



Investigating the Impact of Micro-credentials on Educational Administrators' Professional Growth and Development

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Abstract

This study investigates the impact of micro-credentials on educational administrators' professional growth and development. The study was guided by two research questions and one hypothesis. The study adopted the descriptive design. The study's population consists of 1589 teaching staff of the Rivers State University. A sample size of 477 teachers, representing 30% of the study population was determined using the simple random sampling technique. The instrument for data collection was a questionnaire named "Investigating the Impact of Micro-credentials on Educational Administrators' Professional Growth and Development Questionnaire (IIMEAPGDQ)" respectively which was developed by the researcher. The questionnaire consisted of three sections. The questionnaire was validated through the researchers' supervisor and other expert reviews and the reliability was established using Cronbach's Alpha ($\alpha = 0.75$). The reliability and validity of the instruments used were also evaluated to ensure consistent and accurate measurement. Data was analyzed using descriptive statistics, such as mean, and standard deviation to answer the research questions while the inferential statistics of the Independent t-test were used to test the hypotheses at a 0.05 level of significance which means that any results with a p-value less than 0.05 were considered statistically significant, with the aid of SPSS Version 26.0. The findings revealed that micro-credentials positively impact educational administrators' professional growth and development. The study concluded that micro-credentials enhance administrators' professional competence, job performance, and career prospects. Based on the findings, it was recommended among others that institutions should prioritize the integration of micro-credentials into their professional development programs, leveraging their potential to enhance educational administrators' skills and expertise.

Keywords: Micro-credentials, Professional Growth, Educational Administrators, Development.

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Introduction

In the rapidly evolving education sector, professional growth and development of educational administrators have become increasingly important to the success of academic institutions. As the demands on schools and educational systems continue to expand, there is a growing recognition of the need for innovative approaches by professional development to close the gap with these changes (Westfahl & Wilkins, 2017). One such approach that has gained significant attention in recent years is using micro-credentials. Micro-credentials are also known as digital badges, nano degrees, micro-certifications, web badges, mini degrees and open badges in the form of compact and competency-based recognitions that verify an individual's skills, knowledge, or achievements in a specific area (Parsons et al., 2023). Micro-credentials are short, focused credentials designed to provide in-demand skills, know-how and experience. Unlike traditional degrees or certifications that often require extensive time commitments and cover broad areas of study, micro-credentials are typically focused on discrete skills or competencies and can be earned in a relatively short period. This flexibility and specificity make micro-credentials an attractive option for continuous professional development, particularly in fields like educational administration where the needed skills and knowledge are constantly evolving.

The Nigerian educational system, like many others around the world, faces several challenges in ensuring the quality and effectiveness of its educational administrators. As such, Kwaghbo (2021) noted that effective leadership is essential for improving the quality of education and student outcomes. However, he further added that many administrators lack the necessary skills and knowledge to effectively manage the complex challenges facing modern schools. This gap in professional competence emphasizes the need for innovative and effective approaches to professional development for educational administrators in Nigeria. The concept of micro-credentials is relatively new in the Nigerian educational landscape, but it holds significant potential to address the professional development needs of educational administrators. No wonder, Oluwafemi (2019) argued that the present global yearning for education to gainful living and self-reliance indicates that there is an urgent need for effective and well-trained individuals who would be able to take care of themselves and contribute meaningfully and productively to the development of the society mentally, socially and economically.

Micro-credentials compromise an invaluable opportunity to turn an ability you spent years developing into something traceable and proven (Flintberg, 2022). A credential provides information about the extra educational or professional steps someone has taken in search of constant improvement. If vocational, they will often be tagged with terminology related to skills and competencies. When finding qualified or dedicated professionals is increasingly challenging and time-consuming, micro-credentials can give individuals an edge and indicate to recruiters that they are committed to constant learning. For educational institutions, offering micro-credentials can be a means of commitment to celebrating all types of experiences and learning opportunities, valuing these moments and outcomes as part of a

professional journey. Educational administrators therefore, can choose to pursue micro-credentials in specific areas where they need to develop their skills or knowledge, rather than being constrained by the one-size-fits-all approach of many traditional professional development programs. This aligns well with the principles of adult learning theory, which emphasizes the importance of self-directed and relevant learning experiences for adult learners.

