JINOVAK
Jurnal Inovasi Akademik

Empowering Lifelong Learning through Digital Innovation: Evaluating the Performance and Impact of Micro-Credential Development on the UGM Online Platform

Hatma Suryatmojo[1,2], Irwan Endrayanto Aluicius[1,3], Ngadisih[1,4], Harry Freitag Luglio Muhammad[1]

[1]Directorate of Academic Research and Innovation, Universitas Gadjah Mada, Bulaksumur, Yogyakarta, Indonesia
[2]Faculty of Forestry, Universitas Gadjah Mada, Bulaksumur, Yogyakarta
[3]Faculty of Mathematics and Natural Sciences, Universitas Gadjah Mada, Bulaksumur, Yogyakarta
[4]Faculty of Agricultural Technology, Universitas Gadjah Mada, Bulaksumur, Yogyakarta

Email: hsuryatmojo@ugm.ac.id (corresponding author)

Abstrak The growing demand for flexible and accessible learning opportunities has positioned micro-credentials as a transformation tool in higher education. Universitas Gadjah Mada (UGM), through its innovative UGM Online platform, has embraced this trend to support lifelong learning and workforce upskilling. This study evaluates the performance and impact of micro-credential development on UGM Online during its 2024 operational period, including user engagement, enrollment trends, and conversion rates. The platform recorded 37,000 visits, with 1,247 learners enrolling in various micro-credential courses, resulting in an average conversion rate of 4.23%. Monthly performance analysis revealed fluctuations in traffic and enrollments, with March showing the highest visits (6,036) but a relatively low conversion rate of 1.97%. In contrast, April and May demonstrated more balanced growth, achieving 4.35% and 5.03% conversion rates, respectively, indicating improved alignment between user expectations and course offerings. These variations highlight the success of outreach strategies in driving traffic and the need to enhance user engagement to boost enrollments. Challenges identified include optimizing the enrollment process, increasing the relevance of course content, and improving the platform's ability to convert visitors into active learners. The study underscores micro-credentials' potential to address the needs of diverse learners and industry demands while emphasizing the importance of continuous monitoring and improvement. This paper presents actionable insights for

improving micro-credential implementation on digital platforms, focusing on user-centric design, marketing strategies, and stakeholder engagement. By leveraging data-driven evaluations, UGM Online aims to strengthen its role as a leader in digital education innovation, contributing to the global conversation on scalable and impactful lifelong learning solutions. The findings provide valuable benchmarks for institutions aiming to enhance their micro-credential offerings and adapt to the evolving landscape of higher education.

Keywords: *micro-credential, lifelong learning, digital education, user engagement, higher education innovation*

INTRODUCTION

The rapid advancement of digital technologies has reshaped the landscape of higher education, fostering the development of innovative learning methods, including micro-credentials. These short, targeted learning programs have emerged as an effective solution to address the growing demand for flexible, accessible, and skill-focused education (Oliver, 2019). Micro-credentials enable learners to acquire competencies tailored to specific professional or academic needs, thereby bridging the gap between traditional education systems and dynamic workforce requirements (Kato, Galán-Muros, & Weko, 2020).

In recent years, universities worldwide have integrated micro-credentials into their curricula to support lifelong learning and upskilling initiatives. Micro-credentials also serve as a bridge for non-traditional learners, offering pathways to formal qualifications or direct entry into the workforce. This aligns with global trends, particularly the United Nations Sustainable Development Goal 4, which emphasizes inclusive and equitable quality education for all (UNESCO, 2019).

Universitas Gadjah Mada (UGM) launched its digital platform, UGM Online, in 2024 to support these objectives. The platform offers diverse learning opportunities, including micro-credentials, to enhance access to quality education. By catering to both traditional students and professionals seeking to upskill, UGM Online reflects the institution's commitment to educational innovation and lifelong learning (Brown & Nic Giolla Mhichíl, 2021). Despite its potential, the platform's engagement and learner conversion performance remains underexplored.

Preliminary analysis of the UGM Online platform shows significant traffic, with over 37,000 visits in its inaugural year. However, a modest conversion rate

of 4.23% suggests that challenges persist in engaging users and translating interest into enrollments (Shah & Pickard, 2021). These insights raise critical questions about the alignment of course offerings with learner needs, the usability of the platform, and the effectiveness of its marketing strategies.

