



Microlearning in Higher Education: Student Challenges and Engagement

Muhammad Ilham¹, Dwhy Dinda Sari²

¹Universitas Islam Negeri Sultanah Nahrasiyah Lhokseumawe

²Universitas Islam Negeri Sultanah Nahrasiyah Lhokseumawe

dwhydinda@gmail.com

Abstract

This study aims to explore microlearning in higher education, the challenges that may be faced by institutions and students as well as student involvement in the learning process. This study uses a qualitative approach with a literature study research method. Data collection techniques are carried out by looking for sources from books, journals and the like. The results of the research 1) The challenges found are in the application of microlearning, including the creation of quality content that can convey academic concepts in depth, limited access to technology in certain areas, and the potential for knowledge fragmentation; 2) Microlearning combined with self-regulated learning (SRL) is able to provide greater benefits by encouraging the development of self-learning skills and self-reflection.

Keywords: microlearning, higher education, challenges

Abstrak

Penelitian ini bertujuan untuk mengeksplorasi pembelajaran mikro di perguruan tinggi, tantangan yang mungkin dihadapi oleh institusi dan mahasiswa serta keterlibatan mahasiswa dalam proses pembelajaran. Penelitian ini menggunakan pendekatan kualitatif dengan metode penelitian studi literatur. Teknik pengumpulan data dilakukan dengan mencari sumber-sumber dari buku, jurnal dan sejenisnya. Hasil penelitian 1) Tantangan yang ditemukan adalah dalam penerapan microlearning antara lain penciptaan konten berkualitas yang dapat menyampaikan konsep akademik secara mendalam, keterbatasan akses teknologi pada area tertentu, dan potensi fragmentasi pengetahuan; 2) Microlearning yang dipadukan dengan self-regulated learning (SRL) mampu memberikan manfaat yang lebih besar dengan mendorong pengembangan kemampuan belajar mandiri dan refleksi diri; 3) Microlearning yang dipadukan dengan self-regulated learning (SRL) mampu memberikan manfaat yang lebih besar dengan mendorong pengembangan kemampuan belajar mandiri dan refleksi diri.

Kata Kunci: microlearning, pendidikan tinggi, tantangan

INTRODUCTION

In the ever-evolving digital era, traditional learning methods face new challenges that require innovation to improve the effectiveness of education. The development of digital technology has had a significant impact on education, changing the way students and teachers interact with information and the teaching-learning process. The positive impact of technology includes easy access to information, which allows students to quickly and efficiently search for and utilize educational resources, as well as increase creativity through a variety of engaging learning media such as videos and animation. Additionally, technology supports distance learning and global collaboration, providing opportunities for students from remote locations to get a quality education (Muzaini, dkk, 2024). However, negative impacts also emerge, such as the digital divide that hinders access for students who do not have adequate devices or internet connections. Additionally, reliance on technology can reduce students' focus and interfere with their critical thinking abilities as well as social skills (Hakim & Yulia, 2024). Therefore,

the integration of technology in education must be done wisely, taking into account the developmental needs of students and ensuring that the benefits can be optimized while minimizing the risks

One of the things that is becoming increasingly popular is microlearning, which is a learning strategy that presents material in small, focused pieces, usually through digital platforms. Microlearning offers great flexibility and accessibility, allowing students to learn anytime and anywhere.

Microlearning in higher education is learning that divides lecture materials into small and specific units that are easily accessible and learned by students in a short time. This method is designed to increase engagement and retention of information, by providing concise material through media such as short videos, infographics, interactive quizzes, and daily notifications. In the context of higher education, microlearning plays an important role in adapting the learning process to the lifestyle of modern students who are increasingly mobile and accustomed to digital technology. The advantages of applying microlearning include flexibility in learning time, increased learning motivation, and efficiency in delivering complex materials in a simple way. By integrating microlearning, universities are able to support continuous learning models that are relevant to technological developments and the need for adaptive learning capabilities (Rof et al., 2024)

Various microlearning media formats applied in universities indicate that this method has the potential to overcome learning saturation that has increased during the COVID-19 pandemic. The study identified the use of various formats such as podcasts, PowerPoint slides, infographics, moving graphics, explainer videos, and interactive conference videos. Microlearning is considered effective in improving student understanding because its content presented in small segments makes information easier to digest and remember (Susilana et al., 2022).

