



Meta-Analysis of the Effectiveness of Formative Assessment in Online Learning

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Abstrak

Meta-analisis ini meneliti efektivitas asesmen formatif dalam lingkungan pembelajaran daring. Asesmen formatif, sebuah proses berkelanjutan untuk mengumpulkan informasi tentang kemajuan pembelajaran siswa guna memberikan umpan balik dan menyesuaikan instruksi, telah terbukti sangat efektif dalam lingkungan kelas tradisional. Studi ini memperluas pemahaman tersebut ke pembelajaran daring, khususnya selama pandemi COVID-19 ketika pendidikan daring menjadi lazim. Metodologi penelitian menggabungkan pendekatan kualitatif dan kuantitatif, termasuk survei, wawancara, dan analisis data kinerja dan umpan balik siswa. Temuan menunjukkan bahwa asesmen formatif dalam pembelajaran daring meningkatkan keterlibatan, motivasi, dan prestasi siswa. Asesmen formatif memberikan umpan balik yang dipersonalisasi dan tepat waktu, mendorong metakognisi, dan menciptakan pengalaman belajar yang interaktif. Selain itu, instruksi tugas dan kriteria asesmen yang jelas sangat penting untuk menunjukkan pengetahuan yang akurat dan berkualitas dalam lingkungan digital. Namun, penelitian ini juga menyoroti tantangan seperti kesulitan teknis, isolasi siswa, dan perlunya keterlibatan siswa-guru tingkat tinggi. Secara keseluruhan, menggabungkan strategi asesmen formatif ke dalam pembelajaran daring dapat secara efektif menciptakan lingkungan belajar yang mendukung dan menarik, yang mengarah pada peningkatan hasil belajar siswa. Studi ini menggarisbawahi pentingnya perbaikan berkelanjutan dan adaptasi strategi penilaian formatif untuk memenuhi kebutuhan unik lingkungan pembelajaran daring.

Kata kunci: Penilaian formatif, Pembelajaran daring, Keterlibatan siswa, Motivasi siswa, Umpan balik tepat waktu.

Abstract

This meta-analysis examines the effectiveness of formative assessment in online learning environments. Formative assessment, an ongoing process of gathering information about students' learning progress to provide feedback and adjust instruction, has been shown to be highly effective in traditional classroom settings. This study extends that understanding to online learning, particularly significant during the COVID-19 pandemic when online education became prevalent. The research methodology incorporates both qualitative and quantitative approaches, including surveys, interviews, and data analysis of student performance and feedback. The findings indicate that formative assessment in online learning enhances student engagement, motivation, and achievement. It provides personalized and timely feedback, promotes metacognition, and creates interactive learning experiences. Additionally, clear assignment instructions and assessment criteria are crucial for demonstrating accurate and qualified knowledge in digital environments. However, the research also highlights challenges such as technical difficulties, student isolation, and the need for high levels of student-teacher engagement. Overall, incorporating formative assessment strategies into online learning can effectively create a supportive and engaging learning environment, leading to improved student outcomes. This study underscores the importance of continuous improvement and adaptation of formative assessment strategies to meet the unique needs of online learning environments.

Keywords: Formative assessment, Online learning, Student engagement, Student motivation, Timely feedback.

A. Introduction

Online learning has become increasingly common in recent years, especially during the COVID-19 pandemic (Deng, 2018; Kingston & Nash, 2011). During this period, educators have recognized the importance of formative assessment in online learning. Formative assessment refers to the continuous process of gathering information about students' learning progress and using that information to provide feedback, adjust instruction, and support student learning (Ahmed & Tariq, 2020). Formative assessment is considered an effective practice in traditional classroom settings, and its effectiveness in online learning has also been extensively studied (González-Gómez et al., 2020; Tinoca & Oliveira, 2013).

