Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

The Micro-credential for Early-Career King Mongkut's University of Technology Thonburi Teaching Personnel

Nuttavud Koomtong [1], Krittika Tanprasert [2], Ploypachara Negkumpituk [3], Metta Mongkolteeradech [4], Sukanlaya Tantiwisawaruji [5*]

[1, 2, 3, 4, 5] *Learning Institute, King Mongkut's University of Technology Thonburi (KMUTT), Bangkok, Thailand*
**Corresponding Author Email: sukanlaya.tan@mail.kmutt.ac.th*

ARTICLE INFO

Received: 12 Mar 2025

Revised: 05 May 2025

Accepted: 14 May 2025

ABSTRACT

This research project aims to thoroughly create the Micro-Credential (MC) required for early-career teaching personnel at King Mongkut's University of Technology Thonburi (KMUTT), which will serve as a benchmark for professional development. KMUTT is progressively adopting Outcome-Based Education (OBE) to induct university teaching and learning and has established a Professional Standard Framework (PSF) that guides the teaching practices at the university. It is essential for early-career teaching professionals to demonstrate their ability to meet the expectations outlined in the PSF, particularly at the Beginner level. The critical question addressed in the literature review is how the KMUTT PSF can be effectively assessed at the beginner level. A triangulation method has been used for 'content analysis', which combines the 'constant comparison', involving gathering data from interviewing experts to ensure content validity and achieve a comprehensive understanding of the competencies. The competency is "able to design teaching and learning activities and assessment activities that align with course/module learning outcomes according to the principles of OBE." It was the learning outcomes in the OBE concept that led to the design of the assessment and the method of the MC. The validity of the MC has been confirmed through assessments by the KMUTT faculty development board committees. Following thorough consideration by the University Council committees, the MC has been officially announced as part of the university's educational framework. electronic.

Keywords: Micro-Credential, Professional Standard Framework, Professional Development, Outcome-Based Education.

INTRODUCTION

The incorporation of micro-credentials (MCs) into a professional development program for early-career university teaching staff (with 0-2 years of teaching experience) at King Mongkut's University of Technology Thonburi (KMUTT) has been implemented. The original program, which followed the 70-20-10 framework (70% experiential learning, 20% peer collaboration, and 10% formal education), uncovered several limitations. Notably, around 10% of novice faculty members had not participated in observation for at least one aspect of the KMUTT Professional Standard Framework for Teaching and Learning (PSF). Furthermore, a demand for tailored learning experiences was highlighted. The program was thoroughly revised to include micro-credentials specifically designed to assess certain competencies.

Consequently, the research initiative established to develop Micro-Credentials is in alignment with the Beginner level of the KMUTT PSF. The micro-credentials facilitate self-directed learning and effectively rectify the previously identified shortcomings of the initial model. Documentation was meticulously prepared for the review of the micro-credentials, and constructive feedback for enhancement was provided as deemed necessary. As a result, the micro-credentials enable participants to identify both their strengths and areas that require improvement, thereby offering a more targeted approach to professional development. [1]

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

LITERATUR REVIEW

Outcome-Based Education (OBE)

OBE uses backward design, starting with learning outcomes and a clear understanding of learning goals. It organizes the education system to help every learner succeed and promote more successful learning. The process begins with a clear idea of expected outcomes based on the needs of stakeholders (schools, local areas, and target companies). Specific learning outcomes and standards are defined as assessment and teaching methodologies. Those should align and support learners' achievement. This approach encourages personalized learning, helping students understand their paths and goals for learning. Additionally, the intention of OBE is enhanced by the beliefs that all students can learn and succeed, that successful learning leads to further success, and that educational institutions favor the 'conditions for success.' [2]

Thai higher education institutions, alongside the government of Thailand, are progressively adopting Outcome-Based Education (OBE). Numerous universities are concentrating on enhancing their faculty's capabilities to integrate the OBE framework into their program. This initiative aims to elevate the quality of education in Thailand as of 2022. OBE provides standards and guidance for teaching and learning through established protocols and guarantees that students attain the expected learning outcomes. Concept of Higher Education Standards Verification and Certification in Educational Programs. Focusing on Outcome-Based Education and Quality Management. [3].

