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Research Article

Micro-credentials and Modern Learners: Insights into Student Perceptions and Acceptance

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Abstract

Flexible, skill-based routes have been the emphasis of education in the post-pandemic era. Following the outbreak of COVID-19, there has been a rise in the popularity of nontraditional education methods that emphasize skills rather than knowledge. This has led to an increase in demand for online classes that are meant to develop relevant job skills among individuals. This research investigates students' opinions and attitudes toward micro-credentials. However, while student reactions are generally positive and sometimes even modest, they confirm micro-credentials of their uniqueness, flexibility in application, as well as practicality regarding immediate professional needs One striking finding is that while 63.36% were graduates of college, only 51.73% knew where to find micro-credential courses that match their field of study. The data from 2,115 valid respondents showed an average composite mean score of 2.96 for perception and 3.02 for acceptance, suggesting that participants were cautious about the potential of micro-credentials. Nevertheless, there is still a disconnect between the way they are used now vis-à-vis how institutions or professional bodies view them, as well as whether or not these courses are likely to have any enduring value or consideration in the labor market. Therefore, the present results indicate that academic institutions must collaborate with businesses to meet their labor market's needs with shorter programs, which should also be acceptable in the sphere of education. The aim of this article is to advance the field of micro-credentials research while providing a foundation for future studies on their significance in education and career development.

Keywords *Microcredentials, Filipino students, awareness, perceptions, attitudes*

INTRODUCTION

As education rapidly changes, micro-credentials are seen as game changers. A more diverse student population has led to an increased need for alternative education pathways that adjust to individual needs. According to Selvaratnam & Sankey (2021), micro-credentials act as a catalyst that increases the number of options available for customizing learning. Micro-credentials are usually understood as proofs of knowledge, skills, and competences, or they are dealt with as a short educational opportunity that includes both the credential itself and its closely related learning activity (Ahsan et al., 2023). These brief programs are designed to develop specific skills that learners require. This characteristic helps people keep pace with the rapid changes in the job market. Technological advancements have led to the questioning of traditional forms of schooling because of changes in technology and work; thus, micro-credentials provide agile and useful options for continuous learning. Then, during the post-pandemic era, there has been a notable increase in the importance of short courses, certified courses, and micro-credential educational programs (Ahmat et al., 2021). Micro-credentials are small certificates that expose learners' skills acquired in a certain area of study or expertise. By studying more about these courses, students can enhance their knowledge in those areas (Pickard et al., 2018). These programs help build up students' human capital. In addition, this is an important way for workers in these industries to create links with other professionals and mentors, thus helping them understand more about job market specifications. Micro-credentials allow students to record both formal (certified) and informal experiences or skills obtained throughout their programs in an additional certificate

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alongside their usual transcripts. To believe in the potential of micro–credentials, a digital badge system provides information on the program content, quality, and evaluation. Micro-credentialing improves educational planning and develops future employability skills (Wheelahan & Moodie, 2021).

Employability is an individual's capacity to obtain and retain a job in the market. For instance, the impact of interruptions in continuity like COVID-19 highlights the crucial role that higher education institutions play in preparing students to compete favorably for available job opportunities. The issue of employability has attracted various stakeholders. Whereas micro-credentials are embraced by more institutions of learning, companies, and governments, it is important to consider students' views because they form a critical stakeholder group in this respect. To comprehend the potential influence and scalability of micro-credentials within a broader educational ecosystem, it is imperative to consider the perspectives acceptance and attitudes of people toward these new modes of learning. There are no research available on this topic that highlights the need for a study that specifically examines students' perspectives. This will reveal students' understanding of micro-credentials at the lowest level or their awareness of them.

The increasing demand among students for micro-credentials also signifies a broader move toward individualized, skills-based education; however, this evolution begs questions regarding the value, recognition, and longer-term viability of such credentials compared with more traditional degrees. Questions about the worth, validity, and durability of these credentials against regular degrees become even more pertinent when compared to traditional certification systems. For teachers assessing the efficacy of micro-credentials as educational/training tools by which they can achieve their career and learning objectives, addressing issues such as students' attitudes toward them is important. Therefore, understanding these opinions entails understanding levels of students' awareness as concerns these digital badges; their willingness to use these small certificates in higher learning settings also matters. At least it is worth mentioning that currently, there is no specific study concerned with what students think about micro-credentials. The primary aim of this work is to provide an extensive outlook on students' perceptions and acceptance of microcredentials that would help fill this research gap. This includes revealing individuals' diverse levels of consciousness, perspectives, approval, and attitudes toward micro-credentials. Therefore, doing so aims to provide a more comprehensive understanding of microcredentials' role in future education and labor market development.

The research has three main objectives: first, to establish the degree of knowledge regarding micro-credentials among students with regard to their application within education and work contexts; second, to investigate how students view their value and authenticity vis-à-vis other academic qualifications, including conventional degrees; and third, to determine if students appreciate conceptually and in reality to the possibility of pursuing lifelong learning through micro-credentials. However, there is a considerable amount of literature on micro-credentials concerning their design and implementation processes or how they could disrupt traditional forms of education, while this area remains largely under-developed. Specifically, it requires much profound insights into what extent students are conversant with micro-credentials, its saw worth as compared to how useful it can be, legislative recognition of such award types as genuine certificates and attitudes toward using them alongside or in substitution for traditional degrees in general. This highlights the need for systematic investigation using empirical methods aimed at bridging this knowledge gap.