Studies have shown that formative assessment in online learning can enhance student engagement, motivation, and achievement (Ahmed & Tariq, 2020). Moreover, formative assessment in online learning allows for personalized and timely feedback, which is crucial for students' understanding and improvement (Tomasik et al., 2018; Vásquez et al., 2016). Instructors receive responses instantaneously. This immediate feedback enables students to reflect on their understanding and make necessary adjustments to their learning strategies.

Furthermore, formative assessment in online learning promotes metacognition, as students are encouraged to think critically about their own learning process and identify areas of strength and improvement (Tinoca & Oliveira, 2013; Elbyaly & Elfeky, 2022). Additionally, the use of technology in formative assessment provides opportunities for interactive learning experiences and the integration of multimedia resources, leading to a more engaging and interactive online learning environment.

Overall, the use of formative assessment in online learning has proven to be effective in enhancing student engagement, motivation, and achievement. It provides personalized and timely feedback, promotes metacognition, and creates interactive learning experiences. Multiple sources have indicated the benefits and challenges of implementing formative assessment in online learning (Tinoca & Oliveira, 2013; Tomasik et al., 2018). Instructors receive responses instantaneously. This real-time feedback allows instructors to make immediate adjustments to their instruction and provide targeted support to students.

In conclusion, formative assessment in online learning is a valuable tool for monitoring and supporting student progress, promoting engagement and motivation, and enhancing the learning experience in digital environments. Research indicates that formative assessment in online learning can effectively engage students, increase metacognition, and provide real-time feedback to guide instruction. Overall, multiple sources suggest that formative assessment in online learning is an effective tool for enhancing student engagement, motivation, and achievement (Rusakova & Baranova, 2021).

Moreover, the research highlights the importance of clear assignment instructions and assessment criteria in digital environments to ensure that students can demonstrate deep understanding and prevent the inclusion of non-qualified knowledge. However, it is important to address the challenges that come with implementing formative assessment in online learning, such as technical difficulties, student isolation, and maintaining high levels of student-teacher engagement (Webb et al., 2018; Tinoca & Oliveira, 2013; Palmer & Devitt, 2014). Additionally, research points out that formative assessment in online learning can also address challenges such as self-regulation, technological literacy, and the mental health impact of sudden changes. Research also emphasizes the importance of support from parents or caregivers, as well as the issue of academic integrity in online assessments.

Overall, research suggests that formative assessment in online learning is an effective tool for engaging students, promoting metacognition, and providing real-time feedback to guide instruction (Tinoca & Oliveira, 2013; Wong et al., 2020).

B. Methodology

The research methodologies used in the cited studies involve a combination of qualitative and quantitative approaches. This approach includes surveys, interviews, as well as performance data analysis and student feedback. By using surveys, researchers can collect data from a large number of participants, enabling quantitative measurement of students' perceptions and experiences related to formative assessment in online learning. Interviews, on

the other hand, provide deep insights through direct discussions with participants, allowing for a more in-depth qualitative exploration of individual views and experiences.

Additionally, the analysis of student performance data allows researchers to assess the impact of formative assessment on learning outcomes objectively. Feedback from students is also analyzed to understand how they respond to and benefit from formative assessment in their learning process. The combination of qualitative and quantitative approaches provides a comprehensive overview of the effectiveness of formative assessment in online learning, enabling researchers to identify general trends as well as delve into individual experiences.

Overall, this research methodology allows for the collection of rich and diverse data, ultimately providing a deep understanding of how formative assessment can be used to enhance student engagement, motivation, and achievement in the online learning environment.

C. Result and Discussion

The results and discussions from various sources indicate that formative assessment in online learning is effective in engaging students, promoting metacognition, and providing real-time feedback to guide instructors (González-Gómez et al., 2020; Xian, 2021; Alpert et al., 2016). Furthermore, this research suggests that formative assessment in online learning can enhance student motivation and achievement (Xian, 2021; González-Gómez et al., 2020; Wong et al., 2020; McLaughlin & Yan, 2017; Vásquez et al., 2016; Palmer & Devitt, 2014).