1. Designing Educational Programs: Define learning outcomes that meet the needs and satisfaction of students and stakeholders (Customer and Stakeholder Focus), align with the higher education curriculum, and qualification standards. The qualification includes specific field or discipline standards (if any) or international standards recognized by the accreditation committee.
2. Implementation of Educational Programs: Ensure quality maintenance and quality control are conducted as designed and according to the five fundamental principles mentioned earlier.
3. Learning Outcomes of Graduates: Graduates achieve all the learning outcomes specified in the educational program.

The project used Outcome-Based Education (OBE), which is an educational approach for designing MC that takes learning outcomes as the backbone. Then, appropriately manage the learning activities and support systems to ensure all students achieve the competencies specified in these outcomes. The OBE approach is based on three key principles:

1. "All students can learn and succeed": This principle emphasizes that all learners have the potential to achieve learning outcomes, though they may take different approaches or progress at different paces. It underscores the importance of focusing on the individual learner.
2. "Success breeds success": Positive learning experiences that lead to learner success in achieving outcomes build confidence, fostering further success in future learning.
3. "Schools control the conditions of success": This principle highlights that educational institutions and instructors can shape the learning environment to help students achieve the desired learning outcomes.

Definition of Micro-credential

Micro-credential (MC) verifies, validates, confirms, or supports a person's learning achievements, knowledge, and readiness for performing specific tasks. These credentials come in various forms, depending on their scope, status, and purpose. A significant category of credentials is known as macro-credentials, which typically include degrees, diplomas, certificates, and licenses. These are often awarded by accredited, recognized, or regulated educational institutions or organizations. Macro-credentials signify the achievement of a broad body of knowledge, transferable skills, or technical proficiency and may take several years to complete. While some individuals pursue these credentials for personal growth or general educational advancement, others seek them to qualify for a particular profession or career path. [4] MC provides specialized learning for educators. They help learners demonstrate their competencies, often using accessible online platforms. MC encourages collaboration among teachers and

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

administrators by offering shared spaces to discuss effective practices. Achievements are verified through clear standards and can be earned through short courses or recognition of previous experience. MCs are flexible and can be awarded as badges or certificates by accredited organizations. Unlike traditional degrees, MC focuses on specific competency, provides proof of learning, and emphasizes reflecting on one's educational journey [5, 6]. The assessment criteria are clear and easy to understand. They focus on validity and reliability by using research to support proven skills. You can easily share certification results, such as digital badges. Each credential stacks to help achieve higher qualifications and follows specific standards, gaining recognition from employers and schools. Many platforms now offer MCs, including Coursera and edX. MCs break learning into smaller sections and connect to larger qualifications, bridging the gap between courses and full degrees. They provide a personalized learning experience, helping people gradually build their expertise and stay relevant in a fast-changing world. MCs support accessible, lifelong learning opportunities [7]

Micro-credential in practices

Postgraduate Certificate in Academic Practice (PGCAP)

The Open University (OU) is exploring the use of stackable micro-credentials in its Postgraduate Certificate in Academic Practice program. MCs are becoming popular for improving skills and professional development, especially in connection with Advanced Higher Education (Advance HE) qualifications related to Fellowship of the Higher Education (FHEA). These MCs are specific to education jobs and can help people grow professionally when included in a study program. Currently, all PGCAP MCs are offered through the FutureLearn platform, which focuses on social learning and encourages discussions among learners. The courses involve activities like reading, debates, and multimedia content. Course Mentors help students, and PGCAP Community of Practice sessions support idea sharing. Many learners appreciate the clear, step-by-step layout of the MCs on FutureLearn. This case study examines two groups of learners in the PGCAP program. It looks at their experiences and development within the program. The study focuses on how learners perceive stackable micro-credentials (MCs), including their benefits and challenges. To gather information, researchers used a survey with open-ended questions based on Kirkpatrick's evaluation model. This model considers learners' reactions, what they learn, and the outcomes of their studies. MCs help educators connect theory to practice, but their flexibility can be limited by professional standards like the UK Professional Standards Framework (UKPSF). The PGCAP program addresses this by combining mandatory MCs with various elective options to meet learners' needs while helping them manage the demands of studying and working full-time. The length of MCs offers both challenges and opportunities. Learners can choose to study at a faster or slower pace. However, while social learning features are helpful, some learners find it hard to balance them with full-time jobs. Feedback from learners shows that improving the balance between flexible study and social interaction could enhance their learning experience. This study has limitations, such as a small sample size and a need for more research on MCs in broader educational programs. There is also limited existing literature on designing and evaluating PGCAP courses [8].

