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Designing the Integration of Micro-Credentials into African ODL Systems to Enhance Student Employability and Outcomes

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Abstract

Although open and distance learning (ODL) is a key mode of education delivery in many African countries, most ODL systems remain grounded on traditional academic models that prioritise theoretical knowledge over practical, job-relevant skills. This creates a gap between educational outcomes and labour market demands, posing a significant challenge for ODL institutions in aligning academic learning with real-world employability skills. Micro-credentials, increasingly recognised as valuable tools for skill development, present a promising solution. However, the integration of micro-credentials into African ODL systems remains underexplored. Using a descriptive and exploratory research design, this paper examines how micro-credentials can be integrated into the existing ODL frameworks to bridge the skills gap and enhance employability outcomes. Through illustrative examples, the paper demonstrates effective strategies for designing and integrating micro-credential courses within ODL systems to maximise their impact on learners. It also addresses key challenges related to micro-credential adoption in ODL. In conclusion, the paper advocates for a holistic approach to higher education through the proposed MODLE Framework, which entails policy reforms, curriculum redesign, institutional support, and industry partnerships. When applied, this model supports the delivery of a well-rounded education that combines academic learning with employability skills, enhancing student success and contributing to sustainable development across the continent

Keywords: Micro-credentials, skills gap, employability, career readiness, African ODL systems

Introduction

In the past, education primarily focused on imparting knowledge and information. However, the advent of technology, globalisation, and the evolving dynamics of the job market have disrupted this traditional model. Consequently, the skills required for success in the modern world have undergone a rapid transformation, now demanding much more than academic expertise. Today's workforce requires individuals equipped with a diverse set of competencies, commonly known as employability skills - a combination of technical abilities and soft skills that are essential for a successful transition from education to employment. Graduates are now expected to possess not only academic knowledge but also a broad range of employability skills. While content knowledge remains important, it is the integration of this knowledge with employability skills that truly empowers individuals to thrive in the modern workforce. The World Economic Forum (2020) emphasises that soft skills such as communication, critical thinking, problem-solving, teamwork, and emotional intelligence are critical for career success across all sectors. Whether in teaching, healthcare, management, or technology, professionals must cultivate these competencies to succeed in an ever-changing work environment. Research indicates that employers increasingly value candidates who not only possess technical expertise but also demonstrate the ability to navigate complex challenges, think critically**,** collaborate effectively, work within diverse teams, and adapt to continuous change (World Economic Forum, 2020).

While the importance of employability has been widely acknowledged**,** there are gaps in how higher education systems prepare students for employability**.** Most African higher education systems, while providing valuable academic knowledge through degree programmes, often fall short in equipping students with essential employability skills, resulting in a significant skills gap (Damoah, Peprah, & Osei, 2021). Consequently, many graduates enter the workforce underprepared for the realities of the modern job market, struggling to meet employer expectations (Aliyu & Joseph, 2021). This mismatch between university education and labour market demands has contributed to rising levels of graduate unemployment and underemployment, as many degree holders lack the practical competencies required to succeed in today's competitive environment. As a result, higher education institutions are under increasing pressure from stakeholders to embed employability skills into their curricula to better prepare students for the workforce (Suleman, 2018). Unfortunately, many of these institutions lack a clear framework or understanding of how to effectively implement this integration (Jackson, 2016).

This dual challenge of skills gap and integration is particularly evident in open and distance learning (ODL) programmes, which are tasked with not only accommodating diverse learner needs but also addressing critical skills deficits. ODL institutions often serve non-traditional students, including working adults and those in remote or underserved areas, making the alignment of academic content with industry-relevant competencies even more urgent. Also, without a clear, contextually-relevant framework to guide the integration process, many ODL curricula will remain disconnected from labour market realities. This underscores the pressing need for strategic frameworks tailored to the unique conditions of ODL in the African context.

