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Perceptions and Readiness of Nurses, Nurse Educators, and Nursing Students Towards the Incorporation of Micro-Credentials

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ABSTRACT *Micro-credentials are increasingly important in nursing as healthcare knowledge rapidly evolves. Using a qualitative descriptive approach, the study explored the perceptions and readiness of nurses, nurse educators, and nursing students regarding the incorporation of micro-credentials to advance their career goals and employability. Qualitative interviews were conducted among 5 final-year students, 6 senior lecturers at the School of Nursing (SN), the Maldives National University, and 6 nurse managers from three tertiary hospitals in the Maldives. Perspectives and readiness regarding the understanding of micro-credentials and the factors influencing their implementation in nursing were identified among students, nurse educators, and nurse managers. Additionally, nurse educators and nurse managers discussed the importance of establishing a micro-credential framework, aligning this framework with regulatory bodies, and its broader implications. The study provides valuable insights into stakeholders' readiness, preferences, and expectations, highlighting key perspectives on fostering flexible and modular learning pathways for the nursing profession.*

Keywords: *Micro-Credentials, Digital Badges, Continuing professional development, Traditional Credentials, Nursing Education*

Introduction

In continuing and higher education, micro-credentials are relatively new options to enhance employability by developing skills and competencies. Micro-credentials were established in 2012, and since then the certifications have been issued by reputed organisations similar to traditional credentials (Oliver, 2019). A combination of micro-credentials is often required to keep individuals employable through regular upskilling and reskilling. Typically awarded as digital icons, Oliver (2019) defines micro-credentials as additional, alternate, or complementary certifications of assessed learning, that forms part of a formal qualification. He further expands on the definition by describing a credit-bearing micro-credential as one that earns credit towards or provides admission to a formal qualification.

Providers of micro-credentials use varied terminologies, including “verified certificates,” “digital badges,” “alternative credentials,” “awards,” “micro-certifications,” “micro-qualifications,” “micro degrees,” “modules,” and “units” (Camilleri & Hudak, 2018). Literature identifies three main clusters of micro-credentials: skill credentials, learning units, and short learning programmes with

varying durations of study (European Training Foundation, 2022).

Many researchers agree that traditional instruction models are insufficient for continuous skills updates and upgrades as they are cumbersome and confine learners to a closed system (Maytin et al., 2023; Li & Ironsi, 2024). Despite the increasing attention micro-credentials have received in the literature, a universally accepted definition has not yet been established. According to the Australian National Micro-Credential Framework (2021), “A micro-credential is a certification of assessed learning or competency, with a minimum volume of learning of one hour and less than an Australian Qualifications Framework (AQF) award qualification, that is additional, alternate, complementary to or a part of an AQF award qualification” (p. 9). This framework captures quality assurance measures, including stipulated learning outcomes and critical information requirements such as the issuing institution, provider, relevant regulator, and approach to academic integrity and assessment.

This paper is part of a Capstone Project conducted for the Postgraduate Diploma in Higher Education Programme at the Maldives National University (MNU). As a project requirement, a pilot micro-credential programme (a skill credentials module of 6 hours) was conducted for final-year nursing students. For the project, no formal Quality Assurance (QA) processes were followed for the developed skill credentials module, as it was conducted as part of a Continuing Professional Development (CPD) session. Due to the short time frame and limited scope, the programme was implemented only for final-year nursing students. The study aimed to understand the perceptions and readiness of nurses, nurse educators, and nursing students regarding the incorporation of micro-credentials to advance their career goals and employability. For the current study, micro-credentials is defined as a skill credentials module requiring 1 to 25 hours of learning, linked to the acquisition of specific competencies, undertaken within a non-formal learning context and, not explicitly quality assured by external QA processes (Camilleri & Hudak, 2018).

Significance and Theoretical background

In the Maldives, the Maldives National Skills Development Authority (MNSDA), established under the Higher Education and Training Act 7/2021, helps learners pursue part-time education to prepare for employment. These programmes are traditionally designed to equip individuals during the first 22 years of life with the skills and knowledge necessary for personal growth, development, and mastering key competencies to secure their first job and maintain long-term employability (MNSDA, 2024). Programmes under the MNSDA are offered in six sectors: social, transport, tourism, information, communication and technology, construction, and fisheries and agriculture. Trainees who complete all programme competencies earn a nationally recognized certificate accepted across the Maldives (MNSDA, 2024). However, vocational education and training in the Maldives currently, lack a credit system linked to micro credentials. Introducing a national micro-credential framework with credit-bearing programmes could help graduates build essential skills. In developed countries such as Australia and New Zealand, micro-credential programmes are offered alongside national micro-credential framework (Department of Education, Skills, and Employment, 2022; New Zealand

Qualifications Authority, 2022).