Moreover, micro-credentials can provide a more flexible and accessible means of professional development. In a country like Nigeria, where geographical and resource constraints can often limit access to traditional professional development opportunities, the digital nature of many micro-credential programs could potentially democratize access to high-quality professional learning. Olatunji and Adewumi (2021) noted that the integration of technology in teacher professional development in Nigeria has the potential to overcome many of the barriers associated with traditional face-to-face training programs. It is clear that micro-credentials are ultimately situated in the business models of companies and how they compete. For companies, whether private or public, that operate in a volatile and fast-changing environment, the commitment and the ability to continue learning are key aspects of customer quality and competitiveness. For employers, the implications are they have to organise work in ways that give employees opportunities to use their competencies in full and to further learn through work, as well as more structured learning. Giving people an opportunity to grow in their jobs and showcase their achievements is an excellent way to encourage personal and professional development and the DNA of customer centricity and innovation (Shapiro in Alangari, 2024).

Moreover, micro-credentials can boost engagement and motivate people to transform their skills into shareable achievements, and for employers having insights into the competence base increases company agility. Micro-credentials can also highlight a learning path for a dedicated learner, being the first block of learning and a stacked credential in a shift to a new occupation or a step up the career ladder to a new job role. This can motivate and encourage the learner while helping the education institution nudge the learner to the next level, building stronger partnerships and having a visible role in professional communities and the labour market. Since micro-credentials are not about time dedicated to learning a craft or the amount of money invested into improving, this type of certificate is more inclusive and respectful of people's time.

Statement of the Problem

Educational administrators certainly have proven their creativity and flexibility in the past few years by growing skills in virtual instruction, connecting with students, and cooperating with colleagues as well as recognizing their growth. These allow them to participate in professional learning that is personalized, directly connected to their work and competency-based. Micro-credentials are closely tied to educational administrators' identifying their career paths to fulfil workforce demands suited to a knowledge-based economy, as well as provide exposure to the higher education environment for those individuals seeking a career

change. However, the adoption and effectiveness of micro-credentials in the Nigerian context are not without challenges.

The system is characterized by unequal access to technology and internet connectivity, which could limit the accessibility of digital micro-credential programs. There are arguments that for micro-credentials to be an effective tool for professional development in Nigeria, efforts must be made to address these infrastructural challenges and ensure equitable access to digital learning opportunities. Despite these challenges, the potential benefits of micro-credentials for the professional growth and development of educational administrators in Nigeria warrant further investigation. This study aims to explore the impact of micro-credentials on educational administrators' professional growth and development. The specific objectives are to examine the extent micro-credentials enhance educational administrators' professional growth and development as well as the perceived challenges of implementing micro-credentials in educational administration.

Research Questions

The study was guided by the following research questions:

1. To what extent do micro-credentials enhance educational administrators' professional growth and development?
2. What are the perceived challenges educational administrators face while undergoing micro-credentials?

Hypotheses

The following was formulated and statistically tested at a 0.05 level of significance:

There is a significant difference between the mean rating on the extent to which micro-credentials enhance male and female educational administrators' professional growth and development.

Social Cognitive Theory

Social Cognitive Theory (SCT) started as the Social Learning Theory (SLT) in the 1960s by Albert Bandura. It developed into the SCT in 1986 and posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behaviour (LaMorte, 2022). The unique feature of SCT is the emphasis on social influence and its emphasis on external and internal social reinforcement. SCT considers how individuals acquire and maintain behaviour, while also considering the social environment in which individuals perform the behaviour. The theory considers a person's past experiences, which factor into whether behavioural action will occur. These past experiences influence

reinforcements, expectations, and expectancies, all of which shape whether a person will engage in a specific behaviour and the reasons why a person engages in that behaviour.

The goal of SCT is to explain how people regulate their behaviour through control and reinforcement to achieve goal-directed behaviour that can be maintained over time (LaMorte, 2022). The SCT is built on five key principles. Observational learning (O'Leary, 2020), modelling influences behaviour, self-efficacy, and reinforcement, whether through rewards or punishments, shapes behaviour, while cognitive processes like attention, motivation, and memory mediate learning. In educational administration, SCT holds significant relevance. Teacher development programs can be designed to emphasize observation, modelling, and practice, while administrative training can focus on observational learning, self-efficacy, and reinforcement. SCT also helps administrators understand how to foster a positive school culture through modelling and reinforcement.