One promising approach to addressing this issue is the adoption of micro-credentials. Micro-credentials are short, focused learning pathways that enable individuals to acquire specific skills or competencies in targeted areas (Oliver, 2019; United Nations Educational, Scientific and Cultural Organization, 2022). They are typically awarded upon completion of a course or training programme and are often aligned with industry needs. They can offer ODL students a valuable way to demonstrate specific, job-relevant skills to potential employers, thereby enhancing their competitiveness in the job market. Designed to be flexible and stackable, micro-credentials provide recognition for skills that may not be adequately addressed in traditional degree programmes (European Commission, 2021; Brown et al., 2021). For example, educators can earn micro-credentials in innovative teaching strategies or emerging pedagogical techniques, allowing them to remain current and enhance their professional value.

Despite their potential to bridge skills gaps and improve workforce readiness, the integration of micro-credentials into ODL systems, particularly in the African context, remains largely underexplored. This is likely due to limited awareness of their relevance, value, and implementation strategies. There is, therefore, a critical need for a deeper understanding of how micro-credentials can be effectively integrated into ODL frameworks to support the development of employability skills and align academic offerings with labour market demands. Without such integration, ODL may lose its relevance and fall short in preparing learners with the practical and transferable skills necessary for career progression. To maximise its impact and continue serving diverse learner populations effectively, ODL must embrace and leverage the micro-credential ecosystem. This paper provides practical insights into how that goal can be achieved.

To that end, this study explores how micro-credentials can be leveraged within ODL to enhance student employability and outcomes. It offers practical guidance and examples on how micro-credential courses can be effectively designed, delivered, and integrated within ODL frameworks to maximise their impact on learners. It also addresses key challenges associated with micro-credential adoption and proposes the MODLE Framework (*Micro-credential Integration in ODL for Enhanced Employability*) to guide effective implementation, specifically tailored to the African context. The significance of this study lies in its practical contribution to bridging the gap between academic instruction and employability-focused education in ODL environments.

Methodology

Given the conceptual nature of this paper, a descriptive and exploratory research design was adopted. Conceptual research does not rely on empirical data collection but instead generates new insights through critical analysis, synthesis of existing literature, and theoretical reasoning. This approach is particularly well-suited for addressing emerging or underexplored areas, such as the integration of micro-credentials into ODL systems in African higher education. The outcome of this inquiry is the development of a contextually relevant framework to guide the effective design, delivery, and integration of micro-credentials into ODL systems across Africa.

Conceptual Clarification.

Micro-credentials

The dynamic nature of today's workforce demands that individuals continuously update their skills to remain competitive and adaptable. Micro-credentials support this process by enabling individuals to upskill or reskill in response to evolving job roles and emerging career opportunities (Oliver, 2019). This is particularly important in sectors such as education, healthcare, and technology, where continuous professional development is essential. For the purpose of this study, micro-credentials are defined as short, targeted learning modules that certify the acquisition of specific industry-relevant skills or competencies. These credentials are especially effective in bridging the gap between academic knowledge and industry-relevant skills, (World Economic Forum, 2020).

In the context of ODL, micro-credentials are especially valuable. Many ODL learners are working professionals seeking career advancement or skill enhancement. Micro-credentials provide a flexible and accessible pathway for continuous education, allowing learners to stack credentials over time and progressively build a comprehensive portfolio of skills tailored to industry needs (United Nations Educational, Scientific and Cultural Organization, 2022; Brown et al., 2021. Micro-credentials thus play a transformative role in equipping learners with relevant employability skills and addressing identified skills gaps.

Employability

Employability refers to the ability of an individual to gain and maintain employment, as well as progressing within their chosen profession. In the context of a dynamic labour market, employability is not only about initial job acquisition but also about maintaining and enhancing skills to remain competitive (Yorke, 2006; Organisation for Economic Co-operation and Development, 2021).

In today's rapidly evolving job market, employability skills have become essential for career success. These skills are broadly conceptualised into two categories: soft skills and specialised technical skills (Hussein, 2024).

***Soft skills*:** These are skills that enhance a person's ability to function effectively and thrive in any job, regardless of the industry. These include communication, critical thinking, problem-solving, adaptability, teamwork, and emotional intelligence, which are applicable in virtually all professions. Employers highly value these skills as they are crucial for navigating workplace dynamics and managing complex tasks. However, these skills are often not explicitly integrated into most academic programmes, leading to a skills gap.