Digital Badges in Faculty Professional Development, The University of Calgary's "Micro-credentialing:

Digital Badges in Faculty Professional Development", Center for Innovative Teaching and Learning (CITL), Indiana University and Center for Excellence in Teaching and Learning (CETL), Texas Wesleyan University [9].

The article "Micro-credentialing: Digital Badges in Faculty Professional Development" explores the implementation of micro-credentialing through a digital badge system at the University of Calgary, detailing the requirements for earning a badge. The University of Calgary offers a variety of programs and initiatives designed to help instructors and graduate students enhance teaching effectiveness and improve student learning experiences. Since March 2015, individuals who have completed the Course Design Program and the Teaching Online Program (TOP) have been awarded a digital badge. This micro-credentialing initiative is conducted online and managed by the University of Calgary. The Course Design Program includes a workshop for participants to create or revise a course. To earn the badge, participants must establish measurable course outcomes and design aligned teaching activities and assessment strategies.

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

The Teaching Online Program is a four-week course tailored for instructors looking to start or improve their online teaching skills. Criteria for badge achievement include leading an online discussion, planning a task, developing an assessment plan, and completing a final assignment.

After earning a badge, participants can showcase it on their UCalgary Badges profile, print a summary of their achievements, or export their badges to Mozilla's OpenBadges Backpack™ for sharing on social media platforms like LinkedIn™. Collecting and displaying badges allows individuals to highlight their learning journeys and accomplishments. The next phase in Calgary involves studying the UCalgary Badges Initiative. Researchers will analyze how providing digital badges to university educators impacts their motivation in educational development programs. They will ask participants whether the badges motivated them, how they intend to use the badges, and their thoughts about them. The objective is to determine if digital badges effectively recognize and reward achievements in educational development. The study will examine how badges integrate into professional learning programs by assessing participants' motivation, completion rates, and interest in additional badge programs. The findings will assist badge earners in maintaining their motivation to achieve badges and will address gaps in the literature regarding micro-credentialing in professional learning development.

Several universities in the U.S. are utilizing digital badges to recognize students' competencies as well as faculty members' expertise, particularly in emerging learning technologies. Indiana University's CITL has implemented a three-tiered badging system for faculty: a basic badge for foundational knowledge, a proficient badge for successful classroom application and sharing experiences, and an advanced badge for leadership in technology adoption. CILT has seen a significant increase in verified participation.

Texas Wesleyan University's CETL features a comprehensive badging program that rewards faculty for participating in professional development activities, resulting in a notable rise in workshop attendance. These initiatives demonstrate how digital badges can effectively document and communicate individual achievements based on specific criteria rather than mere attendance hours. More than 80% of participants expressed their support for the badging initiative.

Characteristics of Effective Alternative Teacher Certification Programs

The program aims to identify the factors that contribute to the success of alternative teacher certification programs. The concept of Alternative Teacher Certification Programs is similar to MC. It examines how personal qualities, program details, and teaching environments impact teaching results. The study focuses on seven programs to find components that help create competent and confident teachers. The research used case studies, surveys, and classroom observations. The case studies involved interviews and document analysis from seven programs. Participants were also surveyed at the start and end of their first teaching year and observed while teaching.