LITERATURE REVIEW

The Technology Acceptance Model

In the study "Microcredentials and Modern Learners: Insights into Student Perceptions and Acceptance", the Technology Acceptance Model (TAM) was applied to provide a well-structured way of analyzing the factors that influence students' willingness to accept microcredentials (Miao et al., 2024). This research will determine whether micro-credentials have any real-life benefits for job placement or further learning because it will analyze the perceived usefulness of these programs. This will also show whether the obvious ease of using the microcredentials system makes it accessible to students, thus influencing their participation decisions (Nordin et al., 2022). This evaluation considers emotional reactions, attitudes, and perceived worthiness toward micro-credentials, as well as the propensity to adopt them. At the same time, behavioral intention predicts that students will actually use the product as they say it. Empirical evidence on adoption is available through university enrollment rates. Real usage statistics, which include registration and completion rates, determine whether a technology is accepted or not. This is how this study can employ the TAM technique to examine how usability and perceived value are related to each other regarding micro-credentials and how these two factors affect acceptance among students, in general, allowing educators to provide immediate service by enhancing their offerings through enhancement as well as making them match current learner requirements and expectations.

Related Studies

Microcredentials are a new way of thinking about lifelong learning that seeks to reduce the gap between formal schooling and today's workforce needs. This research synthesizes research on what students think about micro-credentials and how much they embrace them for their own educational purposes, examining their value in education and some implications for employers.

Defining Micro-Credentials

Micro-credentials are modern versions of certificates that demonstrate an individual's mastery of certain skills or areas of study (Oliver, 2021). They are usually more specific and more precise than traditional degrees. These certificates can be arranged in a flexible manner based on demonstrated competence and completion of specific but non-degree course sequences available through online platforms (Flynn et al., 2023). Unlike regular academic degrees, these micro-credentials emphasize particular functional skills that are essential to realizing concrete job positions or professional activities (Hunt et al., 2022). Their primary focus is on verifying essential competences that can be integrated to reinforce one's professional portfolio. They are aimed at modern students who want specialized education to fill their knowledge gaps or meet changing industrial requirements. Consequently, they demonstrate commitment to lifelong professional development and help design flexible and responsive educational systems that meet the actual needs of the job market, characterized by its dynamism.

The concept of education and professional growth has changed a lot in the recent past, with education witnessing many transformations that have resulted in the introduction and increased acceptance of micro-credentials. Short and concise certificates demonstrate mastery of specific skills or competencies, which differentiate them from traditional degrees and certifications because they are much shorter, more specialized, and practical than these credentials (Foreman et al., 2021). Micro-credentials are meant to meet an evolving workplace characterized by ongoing specialization needs for skill improvements in light of technological advancements, among other reasons.

Instead of long drawn-out courses that cover everything around central themes, micro-credentials aim at providing precise short learning experiences that cater to specific sectors or occupations. Micro-credentials differ from conventional courses that offer knowledge and skills

across many areas through provision of narrowly focused knowledge and skills in practical and specific areas (Pirkkalainen et al., 2023). Today's fast-paced work environment calls for this approach because it allows workers to quickly learn about new technologies, methods, and standards in their respective professions (Hanafy, 2020). They were deliberately made in such a way to accommodate differently placed learners. Credentials are a value addition for employees pursuing career advancements; job hopefuls who want better employability opportunities, capabilities, or knowledge that individuals desire to obtain on a personal level. By virtue of their shortened duration, micro-credentials enable students to balance studying and managing other responsibilities, such as work and family (Pollard & Vincent, 2022).

The micro-credentialing process uses assessment and validation as its building blocks to ensure that the skills and knowledge claimed by those who hold them are represented and acknowledged. This makes the certificate more authentic and valuable if learners demonstrate an in-depth understanding of the subject area using stringent assessment techniques. Digital badges or certificates containing details about the skills acquired during the completion of such a course as well as criteria upon which they were evaluated by an issuing institution are what participants receive. These badges are proof of accomplishment, and they are easy to include in professional portfolios, resumes, social media websites, and blogs. They also add value by making them transportable.

Moreover, if someone is an expert in a certain field yet s/he has never been to a formal institution of learning, micro-credentials come in handy as they can just prove this by showing those who want to hire them or even when they just want to learn a new skill without being listed in a university database (Steel et al., 2022). Similarly, having many micro-credentials helps an individual to align personal academic pursuits to professional goals based on available opportunities in the market.

Consequently, micro-credentials signal an essential shift away from the traditional concept of education and professional growth by emphasizing the importance of lifelong education and flexibility. They are very useful because of their immediate relevance and practicality, availability to various students, and ease of access at any time. As such, they will have a significant impact on future workforce definitions, promoting continuous improvement within industries while also fostering innovation through the emergence of new jobs at different levels, eventually leading to an improvement in economic competition and the general vitality of world economies. In this way, people can realize their personal interests or professional goals with more ease due to micro-credentials, besides improving the competitiveness of global economies.