***Technical skills*:** These refer to job-specific competencies such as proficiency in specific tools, techniques, or processes, that are essential for performing the tasks required in a given role. These are job-specific competencies that graduates need to perform effectively in their roles. For instance, in the field of education, technical skills may include classroom behaviour management strategies and authentic assessment design. These skills equip graduates to perform effectively in their professional contexts and meet the specific demands of their chosen career paths. However, it has been found that these skills are missing in many higher education curricula, resulting in a mismatch between graduate capabilities and workplace expectations (Succi, 2019).

Whether focused on soft skills or technical skills, micro-credentials allow learners to gain practical, relevant skills in a structured, self-paced manner, thereby enhancing their employability and adaptability in a rapidly evolving job market.

How micro-credential courses can be effectively designed, delivered, and integrated within ODL frameworks
Micro-Credential Course Design: Micro-credential courses are specifically designed to address the skills gaps that often exist between academic education and the practical demands of the workplace. Using practical examples, we can illustrate how micro-credential courses can be effectively designed in both soft skills and technical areas to meet specific needs. For example, a micro-credential course in a soft skill area, such as emotional intelligence, and one in a technical area, such as classroom behaviour management in education, serve distinct yet complementary purposes in enhancing learners' competencies for the workforce. However, both types of courses follow the same structured design approach, aligned with established instructional design principles. This approach can be practically illustrated through the design of a sample micro-credential course on emotional intelligence

(a) Example: Designing a micro-credential course on emotional intelligence
Course title: **Emotional Intelligence for Workplace Success**
This micro-credential course is designed to help students develop the key competencies of emotional intelligence and equips them with practical tools to apply emotional intelligence in the workplace. Learners will focus on improving interpersonal relationships, conflict resolution, and overall workplace performance. By understanding and practicing emotional intelligence, learners will be better prepared to navigate challenging work situations, manage stress, and build stronger relationships with colleagues and clients

Learning outcomes
By the end of the course, learners will be able to:

1. Define and explain the components of emotional intelligence (self-awareness, self-regulation, motivation, empathy, and social skills).
2. Identify and manage their own emotions effectively in various workplace contexts.
3. Demonstrate empathy and improve communication with colleagues and clients.
4. Apply emotional intelligence to manage conflicts and reduce stress in the workplace.

Course structure
The course is divided into seven modules, each focusing on a key component of emotional intelligence. Assessment exercises follow each module. The course spans 4-6 weeks, requiring a commitment of 3-4 hours per week. The course structure is outlined in Table 1:

Table 1: Course structure for micro-credential on Emotional Intelligence

Module	Title	Description	Learning Activities
Module 1	Introduction to emotional intelligence	Understand the concept, components, and importance of emotional intelligence in personal and professional settings.	Short multiple-choice quiz to test understanding of basic concepts
Module 2	Self-awareness and emotional recognition	Learn how to recognise and understand your own emotions and their impact on thoughts and behaviour	Reflective journal activity, self-assessment quiz
Module 3	Self-management and emotional regulation	Develop strategies to manage emotions effectively, especially in high-stress situations.	Case study analysis, discussion forum
Module 4	Social awareness and empathy	Explore how to recognise and understand the emotions of others, and the role of empathy in workplace success.	Role-playing exercise
Module 5	Applying emotional intelligence at work	Apply emotional intelligence principles to real-world workplace scenarios, including leadership, teamwork, and client relations.	Simulation activity
Module 6	Final project & certification	Consolidate learning through a final reflective essay and practical assessment.	Final exams, submission of project, feedback session

Mode of delivery: The course will be delivered online, combining asynchronous learning activities (such as recorded video lessons, reading materials, and discussion forums) with synchronous sessions (live virtual classes, real-time discussions, and interactive workshops). The course can be embedded within existing academic curricula (integrated into relevant courses) or offered as a standalone course to allow for focused, specialised skill development.

Micro-credential integration in ODL: ODL offers an ideal environment for the integration and development of micro-credentials. The inherent flexibility, accessibility, and technology-enabled infrastructure of ODL platforms make them well-suited for the delivery, assessment, and recognition of micro-credentials. Many ODL programmes already utilise learning management systems, online assessment tools, and digital content delivery, making it easier to incorporate micro-credentials within existing structures (United Nations Educational, Scientific and Cultural Organization, 2022; Oliver, 2019). For instance, the National Open University of Nigeria, a leading ODL institution in Nigeria, leverages these technological resources to deliver online content and support student engagement. As such, the integration of micro-credentials into its programmes would not pose significant challenges.

