



HOTS Performance Based Assessment to improve Critical Thinking Skills in Speaking Class at ANNIDA Senior High School

Early Suryani Afifah & Agus Widyanoro

Universitas Negeri Yogyakarta, Indonesia

<http://dx.doi.org/10.18415/ijmmu.v12i10.7103>

Abstract

This research investigates the effectiveness of higher order thinking skills (HOTS) through performance-based assessment (PBA) to improve speaking skills. This research used classroom action research (CAR) conducted in two cycles. The subjects were 20 students of grade XI. The research instruments used observation sheets, tests, and questionnaires. The pre-test results showed that only 20% of students met the KKM, increasing to 45% in Cycle 1 and 55% in the post-test. However, further enhancement was needed to reach the 80% success criterion, prompting Cycle 2. The implementation of HOTS through PBA can improve students' speaking ability, indicated by better performance in fluency, vocabulary, pronunciation, and grammar. The questionnaire results also showed positive student responses, indicating that HOTS through PBA can increase motivation, confidence, and learning interest. Based on these findings, it can be concluded that the application of HOTS through PBA can be an effective alternative to improve speaking skills, as well as encourage students to think critically, creatively, and communicatively.

Keywords: *Students' Critical Thinking; Speaking Skill; HOTS PBA Technique; Collaborative Action Research*

1 Introduction

English becomes a vital medium for communication, cognition, and expression worldwide. The ability to think critically and communicate effectively has become essential for students to navigate the complexities of modern society. However, Indonesia's performance in the 2022 PISA ranked 69th, showing that Indonesian students have difficulty improving these skills (Juwita & Yuliardi, 2024). The result highlights the urgency to enhance students' critical thinking abilities, particularly within the educational framework, to better prepare them for academic and social demands.

Critical thinking is a cornerstone of 21st-century education, which requires students to be able to analyze, evaluate, and synthesize information effectively. It is not only acquiring knowledge but also applying it in innovative and meaningful ways. In the context of English language learning, critical thinking is closely tied to Higher Order Thinking Skills (HOTS), which go beyond basic comprehension and memorization to include analysis, evaluation, and creation (Anderson & Krathwohl, 2001). These skills are necessary for students to engage in complex problem-solving and to communicate their ideas effectively in both academic and real-world settings.

Despite the acknowledged importance of HOTS, its implementation in Indonesian schools remains poor. Many classrooms are still dominated by traditional evaluation techniques which only train the students with lower-order thinking skills. This approach has the potential to fail in developing students' critical and creative thinking skills to face the dynamics of a constantly changing world. Performance-Based Assessment (PBA), which focuses on authentic and real-world-relevant tasks, has been proposed as a more effective alternative. PBA encourages students to exhibit their talents through practical activities such as group performances, oral presentations, and project-based learning, which promotes higher-order thinking and critical analysis (Brown, 2004; Oberg, 2010).

However, in Indonesia the integration of HOTS into PBA faces several challenges. Teachers often lack the necessary training and resources to design and implement HOTS-based assessments effectively in class. Furthermore, students are often not familiar with HOTS-oriented questions, which demand critical and creative thinking instead of rote memorization (Yuliati & Lestari, 2018). This gap between theory and practice highlighted the need for further research into how HOTS can be effectively integrated into PBA to enhance students' critical thinking and learning outcomes.

This study aims to investigate the integration of Higher Order Thinking Skills (HOTS) into Performance-Based Assessment (PBA) to enhance critical thinking and learning outcomes with a focus on speaking skills among Grade XI students at SMA Takhasus An-Nida' Wonosobo. The research uses classroom action research and is guided by two central questions: how the implementation of HOTS in PBA improves critical thinking and learning outcomes, and what challenges teachers face in applying HOTS-based PBA. The study also seeks to provide strategies to overcome implementation barriers and improve students' language proficiency. The findings are expected to contribute to the theoretical understanding of HOTS and PBA in English language teaching, while providing practical insights for educators, curriculum developers, and policymakers. Thus, requiring us to be careful in paying attention to its aspects (Prihantoro, 2012).

2 Method

The study was conducted at Takhasus An-Nida Senior High School in Wonosobo, Indonesia, during the second semester of the 2023/2024 academic year, the research involved 20 students Grade XI and an English teacher with over five years of teaching experience. The school was selected due to its unique curriculum and the challenges faced by students in meeting the minimum competency criteria (KKM) in English, particularly in speaking and critical thinking. Furthermore, this study employed a Classroom Action Research (CAR) design, following the Kemmis and McTaggart model, which consists of four iterative stages: planning, acting, observing, and reflecting.