Micro-credentials have gained popularity across various professions, including healthcare, where the knowledge base is continuously expanding and evolving (Southard, 2021). Their use in healthcare has grown, particularly after the COVID-19 pandemic, to expand the workforce, address skills gaps, and adapt to evolving healthcare practices and needs (Shay, 2023). As the largest healthcare workforce, nurses are particularly affected by these changes, which require expanded, evidence-based skills and practices. With increasing expectations from healthcare consumers, nurses and other healthcare professionals need validated and specific skill sets, which can be achieved through micro-credentials and digital badges (Southard, 2021; Peisachovich, 2021).

Micro-credentials have been highlighted as a way to validate specific skills and competencies in nursing and healthcare (Shay, 2023). However, the literature shows limited data on the types of micro-credentials offered in nursing education. Shay (2023) notes that nursing organisations have been slow to embrace the micro-credential movement. For instance, the American Association of Critical Care Nurses was one of the first professional organisation to offer a nursing specialty micro-credential: “the COVID-19 pulmonary and ventilator care” course was developed to address urgent needs during the pandemic and validate specialised nursing knowledge.

The pilot micro-credential programme in this research explored clinical teaching concepts and provided a framework for planning, guiding, and evaluating learning activities in clinical settings. Micro-credentials can play a significant role in equipping healthcare professionals with specific skills essential for optimal patient outcomes. Research has raised questions on how mentoring can be sustained in nursing and various hospitals, especially when older nurses have a high retirement rate (Bily, 2007, as cited in Olaolorunpo, 2019). Research has highlighted concerns about how mentoring can be sustained in nursing and healthcare settings, particularly in light of the high retirement rates among older nurses.

Clinical nurse mentors play an active and challenging role in clinical settings. In clinical teaching, the classroom and clinical environments are interconnected, and clinical settings require distinct approaches to teaching (Gaberson & Oermann, 2007). Mentoring is considered the backbone of successful career development for nurses (Osghare, 2012, as cited in Olaolorunpo, 2019). Its absence can lead to issues such as a lack of intellectual proficiency, poor clinical etiquette, and the failure to pass nursing ethics from one generation to the next (Olaolorunpo, 2019).

In the Maldives, a study found that students perceive mentors as essential to effective clinical learning (Hassan et al., 2017). While learning opportunities exist in clinical environments, students often struggle to fully utilise them. Satisfaction and confidence increase when students are able to make the most of these opportunities.

Research Aims

Given the growing need for micro-credentials in developed countries, it is crucial that the Maldives National University (MNU), as one of the Maldives’ leading universities to diversify its micro-credentials offerings. This would enhance workforce-oriented skills, drive enrolment, and compete with other certification

programmes and institutions nationwide. Despite the increasing global demand for micro-credentials, particularly in nursing education, there is no research on micro-credentials in the Maldives. Additionally, the concept of micro-credentials has not gained much attention in the literature in the Maldivian context. Using a qualitative approach, this study aimed to explore the perceptions and readiness of nurses, nurse educators, and nursing students to incorporate micro-credentials in nursing education, aiming to advance their career goals and employability.

This study addresses research gaps in micro-credential implementation for nurses. Its findings are expected to contribute to the limited body of literature on nursing education in the Maldives. Accordingly, the research question is: what are the perceptions and readiness of nurses, nurse educators, and nursing students regarding the incorporation of micro-credentials to advance their career goals and employability?

Review of literature

Micro-Credentials: New Kids on the Block

Research on micro-credentials remains limited, primarily focusing on key approaches and definitions, with few empirical evaluations. In the context of online and distance learning courses, micro-credentials are often considered the ‘new kids on the block’ (Sargent et al., 2023, p. 2). Significant gaps exist in academic research regarding the implementation of micro-credentials in higher education (Selvaratnam & Sankey, 2021) and their relevance within workplace context (Woods & Woods, 2021). Despite the limited empirical literature, micro-credential courses offer industry-aligned learning that addresses gaps in knowledge and skills needed to meet the dynamic demands of the workplace. Consequently, these short courses attract learners seeking time-efficient, contemporary, and relevant learning aligned with their career and educational needs (Ahern et al., 2024).