Assessment methods: Assessments should focus on the demonstration of practical skills. Learners can be assessed on their ability to demonstrate emotional intelligence in real-world scenarios rather than through traditional exams. This strategy makes the integration of emotional intelligence practical and outcome-oriented, focusing on real-world application rather than theoretical knowledge. Use a variety of assessment methods: Quizzes after each module, assignment, case study analysis, and final project

Certification and recognition: Upon successful completion of the course and assessments, learners will receive a digital micro-credential or badge that recognises their competence in emotional intelligence and serve as evidence of their ability to manage emotions and build strong relationships in the workplace. Awarding digital badges or certificates for completed micro-credentials allows learners to showcase their achievements to potential employers. This certification can be shared on professional platforms, such as LinkedIn or included in CVs.

In addition to soft skills, the same design approach can be effectively applied to specialised technical areas, as illustrated in the following example:

(b) Designing a micro-credential course in a specialised technical area

In various professional fields, there are industry-relevant skills that are often underrepresented or entirely absent in traditional academic degree programmes. Micro-credential courses targeting specialised technical areas help bridge these gaps, ensuring that learners acquire the specific competencies needed for the workforce. Designing such courses enables students to develop focused, market-driven skills that align with real-world demands. In the field of education, for instance, 'classroom behaviour management' is a critical skill that is frequently overlooked in teacher education programmes, especially in African higher education institutions. None of the education programmes in these institutions offer this as a dedicated course. While students typically receive training in subject content and pedagogical theories, they may lack practical strategies needed to effectively manage classroom behaviour. A micro-credential course focused on this area can address the gap by equipping future educators with targeted, actionable skills - an approach that should also be considered in other specialised technical fields

By designing and embedding micro-credential contents into ODL curricula, institutions can better equip learners with essential employability skills. This approach not only enhances career prospects but also strengthens the relevance and credibility of ODL.

A Conceptual Framework for Integrating Micro-Credentials into ODL Programmes

The MODLE Framework

This study proposes the MODLE Framework (Micro-Credential Integration in ODL for Enhanced Employability) as a conceptual model to guide the integration and implementation of micro-credentials into ODL systems within African higher education institutions. The framework illustrates the key components and processes involved in integrating micro-credentials into ODL to enhance employability outcomes. It is structured around four components: Contextual enablers, core integration processes, impact areas (expected outcomes), and a feedback mechanism. Together, these components provide a strategic approach to embedding micro-credentials within ODL systems, ensuring alignment

with workforce needs, enhancing learner outcomes, and promoting continuous improvement. Figure 1 depicts the conceptual mapping of the Framework:

