. The Deputy Head of Curriculum revealed:

"What is their obstacle is 1) if the curriculum changes to adjust again, for example, in a short time, we will carry out IKM (Implementation of the Independent Curriculum) for grades II and V which are currently running in grades I and IV... 2) problems when doing things if they are at school; 3) for new

teachers related to the preparation of school standards which are sometimes different from the theory on campus." (FMB)

This is also supported by the statement of the second grade teacher:

"The obstacle I faced when compiling learning tools, especially the HOTS ones, was the problem of adjusting again to the new education policy and curriculum... If the young ones are OK, this is all the grundel, if the government changes or the minister changes, why should the education system also be changed." (GSTB)

The time factor is also a significant obstacle as revealed by the third grade teacher:

"The obstacle I face when compiling learning tools if I compile them in the school environment is related to the time of nggih mas, I am in elementary school almost until 15.00 if there are no other activities." (AL)

The Principal also emphasized that there is a gap in understanding between teachers:

"The understanding for new teachers and teachers who are old is different, but the theory and understanding of learning are different" (AB)

Based on the results of data triangulation, it can be concluded that the main inhibiting factors include: frequent curriculum changes, limited time in completing learning tools, high teaching load, and differences in teachers' understanding and ability to develop HOTS-based learning.

### *3.3 Efforts to Improve Pedagogic Competence in the Development of HOTS*

Based on the results of the research, several efforts have been made to improve the pedagogic competence of teachers in the development of HOTS-based learning tools. The teacher pedagogic competency development program is carried out through supervision carried out by the principal and deputy head of curriculum to identify and overcome teacher obstacles. Meanwhile, the Deputy Head of Curriculum revealed:

"Compiling learning tools, mas, is indeed one way to improve and assess teacher competence. If we (me and the principal) supervise our fellow teachers..." (FMB)

Schools have implemented several approaches through regular training to improve the quality of HOTS-based learning tools.

The third grade teacher stated:
"Saturday we still went in to help extra but after that there was routine training" (AL)

The school also pays special attention to senior teachers in dealing with curriculum changes. The second grade teacher expressed his concern: "He said that the IKM government does not take up teachers' time and is simple because they can learn on their own, but imagine that the teachers are elderly, can they follow?" (GSTB). The Principal emphasized: "The understanding for new teachers and teachers who are old is different, but the theory and understanding of learning are different" (AB)

The results of the observation show that the routine training held every Saturday has helped teachers in developing HOTS-based learning tools. The questionnaire data supports this improvement effort by showing that 100% of teachers agree that curriculum development in learning tools requires HOTS-based indicators and instruments. For its implementation, 87% of teachers agree on the need to prepare HOTS-based teaching materials.

Based on documentation analysis, the RPP and teaching materials developed have integrated the HOTS component even though it still needs to improve quality. Several recommendations for system improvement can be proposed to support the development of teachers' pedagogic competencies. First, the need for an intensive mentoring program that includes special assistance for senior teachers in dealing with curriculum changes, periodic mentoring for new teachers in adjusting school standards, and technical guidance for the development of HOTS-based learning tools. Second, improving time and workload management through the provision of special time for the development of learning tools, scheduling that allows collaboration between teachers, and redistribution of administrative burdens.

The HOTS competency strengthening program needs to be carried out through continuous training, workshops on the development of assessment instruments, and comparative studies as well as sharing best practices between teachers. The monitoring and evaluation system needs to be improved through periodic supervision to ensure the quality of learning tools, evaluate the impact of development programs on teacher competence, and provide constructive feedback. Infrastructure and resource support needs to be strengthened through the provision of references and learning resources related to HOTS, supporting facilities for the development of learning media, and resource sharing platforms between teachers.

### *Discussion*

This study aims to evaluate the implementation of teachers' pedagogic competence in developing learning tools based on higher-order thinking Skills (HOTS) in the SD Muhammadiyah Botok Superior Program. The evaluation's results provide several important findings that support efforts to improve the implementation of HOTS.

First, teachers should be aware of the importance of developing HOTS-based learning. The data shows that 100% of respondents agree with the need to understand the theory and principles of HOTS-based learning. However, in the implementation aspect, obstacles were found such as the preparation of Learning Implementation Plans (RPP) which are still widely copied from the internet without contextual modifications (Juwariah, 2020; Zohar & Agmon, 2018). This discovery is similar to the results of the research (Afandi et al., 2019; Arbain, 2023)This shows that although teachers understand the concept of HOTS, its application in the learning process is often constrained by time and resource limitations.