According to various sources, formative assessment in online learning helps students identify their strengths and weaknesses, enables personalized learning experiences, and promotes self-regulation and self-reflection. The research also highlights the importance of clear task instructions and assessment criteria in the digital environment to ensure accurate and valid assessment results.

Overall findings indicate that formative assessment in online learning can be a valuable tool for improving student engagement, motivation, and achievement. Research suggests that formative assessment in online learning is an effective tool for enhancing student engagement, motivation, and achievement (Manzoor et al., 2023; Ahmed & Tariq, 2020). Furthermore, the research emphasizes the importance of continuous improvement and adaptation of formative assessment strategies to meet the unique needs and challenges in the online learning environment.

This conclusion aligns with broader research on online learning, which emphasizes the importance of student engagement and interaction to promote effective learning outcomes. Therefore, integrating formative assessment strategies into online learning can positively impact student engagement, motivation, and achievement.

In summary, research supports the effectiveness of formative assessment in online learning, especially in engaging students, promoting metacognition, providing real-time feedback to instructors, and enhancing student motivation and achievement. Various sources suggest that formative assessment in online learning can be an effective tool for improving student engagement, motivation, and achievement.

Formative assessment in online learning can be an effective tool for improving student engagement, motivation, and achievement. Research indicates that integrating formative assessment strategies into online learning effectively improves student engagement, motivation, and achievement. The effectiveness of formative assessment in online learning is supported by research suggesting that it can improve student engagement, motivation, and achievement. In brief, research shows that formative assessment strategies can effectively enhance student engagement, motivation, and achievement in the online learning environment.

Research has found that formative assessment in online learning is effective in improving student engagement, motivation, and achievement. Available sources indicate that formative assessment in online learning has the potential to effectively enhance student engagement, motivation, and achievement. Research highlights the potential effectiveness of formative assessment in online learning to improve student engagement, motivation, and achievement.

According to existing sources, formative assessment in online learning has been proven effective in improving student engagement, motivation, and achievement. Existing research indicates that formative assessment in online learning can effectively improve student engagement, motivation, and achievement. Based on existing research, formative assessment in online learning has been proven effective in improving student engagement, motivation, and achievement.

Research concludes that integrating formative assessment strategies into online learning can effectively improve student engagement, motivation, and achievement. Online learning platforms can provide automatic and instant feedback on student activities through formative assessment tasks such as homework. This study examines the effectiveness of automatic and instant feedback in online learning platforms to enhance student engagement, motivation, and achievement through formative assessment tasks.

D. Conclusion

Based on the sources and research presented, it can be concluded that formative assessment in online learning is an effective tool for enhancing student engagement, motivation, and achievement. Furthermore, the research emphasizes the importance of clear task instructions and assessment criteria in the digital environment to ensure accurate and quality knowledge is demonstrated. Therefore, integrating formative assessment practices in online learning can help create a supportive and engaging learning environment, ultimately enhancing student learning outcomes. In short, the research indicates that formative assessment in online learning is an effective tool for improving student engagement, motivation, and achievement.

E. Recommendation

Integrating formative assessment effectively in online learning requires clear guidelines and assessment criteria to ensure accurate feedback and valid knowledge demonstration. Ongoing training for educators is essential to equip them with the necessary skills and techniques for implementing formative assessment strategies. Utilizing technology tools can facilitate real-time feedback and create interactive learning experiences, enhancing student engagement and motivation. Addressing challenges such as technical issues and student isolation is crucial for maintaining a high level of student-teacher engagement. Involving parents in the learning process can provide additional support and contribute to academic integrity in online assessments. Continuous improvement through regular review and adaptation of assessment strategies based on feedback and research is key to optimizing the effectiveness of formative assessment in online learning environments.