The programs studied include the Teacher Education Institute, New Jersey's Provisional Teacher Program, Milwaukee's MMTEP, NYC Teaching Fellows Program, NC TEACH, Teach for America, and the Texas Region XIII Educator Certification Program. The study found that school context is the most critical factor influencing teaching outcomes. Each program is designed to meet specific educational needs and challenges. They share common elements like coursework, internships, and mentoring, but each has unique features. For example, the Teacher Education Institute in Elk Grove combines coursework with hands-on teaching experience through an apprenticeship model. In contrast, New Jersey's Provisional Teacher Program takes a decentralized approach to training and certification. Programs such as Milwaukee's MMTEP and Teach for America prepare teachers for urban and under-resourced schools. Meanwhile, NC TEACH and Texas Region XIII Education Service Center's Educator Certification Program focus on mid-career professionals and emphasize high-demand subject areas. Successful programs place candidates in supportive schools, offer well-designed coursework, and provide strong mentoring to help improve teaching effectiveness. [10]

All programs have seen a rise in participation and visibility, reflecting positive faculty feedback on micro-credentialing for professional development. They foster supportive environments and provide targeted coursework along with mentorship, particularly in urban settings or in areas of high demand. This approach helps cultivate confident educators. The programs offer both mandatory and elective micro-credentials to accommodate varied

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

pacing. MC programs similarly assist participants in achieving success in education by offering robust leadership, support, and ample resources. The framework highlights educators managing learning and assessment according to Outcome-Based Education (OBE) principles. It consists of planning, implementation, and assessment, which is substantiated by evidence outlined in rubrics. In addition, a sample of learning evidence corresponds with the assessment methodology to determine if learners have met the defined learning outcomes. Furthermore, MC encouraged qualified individuals, created developmental and social communities within the program, and provided trained mentors to offer assistance and feedback. The following elements were implemented either separately or as engaging issues.

icro-credential in 4 Lifelong Learning, KMUTT

4LifelongLearning aims to help individuals build hands-on skills for their future careers by using the concept of MC. These are intentionally co-designed by education and industry experts to ensure job-ready competencies, focusing on specific skills relevant to various career contexts. The platform emphasizes competency development, career-specific credentials, academic-focused credentials, and verification using real work samples. Users can tailor their learning experience based on their needs, validated through real-world examples and hands-on experience, while prioritizing competency development and verification. It proves learning outcomes through evidence-based approaches (not just rote memorization). 4LifelongLearning bridges the gap between education and industry needs, equipping learners for success in the workforce. About Designing MC in www.4lifelonglearning.org. Steps to create MC through a 3-step design process. (4LifelongLearning)

1. Pre-Design: Answer these four questions to prepare your MC design: Who is the target learner? What competency will be built and verified? What work sample do you want to see? What are the benefits of having this competency?
2. Designing: Build and verify learners' competency by designing methods to showcase tasks through a real-world work sample.
3. Post-Design: Design a digital badge and conduct pilot testing.

KMUTT PSF

Faculty development in teaching and learning at KMUTT is shaped by the Professional Standard Framework for Teaching and Learning (PSF) Competency Levels. This framework defines several domains in teaching:

Knowledge

Educators understand how their students learn, drawing from professional knowledge and research to address the diverse needs of their students within varied educational settings. They grasp students' conceptual frameworks, evaluate the thought processes behind students' methods, and pinpoint common misconceptions to effectively convey and structure the subject matter (pedagogical content knowledge - PCK). Furthermore, teachers recognize the influence of students' prior experiences on their ongoing learning, enabling them to design curricula and select materials that nurture their students' physical, social, and intellectual growth. They comprehend what constitutes effective, developmentally appropriate strategies within their learning and teaching programs, using this insight to make content meaningful for students.

Areas of Activity

Educators strive to make learning both engaging and valuable through intentional design. They cultivate safe, inclusive, and challenging learning environments, implementing fair behavior management plans. Moreover, they leverage effective teaching and assessment strategies, consistently evaluating various aspects of their practice to meet their students' learning needs. By interpreting student assessment data, they identify learning barriers and motivate students to enhance their performance. Educators navigate all phases of the teaching and learning cycle, which includes planning, implementing assessments, developing educational programs, teaching, evaluating student performance, and providing meaningful feedback. They also actively contribute to educational development aimed at improving student learning outcomes.