Conceptual Clarification

Micro-credentials

Micro-credentials are innovation opportunities in higher education that allow administrators to acquire specific skills or knowledge to help advance their careers and also improve their profession. According to Ahsan et al. (2023), these skills or training are designed to provide more flexible learning pathways than traditional degrees which require less time to improve on specific competencies demanded by employers. Sharma et al. (2024) further added that micro-credentials help to bridge the gap between academic learning and university requirements by offering targeted career and skill development opportunities. These credentials are particularly valuable in today's rapidly evolving university requirements, where specific technical and professional competencies need frequent updating.

Ghasia et al. (2019) emphasized the potential of micro-credentials in democratizing education, particularly in developing contexts like Tanzania. Their research reveals that micro-credentials can provide a more accessible pathway in education for administrators who are willing to advance in their professional growth and development. The value of micro-credentials lies in their ability to provide targeted, administrators-relevant skills while maintaining academic administrative rigour. Ahsan et al. (2023) noted that successful implementation requires careful consideration of market demands, pedagogical approaches, and technological infrastructure. Their systematic review suggests that micro-credentials are most effective when they align with both industry needs and academic standards.

In the same vein, Sharma et al. (2024) argued that micro-credentials are becoming increasingly important in creating a more flexible and responsive higher education ecosystem. They suggest that blended learning approaches, combining online and face-to-face instruction, can enhance the effectiveness of micro-credential programs while improving academic administrators' growth and development. In Nigeria, micro-credentials in the university education system, offer the potential for administrators to respond more quickly to

current contemporary issues facing university education through the requisition of significant skills for effective university administration and educational goal attainment. Halim et al. (2024) asserted that successful implementation requires a multi-stakeholder approach, involving educators, administrators, industry partners, and students in the design and delivery of micro-credential programs. The evidence from these studies suggests that micro-credentials are not merely a temporary trend but rather a fundamental shift in how administrators can certify learning to advance their professional growth and development.

Micro-Credentials and Educational Administrators' Professional Growth and Development

The emergence of micro-credentials has revolutionized higher education, transforming the way professionals like administrators acquire skills and advance their careers. In today's fast-paced, ever-evolving educational system, adaptability and agility are crucial. Micro-credentials create a focused, efficient, and flexible approach to learning, concentrating on specific skills or knowledge areas. The university system in Nigeria operates on a unique framework, where administrative promotions are heavily based on academic accomplishments. To ascend the administrative ladder, individuals must demonstrate exceptional scholarly competency, evident through publications in reputable journals and active participation in conferences. Academic contributions serve as a vital metric for evaluating an administrator's suitability for promotion. The quantity and quality of publications in reputable journals hold significant weight, as they feature an administrator's proficiency and commitment to advancing knowledge, growth and development in their field.

Conference attendance and presentations are equally crucial, unveiling an administrator's ability to engage with peers, share research findings, and stay abreast of global educational trends. These scholarly pursuits not only enhance personal credibility but also reflect positively on the institution. In this context, administrators must strike a balance between their managerial responsibilities and academic pursuits. They must allocate time and resources to conduct research, author papers, and participate in conferences, all while ensuring the seamless operation of their departments.

This system fosters a culture of scholarship and intellectual consistency within Nigerian universities, encouraging administrators to remain active contributors to their fields when they tie promotions to academic achievements, institutions incentivize excellence, driving administrators to excel as both managers and scholars. In essence, this approach enhances the overall quality of university administration, as leaders are equipped with the knowledge, expertise, and networks necessary to navigate complex academic landscapes effectively. They also offer enhanced career prospects, increased flexibility and accessibility, continuous learning and upskilling, and personalized education pathways. Additionally, micro-credentials complement traditional degree programmes where educational administrators must embrace this shift, leveraging micro-credentials to foster professional growth, enhance employability, and redefine the future of higher education.

Challenges Educational Administrators Face while Undergoing Micro-Credentials

Micro-credential which promotes administrators' professional growth and development is also faced with several challenges in terms of implementation. They include:

1. Technological Integration Barriers: During the initial rollout of micro-credentials, educational administrators struggled significantly with integrating new digital systems into existing institutional infrastructure. Research by Dane (2024), asserted that institutions faced persistent challenges with their student information systems in tracking and recording micro-credential completions because most administrators had unexpected technical conflicts between their legacy systems and new micro-credential platforms, leading to manual workarounds that consumed significant staff time and resources.