Digital badges are sometimes regarded as pedagogical tools by employers. A scoping review of 45 studies examining the use of digital badges as either pedagogical tools or micro credentials revealed confusion surrounding their nomenclature, alongside numerous theories explaining their use. Findings suggested that using digital badges as pedagogical tools or as micro-credentials carries implications for various stakeholders, including the promotion of lifelong learning, upskilling, and workforce reskilling (Cumberland et al., 2024).

The demand for micro-credentials among higher education institutions is growing rapidly. For instance, according to the European Commission, 36 of 42 Australian universities were either developing or already offering micro-credentials in 2020 (Orr et al., 2020). However, many employers remain unfamiliar with how these courses can be ‘stacked’ into formal qualifications (Ashcroft et al., 2021; Owen, 2022; Perkins & Pryor, 2021; Sargent et al., 2023). Despite these challenges, the available literature supports the value of micro-credentials for higher education institutions, learners, and employers alike.

Quality Assurance for Micro-Credentials

Ensuring the credibility and quality of micro-credentials poses a significant challenge. With the increasing prevalence of micro-credential offerings via online

platforms and their rising demand, robust quality assurance mechanisms are essential (Pawilen, 2024). For this, it is important to establish clear standards, assessment criteria, and accreditation processes are vital to maintaining the integrity and reliability of micro-credentials. A lack of formal accreditation may undermine the acceptance and value of micro-credentials in certain contexts. Thus, it is critical to develop clear accreditation processes and align them with existing systems.

It is also important to ensure the use of quality instructional and assessment methods, especially in online and self-paced learning environments. Rigorous instructional design, robust assessments, and effective feedback mechanisms are essential for ensuring quality of micro-credentials. A study conducted in India has highlighted quality assurance as a key consideration in designing micro-credentials, such as determining whether a course has national or international accreditation and integrating micro-credentials into accredited programmes (Mishra, 2024).

A mixed methods study on micro-credentials for labour market education and training across 30 European countries revealed the use of primarily internal quality assurance processes (Stasiowski, 2023). Moreover, the study indicated that not all micro-credentials require quality assurance based on nationally established standards. Another study, examining how external quality assurance agencies in six countries ensure micro-credentials quality, found that common QA frameworks and standards were intentionally adopted for micro-credentials (Brown & Duarte, 2024). Notably, only three of these six countries had developed specific quality assurance standards or requirements for micro-credentials.

Micro-Credentialing: An Option for the Nursing Profession

Professional education in nursing has traditionally been delivered through long-form programmes. However, contemporary approaches, such as stackable credentials, combine the benefits of degree-related and continuing education by mapping and stacking learning outcomes and credentials that are both accessible and relevant (Jones-Schenk, 2018). Micro-credential courses offer extensive opportunities for nurses, midwives, and other healthcare professionals to acquire the knowledge and skills required to deliver safe, high-quality care (Ahern et al., 2024).

Clayton et al. (2014) argued that badges, as digital micro-credentials, can serve as valid indicators of nurses' accomplishments, skills, knowledge, or interests. They suggested that individuals could use micro-credential or badge collections to reflect on and improve their practice. Similarly, Foli et al. (2016), after assessing the perceptions of approximately 100 students who completed online safety and quality care models found that most of them considered digital badges meaningful and motivating. Digital badges have also shown to enhance motivation in classroom settings. A descriptive comparative study demonstrated that using digital badges as a reward system improved undergraduate nursing students' attendance, motivation, and satisfaction (Joseph et al., 2021).

While literature on micro-credentials in nursing education is limited, nursing organisations have gradually embraced this movement, especially following the COVID-19 pandemic (Shay, 2023). For instance, Zu et al. (2024) developed six geriatric nursing micro-credential courses for undergraduate nursing students in China, concluding that nursing faculties could use these courses to train

undergraduate nursing students as a backup for fully credentialed geriatric caregivers. Similarly, Wenker et al. (2023) designed the “Interprofessional Dementia Caregiving Telehealth Community Practicum Badge” for health profession students to meet the needs of dementia caregivers in Wisconsin. This badge requires interprofessional students to complete five self-directed modules, culminating in a capstone project and reflection.

Peisachovich (2021) explored the application of micro-credentials in simulation-based education (SBE) for nursing, describing it as an innovative means for educators to acquire the competencies needed to develop, implement, and evaluate teaching strategies. These examples demonstrate the extent to which micro-credentials and digital badges can be leveraged in nursing education.