Student Perceptions of Microcredentials

The emergence of micro-credentials has brought a new and innovative approach to higher education that flexibly offers learners specific abilities. Students' awareness of micro-credentials has been growing, but their comprehension of these certifications and how they differ from comparable options, such as digital badges, varies (Gregg et al., 2022). The attitudes of contemporary learners toward micro-credentials are primarily shaped by perceived advantages, such as improved skills and employability, while also considering concerns about their acceptance in academia and the job market (Zou et al., 2024). Students acknowledge the importance of micro-credentials for personal and professional growth. However, they hesitate because future employers may need to fully appreciate these credentials' values, as Zou et al. (2024) stated. The uncertainty is exacerbated by difficulties in incorporating micro-credentials into conventional degree programs because academic institutions need to ensure that these credentials adhere to rigorous academic criteria and deliver significant learning outcomes (Yilik, 2021). The broad use of micro-credentials is impeded by many obstacles, including the financial expenses involved, the significant time

commitment necessary, and the absence of a consistent quality assurance system (Kohler et al., 2021). Students' diverse understanding of micro-credentials highlights the need to effectively communicate their worth and establish a comprehensive system for recognizing and incorporating them into higher education and the job market.

The study conducted by Yilik (2021) examined the influence and perspectives of micro-credentials (MCs) in the realm of higher education and their significance in shaping career advancement as observed by university students. This research explores the subjective experiences and interpretations of 11 junior and senior students taking an advanced communication skills course to prepare them for their future careers. The results indicate that the employability and accessibility of MCs are crucial aspects that motivate students to use them for professional advancement. The study demonstrates that students regard MCs as more relevant to their future professions because of their practical skills, in contrast to the more theoretical or disjointed education offered by universities. Moreover, the shift in attitudes toward higher education, hastened by the COVID-19 pandemic and the digitization of education, has made it easier to implement MCs.

Nevertheless, obstacles to the complete adoption of MCs exist, such as apprehension over the predominance of data science and computer engineering disciplines, the perceived lack of prestige associated with MCs, and possible bias against those holding MCs in the workplace. Most participants perceived MCs as complementary to standard university degrees rather than as independent options for professional progression. However, a minority considers them an alternate route. The incorporation of MCs into career development is consistent with social cognitive career theory, which suggests that students' involvement in MCs is affected by their self-efficacy beliefs, expectations of outcomes, and specific career objectives, as well as contextual factors and personality traits such as entrepreneurship, conscientiousness, and extraversion.

The report highlights an increasing trend of MCs in connecting higher education with changing demands in the work economy. Higher education institutions and career development experts should include MCs in career development programs to recognize their power to supplement conventional education and improve job prospects in the digital era.

Furthermore, the incorporation of micro-credentials into Massive Open Online Courses (MOOCs) has been analyzed, revealing obstacles such as a deficiency in engagement and synchronous learning, which may impact courses' completion rates and learners' satisfaction (Wang et al., 2024). Certain learners require more MOOC support due to these constraints, indicating a need for more dynamic and captivating learning encounters. Nevertheless, MOOCs have progressed to include routes to authorized academic degrees, providing a cost-efficient and low-cost choice for exploring new fields of study. This transformation encompasses establishing digital credentialing, which enables learners to obtain academic credits from affiliated institutions.

To conclude, this literature study demonstrates that while students usually have a favorable opinion of the possibilities of micro-credentials, there remains a need for more explicit, acknowledging, and incorporation into the educational system. As the need for adaptable and specific learning opportunities increases, there is also a growing need for research that tackles these challenges and provides guidance for creating micro-credential frameworks that both students and businesses highly regard.

Student Acceptability of Microcredentials

The growing interest in micro-credentials signifies a change in the educational environment, which is propelled by students' aspirations for learning routes that are not only adaptable and reachable but also closely linked to job progression and skill development. The determinants impacting students' acceptance of micro-credentials may be further elucidated by examining their

perceived worth and usefulness, cost aspects, ease of access and adaptability, and overall apprehensions about quality and rigor.

Perceptions of Value and Utility

Students are largely drawn to micro-credentials because of their capacity to immediately improve employability and provide particular, marketable skills within a very short timeframe (Gregg et. al., 2022). The value of these qualifications is often assessed based on their recognition in relevant businesses and their capacity to provide access to new career prospects or progress within current positions. The correlation between micro-credentials and industry demands, which is sometimes established through collaborations between educational institutions and enterprises, greatly enhances their perceived worth. Students are more inclined to actively seek and appreciate these qualifications when there is explicit proof of their recognition and support from prospective employers. Factors must be considered when assessing the cost of a project or decision (Kiiskilä et. al., 2023). The financial aspect of seeking further education is very important. Micro credentials sometimes provide a cost-efficient substitute for conventional degrees, attracting those who are mindful of expenses but keen to advance their education. Nevertheless, the cost-benefit analysis from the student's point of view encompasses not only the program's price but also the prospective benefits in terms of career progression and pay increases (Miller & Jorre, 2022). Programs that provide financial assistance or are reasonably priced without sacrificing quality are especially appealing.