The CAR approach was chosen to address these challenges by implementing Higher Order Thinking Skills (HOTS) Performance-Based Assessment (PBA), which aims to improve students' critical thinking and speaking abilities. The data were collected through both qualitative and quantitative methods, including questionnaires, unstructured observations, semi-structured interviews, speaking tests (pre-tests and post-tests), and documentation (field notes, photographs, and videos). The instruments used included lesson plans (RPP) developed in accordance with the Indonesian Ministry of Education's guidelines, observation sheets, a speaking performance rubric, and a critical thinking rubric.

The qualitative data were analyzed through coding and thematic analysis, while quantitative data were analyzed using descriptive statistics to measure improvements in students' speaking skills and critical thinking abilities. The study employed several strategies to ensure validity and reliability, including democratic validity, outcome validity, process validity, dialogical validity, triangulation, and inter-rater reliability.

The research was conducted in two cycles, with each cycle refining the implementation of HOTS PBA to enhance students' critical thinking and speaking skills. The success of the intervention was

determined by the percentage of students achieving scores above the minimum competency criteria (KKM) of 74, with at least 80% of students required to meet this threshold. The study concluded that the HOTS PBA approach significantly improved students' speaking abilities and critical thinking, meeting the predefined success criteria.

3 Finding and Discussion

The research was conducted in two cycles, each involving planning, action, observation, and reflection. The initial reconnaissance phase identified several issues in the teaching and learning process, including students' lack of confidence in speaking, low critical thinking skills, difficulties in pronunciation and grammar, and a reliance on traditional evaluation methods. These problems were addressed through a series of actions, including the implementation of HOTS PBA activities, providing feedback on students' performances, encouraging the use of diverse references, and distributing handouts for daily materials. Additionally, the chart comparing students' speaking scores in the pre-test and post-test is shown below.

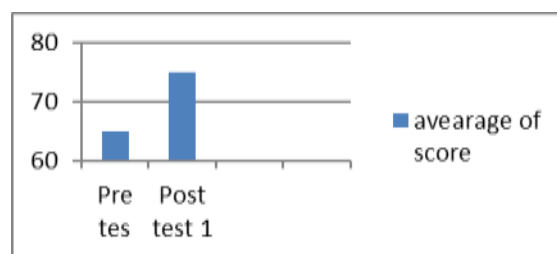


Figure 1. The Chart of Students Speaking Performance Score in Pre-Test and Post Test I

In Cycle 1, the researcher and collaborator implemented HOTS PBA activities to engage students in critical thinking and speaking exercises. The activities included group discussions, presentations, and problem-based learning tasks. Despite initial challenges, such as students' reluctance to participate and difficulties in pronunciation and grammar, there was a noticeable improvement in students' engagement and critical thinking skills. The pre-test results showed that only 20% of students met the Minimum Completion Criteria (KKM), but by the end of Cycle 1, 45% of students achieved scores above the KKM. The post-test results indicated a gradual improvement in students' speaking proficiency, with 55% of students meeting the KKM by the end of Cycle 1. However, further enhancement was needed to reach the 80% success criterion, prompting the continuation of the research into Cycle 2. Additionally, the chart comparing the students' speaking scores in post-test 1 and post-test 2 is shown below.

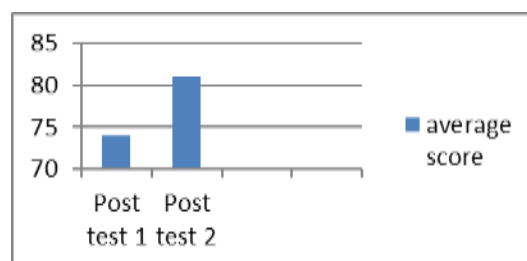


Figure 2. The Result of the Students' Speaking Performance Score of Pre-test 1 and Posttest 2

Cycle 2 focused on refining the HOTS PBA approach, with an emphasis on improving students' ability to formulate arguments, access credible references, and engage in critical discussions. The results of Cycle 2 showed significant progress, with 75% of students achieving scores above the KKM in the

post-test. The average score increased from 74 in Cycle 1 to 80.7 in Cycle 2, indicating a substantial improvement in students' speaking proficiency and critical thinking skills. The implementation of HOTS PBA activities, combined with continuous feedback and the use of diverse learning materials, effectively enhanced students' engagement and performance in the speaking class.