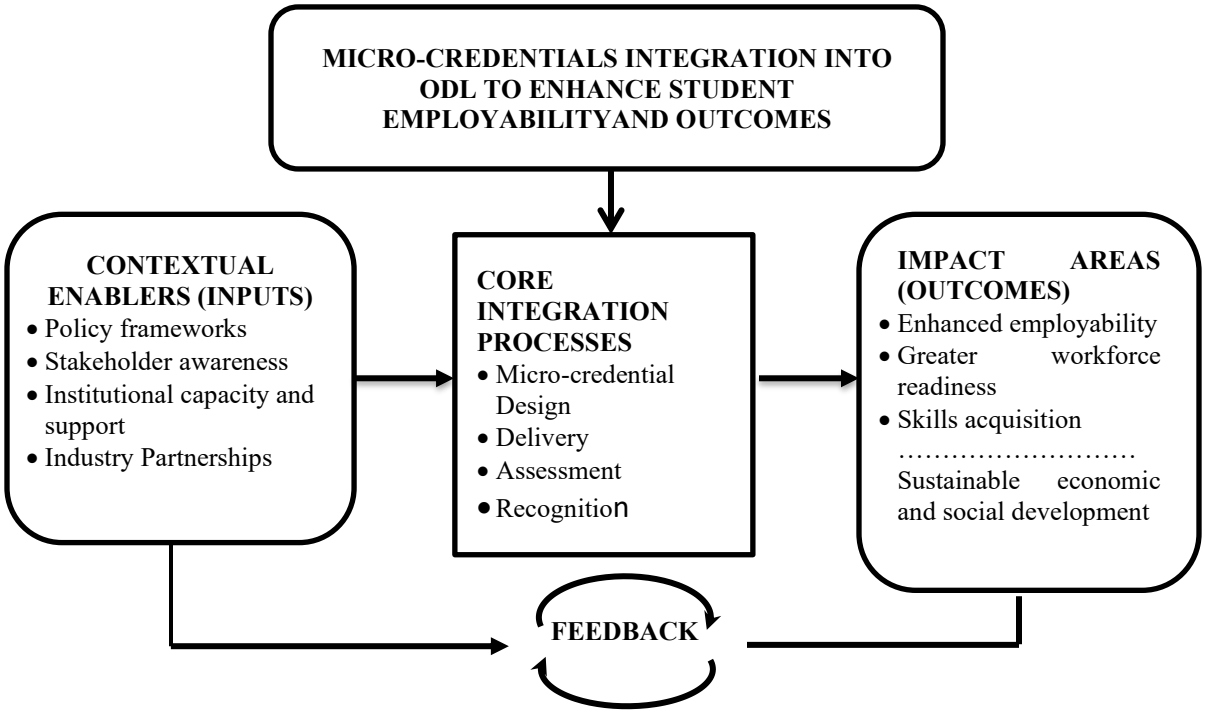

Figure 1: MODLE framework for integrating micro-credentials into ODL
Source: Authors' conceptualization

The MODLE framework is tailored to the realities of ODL in Africa, where diverse challenges hinder the adoption of micro-credentials. These challenges include limited awareness and understanding among key stakeholders regarding their purpose and value, policy and regulatory gaps, lack of standardization, institutional inertia, and infrastructural deficits. The framework addresses these challenges through four interlinked components: Contextual Enablers, Core Integration Processes, Impact Areas, and a Feedback Mechanism.

Contextual Enablers establish the institutional and environmental conditions needed for successful integration. These include developing clear national or regional policy frameworks for accreditation, quality assurance, and recognition of micro-credentials; fostering awareness and advocacy among administrators, faculty, learners, and employers; strengthening institutional capacity with skilled faculty, robust technological infrastructure, and sustainable financial resources; and building strong industry partnerships to ensure micro-credentials are aligned with current labour market demands and recognised by employers. These Contextual Enablers are not standalone pillars but form an integrated ecosystem. Policy frameworks set the direction; stakeholder awareness fosters understanding and buy-in; institutional capacity ensures functionality by translating policy into practice; and industry partnerships ensure that the skills taught through micro-credentials remain relevant and aligned with labour market needs. Their synergy is essential for achieving impactful and sustainable micro-credential integration in ODL.

Core Integration Processes focus on the design, delivery, and recognition of micro-credentials within ODL systems. This involves creating modular, competency-based, and industry-aligned courses; delivering them in short, flexible formats accessible to remote and underserved learners; employing practical, skills-based assessments that lead to verifiable digital badges or certificates; and ensuring stackability so micro-credentials can contribute toward larger qualifications. This component represents the operational core of the framework.

The **Impact Areas** reflect the intended outcomes of this integration, including enhanced employability, greater workforce readiness, increased relevance of ODL programmes, and support for lifelong learning. Collectively, these outcomes contribute to the long-term impact of sustainable economic and social development, achieved by bridging the education–employment gap and producing a skilled, adaptable workforce.

Finally, the **Feedback Mechanism** ensures continuous improvement by incorporating insights from learners, employers, and labour market analysis, thereby keeping micro-credential offerings responsive to evolving skills needs and sustaining their long-term impact.

How Contextual Enablers could drive and sustain Core Processes of micro-credential implementation in ODL
As mentioned earlier, Contextual Enablers function as critical drivers that shape the conditions under which the core processes of micro-credential implementation can take root in ODL. Without this foundation, the core processes cannot effectively operate or achieve sustainable integration, especially in the African ODL system. The synergistic interplay between Contextual Enablers and Core Integration Processes is illustrated in Figure 2.