Enhanced Accessibility and Flexibility

The inherent flexibility of micro-credential programs meets the need for learning choices that may fit different schedules and commitments. The combination of adaptability and course availability, particularly via online platforms that overcome geographical and temporal limitations, makes micro-credentials very attractive (Shariman & Damian, 2022). These programs are particularly relevant for those who are employed, have children, or are not able or interested in pursuing full-time, on-campus education. The acceptability of these programs is greatly influenced by their inclusivity, which refers to their capacity to provide opportunities for underrepresented groups (Hunt et. al., 2022).

High quality and strict adherence to quality standards

Students and businesses have significant concerns about the quality and rigor of micro-credential programs. Accreditation and the reputation of the issuing institution are crucial factors that indicate the quality of any product (Wheelahan & Moodie, 2021). Students want guarantees that their investment will result in a degree that is not only acknowledged but also esteemed by companies. The importance of rigorous and attainable coursework that results in the acquisition of certain abilities cannot be overstated. Programs that achieve a harmonious equilibrium between demanding enough to assure a profound level of learning while avoiding excessive constraints that discourage prospective students often exhibit greater appeal (Fisher & Leder, 2022).

Ultimately, the level of student acceptance of micro-credentials depends on a multifaceted interaction among several elements. Educational institutions that aspire to create and provide programs that cater to the changing demands of modern learners must carefully evaluate each aspect. To ensure that micro-credentials achieve their promise of providing a viable and beneficial alternative to conventional degrees, it is essential to comprehend and tackle these problems as the educational environment continues to change.

The evolving educational landscape to accommodate changing labor market needs stresses the increasing necessity of trendy, job-related flexible pathways for learning that are competence

based; micro-credentials literature explains this. The role of the technology acceptance model (TAM) in enhancing learners' acceptance of micro-credentials focuses on perceived ease of use and meaningfulness. Consequently, Allied studies have highlighted the capacity of schools to serve as bridges between formal educational systems and those required by today's organizations offering skill acquisition on demand.

Micro-credentials mean exact certificates that show mastery in particular skills, making them appealing to modern students who seek specialized education to meet changing industry demands, according to the definition. Students display a somewhat positive but cautious attitude toward micro-credentials in academic literature reviews. While they admit the immediate benefits of skill improvement and employability, they remain concerned about future employment opportunities in terms of recognition and acceptance in the job market.

Perception of micro-credentials among learners is influenced by how valuable, accessible, or high quality these programs are. On the one hand, learners like the flexibility and affordability of micro-credentials, while on the other hand, they fear that, compared to traditional degrees, these are not rigorous enough and do not have much market recognition. This calls for institutions of learning and industries to work together to improve the credibility and acceptance of micro-credentials so that they obey industrial criteria and be accommodated by mainstream education systems.

In conclusion, the analysis demonstrates the possibility of transforming education through provision of flexible targeting of learning opportunities that are part of the industry's requirements through micro-credentials . However, there is also the realization of quality assurance challenges and recognition and integration into traditional education systems. Future studies should take note of these issues to fully exploit the potential of micro-credentials in education and the growth of professions.

Research Framework

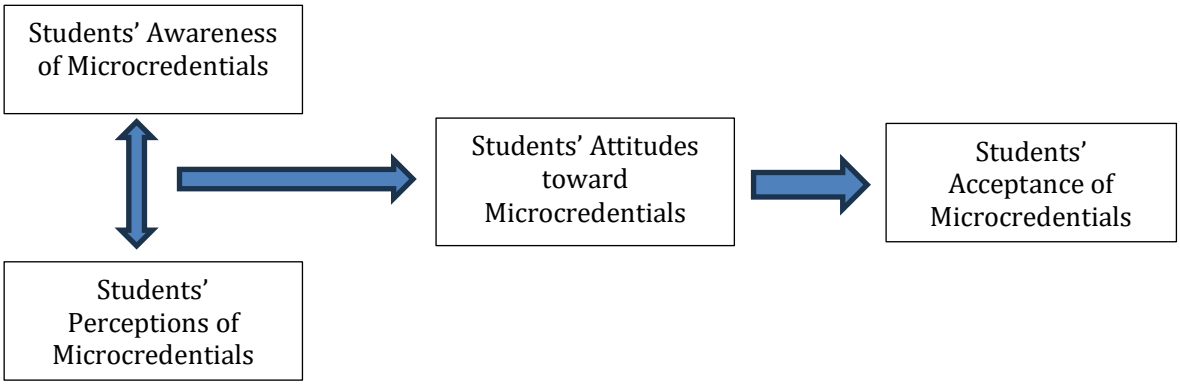

Figure 1. Research Framework

RESEARCH METHOD

Participants of the Study

This study's research design is descriptive-correlational research. The participants were university/college tertiary students. Purposive nonprobability sampling is employed in this study. According to Hanson (2024), approximately 15.44 million people live in the Philippines. Using the Raosoft sampling size calculator, the estimated sample size was 385 with a 95% confidence level. However, through Google Forms, 2186 students from all over the Philippines were gathered, and out of these 2115 were valid responses.