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Values

Educators demonstrate compassion and care for their students, attuning to their learning needs and exemplifying respect and professionalism in interactions with students, peers, and the community. They model effective learning by recognizing their own professional development needs, analyzing and expanding their learning while valuing opportunities to engage with colleagues and communities within and beyond the classroom to enrich the educational experience student. she template is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin in this template measures

The KMUTT PSF categorizes faculty teaching competency into four levels as shown in Fig. 1

Level 1: Beginner – Understanding learning support

Level 2: Competent – Effective support for learning

Level 3: Proficient – Highly accomplished as a professional

Level 4: Mastery – Contributing to the profession and society

In the project on Beginner level learning support, teachers exhibit an understanding of learning processes and how their students acquire knowledge.

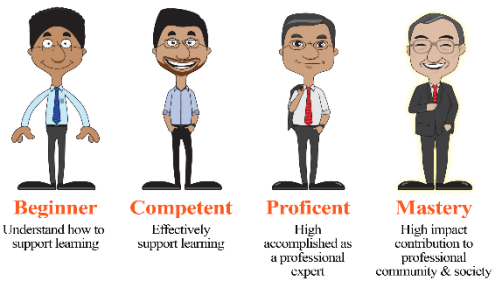

Figure 1. Show all levels of KMUTT PSF

Knowledge

(K1-1) Generally comprehend what learning entails and how their students learn.

(K2-1) Have a solid grasp of their subject areas, enabling them to pinpoint key concepts and articulate evidence of learning for these concepts.

(K3-1) Select suitable instructional resources based on K1-1 and manage classroom resources and space to enhance learning and the ethical use of ICT in education.

(K4-1) Align learning outcomes effectively with program-level objectives, explaining the connections between their subject outcomes and other related elements of the program.

Areas of Activity

(A1-1) Develop course structures, activities, assessments, and lesson plans anchored in explicit, challenging, and attainable course learning outcomes.

(A2-1) Recognize strategies and teaching methods that facilitate the achievement of learning outcomes while encouraging inclusive and positive participation and engagement from students.

(A3-1) Identify a variety of timely and effective assessment strategies to measure course learning outcomes.

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Values

(V1-1) Show concern for students' academic and non-academic issues by fostering opportunities for open communication and actively supporting students in addressing the diversity of their learning performance, prior knowledge, cultural backgrounds, and interests.

(V2-1) Engage continuously in self-improvement activities and professional development in teaching.

METHODOLOGY

The data will be analyzed using content analysis and then constant comparison using the triangulation research method. The constant comparison involves gathering data and content validity from interviewing experts on the faculty development committee, who play a key role in teaching and learning at KMUTT for human development. [11] This process involves transcribing recorded interviews, identifying key terms, and synthesizing the information to categorize it into behavior, timeline in teaching, and other relevant information at the Beginner level. Those posed in form planning, conducting, contributing, and professional development in teaching, as seen in Fig. 2.

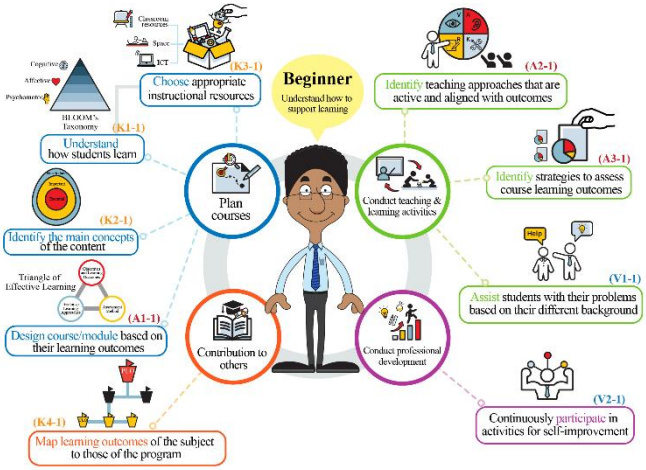

Figure 2. Categorize the Beginner level of KMUTT PSF

These categories help to clarify and rearrange the nodes of Beginner levels and then separate into 2 MCs: “Teaching and learning activities to ensure learning outcomes at the subject/module level” and “Selecting Appropriate Instructional Resources to Align with Learners' Learning Styles,” as shown in Table 1.