This research evaluates micro-credentials performance on the UGM Online platform, focusing on user engagement, and the factors influencing enrollment. By leveraging performance data and identifying key improvement areas, this study provides actionable insights for enhancing digital learning experiences and broadening micro-credentials impact (Gamage, Perera, & Fernando, 2022). The findings of this study will contribute to the growing body of literature on digital education and micro-credentials. They also serve as a benchmark for other institutions seeking to implement similar platforms. The research further highlights the micro-credentials role in addressing skill gaps and fostering a culture of lifelong learning, particularly in emerging economies (Ryan & Winne, 2021).

METHOD

This research employs a mixed-methods approach, combining quantitative data analysis and qualitative insights to evaluate the performance and impact of micro-credential development on the UGM Online platform. Mixed methods are particularly effective in educational research, as they allow for a comprehensive understanding of complex phenomena by integrating numerical data with contextual narratives (Creswell & Plano Clark, 2018). The approach ensures a balanced perspective by addressing both measurable outcomes and subjective experiences of learners and stakeholders.

1.1. Quantitative Analysis

The quantitative component involves analyzing platform performance metrics, including the number of visits, enrollments, and user engagement across the 2024 operational year. Descriptive statistics and trend analyses were conducted to identify patterns in user behavior, particularly in module access and learner distribution across different subject clusters. The analysis reveals that certain disciplines, such as business, technology, and education, attract the highest engagement, while areas like engineering and sustainability receive comparatively lower interest. Additionally, learner distribution data indicate a strong preference for social and cultural studies, followed by science and technology, health, and agriculture. Conversion rate, calculated as the ratio of enrollments to total visits, served as a key indicator of platform effectiveness.

Data visualization techniques, such as line graphs and bar charts, effectively communicated these trends (Shah & Pickard, 2021). This quantitative analysis objectively evaluates platform performance and highlights periods of high or low engagement for further exploration, ensuring a data-driven approach to optimizing content offerings and learner engagement.

1.2. Qualitative Insights

Qualitative data were collected through user feedback, interviews with learners, and consultations with platform administrators to complement the numerical findings. This method provides deeper insights into learner motivations, enrollment barriers, and course quality perceptions (Oliver, 2019). Thematic analysis was employed to identify recurring themes in the qualitative data, such as the relevance of content, usability of the platform, and satisfaction with the learning experience. The integration of qualitative feedback ensures that recommendations are user-centric and aligned with actual learner needs (Brown & Nic Giolla Mhichíl, 2021).

1.3. Data Triangulation and Validity

To enhance the validity and reliability of the findings, data triangulation was employed by cross-referencing quantitative metrics with qualitative insights and secondary data from similar studies (Jirgensons & Kapenieks, 2018). This approach reduces potential biases and ensures a more holistic understanding of the platform's performance. Additionally, a pilot test of the analytical framework was conducted to refine data collection instruments and methodologies, ensuring they were appropriate for the research objectives (Gamage, Perera, & Fernando, 2022).This mixed-methods design provides a robust foundation for evaluating the UGM Online platform and its micro-credential offerings, ensuring actionable insights that address both statistical trends and human experiences.

RESULT AND DISCUSSION

1.4. Quantitative Analysis

The access data of UGM Online from January 1, 2024, to December 31, 2024, shows a total of 5,580 logins/sessions, consisting of 2,442 accesses from UGM users (43.8%) and 3,138 accesses from non-UGM users (56.2%). This indicates that non-UGM participants make up the majority of the platform's engagement, highlighting its significant reach beyond the university community.
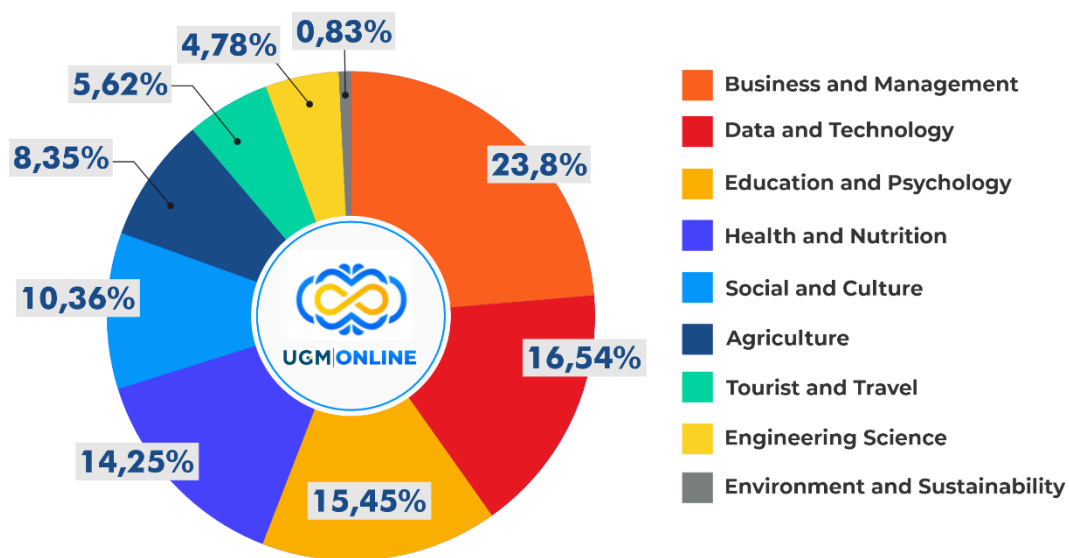
Figure 1. Number of Views per Modul