Sampling Criteria

The purposive sampling method used certain criteria to ensure that the sample is full of variety and representative. For this reason, partakers were selected according to their levels of education, including, under Graduates who are already doing bachelor's programs, Graduates who did not go beyond the first degree and are now pursuing their masters, while others were doctors already but still pursuing postdoctorate or attended any other professional development courses. Apart from that, another major criterion was age which covered; those who were 20 years and below, those between 21-30 years, 31-40 years old individuals together within this category group; 41-50 years old. These age distributions were looked at to give space for this instrument according to the age of all respondents. Moreover, it was ensured that both male and female participants were part of the selection process to ensure gender diversity. Furthermore, by including participants from different regions in the Philippines, geographic diversity was exhibited in the study. The implications of these criteria were such that they guaranteed a more expansive and inclusive perspective on the perceptions of micro-credentials across different levels of education, age groups, genders, and regions.

Table 1. Sample's sociodemographic profile

Respondent's Characteristics	Frequency	Percentage
Gender		
Male	640	30
Female	1475	70
Age		
20 yo below	989	46.76
21-30 yo	1094	51.73
31-40 yo	18	.8
41-50 yo	11	.5
51-60 yo	3	.1
Educational Attainment		
College Graduate	1340	63.36
Master's Degree Holder	650	30.73
Doctorate Degree Holder	125	5.91

The table indicates a high representation of women, who constituted 70% of the participants as compared to only 30% for male respondents. The data collected demonstrate the significant presence of youth among these participants. Notably, 46.76% of respondents belonged to an age bracket of 20 years or less, while 51.73% fell within 21-30 years. The results show that nearly all the respondents are less than 31 years old, thus making micro-credentials attractive and relevant mainly for young people who are either starting out in their career paths or pursuing higher academic? qualifications because they are under thirty years old mostly for the participants. The education? background studies? findings? which revealed high levels of certification among the subjects indicate that they include those who have finished their undergraduate course work, representing 63.36%, those with master's degrees at 30.73%, and PhD holders at 5.91%. The survey distribution shows that the respondents were well-learned, thus showing a great interest in micro-credentials as a means of specialization or enhancing professional qualifications.

Research Instrument

The present study used a researcher-made questionnaire as the research instrument. The instrument contained the demographics of the respondents—age, gender, family income, educational attainment, and region—and the items (measured using a 4-point Likert scale) for the four latent variables: awareness, perceptions, attitudes, and acceptance of students toward micro-credentials. To ensure the validity of the instrument, the questionnaire was reviewed by a panel of experts in the field of educational research and micro-credentials. Feedback was used to refine the questions to enhance clarity and relevance. Additionally, a pilot test was conducted with a small sample of 30 students who were not part of the main study. The results of the pilot test were analyzed to ensure the reliability of the instrument. Cronbach's alpha was calculated for each latent variable, with all values exceeding the acceptable threshold of 0.70 indicating good internal consistency.

The researcher conducted a pilot test with 15 respondents to test the validity and reliability of the questionnaire. The results revealed that using confirmatory factor analysis, the questionnaire was valid because all the constructs had *a p-value* < .001. CFA is a tool that a researcher can use to reduce the overall number of observed variables into latent factors based on commonalities in the data. On the other hand, the questionnaire was considered reliable using reliability analysis because Cronbach*'s alpha* was equal to.78. An acceptable Cronbach's alpha of 0.7 or higher is considered to make the questionnaire reliable.

Data Analysis

Various statistical techniques were used during data analysis to ensure thorough and precise outcomes. The descriptive statistics were used to summarize the socio-demographic characteristics of the sample and provide an overview of the backgrounds of the participants. For each of the latent variables, Cronbach's alpha was calculated to measure the reliability of the questionnaire; variables whose values were greater than .70 were known to have good internal consistency. Exploratory Factor Analysis (EFA) was conducted with Confirmatory Factor Analysis (CFA) following suit so as to determine hidden structures of data for them to be tested against hypothesized structures or else construct validity assured me that they existed among other things ; besides this allowed for Structural Equation Modeling (SEM) to be employed in illustrating how perceptions related to consciousness influenced one's view toward the acceptance or rejection of micro-credentials etcetera within others. Moreover, an analysis of mediation was also conducted using the above-mentioned method as its basis for testing assumptions with a view to establishing whether there are indirect effects between dependent and independent variables at the same time through media variables. This approach ensured that the data were completely understood while noting connections that exist between key factors.

