

THE ROLE OF MICRO-CREDENTIALS IN BRIDGING THE SKILLS GAP BETWEEN HIGHER EDUCATION AND THE PLATFORM ECONOMY

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Abstract: As the pace of technological change accelerates, traditional degree programs often struggle to keep pace with industry needs, especially in the context of platform business models. Micro-credentials have the potential to serve as a flexible, targeted solution to this challenge. The purpose of the study is to evaluate the potential of using micro-credentials to address the skill gap between the curricula of traditional higher education programs and the evolving demands of the platform economy. The subject of the study is the impact of micro-credential programs on workforce readiness and skill gap between higher education program outcomes and platform economy demands. We conduct a systematic literature review and a comprehensive trend analysis of skill requirements in the platform economy. Our review reveals several key advantages of micro-credentials in the context of the platform economy: more granular and immediately applicable skills, faster curriculum updates to match industry trends, and greater learner flexibility in building personalized skill sets. Additionally, we identify a number of challenges that have to be addressed when planning and incorporating micro-credential programs: quality assurance, implementing appropriate assessment mechanisms, credential recognition and transferability, and potentially higher risk of credential inflation. The study suggests that integrating micro-credentials into existing educational frameworks has the potential to enhance the responsiveness of higher education to labor market needs, particularly in the rapidly developing platform economy.

Keywords: micro-credentials, platform economy, higher education, educational innovation, competency-based education

JEL Classification: I23, J24

1. Introduction

The platform economy is an economic model characterized by digital platforms that facilitate the exchange of goods and services in a two-sided market, encompassing sectors such as ride-hailing, food delivery, freelance services, and accommodation sharing. A notable feature of platform markets is cross-group network externalities, where the growth of one group (e.g., consumers) causes the other group to grow, creating self-reinforcing loops that lead to exponential platform growth (Xue, Tian and Zhao, 2020).

The rise of the platform economy has significantly impacted labor markets, creating both new opportunities and challenges. Greater reliance on technology enables more efficient matching of supply and demand while promoting a more flexible and diverse labor market. However, along with perceived flexibility, gig workers are met with de-flexibilisation and emergence of “sticky labor” (Sun, Yujie Chen and Rani, 2023). Furthermore, the redefinition of the employer-

employee relationship raises concerns regarding job precarity and income disparities caused by differences in service prices among sectors, fluctuating demand, and gender dynamics (Vyas, 2021; Organised by: EUPHA-SSWH and Chair persons: Ute Bültmann (EUPHA-SSWH), Agnes Meershoek (Netherlands), 2022). Despite a complex landscape, platform economy enjoys rapid, steady growth. Thus, in 2023 the platform economy was valued at \$11.321 billion in the US, which is 23.49% more compared to the previous year; \$314.60 million with a 24.76% increase in Europe; and \$244.60 million with a 29.84% growth in Africa. Asia-Pacific was the only region where the platform economy faced a minor decline, evaluated at \$2.225 billion, down by 9.31% (Hosseini, 2023).

As more workers engage or consider engaging in the platform economy, either as a primary or supplemental source of income, this creates additional challenges for higher education institutions to meet students' evolving needs. In addition to the greater influence of a new technological landscape manifested in transforming the concept of the classroom and digitization of study materials, the platform economy facilitates changes in the audiences of study programs and their expectations: multi-disciplinary, cross-professional learning not based on the previous curriculum (Yudie, 2019). This drives demand for practical, easily applicable, and transferable skills.

2. Theoretical Framework

The role of micro-credentials in bridging the skill gap in the platform economy is complex and multifaceted. Thus, to conduct a more comprehensive evaluation, we take into account two important, relevant theoretical frameworks: Competency-Based Education (CBE) and human capital theory.

2.1. Competency-Based Education

Competency-Based Education (CBE) is an educational approach that emphasizes evidence of mastery as a successful outcome compared to the traditional time-based model. In this context, competencies are defined as measurable skills, knowledge, and abilities students must demonstrate to progress. CBE is often described as an outcome-based approach where time is variable while performance is constant (Açıkgöz and Babadoğan, 2021).

The main features of competency-based education include a focus on skills that extend beyond academic learning to real-world applications, a personalized learning process allowing students to tailor it to their needs and preferred pace, continuous assessments and feedback to measure progress, and progression based on demonstrating mastery of required competencies.