	1st Meeting	2nd Meeting	3rd Meeting	4th Meeting	Average	Note
Cycle I	30%	40%	45%	60%	44%	Improved
Cycle II	80%	90%	-	-	85%	Improved

Table 3. *The result of the Students' HOTS PBA Activity in Cycle I and Cycle II*

The table above indicates an increase in student involvement from Cycle I to Cycle II. The mean in cycle I was 74, whereas in cycle II it was 81. This has achieved the success criterion of 70% student engagement in the learning process. The implementation of HOTS PBA enhances student engagement in speaking classes. Additionally, the chart comparing students' speaking scores in the pre-test and post-test is shown below:

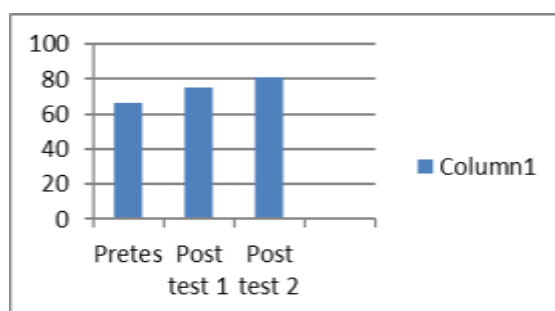


Figure 4. The Chart of Students Speaking Performance Score in Pre-Test, Posttest I and Posttest 2

The HOTS PBA approach proved to be an effective method for enhancing students' critical thinking and speaking proficiency. The study highlighted the importance of creating an engaging and interactive learning environment that encourages students to think critically, express their ideas confidently, and actively participate in the learning process. The findings suggest that the HOTS PBA approach can be a valuable tool for educators aiming to improve students' higher-order thinking skills and speaking abilities in English language learning.

This study, as outlined in the literature review, aligns with the dimensions of learning independence proposed by Ennis (1996). According to Ennis, students can be classified as critical thinkers if they demonstrate the ability to pose and respond to challenging questions, articulate and explain arguments from various perspectives, identify credible sources with relevant observations, and draw definitive conclusions. The findings of this study indicate an improvement in students' critical thinking skills, as evidenced by the increasing number of students who demonstrated proficiency in these elements across the cycles.

The data presented in the results section show a significant increase in student engagement from Cycle I to Cycle II. The mean score in Cycle I was 74, while in Cycle II, it rose to 81. This improvement meets the success criterion of 80% student engagement in the learning process. The implementation of Higher Order Thinking Skills (HOTS) through Performance-Based Assessment (PBA) has proven to enhance student participation in speaking classes. Notably, there was a marked improvement in three key dimensions of critical thinking skills: the ability to ask and answer questions, explain arguments, and draw conclusions.

In the pre-cycle phase, the traditional teacher-centered lecture method dominated the classroom, and students exhibited limited critical thinking abilities. However, with the introduction of HOTS PBA in Cycles 1 and 2, the teacher's dominance in the learning process decreased, leading to increased student engagement and autonomy. This shift allowed students to develop their critical thinking skills more effectively.

The enhancement in critical thinking skills is evident in the students' learning processes. In traditional learning environments, students were heavily reliant on the teacher for explanations and lacked the initiative to seek out references or engage actively in the learning process. However, with the implementation of HOTS PBA, students were able to engage in independent learning, utilizing handouts and other resources to acquire knowledge flexibly, rather than relying solely on the teacher. In class, students transitioned from passive listeners to active participants, engaging in activities such as debates and presentations, which not only improved their comprehension but also refined their speaking abilities.

Fisher (1999) argues that while higher-order thinking skills (HOTS) are complex and difficult to define, their characteristics can be observed in practice. This aligns with the findings of Salma et al. (2021), who concluded that the use of PBA in English classes significantly benefits the learning process. The development of critical thinking skills is essential for students to navigate complex problems and make informed decisions. This finding is consistent with the study conducted by Ratna Guntari et al. (2023), which involved 22 students. Ratna employed the Problem-Based Learning (PBL) model to enhance students' critical thinking skills, and the results indicated that PBL improved both critical thinking and academic performance among fifth-grade students at SD Kaniisius Damanagan Baru. This is relevant to the findings of the current study, as both studies highlight the importance of active learning strategies in fostering critical thinking.