Impact of Micro-Credential Learning on Student Achievement and Employability

Empirical evidence on the impact of micro-credential learning on student achievement and employability remains limited. A study of micro-credential courses offered by The Open University UK highlighted several positive impacts, even for learners who did not complete their courses (Chandler & Perryman, 2023). Their findings suggested that micro-credentials helped develop knowledge and skills, fostered changes in learners’ perspectives, and had a positive effect on their work and everyday life. Additionally, the courses provided some learners with confidence to pursue further education and even enabled career transformation.

Micro-credential courses have also been used to enhance soft skills in learners. For instance, an experimental study revealed that while traditional classrooms improve communication skills, micro-credential learning spaces are more effective in developing critical thinking, problem-solving, and communication skills (Li & Ironsi, 2024). Another study examining the role of micro-credentials’ in enhancing social and emotional competence in educators found that such programmes increased intentionality and competence in delivering Social Emotional Learning (SEL) and improved SEL skills (Berney, 2023).

Limited research exists on employers’ perceptions of digital badges and micro-credentials. Randal and West (2022) found that providing employers with information on open badges increased their perceived value. Employers valued badges for demonstrating achievement and capability, with links to evidence and endorsements from professional organisations seen as particularly useful. Similarly, Young et al. (2019) reported that both participants and badge issuers saw potential value in badging programmes.

Learner preference also plays a critical role in the success of any micro-credential programmes. A survey of 430 intern pharmacists in New Zealand revealed that 88% preferred stacked micro-credentials over traditional courses (Marra et al., 2022). Learners favoured low-cost courses that supported skill and career development. Zou et al. (2023) similarly found that micro-credential learning significantly enhanced students’ perceived employability. This finding is further corroborated by White (2023), who highlights that micro credential-based strategies significantly enhance student achievement and engagement.

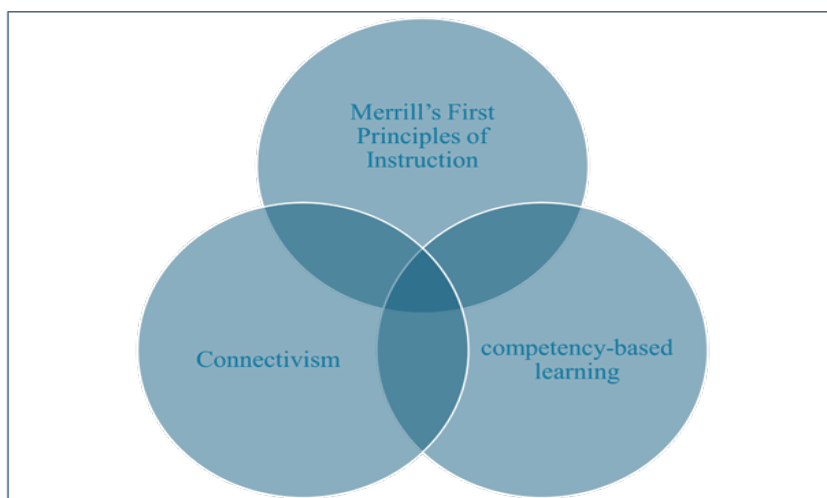
The available literature underscores the positive impacts of micro-credentials and digital badges on both learners and employers across diverse learning domains and professions.

Theoretical Framework

Literature suggests that micro credentials align with three key theories: Connectivism, Merrill's First Principles of Instruction, and Competency-Based Learning (Maytin et al. 2023).

Connectivism posits that the students learn best when using social networks to navigate learning (Maytin et al., 2023). Hence, conducting micro-credentials through a blended learning approach using various digital platforms supports this theory. On the other hand, Merrill's First Principles of Instruction provides a framework underlines the importance of effective instructional design regardless of delivery mode. Competency-Based Learning theory emphasises valuable market aligned education (Maytin et al., 2023). These theories collectively explain the rapid growth of micro-credentials

Figure 1: Theoretical Model for the Use of Micro-credentialing in Nursing Education, (Adapted from Maytin et al., 2023)



As cited in Ashcroft et al. (2021), Bordieu's theory of cultural and human capital also supports the proliferation of alternative credentials (Bordieu,1986). This theory suggests that the competencies gained through such programs help learners to market themselves effectively to employers (Walters, 2004; Ashcroft et al., 2021). The principles of these theories were incorporated into the design of the "Basic Clinical Teaching/Supervision Strategies" module, ensuring alignment with learners' and employers' needs.