Ethical Considerations

This study has several ethical issues. Participants received detailed information about the study's purpose and methodology. Following a detailed explanation of the research objectives, informed consent was obtained. Participants may withdraw from the study at any time after receiving an invitation. They received honest and thorough answers to all the questions. The researcher strictly followed the experimental criteria to ensure that participants benefited from the findings without bodily, psychological, or emotional harm. The informed consent method comprised a clear agreement, the right to withdraw, and a detailed explanation of the research's risks and benefits. A numerical code was assigned to each participant and used on the interview guide instead of their names to maintain confidentiality. This technique stores data in a locked cabinet for anonymity and security. Participants were informed that they could withdraw from the

study at any time. The study also checked any researcher-party conflicts of interest to ensure objectivity. The respondents were recruited through official channels. They were informed of their rights and provided written consent before participation. The research did not hurt the participants because the data were collected via interviews.

FINDINGS AND DISCUSSION

Level of Students' Awareness of Microcredentials

Table 2. Students' awareness of microcredentials

Constructs	$\bar{x}$	VI
1. I am familiar with the concept of microcredentials.	2.73	A
2. I know where to find microcredentials courses related to my field of study.	2.62	A
3. I am aware of the benefits of completing microcredentials courses.	2.73	A
4. I understand the differences between microcredentials and traditional degrees.	2.71	A
5. I regularly seek information about new microcredentials opportunities.	2.58	A
Composite Mean	**2.68**	**A**

Legend: 1.00-1.75 Strongly Disagree
1.76-2.50 Disagree
2.51-3.25 Agree
3.26-4.00 Strongly Agree

The findings in Table 2 provide valuable insights into students' perceptions and engagement with microcredentials. In general, the data show a positive alignment because all categories have average scores falling within the "Agree" range (2.51-3.25), as shown by the legend.

First, students typically acknowledged their familiarity with microcredentials, as indicated by a mean score of 2.73. This indicates a commendable understanding of the concept of microcredentials. Similarly, the level of awareness of the advantages of completing microcredentials courses was rated at a mean score of 2.73. This suggests that students not only acknowledge the existence of microcredentials and comprehend their benefits, which may include career progression or the development of new skills.

Nevertheless, there is a somewhat diminished consensus, with an average rating of 2.62, regarding the awareness of locating microcredential courses that are relevant to their area of study. This suggests a discrepancy between overall knowledge and actual skills when choosing appropriate courses. However, students had a strong understanding of the distinctions between microcredentials and regular degrees, as indicated by their average score of 2.71. This indicates students' ability to differentiate between these two forms of educational credentials. The construct with the lowest mean score (2.58) is related to frequent pursuit of knowledge about new microcredentials. This suggests that although students are aware of engaged, they do not consistently seek out new information and opportunities.

The results of the study are in conjunction with the results of Ahmat et al. (2021), who showed that faculty members and students are aware of what microcredentials are. Moreover, there is evidence that microcredentials are gaining popularity and attention according to the study of Ahsan et al. (2023).

Table 3. Students' perceptions of microcredentials

	Constructs	$\bar{x}$	VI
1.	I perceive microcredentials as valuable additions to my academic qualifications.	3.00	A
2.	I believe that employers value microcredentials as much as traditional degrees.	2.95	A
3.	I believe microcredentials are more accessible than traditional degrees.	2.91	A
4.	I feel that microcredentials offer up-to-date knowledge and skills.	3.01	A
5.	Microcredentials are perceived by my peers as cost-effective alternatives to traditional degrees.	2.94	A
Composite Mean		**2.96**	**A**

Legend: 1.00-1.75 Strongly Disagree
1.76-2.50 Disagree
2.51-3.25 Agree
3.26-4.00 Strongly Agree

Table 3 presents a detailed analysis of students' perceptions of microcredentials from different perspectives. Every element in the table belongs to the "Agree" group (2.51-3.25), indicating generally good but not overwhelmingly strong support for microcredentials among students.

Microcredentials are first seen by students as academic supplements with an average score of 3.00. Nevertheless, people consider their importance even though they may not regard them as equivalent to full-fledged degrees. Employer valuation supports this perspective, considering an average score of 2.95. This implies that students believe that employers do not value microcredentials as much as degree certificates. On the contrary, students perceive microcredentials to be easier than traditional degrees based on an average score of 2.91. This could be attributed to charges, among other factors, such as entrance requirements and convenience in studying. Therefore, business-focused microcredential programs were awarded a mean score of 3.01, which confirms that students perceive value in the content of these programs. Students ranked microcredentials at 2.94 due to its affordability, which indicates that they find it cheaper than degree courses. This demonstrates how appealing microcredentials are to individuals seeking affordable education. For all their elements, students reported that microcredentials were good, with an average of about 2.96 for each component. However, they appreciate its significance, accessibility, and cost efficiency, but they are worried how well its recognized by employers in relation to academic degrees. In order to better align with students and employers' expectations, this more nuanced perspective suggests areas in which microcredential providers might improve. Students love microcredentials for their relevance, accessibility, and affordability. Nonetheless, the absence of "Strongly Agree" rating indicates that although students acknowledge the advantages of micro-credentials, they may have reservations about them or point out areas that require improvement.