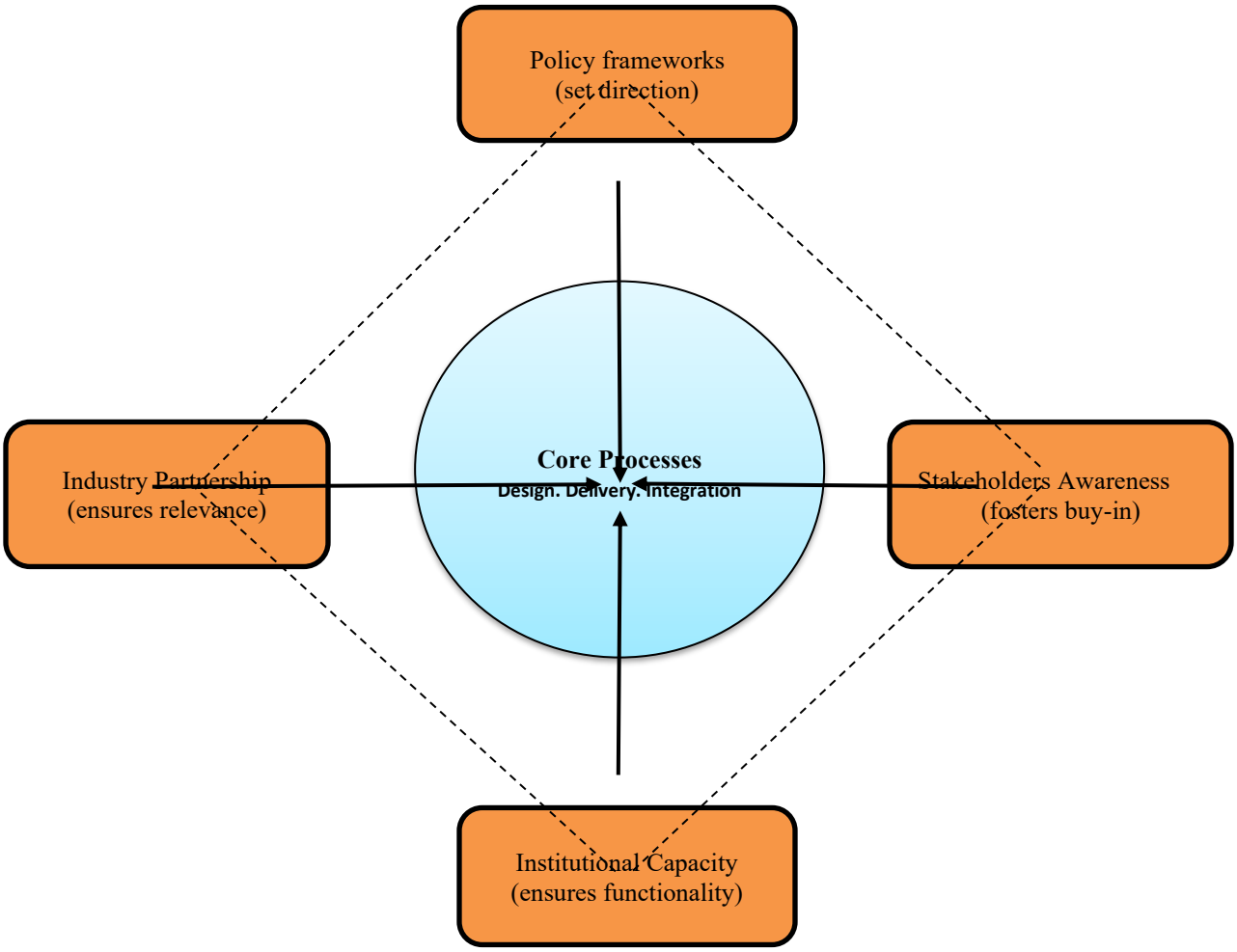

Figure 2: The synergistic interplay between Contextual Enablers and Core Integration Processes
Source: Authors' conceptualization

By implementing the MODLE Framework, ODL systems can become more dynamic, relevant, and responsive to the needs of the job market and individual learners, thereby ensuring that ODL not only remains viable but also serves as a catalyst for economic and social development.