Methodology

The study employed a qualitative descriptive design to examine the perception of students, lecturers, and nurses regarding the incorporation of micro-credentials for nurses and nursing students to advance their career goals and employability. Descriptive qualitative studies are recognised as eclectic in their designs and methods grounded in the general premises of constructivist inquiry (Polit & Beck, 2018). This approach is particularly effective when the study's time-frame

is short, as was the case in this research. Since the concept of micro-credentials was new to the students, and to explore their experiences of participating in such a programme, a pilot Skills Credential module was conducted during the initial phase of the study. This intervention aimed to address the gap in how mentoring and supervision skills among final-year nursing students can be enhanced through micro-credential programmes as an alternative form of continuous professional development (CPD).

Sampling and Data Collection

Qualitative interviews were conducted with final-year nursing students, senior lecturers at the School of Nursing (SN), MNU, and nurse managers from three tertiary hospitals in the Maldives (Indira Gandhi Memorial Hospital, Tree Top Hospital, and ADK Hospital). Participants from tertiary hospitals were chosen for data collection due to the study's nature and scope. These participants were purposively selected based on their managerial experience. Two nurse managers from each hospital were interviewed. Additionally, six senior lecturers from SN were purposively chosen for interview based on their expertise in teaching and curriculum development.

Nineteen final-year nursing students initially participated in the skills credential programme, which was carried out as a six-hour CPD workshop. This intervention was part of the Capstone Project requirements. However, using a convenience sampling approach, only five of these students were selected for qualitative interviews. Thus, a total of 17 qualitative interviews were conducted to provide a holistic perspective on incorporating micro-credentials for career enhancement and employability in nursing education. Triangulating data from three stakeholder groups is believed to enhance the credibility of the findings. A heterogeneous sample was intentionally chosen to identify commonalities among diverse groups, as they are more likely to be generalisable than those found in a homogeneous group (Robinson, 2014).

Ethical Considerations

Following approval from the MNU Ethics Committee, participants were informed about the study processes, including their rights to voluntary participation and withdrawal upon request. Verbal informed consent was obtained from all participants, and personal identifying information was removed and replaced with unique codes to ensure anonymity and confidentiality. Participants were assured that the research involved no potentially harmful consequences, and academic grades would not be affected in any way. The interviews were conducted in a comfortable and feasible environment for the participants.

Data Analysis

The collected interview data was broken into smaller units, which were then coded and named according to the content they represented. The coded materials were grouped based on shared concepts, leading to the identification of themes. The analysis explored themes and patterns that emerged from participants' narratives. The theoretical model in Figure 1 guided the analysis by suggesting relevant concepts and relationships to investigate. As Polit and Beck (2018) note, qualitative content analysis involves examining qualitative data to identify prominent patterns

and themes.

Findings and Discussion

1. Readiness and Perspectives of Students

1.1 Comprehension of the Concept and Experience

Following the Skill Credentials module delivered as a CPD session on ‘basic clinical teaching strategies, participants were asked about their experiences with the programme and their willingness and motivation to engage in similar programmes in the future. Some participants indicated that they had heard of the term micro-credentials before but were unfamiliar with its meaning, while others have never encountered the term. Overall, all participants described the experience as interesting and useful, highlighting that specific skills are often not covered in their current programme.

“...we knew very little about teaching and mentoring...we only get the idea about mentoring through lectures...” (Student #5)

When discussing their motivation for attending short courses, most students cited the enhancement of knowledge and skills as their primary motivators. Some also emphasised the importance of programme timing, content, and certification.

“....depends on if it is an interesting field for me....and that depends on if I am available or not during the timing of the programme”. (Student #2)

1.2 Motivational Factors

Participants universally viewed micro-credentials as a means to enhance professional knowledge and skills, citing the ever-changing nature of nursing, driven by new evidence-based practices, as a reason to keep their knowledge up to date. When asked about factors they would value in micro-credential programmes, participants expressed a preference for face-to-face formats once they began working. Blended courses, combining synchronous and asynchronous online sessions with face-to-face components, were widely considered more feasible.

“If I am working, ...it will be easier if it is online. But I think I personally learn more when there is a teacher face-to-face” (Student #4)

“If the courses are for shorter durations, and when we are available, then it will be very good.” (Student #5)

While the literature suggests certification as a key driver for students to pursue micro-credentials, most participants in this study viewed certification as an added benefit rather than a primary motivator. Instead, they valued micro-credentials for their potential to enhance their knowledge and skills. Nevertheless, one participant expressed preference for officially certified programmes.