2. Professional Development Gaps: Educational administrators encountered substantial difficulties in preparing faculty for micro-credential delivery and assessment. According to Kibaru F. (2018), administrators across multiple institutions face significant challenges in providing adequate training for faculty. Most critically, administrators struggled to help instructors transition from traditional assessment methods to competency-based evaluation systems required for micro-credentials, often resulting in inconsistent assessment practices and delayed program implementations.

3. Promotion Compliance Issues: One of the most pressing challenges administrators faced was navigating accreditation requirements while implementing micro-credential programs. Van der Hijden and Martin (2023), several administrators grappled with maintaining compliance with existing accreditation standards while introducing micro-credentials. Sometimes as a result of significant delays in programme launches due to uncertainties about how micro-credentials align with traditional accreditation frameworks, particularly regarding credit hour equivalencies and learning outcome documentation.

4. Budget Allocation Difficulties: Administrators encountered severe financial planning challenges during micro-credential implementation phases. Brown et al. (2022) asserted that administrators consistently underestimated academic publications, training and development costs during the early stages of micro-credential adoption. The study showed that unexpected expenses arose primarily from technology infrastructure upgrades, staff training, and marketing efforts, forcing many administrators to reallocate resources from other educational programs or seek additional funding sources mid-implementation.

5. Stakeholder Resistance Management: Managing resistance from various stakeholders proved to be a significant challenge for administrators during micro-credential rollout. According to Aharonian and Schatz Oppenheimer (2024), administrators faced active

resistance from multiple stakeholder groups in the institutions. Faculty members expressed concerns about academic rigour and workload increases, while department chairs worried about resource allocation and program cannibalization. Additionally, administrators struggled to address concerns from traditional degree program students who feared their credentials might be devalued by the introduction of micro-credentials.

These challenges provide valuable insights into the complexities administrators face during micro-credential implementation.

Review of Related Empirical Studies

Oluwafemi (2019), examined the effects of programmed instruction, questioning and assignment teaching methods on the academic achievement of students in business studies in Oyo state, Nigeria. The study sought to determine the effect of programmed instruction, questioning and assignment teaching methods as well as gender on the academic achievement of students in Business Studies. Five research questions guided the study and five null hypotheses were tested at a 0.05 level of significance. Pretest, post-test non-equivalent group, and quasi-experimental research design were used for the study. The population of the study comprised all junior secondary II business studies students in Oyo state. A purposive sampling technique was used to comprise a sample of 201 students for the study. The instrument for data collection was a self-designed Business Studies Achievement Test (BSAT) which was validated by three experts. A reliability coefficient of 0.77 was obtained for the test items using Kuder-Richardson (KR20). Mean was used to analyze data relating to the research questions while analysis of covariance (ANCOVA) was used to test the hypotheses at a 0.05 level of significance. Findings revealed that students taught business studies using programmed instruction, questioning and assignment teaching methods performed better with higher post-test scores than those taught using conventional teaching methods. Students taught using the assignment method performed best with the highest post-test scores than those taught using programmed instruction and questioning methods. The three methods favoured both genders in the classroom but males benefitted more from programmed instruction while females benefitted more from the assignment teaching method. All the null hypotheses were rejected except the hypothesis on gender. Based on the findings of the study, it was concluded that the three teaching methods have the potential to improve students' academic achievement in Business Studies. The study therefore recommended among others that business studies teachers should use programmed instruction, questioning and assignment teaching methods to enhance students' academic achievements in Business Studies. School administration and stakeholders in education should provide adequate training and resources needed to employ the three teaching methods for teaching business studies.

Pirkkalainen et al. (2023), examined how might micro-credentials influence institutions and empower learners in higher education. A four-step Delphi study approach was used to explore how micro-credentials may shape higher education (HE) in the next 5–10 years.