Theoretical Underpinnings of the MODLE Framework
The MODLE framework is grounded in Employability Theory, which emphasises the development of practical competencies as central to improving employability outcomes. By embedding micro-credentials, which are designed to provide industry-relevant skills, ODL programmes can better serve diverse learners, ensuring graduates are not only academically qualified but also equipped with job-ready skills.

The framework is anchored in the understanding that higher education must respond to the rapidly evolving demands of the labour market, particularly in African contexts where ODL plays a pivotal role in widening access to education. The framework draws on Yorke's (2006) conceptualization of employability, which defines employability as a set of achievements - skills, understandings, and personal attributes- that enhance graduates' prospects of securing employment and succeeding in their chosen occupations. By embedding competency-based, industry-aligned micro-credentials into ODL curricula, the MODLE framework directly supports the development of these employability attributes.

Conclusion

The integration of micro-credentials into ODL systems represents an important step toward closing the gap between education and employability. Considering that micro-credentials are still in their early stages in most African countries, this is a pivotal moment for higher education institutions, particularly those offering ODL, to respond to emerging challenges and reimagine how competencies and skills are delivered. By leveraging the flexibility and reach of ODL, African higher education institutions can position micro-credentials as a strategic tool to equip learners with the relevant skills needed to thrive in the evolving global workforce. In doing so, they contribute to the development of a skilled labour force capable of driving sustainable socio-economic progress across the continent.

References

Aliyu, I. A. & Joseph, D. D. (2021). Assessing the level of skills mismatch in selected public organizations in FCT. *Lapai Journal of Economics*, 3(2), 82-92.

Brown, M., Nicoll, B., Mac Lochlainn, C., & Beirne, E. (2021). The Global micro-credential landscape: charting a new credential ecology for lifelong learning. *Journal of Learning for Development*, 8(2), 228–254. https://jl4d.org/index.php/ejl4d/article/view/525

Damoah, O. B. Peprah, A. A., & Osei, K. B. (2021). Does higher education equip graduate students with the employability skills employers require? The perceptions of employers in Ghana. *Journal of Further and Higher Education*. 45(2), 1-14
DOI:10.1080/0309877X.2020.1860204

European Commission. (2021). Proposal for a Council Recommendation on a European Approach to Micro-Credentials for Lifelong Learning and Employability. Brussels: European Commission. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0770

Hussein, M. G. (2024). Exploring the Significance of Soft Skills in Enhancing Employability of Taif University Postgraduates: An Analysis of Relevant Variables. *SAGE Open*, *14*(3). https://doi.org/10.1177/21582440241271941

Jackson, D. (2016). Re-conceptualising graduate employability: The importance of pre-professional identity. *Studies in Higher Education*, 41(8), 1237–1258.

Organisation for Economic Co-operation and Development. (2021). *The future of education and skills 2030/2040*. https://www.oecd.org/education/2030-project/

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

Succi, C. (2019). Soft skills for the next generation: Toward a comparison between employers and graduate students' perceptions. *Sociologia del Lavoro*, (153), 232–247

Suleman, F. (2018). The Employability skills of higher education graduates: Insights into conceptual frameworks and methodological options. *Higher Education*, 76, 263-278.
https://doi.org/10.1007/s10734-017-0207-0

United Nations Educational, Scientific and Cultural Organization (UNESCO) International Institute for Educational Planning. (2023). Short courses, micro-credentials, and flexible learning pathways: A blueprint for policy development and action. Paris: UNESCO
https://unesdoc.unesco.org/ark:/48223/pf0000384326/PDF/384326eng.pdf.multi

World Economic Forum. (2020). *The Future of Jobs Report 2020*. Geneva: World Economic Forum.
https://www.weforum.org/reports/the-future-of-jobs-report-2020

Yorke, M. (2006). *Employability in higher education: What it is - what it is not*. The Higher Education Academy.
https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document-manager/documents/hea/private/id116_employability_in_higher_education_336_1568036711.pdf