Figure 1 presents the distribution of module views per category. The most viewed category is Business and Management, comprising 23.8% of total views. This high percentage reflects a strong interest in business-related courses, potentially due to their practical applications in various professional fields. The second most accessed category is Data and Technology (16.54%), followed by Education and Psychology (15.45%). This trend suggests that learners are highly interested in acquiring digital skills and pedagogical knowledge, which align with the increasing demand for digital literacy and educational competencies. Health and Nutrition (14.25%) and Social and Culture (10.36%) also exhibit significant engagement, reflecting a keen interest in well-being and socio-cultural studies. Meanwhile, Agriculture (8.35%) and Tourism and Travel (5.62%) maintain moderate levels of engagement, possibly influenced by UGM's strong research and educational focus in these areas. Categories with lower engagement include Engineering Science (4.78%) and Environment and Sustainability (0.83%). The relatively low percentage in these fields might indicate the need for more targeted outreach or content development to attract learners interested in sustainability and engineering topics. Overall, the data suggests that learners prioritize courses with direct professional applications, particularly in business, technology, and education. The strong participation from non-UGM users also highlights the platform's potential in reaching broader audiences, making it a valuable tool for online education and knowledge dissemination.
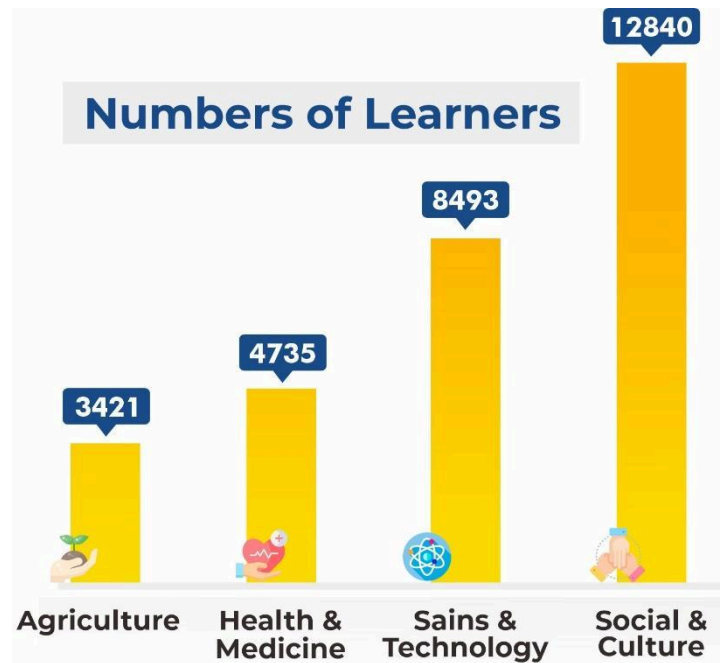
Figure 2. Number of Learners per Cluster

Further analysis of learner distribution across different academic clusters, presented in Figure 2, reveals that the Social & Culture cluster has the highest number of learners, with 12,840 participants. This suggests a strong interest in topics related to society, humanities, and cultural studies. The Science & Technology cluster follows with 8,493 learners, indicating a significant demand for courses related to scientific advancements and technological skills. The Health & Medicine cluster, with 4,735 learners, highlights the growing focus on medical and healthcare-related knowledge. Lastly, the Agriculture cluster has 3,421 learners, reflecting a niche but essential interest in agricultural sciences. These findings align with the module access trends observed in Figure 1, where business, technology, and health-related subjects attracted considerable engagement. The data suggests that learners prioritize courses that align with industry demands and career development, reinforcing the importance of offering diverse and relevant content across multiple disciplines.