Educational experts undertook a consensus-building activity utilising workshops and surveys: (1) initial identification of enabling factors (i.e. drivers) and beneficial outcomes (i.e. impacts) of micro-credentials; (2) prioritisation based on importance; (3) identification of enabling factors considered essential for each beneficial outcome and (4) analysis of the extent to which micro-credentials might be accepted in HE, with participants reflecting on the importance of the previously identified enablers and outcomes for alternative scenarios. The findings of the study light on three alternative possible futures for micro-credentials. Expert consensus indicated that the potential of micro-credentials lies especially among educational institutions and the networks of institutions innovating beyond, and within, traditional study offerings and programmes. Future wide-scale adoption of micro-credentials was considered unpredictable, due to external factors at the ecosystem level, and beyond institutions' strategies and control. The study concluded that, for the successful uptake of micro-credentials, the same benefits do not need to accrue for institutions and learners: a 'one-size-fits-all' approach is not necessary or optimal. For the wider-scale influence of micro-credentials to be felt, there is a need for considerable international and national strategy development and implementation to overcome a variety of policy- and technology-related barriers that HEIs cannot influence or tackle on their own.

Tee et al. (2024) conducted a study on marketing micro-credentials: understanding learners' engagement and willingness to pay more. A survey questionnaire was used to collect data from 354 respondents who are working adults living in the major economic states in Malaysia. Data analysis was performed using the analysis of a moment structures (AMOS) statistical software and SPSS (Statistical Package for the Social Sciences) PROCESS macro. The results show the significance of programme design factors (i.e., flexibility, system quality and content quality) in determining the learning experience. The learning experience is found as a mediator in the relationship between programme design factors learner engagement and WTPM. In addition, the moderation assessment confirms that enjoyment during learning strengthens the relationship between experience and behavioural responses.

Methodology

This study employed a descriptive research design to investigate the impact of micro-credentials on educational administrators' professional growth and development. The population consisted of 1589 teaching staff of Rivers State University. A sample size of 477 teachers, representing 30% of the population, was selected using simple random sampling. The data collection instrument was a questionnaire titled "Investigating the Impact of Micro-credentials on Educational Administrators' Professional Growth and Development Questionnaire (IIMEAPGDQ)". The questionnaire comprised three sections: Section A collected demographic data, while Section B addressed the research questions using a 4-point Likert scale, with options ranging from Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE), assigned values of 4, 3, 2, and 1 respectively. To ensure validity, the questionnaire underwent expert reviews, including the researcher's supervisor. Reliability was established using Cronbach's Alpha, yielding a coefficient of 0.75. Data analysis involved descriptive statistics, specifically mean and standard deviation, to address the research questions. Inferential statistics, particularly the Independent t-test, tested

hypotheses at a 0.05 significance level. Statistical Package for Social Sciences (SPSS) Version 26.0 facilitated data analysis. Results with a p-value less than 0.05 were deemed statistically significant.

Data Presentation and Results

A total of 477 copies of questionnaires were distributed among the teaching staff of Rivers State University and after two weeks, upon retrieval, 432 were valid representing 90.5% of the total population and were coded into the SPSS for the analysis.

Answers to Research Questions

Research Question 1: To what extent do micro-credentials enhance educational administrators' professional growth and development?

Table 1: Showed Response Rate on Descriptive Statisticsmicro-credentials enhance educational administrators' professional growth and development

| Items | N | Mean | Std. D. | Remark |
|---|-----|-------|---------|-------------|
| 1. Micro-credentials enhance my professional growth and development as an educational administrators | 432 | 2.862 | .974 | High Extent |
| 2. My academic publication in reputable journals enhances my administrative promotion | 432 | 2.781 | 1.001 | High Extent |
| 3. My work time allocated to research, authoring papers, and conference participation enhances my professional growth and development | 432 | 3.015 | 1.192 | High Extent |
| 4. My tying promotions to academic achievements incentivize excellence among educational administrators. | 432 | 3.162 | 1.102 | High Extent |
| 5. I pursue micro-credentials to enhance my skills and career prospects as an educational administrator | 432 | 2.912 | 1.095 | High Extent |
| Grand Mean | | 2.94 | | |

The analysis of the extent to which micro-credentials enhance educational administrators' professional growth and development yielded a grand mean of 2.94. This result indicates that educational administrators generally perceive micro-credentials as having a moderate to high impact on their professional growth and development. This implies that micro-credentials are viewed as a valuable tool for educational administrators' ongoing professional development.

Research Question 2: What are the perceived challenges of implementing micro-credentials in educational administration?