Second, related to the factors that affect the implementation of pedagogical competence, the main obstacles found are changes in education policies that often occur, limited time to develop learning tools, and differences in the level of understanding between young teachers and senior teachers (König et al., 2021; Nguyen et al., 2023). Research from (Ichsan et al., 2019) also found that high workloads and frequent policy changes are the main obstacles in the implementation of HOTS.

Third, the school has made efforts to improve pedagogic competence through supervision programs and regular training. The Deputy Head of Curriculum stated that supervision is carried out periodically to identify and solve obstacles faced by teachers in the development of HOTS-based learning tools. These findings are reinforced by Saido et al. (2018), who highlight the importance of continuous training in improving teachers' pedagogic skills. (Betlem et al., 2018; Grynova et al., 2020;

Ramli & Yocinta, 2020) also emphasized that intensive mentoring and collaboration between teachers play an important role in accelerating the transfer of skills and knowledge related to HOTS.

To create a learning environment that supports the implementation of HOTS, systemic support from schools and policymakers is needed. (Abdullah et al., 2019; Diena et al., 2023; Kwangmuang et al., 2021) shows that schools with adequate supporting infrastructure are more successful in integrating HOTS into learning than schools without similar support.

This research has several limitations. First, the research was only conducted in one school so the results could not be generalized widely. Second, the short research time span has not been able to capture the long-term dynamics of efforts to improve pedagogical competence. Therefore, it is recommended that further research be conducted with a longitudinal approach and involve more schools as research subjects.

The implications of this research are theoretical and practical. Theoretically, this study enriches the literature on the challenges and strategies of pedagogic competency development in the context of HOTS-based learning. In practical terms, the results of the research can be an input for schools and policy makers in designing more effective teacher professional development programs.

## 4. Conclusion

Based on the research results, it can be concluded that the implementation of teachers' pedagogic competence in the development of HOTS-based learning tools in SD Muhammadiyah Botok Superior Program still needs improvement, especially in learning planning and implementation. Although teachers have become aware of the importance of HOTS-based learning, several obstacles, such as curriculum changes, time constraints, and differences in abilities between teachers, are still the main challenges. Efforts to improve through regular supervision and training have been carried out, but more intensive and systemic assistance is needed to ensure the quality of the learning tools produced. The implication of these findings is the need for policies that support the development of teachers' pedagogic competencies in a sustainable manner.

### *Acknowledgments*

The authors express their gratitude to *Sebelas Maret* University as a research institute.

## References

Abdullah, A. H., Mokhtar, M., Halim, N. D. A., Ali, D. F., Tahir, L. M., & Kohar, U. H. A. (2019). Mathematics teachers' level of knowledge and practice on the implementation of higher-order thinking skills (HOTS). *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(1), 3–17. https://doi.org/10.12973/eurasia.2017.00601a

Afandi, A., Sajidan, S., Akhyar, M., & Suryani, N. (2019). Development frameworks of the Indonesian partnership 21st-century skills standards for pre-service science teachers: A Delphi study. *Jurnal Pendidikan IPA Indonesia*, *8*(1), 89–100. https://doi.org/10.15294/jpii.v8i1.17649

Arbain, L. O. S. dan A. (2023). EFEKTIVITAS PEMBELAJARAN BERORIENTASI HOTS TERHADAP PENCAPAIAN HASIL HOTS SISWA. *JME (Journal of Mathematics Education)*. https://doi.org/10.31327/jme.v8i2.2048

Betlem, E. C., Clary, D. M., & Jones, M. (2018). Mentoring the Mentor: Professional development through a school-university partnership. *Asia-Pacific Journal of Teacher Education*, *47*, 327–346. https://doi.org/10.1080/1359866X.2018.1504280

Creswell, J. W. (2013). Research desgin: Qualitative, quantitative, and mixed methods approaches-4th ed. Dalam *Thousand Oaks: SAGE Publications* (4th ed., Vol. 86, Nomor 385). USA: Sage. http://libproxy.unm.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=51827937&site=eds-live&scope=site%5Cnhttp://content.ebscohost.com.libproxy.unm.edu/ContentServer.asp?T=P&P=AN&K=51827937&S=R&D=a9h&EbscoContent=dGJyMNLr40SeprI4

Denzin, N. K. (2017). *The research act: A theoretical introduction to sociological methods*. Transaction publishers.