The development of adaptive microlearning platforms that utilize artificial intelligence (AI) shows that the platform is valid and feasible to use as an addition to self-learning. This study emphasizes the importance of microlearning in supporting self-regulated learning (SRL), which is a key element for student academic success (Dalu et al., 2023). The independent use of microlearning content helps students improve their learning abilities. Microlearning has proven to be effective in facilitating independent learning, with students giving positive assessments of the learning process using the platform. Microlearning can be a solution for students who need additional learning outside of the classroom (Gorham et al., 2023). Microlearning can increase the effectiveness and efficiency of learning by presenting material in a short format that is easy to understand and remember. Based on the results of the study, it was shown that trainees preferred content designed with microlearning principles, which reduced information overload and increased knowledge retention. This approach allows students to quickly acquire knowledge and skills that can be applied directly in the context of their academic or daily work (Gherman et al., 2021)

Higher education, as one of the important pillars in human resource development, needs to adapt to these changes. Microlearning can not only improve material understanding, but also potentially

increase student involvement in the learning process. However, the application of microlearning in the context of higher education also faces various challenges, such as resistance to changes in teaching methods and the need to ensure the quality of content (Kim et al., 2024).

This article aims to explore microlearning in higher education, the challenges that institutions and students may face and the involvement of students in the learning process. This research will provide valuable insights for educators, managers of educational institutions, and policymakers in designing learning strategies that are more adaptive and responsive to the needs of the current generation of students

METHOD

Metode The method applied in this study is Literature Study. Literature study can be interpreted as a series of activities that include collecting data from literature sources, including reading, taking notes, and processing research materials. The data collection technique is carried out by searching and compiling information from various written sources such as books, journals, and previous research. The literature material obtained from the reference is then critically and in-depth analyzed to support the arguments and ideas put forward (Mahanum, 2021). The research process began with the collection of data on microlearning from various references. Furthermore, an analysis of the challenges and involvement of students in higher education was carried out. yang digunakan dalam penelitian ini ialah dengan pendekatan kualitatif yang bersifat studi kepustakaan. Seluruh data dikumpulkan dari buku, artikel, dan karya tulis lain yang relevan. Selain itu teknik kutipan langsung dan tidak langsung digunakan pula dalam proses pengumpulan data. Sedangkan proses mendeskripsikan dan menganalisis secara menyeluruh informasi tertulis atau tercetak secara obyektif dan metodis, dilakukan melalui penggunaan teknik analisis isi.

HASIL DAN PEMBAHASAN

Challenges of Microlearning in Higher Education

Microlearning is a learning method that presents information in the form of small, focused content, usually between 5 and 10 minutes long. This approach is designed to make it easier for students to understand and remember information in a more efficient way. Microlearning gives students access to learn anytime and anywhere, making it a perfect fit for a dynamic and flexible educational environment (Santosa, 2025). Types of microlearning in higher education include a variety of short learning formats designed to deliver material effectively and support students' learning flexibility such as (1) podcasts, (2) PowerPoint slides, (3) infographics, (4) motion graphics, (5) explainer videos, and (6) interactive video conferencing and gamification (Nugraha, 2021). One type is short learning videos that present specific topics in a short duration to make it easier to understand, interactive quizzes are another type that provides direct feedback so that students can measure their understanding in real-time.

In addition, infographics are used to visually summarize complex concepts allowing students to quickly capture key information, micro-discussion forums that focus on one small topic help build engagement and encourage critical thinking among students and lastly daily notifications or learning emails send short summaries or reflective questions that help students stay connected with the material every day. With these various types of microlearning, universities are able to create an adaptive, in-depth learning environment that is in accordance with the demands of technology and the lifestyle of today's students.