Similarly, a study by Serkan (2023) demonstrated that technology-based instruction, specifically the use of GeoGebra activities, enhanced critical thinking skills among primary mathematics teacher candidates. While these findings are pertinent to the current study, there are notable differences in the methodologies and media employed. Ratna utilized the PBL model, while Serkan focused on GeoGebra activities. In contrast, the current study employed HOTS PBA through handouts and printed materials, as technological resources were limited in the research setting. This highlights the adaptability of HOTS PBA to different contexts, even in environments with limited technological access.

Furthermore, the study revealed that the improvement in students' critical thinking skills positively influenced their English speaking proficiency. Prior to the implementation of HOTS PBA, students' speaking skills were classified as significantly inadequate, with only 25% of students demonstrating proficiency. The learning process was predominantly teacher-centered, with students playing a passive role. However, with the introduction of HOTS PBA in Cycles 1 and 2, the teacher's dominance in the learning process diminished, leading to increased student engagement and autonomy. This shift allowed students to critically articulate their ideas and arguments, particularly in areas of speaking that required improvement, such as speaking materials, approaches, strategies, and the learning environment.

As a result, students' higher-order thinking skills in speaking improved significantly, from 44% in Cycle 1 to 85% in Cycle 2. This improvement underscores the effectiveness of HOTS PBA in fostering both critical thinking and speaking skills. The findings suggest that when students are given the opportunity to engage in higher-order thinking activities, they are better equipped to apply their knowledge in real-world contexts, leading to improved academic outcomes.

In conclusion, the implementation of HOTS PBA in English teaching and learning has proven to be an effective strategy for enhancing students' critical thinking and speaking skills. The study's findings align with previous research, demonstrating that active learning strategies, such as PBA, can significantly improve students' cognitive and communicative abilities. However, the study also highlights the

importance of adapting these strategies to the specific context and resources available, as seen in the use of handouts and printed materials in this research. Future studies could explore the long-term impact of HOTS PBA on students' academic performance and its applicability in different educational settings.

Conclusion

The study concludes that HOTS PBA can serve as an alternative teaching method to improve speaking performance in educational settings. By integrating critical thinking into the learning process, students are better equipped to tackle real-life challenges and develop higher-order cognitive skills. The findings underscore the importance of implementing HOTS PBA in the curriculum to foster both academic and critical thinking competencies among students.

In summary, the research highlights the dual benefits of HOTS PBA: improving students' speaking abilities and enhancing their critical thinking skills. This approach not only prepares students for academic success but also equips them with the necessary skills to navigate complex problems in real-world scenarios.

References

- Adzidzah, N., & Yudiawan, A. (2024). HOTS-Based Formative Assessment: The Key to Improving the Quality of Learning. *Journal of Quality Assurance in Islamic Education (JQAIE)*, 4(2), 109–120. <https://doi.org/10.47945/jqaie.v4i2.1670>
- Agustiningasih, F. (2022). Pembelajaran berbasis student-constructed questions dalam meningkatkan kelancaran prosedural matematis pada materi barisan aritmatika di Madrasah Aliyah. *Journal of Edukasi Borneo*, 3(2), 7–11. Retrieved from <https://journalofedukasiborneo.or.id/index.php/jeb/article/view/35>
- Ahmad, K. (2018). The implementation of teaching LOTS and HOTS in English teaching-learning process in senior. *Retain*, 6(1), 121–128.
- Alfaruqi, A. Z., & Nurwahidah, N. (2025). Reflection on Indonesia's PISA scores and the 2024 Madrasah teacher competency assessment results: Challenges in enhancing teacher competence. *Jurnal Pendidikan IPS*, 15(1). <https://doi.org/10.37630/jpi.v15i1.2559>
- Aningsih, A. (2018). Kemampuan berpikir tingkat tinggi pada pendidikan agama Islam siswa kelas X SMK Muhammadiyah 1 Purwokerto ditinjau dari prestasi belajar [Bachelor's thesis, Universitas Muhammadiyah Purwokerto].
- Beyer, B. K. (2008). What Research Tells Us about Teaching Thinking Skills. *The Social Studies*, 99(5), 223–232. <https://doi.org/10.3200/tsss.99.5.223-232>
- Brown, H. D., & Abeywickrama, P. (2003). *Language Assessment: Principles and classroom practices*. <http://ci.nii.ac.jp/ncid/BA6611201X>
- Brown, H. D., & Priyanvada, P. (2019). *Language assessment: Principles and language practices*. Britania Raya: Pearson Education.
- Brown, J. D. (2004). Performance assessment: Existing literature and directions for research. *Second Language Studies*, 22(2), 91–139.