“I think if it is interesting, I would go, even if there is no official credential...I am a very curious person. So I think I would go for anything that interests me if I have time...” (Student #2)

“I would prefer officially certified programmes.,,,It depends. I think both are equally important. If I am interested in an area/topic...” (Student #3)

Regarding the qualifications landscape, some participants preferred stacking short training programmes to achieve higher-level qualifications, such as nursing specialisations. Others favoured supplementary programmes to enhance specific skills. Many noted that their current modules were restrictive and suggested offering short courses during breaks or holidays to advance their career pathways. Preferred topics included communication, writing, and research skills.

*“As sometimes the modules we study in might not cover everything. So maybe the courses will enhance the parts that we don’t cover in the modules.”
(Student #4)*

*“..for example, I would totally take up course regarding research because I am very weak in that area, so I want to improve my writing skills and....”
(Student #3)*

The findings have revealed participants’ strong willingness to incorporate micro-credentials to advance their career goals and employability. However, a relatively low level of awareness about micro credentials and their formats, characteristics, and stackability was identified, aligning with findings by Ashcroft et al. (2021) and Harvey et al. (2023). While the participants prioritised skills and knowledge enhancement over programme credibility, this contrasts with Bruguera et al. (2023), where learners preferred credentials from reputable universities. Motivational factors, such as stackability, modular programmes, and recognition, corroborate from Ashcroft et al. (2021) and Bruguera et al. (2023).

The study also provided insights into how theories of Connectivism, Merrill’s First Principles of Instruction, and competency-based learning can inform the design of micro-credentials programmes aligned with marketplace demands.

Similar to Marra et al. (2022) and Zou et al. (2023), participants favoured skill and career development in these programmes. The findings also highlight micro-credentials’ positive influence on participants’ perceived employability.

2. Nurse Educators’ and Nurse Managers’ Perspective

There was a significant consensus among nurse educators and managers regarding the value of incorporating micro-credential programmes for nurses and nursing students. Key sub-themes are explored below.

Considering the complexity and novelty of the micro-credentials, it was unsurprising that participants expressed varied and contradictory understandings. While most participants had heard of the term, many were unfamiliar about its application as a tool for career enhancement and employability. Some assumed micro-credentials were short courses with expiry dates, while others demonstrated only a vague understanding of the concept.

“I have heard about it, but I don’t understand the concept much...” (Nurse manager #3)

“Once I have done [one similar programme] ...one small course...Most of the time micro-credentials have an expiry date...” (nurse educator #6)

Some participants questioned the necessity of micro-credentials for nursing students, suggesting a lack of understanding of their purpose.

“For the nursing students, I think they will be engaging in systematic regular course frameworks, so it may not be very applicable during their period of study.” (Nurse Educator #3)

2.1 Micro credentials Framework for Advancing Career

All participants agreed on the importance of establishing a micro-credentials framework in the Maldives to support the introduction of short courses that provide credentials to nurses and nursing students. Several participants emphasised the need for a robust framework aligned with national and international standards, such as those set by the Maldives Qualification Authority (MQA) and Maldives Nurses and Midwifery Council (MNMC). As discussed earlier, micro-credentials have been an important indicator for CPD hours for registered nurses. It has also been identified as a necessary substitute for nurses and nursing students to keep up with the changing requirements of the nursing profession.

“...The enrolled nurses...they don’t have professional certificates....and so if these [micro credentials] are introduced, I think such skills can be verified and micro credentials can be offered to them,...For students also I think there are some skilled areas that they can do, like patient assessments.” (Nurse Educator #4)

Participants stressed the risks of introducing micro-credentials without proper regulation and highlighted the framework’s potential to build additional skills and knowledge after completing higher qualifications. They also discussed the flexibility of short programmes to accommodate busy work schedules and hospital staff shortages.

“It is important to establish a framework, but its quality is very important, but it has to be strong, especially at the developmental stage, it should be very strong, not just anything or any framework.” (Nurse Manager #1)

Some participants specifically emphasised the importance of tying the framework to MQA and MNMC standards, as this could support career advancement and help nurses climb the pay structure ladder. The framework was also noted as valuable for renewing nursing licenses and registrations.

“I think it [the framework] is very important, especially when we talk about MNMC, I think they are coming up with professional development hours, and they will most likely... consider including credit point as well. So in that case it will be very important to

have a framework...” (Nurses Educator #1).

The literature corroborates that a lack of formal accreditation can impact on the acceptance and value of micro-credentials (Pawilen, 2024; Mishra, 2024). Developing clear accreditation processes and aligning them with existing systems is therefore essential to ensure the quality assurance of micro-credentials.