Table 1: Shows a relative of PSF, synthesized categories, and MC.

Category	Code	PSF key detail	MC
Plan a course/module	K1-1	Understand how students learn	Selecting Appropriate Instructional Resources to Align with Learners' Learning Styles
	K3-1	Choose appropriate instructional resources	
	K2-1	Identify the main concepts of the content	Teaching and learning activities to ensure learning outcomes at the subject/module level
	A1-1	Design a course/module based on their learning outcomes	
Conduct teaching and learning outcomes	A2-1	Identify teaching approaches that are active and aligned with outcomes	
	A3-1	Identify strategies to assess course learning outcomes	

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Category	Code	PSF key detail	MC
	V1-1	Assist students with their problems based on their different backgrounds	
Contribution to the program	K4-1	Map the learning outcomes of the subject to those of the program	
Conduct professional development	V2-1	Continuously participate in activities for self-improvement	

The project was held on 1 MC, “Teaching and learning activities to ensure learning outcomes at the subject/module level,” and then followed these steps;

1. Target Learner Profile: Create a detailed learner profile, incorporating demographics, prior knowledge, skills, and learning styles through personas.
2. Competency Definition & Verification: Define the competency using a standard model, specify observable behaviors, and outline evidence for verifying mastery.
3. Authentic Work Sample: Design a realistic work sample that assesses the competency, specifying success criteria.
4. Value Proposition: Highlight the benefits of acquiring the competency to motivate learners.
5. Assessment Design: Develop an assessment that accurately measures competency using various methods.
6. Rubric Development: Create a detailed rubric with criteria and performance levels aligned with the competency.
7. Instructional Materials: Develop necessary instructional materials to assist learners.
8. Reflective Component: Create this path to encourage learners to reflect on their strengths and areas for future improvement.
9. Pilot Testing & Iteration: Conduct pilot tests to identify weaknesses and revise the assessment and materials based on feedback.

Determine competency: “Earner can design teaching and learning activities and assessment activities that align with course/module learning outcomes according to the principles of OBE.” "Earner" refers to an individual who submits and demonstrates a specific competency as defined in the MC. That means the earner can manage learning and assessment in alignment with Course Learning Outcomes (CLO) or Module Learning Outcomes (MLO) following the principles of OBE. This includes four main steps:

1. Plan: Design teaching and assessment aligned with learning outcomes using principles of backward design and constructive alignment.
2. Implement: Conduct the learning activities as planned.
3. Assess: Evaluate learners according to the lesson assessment plan.
4. Improve: Use the learning activities' results to plan future teaching and learning management improvements.

From there, the evidence and rubric were created. The pieces of evidence are

1. Course/Module-Level Lesson plans that have assessment methods and learning evidence align with the learning outcome(s), and learning activities promote the development of competencies according to the learning outcomes.

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

2. A recorded instructional video is consistent with the lesson plan and demonstrates activities that promote student engagement, including opportunities for questions and feedback.
3. Example(s) of student learning evidence align with the assessment method and can be used to determine if learners have achieved the learning outcomes.

The reflection part has guidelines and questions for the earner to demonstrate attention to the learners' learning and provide timely feedback to encourage learners' self-development or allow for improvements in their own teaching and learning by answering the following to reflect on your learning:

- During the learning process, how is your attention and support provided to learners with diverse backgrounds in both learning and content?
- How and at what times is feedback provided to learners? How does this feedback contribute to their learning development?
- From teaching and learning of this course/module-level learning outcome, what areas need improvement, and what are the plans for enhancing the teaching and learning in the next time?

The consideration and validation of MC have been rigorously established through evaluations conducted by experts in the field, as well as by the KMUTT faculty development board committees, after the process involved comprehensive reviews and thoughtful deliberations by committees within the KMUTT University Council.

RESULTS

The data gathered from expert interviews were analyzed using content analysis and constant comparison. This led to the identification of key competency areas necessary for early-career teaching personnel under KMUTT's Professional Standard Framework (PSF) at the Beginner level. Two micro-credentials (MCs) were developed:

- MC1: Teaching and learning activities to ensure learning outcomes at the subject/module level.
- MC2: Selecting appropriate instructional resources to align with learners' learning styles.