1.5. Qualitative Insights

Qualitative feedback highlights several factors influencing learner engagement and platform performance. Learners consistently value the flexibility and modularity of UGM Online courses, especially within popular categories like Business and Management. However, users also report challenges related to navigation, clarity of course descriptions, and

understanding the relevance of certain offerings, particularly in clusters like Agriculture.

Interviews with faculty developers revealed a range of motivations and challenges in creating courses. While many expressed enthusiasm for contributing to UGM Online, they cited limited training in digital instructional design as a significant barrier to creating engaging and high-quality content. Enhanced capacity-building programs for faculty could address this gap and improve course offerings across underperforming clusters.

Administrative staff highlighted the importance of targeted marketing strategies to boost user engagement and enrollment. While general traffic to the platform is strong, many visitors do not proceed to enroll due to a lack of clear communication about course benefits and outcomes. This aligns with learner feedback that emphasizes the need for better information on how courses can support professional or academic advancement.

Additionally, learners identified certain content gaps within the Agriculture cluster, particularly regarding emerging topics like climate-smart agriculture and sustainable food systems. Addressing these gaps with cutting-edge, interdisciplinary course offerings could significantly enhance engagement and enrollment in this underperforming cluster.

1.6. Data Triangulation and Validation

Data triangulation was employed by cross-referencing quantitative platform metrics, qualitative learner feedback, and faculty insights. For instance, the high performance of the Business and Management category in quantitative data aligns with qualitative findings that highlight its relevance to career development and practical application. This consistency validates the category's strategic importance and provides a benchmark for other clusters

Further, insights from faculty and learner interviews revealed that clusters with higher faculty engagement, such as Social & Humanities, tend to perform better. This finding corroborates quantitative data showing that higher faculty participation often correlates with increased learner engagement. However, the moderate performance of the Health & Medicine cluster, despite lower faculty involvement, highlights the critical role of topic relevance and quality in driving engagement

Qualitative learner feedback about platform usability issues, such as navigation difficulties, was validated by platform performance metrics showing lower conversion rates in clusters like Agriculture. This reinforces the need for user-centered design improvements to enhance the overall learning experience and boost enrollment rates.

Finally, benchmarking UGM Online against similar platforms revealed consistent trends in learner preferences for career-oriented and interdisciplinary courses. Categories like Business and Management or courses on Food Security and Climate Change emerged as high-potential areas for investment. This external validation supports the strategic recommendations for course development and marketing enhancements to improve platform performance.

1.7. Agriculture Cluster and Course Development Trends

The Agriculture cluster on the UGM Online platform features contributions from 22 faculty members, representing a significant portion of the platform's content creators. Despite this, the cluster demonstrates relatively modest engagement and conversion rates compared to others, such as Social & Humanities and Science & Technologies. This discrepancy suggests potential gaps in aligning course offerings with learner expectations or industry demands (Gamage, Perera, & Fernando, 2022). A deeper focus on improving course relevance and addressing specific agricultural challenges could drive higher interest and participation in this cluster.

Within the Agriculture cluster, Food Security and Climate Change courses hold immense strategic value. These topics are globally recognized as critical challenges, particularly in the context of achieving the United Nations Sustainable Development Goals (UNESCO, 2019). Food security, influenced by climate variability, remains a pressing concern for policymakers and practitioners. Offering micro-credentials in this area aligns with UGM's strategic commitment to addressing national and global challenges while simultaneously catering to the interests of learners seeking specialized knowledge and practical skills in sustainable agriculture.

The intersection of Food Security and Climate Change has the potential to become a trending and favorite topic for learners, primarily due to its increasing relevance across multiple sectors. Agriculture, environmental management, and policy-making professionals are increasingly seeking up-to-date knowledge to address these intertwined challenges. Micro-credentials focusing on these topics can attract a diverse audience, including farmers, agribusiness professionals, government officials, and students pursuing sustainability-focused careers (Jirgensons & Kapenieks, 2018).