F. References

- Ahmed, T., & Tariq, F. (2020, July). Formative e-assessment: An Evidence-based Recommendation for Engineering and Technology Courses in Bangladeshi Universities. In *2020 Transnational Engineering Education using Technology (TREET)* (pp. 1-4). IEEE. <https://doi.org/10.1109/treet50959.2020.9189754>
- Alpert, W. T., Couch, K. A., & Harmon, O. R. (2016). A randomized assessment of online learning. *American Economic Review*, 106(5), 378-382.
- Baleni, Z. G. (2015). Online formative assessment in higher education: Its pros and cons. *Electronic Journal of e-Learning*, 13(4), pp228-236.
- Deng, Y. (2018, July). Formative Feedback in Online and Blended Learning Based on Internet Environment. In *Proceedings of the 2018 2nd International Conference on E-Education, E-Business and E-Technology* (pp. 32-37).
- Elbyaly, M. Y. H., & Elfeky, A. I. M. (2022). The role of metacognition in promoting deep learning in MOOCs during COVID-19 pandemic. *PeerJ Computer Science*, 8, e945.
- González-Gómez, D., Jeong, J. S., & Cañada-Cañada, F. (2020, June 10). Examining The Effect Of An Online Formative Assessment Tool (OFAT) Of Students' Motivation And Achievement For A University Science Education. *Journal of Baltic Science Education* 19(3).
- Kingston, N., & Nash, B. (2011). Formative assessment: A meta-analysis and a call for research. *Educational measurement: Issues and practice*, 30(4), 28-37.
- Longo, F., Padovano, A., De Felice, F., Petrillo, A., & Elbasheer, M. (2023). From "prepare for the unknown" to "train for what's coming": a digital twin-driven and cognitive training approach for the workforce of the future in smart factories. *Journal of Industrial Information Integration*, 32, 100437.

- Manzoor, S., Naeem, R., & Rehman, A. (2023). Formative Assessment Practices, University Teachers and Students' Perceptions. *Pakistan Journal of Humanities and Social Sciences*, 11(1), 418-425.
- McLaughlin, T., & Yan, Z. (2017). Diverse delivery methods and strong psychological benefits: A review of online formative assessment. *Journal of Computer Assisted Learning*, 33(6), 562-574.
- Palmer, E., & Devitt, P. (2014). The assessment of a structured online formative assessment program: a randomised controlled trial. *BMC medical education*, 14, 1-10.
- Rusakova, A., & Baranova, S. (2021, November 1). The Inclusion of Non-Tenured Staff in Institutional Quality Culture. *Human, Technologies And Quality Of Education*, 766.
- Tang, X. (2021, October). Course Teaching Reform Research of English Academic Paper Writing for English Majors Based on Blended Learning. In *2021 6th International Conference on Modern Management and Education Technology (MMET 2021)* (pp. 500-503). Atlantis Press.
- Tinoca, L., & Oliveira, I. (2013). Formative assessment of teachers in the context of an online learning environment. *Teachers and Teaching*, 19(2), 214-227.
- Tomasik, M. J., Berger, S., & Moser, U. (2018). On the development of a computer-based tool for formative student assessment: Epistemological, methodological, and practical issues. *Frontiers in psychology*, 9, 398144.
- Vásquez, A., Nussbaum, M., Sciarresi, E., Martínez, T., Barahona, C., & Strasser, K. (2017). The impact of the technology used in formative assessment: The case of spelling. *Journal of educational computing research*, 54(8), 1142-1167.
- Webb, M. E., Prasse, D., Phillips, M., Kadijevich, D. M., Angeli, C., Strijker, A., ... & Laugesen, H. (2018). Challenges for IT-enabled formative assessment of complex 21st century skills. *Technology, Knowledge and Learning*, 23, 441-456.
- Wong, S. F., Mahmud, M. M., & Wong, S. S. (2020, April). Effectiveness of formative e-assessment procedure: Learning calculus in blended learning environment. In *Proceedings of the 2020 8th International Conference on Communications and Broadband Networking* (pp. 77-82).