2.2 Facilitating and Challenging Factors

Many of the participants discussed the importance of micro-credentials and their framework, including how they can be used as an alternative method for a profession like nursing. Micro-credentials were primarily identified as supplementary training that nurses could use for professional development and specialisation.

“...it is still a very much female dominated profession...we have other responsibilities, so I think there are many nurses who are unable to actually come and attain a formal education.” (Nurse Educator #1)

Some participants raised questions about the practicality of implementation. They suggested stakeholders consultations and the development of a practical plan for the country. Moreover, almost all participants emphasised conducting a need analysis as an initial step when designing micro-credential courses or programmes for nurses and nursing students. Examining the content in demand for nurses and students was stressed before programme development.

Participants were asked about the factors they would value when designing or recommending micro-credentials. According to the participants, if the programmes are conducted under well-established regulations, they believe it does not matter whether a university, government body, or private organisation teaches them. Flexibility in terms of time and format was discussed as a key factor due to nurses' work schedules. However, the certificate or badge format was not considered problematic.

“Government recognised certificates are important. Now our nursing workforce depends on pay, and pay increments are determined by the government, so it is important. The format of the certificate does not matter.” (Nurse Manager #6)

Opposing findings were made regarding the recognition and awarding of certificates. A few educators highlighted issues with students' mindsets.

“...we are still taking baby steps in our higher education. If we really go through the process of our higher education....there are a lot of differences in the mindset of the students who come to study. Are they coming to study for the purpose of gaining knowledge or for the purpose of getting a piece of paper?” (Nurse Educator #2)

Some participants also highlighted concerns about delivering programmes to the peripheral islands due to the geographical distribution of the Maldives. They further identified the need for experts, human resources, and funding to

conduct such programmes, especially when focusing on the islands. They stressed the importance of conducting short face-to-face programmes as much as possible due to the practical nature of the nursing. However, most also recognised online learning as a feasible method for delivering knowledge-based competencies. Blended learning was identified as a practical solution using available technologies to minimise challenges related to resources, feasibility, and time.

One participant raised the question of funding for the programmes, particularly if there were no clear career benefits for nurses. This aligns with debates in literature.

“...then again the problem would be, because you know that any programme we have it, are we going to offer it for free? Or are we going to ask them to pay?...It has to be reasonable and show how beneficial it is for the nurse and also for the organisation.... For now, the most preferred one would be short duration courses” (Nurse Educator #6)

Participants raised concerns about the credibility of micro-credential issuers and certification bodies. They valued trust in the issuing body, meeting the regulatory requirements of MQA and MNMC certification standards, and their obligation for CPD hours. These findings align with Harvey et al. (2023), which examined employers’ and earners’ trust in micro-credentials.

2.3 Implications for Micro-Credentials Programmes

Participants were asked about the types of micro-credentials that could be offered to nurses and nursing students to advance their career pathways. They believed both stacking up short modules and supplementary courses are important options for nurses and nursing students. Many participants also noted that the types of micro-credentials needed for offered to students and nurses should differ. They suggested that short programmes and primarily focusing on humanitarian or soft skills were essential for nursing students. On the other hand, soft skills such as communication and critical thinking were also identified as areas for nurses. Participants particularly highlighted specialty areas in nursing and fundamental areas such as medical and surgical, maternal, and child health care.

“I think some areas that we should include are communication or customer care... then stress management is an area, and then.... cannulation, NG tube insertion, specific procedures... I think the focus for student, should be more academic.” (Nurse Educator #1)

“I think, health promotion is good and health awareness, health promotion programmes, and maternal and child health vaccination as well because those in the islands would find this very helpful.” (Nurse Manager #5)

Some participants highlighted using micro-credentials as CPD hours for nursing licensing and registration. Discussions emphasised the benefits of incorporating these programmes with MNMC.

One participant discussed her experience with staff using short courses offered through an online platform to renew their licenses, which she found practical in the Maldivian context.

“Actually, I have seen the website they use in India. Our nurses are already registered with their Indian councils, right? But, from those councils, it is mandated for them to do these courses, to get credits every year for renewal. So, we can also have something like that....” (Nurse Manager #3)

The study suggests that micro-credentials are applicable to nursing education. However, a systematic review by Noyes et al. (2020) found limited research supporting their implementation in healthcare education. For instance, an editorial highlighted the importance of using micro-credentials or digital badges as a step forward developing urogynaecology subspecialty curriculum for nurses (Cera, 2024). Participants in the current study also emphasised the need to offer specialty nursing modules through micro-credentials.

