Navigating the Digital Classroom: Exploring the Effectiveness of Online-Based Learning

Benedictus Cristiano Budi   
School of Computer Science  
Binus University  
Tangerang, Indonesia  
[benedictus.budi@binus.ac.id](mailto:benedictus.budi@binus.ac.id)

Laser Clauss Latupeirissa   
School of Computer Science  
Binus University  
Tangerang, Indonesia  
[laser.latupeirissa@binus.ac.id](mailto:laser.latupeirissa@binus.ac.id)

# Introduction

Online based learning is learning not directly, but online. The online based learning has become a main focus in modern education, especially in facing global challenges like the pandemic which forces drastic adjusment in learning method. In an era where technology plays an active role in changing the role of distance education from an alternative to the classroom into a social transformation by providing access to education for all[5].

This effectiveness is very important because it can improve people's performance in learning where this can be influenced by many things. This can be seen in the current era where online based learning must have a positive impact on users, not become an obstacle. These positive impacts can be various, such as being able to enable people to access a wide range of materials without limitations and increasing collaboration between students, supporting students' constructivist learning and so on[5], [6].

However, in implementing online based learning, there are challenges that need to be faced. This challenge usually interferes with the effectiveness of implementing online based learning. Therefore, we want to research what factors influence the effectiveness of online based learning. We also want to know how long people have been using online based learning. This can be a solution later for obstacles in implementing online based learning[7].

# Related Work

## Role of open educational resources

T. Caswell, S. Henson, M. Jensen, and D. Wiley explore the pivotal role of Open Educational Resources in supporting free education. They argue that technology has reduced the reproduction costs of educational content to almost nothing, enabling educators to share their course materials globally at minimal or no cost. This significant shift not only democratizes education but also repositions distance education from an alternative to traditional classroom settings to a transformative force in society [1].

Despite the supply of high-quality open educational resources, their usage is quite low which brings questions to why. Richter and McPherson explore the low usage of the resources, suggesting that a capable supply of resources, does not guarantee sustainable accessibility. They emphasize the need to adapt these resources to local contexts, making it more relevant in various educational settings and geographical locations. The paper also dives into the challenges of online learning in conventional education in developing countries with high illiteracy. The authors conclude that a subtle approach, is essential for integrating high-quality open educational resources into various educational landscapes[3].

## Student engagement and learning outcomes in online learning

Gray and DiLoreto delve into the impact of course structure, learner interaction, and instructor presence on student satisfaction and perceived learning in online learning environments. Their research emphasizes the importance of student engagement, revealing how it mediates the relationship between the design and delivery of online courses and their effectiveness in enhancing learning outcomes [2].

Chen and Jang's study researches the motivation within online learning from the perspective of Self-Determination Theory. Their research underscores the importance of addressing learners' motivational factors and the critical role of contextual support in igniting the motivation to learn. The authors implemented structural equation modeling to analyze data from participants in online certificate programs, revealing that the satisfaction of learners' needs for autonomy, competence, and relatedness mediates the relationship between contextual support and learner motivation. Although their findings indicated that such motivational factors did not directly predict learning outcomes, they emphasized the necessity of integrating supportive strategies that cater to the individual needs of learners to enhance their motivation effectively [4].

## Tech foundations and digital literacy for online learning

Watson and Lee Watson’s paper provides an investigation of Learning Management Systems (LMS), looking into their development, functionality, and differentiation from similar concepts such as Course Management Systems (CMS) and Learning Content Management Systems (LCMS). The authors argue that LMS is a foundation for transitioning from the Industrial to the Digital Age which involves focusing on educational paradigms that focuses on student-centered approaches, flexible customization to meet various student needs, and the integration of technology to support individualized learning pathways[8].

Akhyar et al. made a study to find the impact of digital literacy on learning outcomes among students engaging in online learning. Using a quantitative approach with 348 students as the sample, the study uses simple linear regression analysis to examine the relationship between digital literacy and learning outcomes. The method reveals a positive correlation between them, with digital literacy having 37.1% of the variance in students' learning outcomes. This points out the vital role that digital literacy contributes in creating effective online learning environments. The study's results highlight the need for educational stakeholders to prioritize the development of digital literacy skills among students to enhance their learning outcomes in online settings[9].

##### References

1. T. Caswell, S. Henson, M. Jensen, and D. Wiley, "Open Educational Resources: Enabling universal education," *International Review of Research in Open and Distributed Learning*, vol. 9, no. 1, 2008. [Online]. Available: <https://doi.org/10.19173/irrodl.v9i1.469>
2. J. A. Gray and M. DiLoreto, "The Effects of Student Engagement, Student Satisfaction, and Perceived Learning in Online Learning Environments," *NCPEA International Journal of Educational Leadership Preparation*, vol. 11, no. 1, May 2016. [Online]. Available: [http://www.ncpeapublications.org](http://www.ncpeapublications.org/)
3. Richter, T., & McPherson, M. (2012). Open educational resources: Education for the world? Distance Education, 33(2), 201–219. <https://doi.org/10.1080/01587919.2012.692068>
4. Chen, K. C., & Jang, S. J. (2010). Motivation in online learning: Testing a model of self-determination theory. Computers in Human Behavior, 26(4), 741–752. <https://doi.org/10.1016/j.chb.2010.01.011>
5. T. Caswell, S. Henson, M. Jensen, and D. Wiley, “Open Content and Open Educational Resources: Enabling universal education,” The International Review of Research in Open and Distributed Learning, vol. 9, no. 1, Feb. 2008, doi: 10.19173/irrodl.v9i1.469.
6. J. C. Lapadat, “Written Interaction: A Key Component in Online Learning,” Journal of Computer-Mediated Communication, vol. 7, no. 4, pp. 0–0, Jun. 2006, doi: 10.1111/j.1083-6101.2002.tb00158.x.
7. T. Nguyen, “The Effectiveness of Online Learning: Beyond No Significant Difference and Future Horizons,” 2015.
8. Watson, W. R., & Lee Watson, S. (2007). An argument for clarity: what are learning management systems, what are they not, and what should they become? (Vol. 51, Issue 2). <https://hal.science/hal-00692067>
9. Akhyar, Y., Ilham Syarif, M., Fitri, A., Simbolon, P., Purnamasari, A. S., Tryana, N., & Abidin, Z. (2021). Contribution of Digital Literacy to Students’ Science Learning Outcomes in Online Learning. International Journal of Elementary Education, 5(2), 284–290. <https://ejournal.undiksha.ac.id/index.php/IJEE>