On the basis of a study by Gregg et al. (2022), students have a positive perception of micro-credentials because it helps in their employment and increases their skills. This is in conjunction with the results of a study in which Filipino students perceived that micro-credentials enhance their academic qualifications, thus making them more employable. The perceptions of students in this study are the same as those of the study by Zou et. al. (2024), where it is shaped by perceived employability and improved skills.

Table 4. Students' Acceptance of Microcredentials

	Constructs	$\bar{x}$	VI
1.	I am willing to enroll in microcredential courses to enhance my skills.	3.01	A
2.	I accept microcredentials as legitimate forms of academic achievement.	3.03	A
3.	I would recommend microcredential courses to others.	3.03	A
4.	I plan to incorporate microcredentials into my professional development plan.	2.98	A
5.	I believe that microcredentials should be integrated into mainstream education systems.	3.02	A
Composite Mean		**3.02**	**A**

Legend: 1.00-1.75 Strongly Disagree
1.76-2.50 Disagree
2.51-3.25 Agree
3.26-4.00 Strongly Agree

Table 4 shows that students liked microcredentials but were not very enthusiastic about them. This is supported by the scores for every item falling under the category of "agree"-between 2.51 and 3.25. According to the data, it can be assumed that students are willing enough to apply microcredentials for developing their abilities to an average of 3.01. Nevertheless, there has been an existence of not much interest in it, as shown by its low enthusiasm level, which might also imply unfamiliarity or doubtfulness about the programs by students. For instance, acceptance (3.03) appeared quite strong, although it was not very high; as well as recommending other people (3.03), both received significant but not strong agreement indices.

The score of 2.98, which is significantly lower, suggests hesitancy to adopt microcredentials in professional development plans. This hesitation may stem from concerns regarding their compatibility with certain career pathways or recognition within the sector. Moreover, students displayed a consensus, scoring 3.02, regarding the integration of microcredentials into mainstream educational institutions. This indicates that they recognize the potential advantages but may also have concerns about the successful implementation of these integration.

Responses with an average score of 3.02 indicate a general agreement that microcredentials are beneficial and should be more widely acknowledged and included. However, there is still potential to enhance their attractiveness and practical implementation in educational and employment contexts. This modest degree of acceptability provides educational institutions and policymakers with an opportunity to increase their awareness of and perceived value of microcredentials by offering more comprehensive teaching on their practical advantages and wider recognition within professional fields.

Acceptance of micro-credentials is high because of its lower cost than enrolling in a master's or doctorate program. This was also emphasized in the study of Miller and Jorre (2022), where it stated that acceptability is not only related to the cost of education but also the benefits of career development and salary increases. Moreover, micro-credentials are widely accepted because of their adaptability to students' schedules and courses availability, as stated in the research of Shariman and Damian (2022).

Table 5. Students' Attitudes toward Microcredentials

Constructs	$\bar{x}$	VI
1. I am enthusiastic about the learning opportunities offered by microcredentials.	3.02	A
2. I am skeptical about the long-term value of microcredentials.	2.89	A
3. I prefer microcredential courses over traditional degree courses for skill development.	2.78	A
4. I am concerned about the recognition of microcredentials in the job market.	2.94	A
5. I view completing microcredential courses as a way to stay competitive in my career field.	2.98	A
Composite Mean	**2.92**	**A**

Legend: 1.00-1.75 Strongly Disagree
1.76-2.50 Disagree
2.51-3.25 Agree
3.26-4.00 Strongly Agree

Table 5 provides an insightful overview of student opinions on microcredentials. All scores were in the "Agree" range (2.51-3.25) and the average score was 2.92. The data indicate broad, albeit careful, approval for microcredentials across several aspects. Students exhibited a high level of enthusiasm for the learning possibilities offered by microcredentials, as indicated by a mean score of 3.02. The score indicates a good perception of the immediate advantages of these programs in terms of acquiring new skills and enhancing knowledge. Nevertheless, there is significant doubt over the enduring value of microcredentials, as seen in the significantly lower average of 2.89. This doubt indicates apprehension about the long-term significance of these qualifications and their acknowledgment. Moreover, students exhibited a modest inclination toward microcredentials compared to standard degrees for skill enhancement, as evidenced by a mean score of 2.78. This suggests that although microcredentials are perceived as advantageous, they are not significantly favored over conventional educational routes.

On the whole, there is a consensus on the favorable qualities of microcredentials, but there are also doubts about their long-term worth and recognition in the labor market. This indicates a nuanced and cautiously hopeful perspective for students. They acknowledge the immediate advantages of microcredentials but also need more certainty about their long-term sustainability and wider recognition in professional settings. This ambivalent feeling highlights the need for educational institutions and governments to tackle these issues by improving the reliability and prominence of microcredentials.

Table 6. Model Results

Hypotheses	B	P-value	SE	f^2
H1. Awareness-Attitudes	0.178	<0.001	0.022	0.092
H2. Perceptions-Attitudes	0.550	<0.001	0.021	0.362
H3. Awareness - Acceptance	-0.003	0.437	0.022	0.002
H4. Perceptions - Acceptance	0.298	<0.001	0.021	0.196
H5. Attitudes - Acceptance	0.543	<0.001	0.021	0.403

Table 6 presents the model used for the substantial relationship test. There are significant relationships between degree of awareness and attitudes (B=0.178, p<0.01), degree of perceptions toward attitudes (B=0.55, p<0.01), degree of perceptions to acceptance (B=0.298, p<0.01), and attitudes and acceptance i (B=0.543, p<0.01), but there is no significant relationship between

awareness and acceptance (B=-0.003, p=0.437).