- Choy, S. C., Abdul, T., & Cheah, P. K. (2009). Teacher Perceptions of Critical Thinking Among Students and its Influence on Higher Education. *International Journal on Teaching and Learning in Higher Education*, 20(2), 198–206. <http://files.eric.ed.gov/fulltext/EJ864337.pdf>
- Churches, A. (2008). Bloom's digital taxonomy. *Tech & Learning*. Retrieved from <https://www.researchgate.net/publication/228381038>
- Crawford, C. M., & Brown, E. (2002). Focusing Upon Higher Order Thinking Skills: WebQuests and the Learner-Centered Mathematical Learning Environment. *ERIC*. <http://files.eric.ed.gov/fulltext/ED474086.pdf>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches (3th ed.)*. Sage Publications.
- Dima, M. L. B., Daflizar, D., & Ahmadi, A. (2021). The implementation of higher order thinking skills (HOTS) in English language teaching: The case of Indonesian senior high school EFL teachers. *ELT Worldwide*, 8(2). <https://doi.org/10.26858/eltww.v8i2.20468>
- Ennis, R. H. (2016). Critical thinking across the curriculum: a vision. *Topoi*, 37(1), 165–184. <https://doi.org/10.1007/s11245-016-9401-4>
- Fastré, G. M. J., Van Der Klink, M. R., & Van Merriënboer, J. J. G. (2010). The effects of performance-based assessment criteria on student performance and self-assessment skills. *Advances in Health Sciences Education*, 15(4), 517–532. <https://doi.org/10.1007/s10459-009-9215-x>
- Ganapathy, M., & Liew, W. K. (2017, August). Promoting HOTS via ICT in ESL classrooms. Paper presented at *The Seventh International Language Learning Conference (7th ILLC 2017)*, Penang, Malaysia.
- Ganapathy, M., Kaur, M., & Kaur, S. (2017). Tertiary students' learning practices using information and communication technology to promote higher-order thinking. *Pertanika Journal of Social Sciences & Humanities*, 25(2), 877–890.
- Ganapathy, M., Singh, M. K. M., Kaur, S., & Liew, W. K. (2017). Promoting higher order thinking skills via teaching practices. *3L: The Southeast Asian Journal of English Language Studies*, 23(1), 75–85. <https://doi.org/10.17576/3L-2017-2301-06>
- Griffith, W. I., & Lim, H.-Y. (2012). Performance-based assessment: Rubrics, Web 2.0 tools, and language competencies. *MEXTESOL Journal*, 36(1), 1-12
- Heong, Y. M., Yunos, J. M., Hassan, R. B., Othman, W. B., & Kiong, T. T. (2011). The perception of the level of higher order thinking skills among technical education students. *International Conference on Social Science and Humanity Journal*, 5(2), 281–285.
- Ichsan, I. Z., Rahmayanti, H., Purwanto, A., Sigit, D. V., Kurniawan, E., Tanjung, A., Panjaitan, R. G. P., Pertiwi, N., & Singh, C. K. S. (2021). Thinking level in Education: A complete revision of Anderson's taxonomy. *Pedagogika*, 141(1), 53–78. <https://doi.org/10.15823/p.2021.141.3>
- Juwita, I., & Yuliardi, R. R. (2024). Analisis Cara Berpikir Siswa dalam Menyelesaikan Soal High Order Thinking Skills (HOTS) Kelas VIII MTs Pertiwi Kuningan. *Indo-MathEdu Intellectuals Journal*, 5(4), 4294–4305. <https://doi.org/10.54373/imeij.v5i4.1538>