CBE plays a significant role in transforming higher education by aligning educational outcomes with labor market demands. It has the potential for a number of improvements: enhancing graduates' employability by focusing on competencies employers seek and demonstrating skills through tangible assessments (Doucet and Bélisle, 2024), increasing flexibility for students, which leads to a better balance of education with other commitments (Johnstone and Leasure, 2015), better knowledge and skill retention due to emphasis on mastery learning, which further facilitates the applicability of skills in practical contexts (MacNutt *et al.*, 2024), as well as providing better alignment with industry needs, which ensures that acquired competencies are relevant and up-to-date (Bonnard, 2020).

2.2. Human Capital Theory

The human capital theory (HCT) is a concept in economics that views education as a form of investment in human capital, yielding long-term financial benefits such as higher earnings and better employment opportunities. HCT is closely connected with the massification of higher education, driven by increasing demand for skilled labor. However, contemporary interpretations of the human capital theory also include non-monetary benefits like improved health, increased civic engagement, and personal fulfillment (Matache, 2023).

Micro-credentials and the shift to building practical competencies during the study process align closely with the concept of HCT, both viewing skills and competencies acquired through education as tools for enhancing individual productivity and yielding returns. As the industry develops, we can observe a “race” between education and technology. Through the lens of human capital theory, this creates a significant challenge for higher education institutions to meet these demands, largely driven by rapid technological advancements. Greater flexibility in education may assist in aligning human capital development with technological change (Diebolt and Hauptert, 2016).

3. Micro-Credentials in Higher Education

A promising answer to the evolving demands of the job market is the concept of micro-credentials. Micro-credentials are small-scale, short learning programs that provide learners with specific knowledge, skills, and competencies. They are characterized by increased flexibility and focus on targeting specific learning outcomes and usually are not recognized as traditional degrees (McGreal *et al.*, 2022). Interest in micro-credentials, especially in higher education, has grown significantly since 2017, aligning with global technological advancements and the increasing demand for flexible, online learning models. The global market for online degrees is expected to reach \$74 billion by 2025, with micro-credentials being a major contributor to its growth (Ahsan *et al.*, 2023).

In the context of higher education, micro-credentials have a multifaceted influence. Firstly, they decentralize the learning process by allowing learners to acquire targeted skills from multiple sources, empowering them by offering flexible, lower-cost alternatives that fit their specific career or personal development needs. At the same time, they dissolve traditional disciplinary boundaries and redefine control over delivering and evaluating knowledge, further fragmenting learning into smaller units that can be “stacked” on top of each other, producing a skill set for performing certain work. This may lead to the fragmentation of educational knowledge and occupational roles, diminishing the structured nature of knowledge transmission in certain disciplines. For example, competencies like “critical thinking” or “problem-solving” may lose important context, negatively influencing the process of building connections between foundational knowledge and practical application (Wheelahan and Moodie, 2022, 2024).

Micro-credentials align closely with the competency-based learning model by focusing on specific, market-aligned skills and offering personalized learning paths, enabling the incremental building of necessary competencies. Considering that many micro-credential programs are developed in collaboration with industry partners, they gain practical application as a tool for increasing employability. The assessment process in micro-credentials is based on

demonstrating proficiency, which mirrors the emphasis on mastery rather than time spent in a classroom in the competency-based learning model (Ahsan *et al.*, 2023).

This is critically important for addressing the growing skill gap within the platform economy. Although digital literacy, technical competencies, and soft skills such as communication, critical thinking, leadership, and teamwork are instrumental for platform economy workers, they are often underrepresented in students' education. These skills are often assumed to be learned, but employers indicate they are frequently missing. Moreover, as rigid study programs focus on building fundamental skills, students often have no or limited means to acquire more practical, industry-specific skills employers expect them to have. This causes a gap not only in obtained and expected competencies but also in the perception of work readiness between graduates and employers. By integrating micro-credentials, especially co-curricular options that complement the main program, higher education institutions may address this gap, providing students with both foundational knowledge and applicable skills to increase their employability (Dolce, 2021).

At the same time, micro-credentials are deeply rooted in human capital theory, which is becoming more dominant amid the knowledge economy environment, reinforcing the view that the primary concern of education is to equip individuals with marketable skills. In this view, micro-credentials align higher education curriculum with labor trends, prioritizing employability over deeper disciplinary understanding. This leads to the emergence of a new market-driven entity, the "homo economicus," who must continuously reskill in response to fluctuating job market demands, reducing education to a transactional, market-oriented activity (Wheelahan and Moodie, 2024).