Degree of awareness influences attitudes (B=0.178, p=<0.001), leading to acceptance of Hypothesis 1 (H1). The analysis shows that the level of awareness assigned by respondents has a bearing on their perceived attitudes toward microcredentials , with the positive coefficient indicating that the more aware students are about microcredentials, the greater their positive attitudes are. This result was observed even though the effect size was relatively small (Cohen's f2 = 0.092).

An individual's positive perception toward microcredentials significantly affects their attitudes (B=0.550, p<0.001), with a positive coefficient demonstrating that favorable perceptions enhance attitudes. The effect size is moderate (Cohen's f2 = 0.362), affirming support for Hypothesis 2 (H2).

Positive perceptions also significantly affect the acceptance of microcredentials as well (B=0.298, p<0.001), with the positive coefficient underscoring the benefits of having positive perceptions on the acceptance of microcredentials. The associated effect size is modest (Cohen's f2 = 0.196), thus Hypothesis 4 (H4) is supported.

Finally, positive attitudes significantly foster the acceptance of microcredentials (B=0.543, p<0.001), with the positive coefficient indicating that attitudes toward microcredentials promote its acceptance and a considerable effect size (Cohen's f2 = 0.403), leading to the support of Hypothesis 5 (H5).

As for perception and acceptance, it is seen in the result that they are related. This is in conjunction with the study of Fisher and Leder (2022), who stated that students seek assurance that their investments will lead to a degree that is both recognized and valued by employers. It is essential that the coursework is both rigorous and achievable, which will ensure the development of key skills. Programs that strike a balance between being sufficiently challenging to promote deep learning while not excessively burdensome to deter potential students tend to be more attractive.

CONCLUSIONS

The study "Microcredentials and Modern Learners: Insights into Student Perceptions and Acceptance" offers valuable insights into student perspectives on microcredentials, highlighting a scenario in which students generally hold a favorable view of these programs but have reservations regarding their long-term worth and recognition in the job market. This study is important because it highlights students' changing educational requirements and preferences, indicating a wider trend toward more adaptable, specialized learning options in higher education.
The results suggest a significant level of acceptability for microcredentials among students, with a notable appreciation for their relevance and accessibility. The favorable reception of such credentials is somewhat restrained due to concerns about their long-term viability and recognition among professionals. Students express doubt about the lasting worth and market acceptance of these credentials. Furthermore, students overwhelmingly agreed on the need to incorporate microcredentials into traditional education systems, indicating strong demand for official acknowledgment and validation within existing educational frameworks.

This research is significant for several reasons. It functions as a crucial instrument for policy formulation, offering factual information that can assist in shaping educational policies to more effectively meet students' needs in the digital age. Additionally, it promotes educational innovation by emphasizing how institutions can modify their curricula to include microcredentials as effective elements that align with the evolving demands of the labor market. Moreover, this research highlights deficiencies in existing educational programs with microcredentials, namely, in terms of their acknowledgment and long-term worth, and provides guidance to institutions in areas that require attention.

Management Implications

These insights can be used by universities and colleges to improve their educational plans and operations in many ways. Universities can include microcredentials in their curricula, presenting them as supplementary options or substitutes for conventional degrees. This approach expands the educational attractiveness and practicality of such programs. Institutions may use this data to enhance their marketing and recruiting efforts and present a persuasive argument for the tangible advantages of their microcredential programs. In addition, forming alliances with the business may guarantee that microcredential programs are relevant and esteemed in the job market, thus enhancing their appeal and approval among students. Furthermore, enhancing the value proposition of microcredential programs may be achieved by directly addressing student issues and offering explicit success routes and rewards.

Moreover, this study offers a thorough understanding of current attitudes toward microcredentials. It serves as a fundamental resource for educational institutions seeking to adjust to the needs of modern learners and better meet market expectations. The alignment of these institutions is essential for strengthening educational effectiveness and relevance as well as ensuring that graduates are adequately equipped to succeed in a highly competitive and ever-changing labor market.

LIMITATION & FURTHER RESEARCH

The limitation of this study is that it did not account for changes over time, such as how perceptions might change with the increasing adoption by employers and universities.

Some areas must be considered by future researchers to improve the findings obtained from this investigation. To begin with, conducting longitudinal research would be a great privilege to get to know if micro-credentials can last for long periods in the employment market. This will enable students to gain a broader understanding of their lives and whether they can stand the test of time. Second, including perspectives from employers when studying micro-credentials might enable people to better understand how these qualifications are appreciated across several industries and sector-specific fields. Third, cross-comparative studies among various countries or regions may indicate how socio-cultural beliefs and economic settings shape acceptance rates and the effectiveness of micro-credentials.

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