Concerns were raised about tying micro-credentials to licensing renewal and continuing education for nurses. Literature has suggested similar practices in other countries. For example, nurses and midwives in Australia must achieve a set amount of CPD hours to meet registration requirements, which can be achieved through micro-credentials offered under their framework (Ahern et al., 2024). All stakeholders agreed on the importance of micro-credentials for self-improvement and personal growth focusing on areas such as communication, critical thinking, and decision-making skills. These findings align with Clayton et al. (2014) and Berney (2023).

Findings from a systematic review by Varadarajan et al. (2023) highlighted similar concerns about addressing challenges likely to be mitigated by the stakeholders, particularly the higher education sector, when developing micro-credentials. Similar challenges were identified by Corcoran (2021) who has over 40 years of experience in higher education as an administrator and as academic in Australia and overseas.

Addressing the stakeholders’ needs and preferences, especially the learners’ preferences, is crucial for developing micro-credentials in the Maldives. The current research aligns with the need for multiple stakeholders to gain a comprehensive understanding of micro-credentials.

Implications and Recommendations

The implications and recommendations derived from the current study are as follows:

- Conduct stakeholder meetings with the Ministry of Higher Education to assess the feasibility of developing a national framework and respective programmes.
- Undertake a needs analysis of the broader population to examine their view on micro-credentials.
- Develop a micro credentials framework aligned with the courses provided by the MNSDA.
- Align the framework with other regulatory bodies governing specific professions.
- MQA should determine who is authorised to offer micro-credentials and establish quality assurance mechanisms.
- Ensure that, regardless of the provider, all micro-credential, courses adhere to specific quality standards to facilitate credit transfer within the framework.

- Involve the private sector and industry to develop relevant and practical courses.
- Align micro-credential programmes with pay structures and career pathways, including entry requirements for specific professions.
- Foster collaboration between nursing education providers and employers, such as co-designing micro-credentials for continuing professional development (CPD) schemes, in alignment with MNMC regulations. These should focus on both industry-specific skills and general professional competencies.
- Broaden global education opportunities by incorporating the framework into the wider population.
- Replicate the study across other professions to explore needs and perceptions ensuring rigour and trustworthiness by collecting comparative data through mixed methods.

The Maldives National University and other institutions in the Maldives offering nursing education can introduce complete micro-credential undergraduate programmes enabling students to complete their undergraduate degrees based on their competencies and capabilities. Nationwide modules for nursing can be offered alongside micro-credentials programmes in other disciplines. These institutions can also establish a consortium of universities to provide top quality content for students and the public. Distance education programmes can be developed for students in peripheral islands, creating a solid foundation for short courses leading to micro-credentials and laying the groundwork for a national MOOCs platform. Higher education policies could be enhanced by developing a national micro-credentials framework that emphasises stacking skill sets as micro-credentials urging universities to consider contributing to certification pathways.

Limitations of the Study

The study provided rich, in-depth insights helping to clarify the ambiguous concept of micro-credentials in nursing education in the Maldives. However, as a constructivist design approach was employed, some limitations exist. Polit and Beck (2018) highlight the subjectivity of this approach which raises concerns about the idiosyncratic nature of the conclusions. Furthermore, the small sample size limits generalisability of the findings. However, data triangulation was achieved through a holistic approach involving three stakeholder groups. Another limitation was the short duration of the research, which led to the use of a descriptive design to explore participant readiness and perceptions. As a result, the rigor of the study was not fully enhanced.

Conclusion

This study has provided significant insights into the readiness, preferences, and expectations of three stakeholder groups regarding the incorporation of micro-credentials into nursing education. The findings highlighted the importance of factors such as motivation, recognition, credibility, and values in designing and developing micro-credentials within a valid framework. The study also underscored the necessity of aligning micro-credentials with regulatory bodies and organisations to enhance nurses' and nursing students' career pathways and employability.

The study emphasised fostering flexible and modular learning pathways for the nursing profession. However, quantitative analysis of motivational factors could

provide deeper insights into the extent to which certain views are shared among participants. Further research should also address the transferability of these findings to other professions in the Maldives.

Declaration

This paper was originally submitted to Postgraduate Diploma in Higher Education/ EST457 as part of a course requirement at Faculty of Education, The Maldives National University on June 2024. As a result, it appears in the [Moodle], which has contributed to the current similarity index of 40%.

I confirm that I am the original author of this work, and the content is entirely my own. All external sources used have been properly cited according to the journal's required citation style. This work has not been previously published or submitted to any other journal.

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