3.1. Trends of Skill Requirements in Platform Economy

Based on findings outlined in the previous sections and the analysis of available literature, we conduct a trend analysis of skill requirements amid the platform economy. In this section, we provide a summary of our findings.

1. Due to the growing possibilities for automation, especially amid the latest developments in the AI field, a number of jobs are at risk of being automated. Although this situation creates more opportunities for roles requiring higher cognitive and creative skills, it also leads to a growing demand for digital literacy, data analysis, and programming skills, as well as an increasing importance of lifelong learning and related skills, including proficiency in AI-based tools (Hibrida and Sunarni, 2023; Nimmagadda *et al.*, 2024).
2. The growth of the platform economy is pushing workers towards specialization, emphasizing the value of specific niche competencies in demand on gig platforms while continuously diversifying their skills to ensure a steady flow of tasks. This trend is further magnified by the algorithmic nature of such platforms, designed to match workers with tasks that align with their expertise (Nimmagadda *et al.*, 2024).
3. Remote and hybrid work modes, accelerated by the COVID-19 pandemic, play an important role for platform economy workers who are expected to demonstrate high levels of self-management, discipline, time management, and communication skills to efficiently work in remote, asynchronous environments (Hibrida and Sunarni, 2023).

4. Although most workers recognize the importance of acquiring new skills, actual reskilling and upskilling efforts remain limited, with only a small subset of workers actively pursuing retraining. At the same time, there is a growing interest in employer-facilitated training programs, particularly those focusing on the skills needed for emerging technologies and platforms (Hibrida and Sunarni, 2023).

3.2. Advantages of Micro-Credentials

Further analyzing the role of micro-credentials in bridging the skill gap in the platform economy, we outline the following advantages:

1. Micro-credentials offer more granular and immediately applicable skills, aligning closely with competency-based education principles. This allows learners to quickly acquire and demonstrate mastery of particular in-demand skills, upskill, or reskill as necessary. This not only contributes to employability but also provides employers with a clear understanding of a candidate's capabilities.
2. When integrated as part of the study program, the flexible nature of micro-credentials enables faster curriculum updates to match evolving industry trends, enhancing human capital and providing economic benefits for individuals and employers.
3. By utilizing micro-credentials, learners have more flexibility in building personalized skill sets to meet the dynamic demands of the platform economy. Compared to traditional curriculum-based programs, this approach allows learners to acquire specific skills based on their career goals, interests, and the requirements of their chosen field within the platform economy.

3.3. Challenges of Micro-Credentials

At the same time, micro-credentials introduce several challenges that need to be addressed for smooth and efficient adoption:

1. The quality assurance process in competency-based education and ensuring standards in competency assessments of micro-credentials are more challenging compared to traditional educational programs. This may lead to inconsistencies in the value and reliability of micro-credentials, undermining their credibility with employers and educational institutions.
2. Although micro-credentials are generally presented as an affordable alternative to traditional degrees, the cumulative cost of multiple micro-credentials may not be affordable for all learners. This may lead to a widening skills gap, rather than the intended effect of democratizing education and skill acquisition for the platform economy.
3. Since most micro-credential programs currently exist outside the traditional educational model, their credibility and transferability remain unclear. Even if some programs offer course credits, the "stack" of credentials a learner collects over time cannot be easily translated into an equivalent study program, leaving its recognition to the employer's discretion.
4. As micro-credentials become more common, their value may diminish over time. This could lead to credential inflation, requiring learners to have multiple micro-credentials even for entry-level positions. Consequently, learners might feel pressured to continuously acquire new micro-credentials to remain competitive, potentially increasing their educational burden.

4. Conclusion

Micro-credentials are a promising but complex tool that introduces several benefits and challenges for higher education institutions. In the study, we assess the latest trends regarding skill requirements in the platform economy and evaluate the advantages and challenges of micro-credentials as a way to address the growing skill gap between higher education and platform economy needs. Our research suggests that integrating micro-credentials into existing educational frameworks has the potential to enhance the responsiveness of higher education to labor market needs, particularly in the rapidly developing platform economy.

The present study focuses on evaluating micro-credentials through the lens of two frameworks: competency-based education and human capital theory. It aims to assess the influence and considerations associated with introducing micro-credentials in the higher education context. The study does not cover implementation or technical aspects. Future research may explore this direction, applying frameworks like the Technology Acceptance Model (TAM) to assess the readiness and perception of technologies associated with micro-credentials.

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