The advantages of microlearning include increased information retention, as students can repeat the material as per their needs. This method also supports self-paced learning and allows students to access content relevant to their current situation (Dolasinski & Reynolds, 2020). Thus, microlearning not only increases student engagement but also assists them in developing new skills without having to sacrifice their productive time.

Microlearning has significant benefits in universities because it allows for the delivery of material in a concise, specific, and easy-to-understand form for students. With a short learning format and focus on a single topic or skill in each session, microlearning helps improve the absorption of material, especially in the face of attention limitations. In addition, microlearning provides flexibility in the time and place of study so that students can adjust their schedules according to their needs. This method also supports independent learning and the use of digital technology, thereby creating a more interactive and relevant learning experience. Thus, microlearning can increase student motivation and involvement in the learning process, as well as strengthen their understanding of the material presented (Corbeil et al., 2021; Rof et al., 2024).

Microlearning allows students to make use of their free time or access information quickly according to their needs. This approach provides flexibility for students in choosing materials that are relevant to their individual needs and interests. In addition, with the use of multimedia content and interactive elements, microlearning is able to increase student engagement and information retention. Microlearning is also often applied in employee training, distance education, and various situations that require quick access to information. This approach has proven to be an effective alternative in delivering learning in the digital era.

One of the main challenges in the implementation of microlearning is the creation of relevant and quality content where the content must be designed in such a way that it remains informative and engaging for students without sacrificing quality. Materials should be designed in a short format without compromising the depth of academic concepts. In addition, duration limitations can reduce opportunities to explore topics in depth, so students may experience gaps in understanding more complex materials. In addition, limited access to technology is also a significant obstacle, especially for students in remote areas who do not have digital devices or adequate internet connections. On the other hand, the development of microlearning content requires considerable resources and time to ensure the quality of

the videos and animations used. A validation process by an educational media expert is also needed to ensure that the content is not only visually appealing but also effective in supporting the learning process.

In addition, there is also the risk of knowledge fragmentation, where students remember information more separately without integrating it holistically. Thus, universities need to develop supporting strategies to overcome these challenges, such as user guides, self-training, and the integration of microlearning with traditional learning methods to achieve more comprehensive learning goals. Finally, although microlearning offers flexibility and personalization in learning, students must have high motivation and self-discipline to learn independently, without direct supervision from lecturers. The learning independence demanded by microlearning often requires good time management skills and high motivation to learn, which may not be possessed by all students. Therefore, although microlearning has great potential to improve learning effectiveness, these challenges need to be overcome so that its implementation can run well in universities.

Student Engagement in Microlearning

Student involvement in microlearning in higher education is a key aspect that determines the success of this learning method in improving understanding and retention of material. Student involvement in microlearning in higher education shows significant potential in improving the learning process, especially in understanding concepts, ease of remembering material, and motivation to learn (Faniati, 2024). Microlearning that presents content in small, focused units, allows students to learn flexibly and independently according to their needs and time. Research shows that students respond positively to the use of this method, feel easier to understand the material delivered through videos and animations, and are more motivated to learn (Dalu et al., 2023). The success of microlearning can also be seen from the increase in students' understanding of material that was previously difficult to understand. With this approach, students can access content anytime and anywhere that supports learning that is more adaptive and in accordance with the times. In addition, microlearning promotes the development of self-regulated learning skills that are essential for achieving optimal academic performance (Wang et al., 2020).

Microlearning and self-regulated learning (SRL) complement each other in the context of higher education, providing innovative approaches to improve student learning engagement and effectiveness. Microlearning, which is characterized by the delivery of content in small, focused units, allows students to access information flexibly and according to their needs. This approach strongly supports SRL, which is the process by which students organize, monitor, and evaluate their own learning. Research shows that the integration of microlearning with SRL strategies can increase students' confidence in their ability to learn independently, as well as encourage them to set clearer goals and more effective learning strategies (Craig et al., n.d.; Shamir-Inbal & Blau, 2022).