Moreover, integrating practical components, such as case studies, simulations, and project-based learning, into these micro-credentials could enhance their appeal. Learners value opportunities to apply theoretical concepts to real-world challenges, and this experiential learning approach could increase both enrollment and completion rates (Brown & Nic Giolla Mhichíl, 2021).

Furthermore, these topics naturally lend themselves to interdisciplinary collaboration, engaging experts from diverse fields to create comprehensive and impactful courses.

Given the global urgency of addressing climate change and ensuring food security, courses in this area will likely gain traction. Offering modular micro-credentials that allow stacking towards more comprehensive certifications or degrees could further enhance their appeal. Additionally, UGM could leverage partnerships with international organizations, industry leaders, and government bodies to co-develop and endorse these courses, enhancing their credibility and marketability (Oliver, 2019).

To capitalize on this trend, the Agriculture cluster must prioritize topics such as sustainable farming practices, climate-resilient crops, and technology in agriculture. By emphasizing practical applications and the direct impact of these skills on real-world challenges, UGM Online can position itself as a leader in addressing critical agricultural issues through digital education. This strategic focus could elevate the Agriculture cluster's performance and contribute to broader societal goals.

CONCLUSION

UGM Online's micro-credential platform demonstrates strong potential, particularly in high-performing categories like Business and Management and the Social & Humanities cluster, which benefit from career relevance and robust faculty participation. However, clusters like Agriculture, despite their strategic importance in addressing global challenges like food security and climate change, show lower engagement and conversion rates, highlighting a need for targeted improvements. Learner feedback reveals challenges such as navigation difficulties, unclear course benefits, and content gaps, while faculty developers emphasize the need for greater support in digital instructional design. Triangulating these findings with external benchmarks confirms that high faculty involvement, interdisciplinary course offerings, and career-oriented content drive success. To enhance impact, UGM Online should invest in emerging topics like climate-smart agriculture, improve platform usability, and expand marketing strategies to attract a broader audience and strengthen its role in addressing global educational and sustainability challenges.

Food Security and Climate Change emerge as strategic and high-potential topics within the Agriculture cluster. These globally relevant issues resonate with diverse learners, including professionals, policymakers, and students, making them ideal focal points for new micro-credential development. By emphasizing interdisciplinary approaches and real-world applications, UGM Online can

address critical societal challenges while enhancing the appeal and impact of its courses. Partnerships with industry leaders and international organizations can further strengthen the credibility and relevance of these programs.

Improving platform usability, offering robust faculty development in digital course design, and implementing targeted marketing strategies are essential to overcoming current barriers to enrollment. Data triangulation confirms that clusters with greater faculty involvement and alignment with global challenges perform better, highlighting the importance of strategic course development. By focusing on trending topics and optimizing learner engagement strategies, UGM Online can solidify its position as a leader in digital education and contribute significantly to global efforts to address sustainability and education goals.

REFERENCES

Brown, M., & Nic Giolla Mhichíl, M. (2021). Developing a national approach to micro-iubcredentials: A roadmap for universities. *Journal of Educational Policy*, 36(5), 643–660.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications.

Gamage, S. H. P. W., Perera, I., & Fernando, S. (2022). Factors influencing the success of micro-credentials in higher education. *Journal of Online Learning and Teaching*, 18(1), 15–32.

Jirgensons, M., & Kapenieks, J. (2018). Blockchain and the future of digital learning credential assessment and management. *Journal of Teacher Education for Sustainability*, 20(1), 145–156.

Kato, S., Galán-Muros, V., & Weko, T. (2020). The emergence of alternative credentials. *OECD Education Working Papers*, No. 216.

Lam, J., & Nguyen, T. (2021). Micro-credentials in higher education: A review of the literature. *Higher Education Research & Development*, 40(3), 531–548.

Oliver, B. (2019). Making micro-credentials work for learners, employers, and providers. *Deakin University*.

Ryan, M. E., & Winne, P. H. (2021). Leveraging micro-credentials to close skills gaps: Insights from data analytics. *Learning and Instruction*, 74, 101463.

Shah, D., & Pickard, L. (2021). The MOOC ecosystem 2021: State of micro-credentials in online education. *Class Central Reports*.

UNESCO (2019). Rethinking education in the age of technology: The role of micro-credentials. *United Nations Educational, Scientific and Cultural Organization*.

Wheeler, S. (2020). Digital learning futures: A roadmap for micro-credentials in education. *Educational Technology Research and Development*, 68(3), 345–361.