Each MC was validated through expert review and evaluated by the KMUTT faculty development board. Evidence submitted by learners included lesson plans, teaching videos, and student work samples. Rubrics were used to ensure alignment with Outcome-Based Education (OBE) principles. Feedback loops and reflection components further supported teacher improvement. The implementation of the pilot MC showed promising indications of professional growth among early-career educators, suggesting increased competency in aligning instructional practices with student learning outcomes.

CONCLUSION AND DISCUSSION

The project focused on the development of the micro-credential according to competency in designing aligned teaching and assessment activities based on OBE. Data was collected using content analysis and constant comparison through triangulation methods, which included interviews with faculty development committee experts at KMUTT. This involved transcribing interviews, identifying key terms, and categorizing information related to teaching behaviors, timelines, and professional development at the Beginner level. The findings were presented in a structured format related to planning and conducting activities.

The MC signifies that the educator is managing learning and assessment in accordance with CLO or MLO, in alignment with the principles of OBE [2,5]. This process encompasses four stages: planning, implementation, assessment, and improvement, based on evidence and criteria established through rubrics. The forms of evidence include lesson plans that incorporate assessments and learning activities aligned with the CLO/MLO and a teaching video that corresponds with the lesson plan and illustrates activities that foster student engagement, including opportunities for inquiries and feedback. Additionally, an example of learning evidence aligns with the assessment methodology and serves to ascertain whether learners have attained the specified learning outcomes.

Journal of Information Systems Engineering and Management
2025, 10(52s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

The MC has been established through guarantees by experts in the relevant field, as well as by the faculty development board committees at KMUTT [7]. This process involved comprehensive reviews and thorough discussions by committees within the KMUTT University Council, ensuring that all aspects were thoroughly considered and validated.

The recently introduced Micro-Credentials have been officially integrated into the university's educational framework, marking a significant advancement in the institution's approach to learning. This initiative is designed to enrich the academic experience and equip students with specialized competencies. However, the following section will ensure that the implementation is assessed by the research. Assess the MC implementation to identify its strengths, areas for improvement, and opportunities, then explore this information further to enhance understanding and support relevant ongoing developments at KMUTT while also informing effective policy formulation within the university.

REFERENCES

[1] The Conversation UK., 2021, Why micro-credentials are becoming more popular, 30/10/2024. https://theconversation.com.
[2] Biggs, J., and Tang, C., 2010, *Teaching for Quality Learning at University* (Open University Press).
[3] Yu, L., 2015, *Micro-credentialing: Digital Badges in Faculty Professional Development* (Center for Innovative Teaching and Learning, University of Calgary).
[4] Humphrey, D. C., Wechsler, M. E., & Hough, H. J. (2005). Characteristics of Effective Alternative Teacher Certification Programs. *Journal of Teacher Education*, 56(4), 304–317.
[5] Ministry of Higher Education, 2022, *Concept of Higher Education Standards Verification and Certification in Educational Programs* (Thailand Government Publication).
[6] Linchaream, K., 2018, Triangulation Research Method in Educational Development, *KMUTT Educational Research Journal*, 9(2), 17-29.
[7] Koomtong, N., Tanprasert, K., Negkumpituk, P., Mongkolteeradech, M., and Tantiwisawaruji, S., 2024, Developing Micro-Credentials for Early-Career University Educators. KMUTT Research Report.
[8] Oliver, B. (2022). Making micro-credentials work for learners, employers and providers. Deakin University.
[9] Varadarajan, R., Nguyen, H., and Smith, K., 2023, The Impact of Micro-Credentials on Lifelong Learning, *Journal of Educational Innovation*, 12(3), 45-60.
[10] European Training Foundation, 2022, Micro-credentials: Opportunities and Challenges. ETF Report.
[11] FitzGerald, L., Hall, T., and Sharpe, R., 2023, Evaluating Stackable Micro-Credentials in Postgraduate Programs, *International Journal of Higher Education,* 15(1), 22-38.