- Kabilan, M. K. (2000). Creative And Critical Thinking In Language Classrooms. *The Internet TESL Journal*, 6(6). <http://en.journals.sid.ir/ViewPaper.aspx?ID=414588>
- Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory Into Practice*, 41(4), 212–218. https://doi.org/10.1207/s15430421tip4104_2
- Lacy, L. E., & Pailliotet, A. W. (2002). *Creative planning resource for interconnected teaching and learning*. New York: Peter Lang.
- Latipah, Y. &. (2019). EFL teachers' perceptions towards the. 254(Conaplin 2018), 290–295. <https://doi.org/10.2991/conaplin-18.2019.57>.
- Lisdawati, L., & Umam, A. (2022). Promoting HOTS and critical thinking to English students of higher education through authentic assessment. *Erudita: Journal of English Language Teaching*, 2(1), 15–25. <https://doi.org/10.28918/erudita.v2i1.5289>
- Mahendra, I. W. E., Parmithi, N. N., Suana, I. W., & Sumandya, I. W. (2019). Developing HOTS through performance assessment. *International Journal of Scientific & Technology Research*, 8(12), 3004–3007
- Makmuroh, U., & Pratama, H. (2022). The implementation of Performance-Based Assessment Technique to assess students' analysing skill in English learning. *English Education Journal*, 12(4), 578–586. <https://doi.org/10.15294/eej.v12i4.65365>
- Martin-Kniep, G.O. (2022). Performance Assessment. Routledge. <https://doi.org/10.4324/9781138609877-REE151-1>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook (2nd ed.)*. Thousand Oaks CA: Sage Publications.
- O'Malley, J. M. (1996). *Authentic Assessment for English Language*. California: Longman University Press.
- Paul, R., & Elder, L. (2007). *Critical thinking competency standards: Standards, principles, performance indicators, and outcomes*. California: Foundation for Critical Thinking Press.
- Pierce, L. V., & O'Malley, J. M. (1992). Performance and Portfolio Assessment for Language Minority Students. Program Information Guide Series, 9. *Education-PerfAssessment*. <https://files.eric.ed.gov/fulltext/ED346747.pdf>
- Prastikawati, E. F. (2018). EFL Learners' responses on the use of performance-based assessment. *Lensa Kajian Kebahasaan Kesusastraan Dan Budaya*, 8(1), 75. <https://doi.org/10.26714/lensa.8.1.2018.75-86>
- Raj, S. S., & Sandasagan, K. (2024). Accessibility of Technology Affecting Pupils' Learning in Rural Schools. *International Journal on Science and Technology (IJSAT)*, 15(4). <https://doi.org/10.71097/ijsat.v15.i4.1254>
- Salma, N., & Prastikawati, E. F. (2021). Performance-Based Assessment In The English Learning Process: Washback And Barriers. *Getsempena English Education Journal*, 8(1), 164–176. <https://doi.org/10.46244/geej.v8i1.1305>
- Setiawati, W., et al. (2019). *Buku penilaian berorientasi higher order thinking skills*. Jakarta: Direktorat Jenderal Guru dan Tenaga Kependidikan, Kementerian Pendidikan dan Kebudayaan.

- Silberman, M. (2014). *Handbook of experiential learning*. Bantu: Nusamedia.
- Soto, S. T., Espinosa Cevallos, L. F., Morales, M. A., & Molineros, Y. (2017, December). Performance-based tasks as a means to assess the speaking skills of learners of English as a foreign language. Paper presented at *International Teacher Education Conference (ITEC 2017)*, Cambridge, Massachusetts.
- Southbury, C., & Hibbard, K. M. (1996). *A teacher's guide to performance-based learning and assessment*. <http://ci.nii.ac.jp/ncid/BB06226415>
- Stiggins, R. J., & Bridgeford, N. J. (1985). Performance assessment for teacher development. *Educational Evaluation and Policy Analysis*, 7(1), 85–97. <https://doi.org/10.3102/01623737007001085>
- Stiggins, R. J., & Conklin, N. F. (1992). *In teachers' hands: Investigating the practices of classroom assessment*. Amerika: SUNY Press.
- Wiyaka & Prastikawati, E. F. (2019). *Authentic Performance-Based Assessments – A*. Semarang: UPT Penerbitan Universitas PGRI.
- Yuliati, S. R., & Lestari, I. (2018). Higher-Order Thinking Skills (HOTS) Analysis Of Students In Solving Hots Question In Higher Education. *Perspektif Ilmu Pendidikan*, 32(2), 181–188. <https://doi.org/10.21009/pip.322.10>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).