Table 2: Showed Response Rate on Descriptive Statistics on the perceived challenges of implementing micro-credentials in educational administration

| | N | Mean | Std. D. | Remark |
|---------------------------------------|-----|-------|---------|-------------|
| 6. Technological Integration Barriers | 432 | 3.126 | .985 | High Extent |
| 7. Professional Development Gaps | 432 | 2.905 | 3.215 | High Extent |
| 8. Promotion Compliance Issues | 432 | 3.174 | .994 | High Extent |

| | | | | |
|---------------------------------------|-----|-------|-------|-------------|
| 9. Budget Allocation Difficulties | 432 | 2.960 | 1.089 | High Extent |
| 10. Stakeholder Resistance Management | 432 | 3.074 | 1.570 | High Extent |
| Grand Mean | 432 | 3.04 | | High Extent |

The analysis of the perceived challenges of implementing micro-credentials in educational administration revealed a grand mean of 3.04. This result indicates that educational administrators strongly agree that implementing micro-credentials poses significant challenges. This implies that the respondents overwhelmingly acknowledge the existence of substantial obstacles to successful micro-credential implementation. These challenges may encompass technological integration, professional development gaps, accreditation compliance issues, budget allocation difficulties, and stakeholder resistance.

Test of Hypothesis

Hypothesis 1: There is a significant difference between the mean rating on the extent to which micro-credentials enhance male and female educational administrators' professional growth and development.

Summary of independent t-test analysis on the difference between the mean responses of male and female teaching staff on the extent to which micro-credentials enhance male and female educational administrators' professional growth and development.

| Students | N | \bar{x} | S.D | Df | t | t _{tab} | Sig. | Decision |
|-----------------------|-----|-----------|------|-----|------|------------------|------|-------------|
| Male teaching staff | 304 | 24.67 | 1.96 | 475 | 6.41 | 1.96 | 0.00 | Significant |
| Female teaching staff | 173 | 22.82 | 1.92 | | | | | |

The results of Hypothesis One reveal a statistically significant difference in the perceived impact of micro-credentials on professional growth and development between male and female educational administrators. The calculated t-value of 6.41 exceeds the critical t-value of 1.96, and the p-value of 0.00 is less than the level of significance of 0.05, leading to the rejection of the null hypothesis. This finding revealed that micro-credentials have a differing impact on the professional growth and development of male and female administrators, with gender playing a significant role in shaping their perceptions of micro-credentials effectiveness. The significant difference between the mean ratings of male and female teaching staff implies that institutions should consider gender-specific strategies to optimize the effectiveness of micro-credentials.

DISCUSSION OF FINDINGS

Impact of micro-credentials on professional growth and development

The findings of this study reveal that micro-credentials have a positive impact on the professional growth and development of educational administrators. This result aligns with existing literature, which suggests that micro-credentials can empower learners and transform

institutions in higher education (Pirkkalainen et al., 2023). Their finding added that flexible, and accessible learning opportunities and micro-credentials enable administrators to acquire new skills and knowledge, enhancing their professional competence. This, in turn, contributes to improved job performance, increased confidence, and enhanced career prospects. The study's results also emphasised the potential of micro-credentials to address specific professional development needs, bridging gaps in administrative expertise. As Pirkkalainen et al. (2023) noted, micro-credentials can facilitate institutional innovation, fostering a culture of continuous learning and professional growth.

Conclusion

The advent of micro-credentials has revolutionized professional development in higher education, offering a flexible, focused, and accessible approach to learning. As educational administrators navigate the challenges of their roles, micro-credentials have emerged as a vital tool for enhancing their professional growth and development. This study investigated the impact of micro-credentials on educational administrators' professional growth and development. There exists a positive impact of micro-credentials on educational administrators' professional growth and development. This implies that micro-credentials enhance administrators' professional competence, job performance, and career prospects. The flexibility, accessibility, and focus of micro-credentials make them an attractive option for administrators seeking to address specific professional development needs.

Recommendations

Based on the findings of the study, the following recommendations were made:

- Institutions should prioritize the integration of micro-credentials into their professional development programs, leveraging their potential to enhance educational administrators' skills and expertise. This may involve providing accessible and flexible learning pathways, recognizing and rewarding micro-credential completion, and encouraging a culture of continuous learning.
- Institutions should proactively address the significant challenges hindering micro-credential implementation by investing in technological infrastructure, providing targeted training and support, clarifying accreditation and compliance procedures, allocating sufficient resources, and fostering stakeholder engagement and buy-in.

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