Deviana, T., & Kusumaningtyas, D. I. (2019). Analisis Kebutuhan Penyusunan Perangkat Pembelajaran Tematik Berbasis HOTS (Higher of Order Thinking Skills) pada Kurikulum 2013 di SD Muhammadiyah 05 Batu. *Edumaspul: Jurnal Pendidikan*, *3*(2), 64–74. https://doi.org/10.33487/edumaspul.v3i2.141

Diena, I. A., Wilujeng, I., & Perdana, P. A. (2023). Science Learning Based on Higher Order Thinking Skill and Its Supporting Components. *Jurnal Penelitian Pendidikan IPA*. https://doi.org/10.29303/jppipa.v9i9.4169

Grynova, M., Khimchuk, L., & Szymczyk, K. (2020). DEVELOPMENT OF COLLABORATION, RESEARCH AND MENTORING SKILLS OF PRE-SERVICE TEACHERS FACILITATING ICT LEARNING BY OLDER ADULTS. *Advanced Education*. https://doi.org/10.20535/2410-8286.220022

Hamid, A. (2017). Upaya Peningkatan Kompetensi Guru Dalam Menyusun Perangkat Pembelajaran Melalui Supervisi Akademik Yang Berkelanjutan Sdn 007 Panipahan Darat. *JURNAL PAJAR (Pendidikan Dan Pengajaran)*, *1*(2), 277. https://doi.org/10.33578/pjr.v1i2.4598

Huberman & Saldana. (2014). *Qualitative Data Analysis: A Methods Sourcebook*. SAGE Publictions.

Ichsan, I. Z., Sigit, D. V., Miarsyah, M., Ali, A., Arif, W. P., & Prayitno, T. A. (2019). HOTS-AEP: Higher order thinking skills from elementary to master students in environmental learning. *European Journal of Educational Research*, *8*(4), 935–942. https://doi.org/10.12973/eu-jer.8.4.935

Juwariah, S. (2020). Peningkatan Keterampilan Guru Dalam Menyusun Rencana Pelaksanaan Pembelajaran Melalui Latihan dan Bimbingan. *Jurnal Dinamika Manajemen Pendidikan*. https://doi.org/10.26740/JDMP.V4N2.P79-86

Karuna, N. (2023). Meningkatkan Kompetensi Pedagogik Guru dalam Menyusun RPP Melalui Penerapan Supervisi Akademik. *Journal of Education Action Research*, *7*(2), 201–206. https://doi.org/10.23887/jear.v7i2.59482

König, J., Blömeke, S., Jentsch, A., Schlesinger, L., Nehls, C. F. née, Musekamp, F., & Kaiser, G. (2021). The links between pedagogical competence, instructional quality, and mathematics

achievement in the lower secondary classroom. *Educational Studies in Mathematics*, *107*, 189–212. https://doi.org/10.1007/S10649-020-10021-0

Kwangmuang, P., Jarutkamolpong, S., Sangboonraung, W., & Daungtod, S. (2021). The development of learning innovation to enhance higher order thinking skills for students in Thailand junior high schools. *Heliyon*, *7*. https://doi.org/10.1016/j.heliyon.2021.e07309

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4 ed.). Jossey-Bass.

Nguyen, V.-N. T., Tran, H.-P. T., Doan, N.-A., & Dao, V.-A. T. (2023). Using the Delphi Method to Explore Factors Affecting the Effectiveness of Pedagogical Competence Training on University Lecturers in Vietnam. *International Journal of Learning, Teaching and Educational Research*. https://doi.org/10.26803/ijlter.22.12.3

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4 ed.). SAGE Publications.

Ramli, M., & Yocinta, D. (2020). The implementation of higher order thinking skills in Indonesian elementary school: Challenges and opportunities. *Elementary Education Online*, *19*(3), 1902–1916. https://doi.org/10.17051/ilkonline.2020.734841

Syufrianti, S., & Gustina, G. (2020). Peningkatan Kompetensi Pedagogik Guru Dalam Membuat Perencanan Pembelajaran Melalui Supervisi Akademik. *Jurnal Basicedu*, *4*(2), 389–395. https://doi.org/10.31004/basicedu.v4i2.360

Widawati, K. (2021). Peningkatan Kompetensi Pedagogik Guru dalam Menyusun RPP Melalui Workshop Dimasa Pandemi Covid 19 Pada SMA. *Journal of Education Action Research*, *5*(3), 375–380.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6 ed.). SAGE Publications.

Zohar, A., & Agmon, V. A. (2018). Raising test scores vs. Teaching higher order thinking (HOT): Senior science teachers' views on how to prepare students for PISA and matriculation tests. *Research in Science & Technological Education*, *36*(2), 243–260. https://doi.org/10.1080/02635143.2017.1395332