In practice, microlearning provides a variety of tools and resources that students can use to plan and execute their learning. For example, microlearning platforms often come with features such as interactive quizzes and instant feedback that assist students in evaluating their understanding of the material. Thus students can reflect on their learning process, adjust strategies if necessary, and improve their overall academic performance. In addition, the use of mobile technology in microlearning allows access to learning content anywhere and anytime, strengthening SRL's capabilities by providing opportunities for students to learn according to their own rhythm and learning style (Sedaghatkar et al., 2023; Yuniarsih et al., 2022). Therefore, the combination of microlearning and self-regulated learning not only increases student engagement but also facilitates better academic achievement in the modern educational environment.

Student engagement in microlearning is significantly enhanced by its tailored approach to delivering educational content in small, manageable chunks. This method aligns well with the preferences of modern learners, particularly digital natives who are accustomed to consuming information in short bursts due to the influence of social media and mobile technology. Microlearning not only reduces cognitive overload by focusing on specific learning objectives but also allows students to learn at their own pace, making the educational experience more personalized and relevant to their goals. The incorporation of multimedia elements—such as videos, interactive quizzes, and infographics—further boosts engagement by catering to various learning styles and keeping the content dynamic and interesting. As a result, students report higher satisfaction and retention rates, finding microlearning more enjoyable and effective compared to traditional lecture-based formats. This adaptability makes microlearning an essential strategy for fostering a more engaging and effective learning environment across various educational contexts (de Gagne et al., 2019; Nikou & Economides, 2018).

Interest in student engagement through microlearning has grown substantially in educational research, as it shows strong potential to improve learning outcomes and retention. Defined by the delivery of concise, easily digestible content, microlearning aligns well with the preferences of contemporary learners, especially millennials and Generation Z, who tend to favor shorter, more flexible learning sessions. Studies show that microlearning can significantly enhance student engagement by making educational content more accessible and relatable. For example, Gagné et al. found that the vast majority (94%) of studies examining microlearning's impact on students reported positive engagement results, emphasizing the roles of user satisfaction and content relevance in educational success (Selçuk & Köseoğlu, 2023; Sung et al., 2023). Martinho further noted that integrating microlearning into traditional classroom settings helps lower dropout rates and improve academic outcomes by allowing students to review concepts and bridge knowledge gaps more effectively.

Microlearning also promotes autonomous learning. Research by Yuniarsih et al. suggests that microlearning materials encourage students to take charge of their own learning, which is essential for

developing lifelong learning skills. This is echoed by Nikou and Economides, who reported that mobile-based microlearning boosts motivation and performance by enabling flexible learning, which enhances engagement (Martinho et al., 2023).

The multimedia aspect of microlearning further drives student engagement. Studies have found that video-based microlearning increases both interactivity and learning outcomes. Similarly, Corbeil et al. showed that delivering microlearning through mobile devices enhances interactivity by leveraging rich-media environments for high-impact learning (Javorcik et al., 2023). Additionally, microlearning's adaptability to individual learning preferences boosts engagement. Javorcik et al. highlighted that the variety of content options in microlearning allows students to choose their own learning paths, which fosters greater motivation and engagement. This adaptability is crucial for meeting the diverse needs of today's learners.

In summary, microlearning represents a valuable approach to increasing student engagement through its flexible, accessible, and interactive format. By presenting information in small, manageable units, microlearning not only appeals to the cognitive styles of modern learners but also promotes a more engaging, self-directed learning experience.

CONCLUSION

Microlearning has great potential in increasing student engagement, motivation, and understanding in college through flexible, concise, and material-focused learning methods. Types of microlearning such as short learning videos, interactive quizzes, and daily notifications allow students to access materials anytime and anywhere according to their needs that support independent and adaptive learning patterns. However, significant challenges in the application of microlearning include the creation of quality content that can convey academic concepts in depth, limited access to technology in certain areas, and the potential for knowledge fragmentation. This challenge requires institutional support and effective management strategies so that students can have a comprehensive and non-fragmented learning experience. In addition, microlearning combined with self-regulated learning (SRL) is able to provide greater benefits by encouraging the development of independent learning skills and self-reflection. Through the provision of the right infrastructure and guidance, colleges can overcome these various barriers and maximize the benefits of microlearning as part of a learning system that is more flexible, effective, and in line with the demands of modern education.

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