

Review

The Institutional Plateau in Microcredential Adoption: A Hybrid Review of Peer-Reviewed Evidence and Practitioner Reports in Higher Education

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Abstract

Micro-credentials have attracted intense scholarly and policy attention, yet recent practitioner evidence, most notably the 2026 UPCEA survey of US institutions, the catalyst for this review, suggests that institutional commitment has plateaued even as individual engagement deepens. This hybrid review examines whether the peer-reviewed literature can account for that pattern. Sixty-five peer-reviewed studies (2020–2026) and eight major practitioner and policy reports were coded against an identical six-dimension framework spanning adoption, purposes, integration mechanisms, enabling conditions, barriers, and evidence of value. The two evidence streams proved strikingly complementary—and strikingly disconnected. The scholarly literature richly documents purposes, enabling conditions, and barriers, but measures adoption rarely, examines integration mostly in proposal rather than operation, and contains no direct study of the plateau; systematic adoption evidence resides almost entirely in practitioner reporting. Across both streams, recognition emerges as the binding constraint: employers, learners, and quality-assurance systems consistently condition the value of micro-credentials on the credit-bearing integration that most institutions have approached only tentatively. The review concludes that micro-credential value is conferred by institutional integration rather than intrinsic to the credential and proposes a research agenda centred on longitudinal adoption trajectories, verified outcomes, and integration observed in practice.

Keywords: micro-credentials; higher education; institutional adoption; integration; employability; digital badges; practitioner evidence; qualification frameworks



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1. Introduction

Higher education systems worldwide are under sustained pressure to respond more rapidly to changing labour markets, technological disruption, and demands for flexible, lifelong learning (OECD, 2021). Within this context, micro-credentials, short, focused certifications of assessed learning smaller than a full qualification, have emerged as a prominent

response, attracting the attention of universities, employers, governments, and international agencies (Oliver, 2019; Brown et al., 2021). Although the concept predates the COVID-19 pandemic, interest accelerated markedly in its aftermath, as institutions sought scalable, online, and demand-driven offerings to reskill and upskill learners (Tamoliune et al., 2023). The period since 2020 has also seen major policy activity, including the European Union's Council Recommendation on a European approach to micro-credentials (Council of the European Union, 2022), the UNESCO common definitional framework (Oliver, 2022), and national frameworks in Australia and elsewhere (Australian Government, 2021).

Despite this momentum, a tension runs through the field. Enthusiasm and individual or programmatic activity have not translated straightforwardly into deep institutional embedding. Micro-credentials raise unresolved questions about how they are recognised, quality-assured, stacked, and integrated into formal qualification structures, and about whether employers and learners value them as credentials rather than as supplementary signals (Brown et al., 2023; Wheelahan & Moodie, 2021). This distance between surface-level activity and genuine institutional integration—what may be termed the integration gap—is increasingly visible in practitioner evidence. Notably, recent sector surveys report that while individual involvement in credential innovation has risen, institutional embrace has remained largely flat, suggesting a plateau in institutional adoption (UPCEA et al., 2026). Whether this plateau is a transient or structural feature, and whether the scholarly literature has examined it at all, remain open questions.

Micro-credentials have already attracted several systematic reviews in recent years, reflecting the field's rapid growth. These reviews have, however, approached the topic from distinct and largely separate angles. Tamoliune et al. (2023) reviewed the broad potential of micro-credentials for transforming learning; Thi Ngoc Ha et al. (2023) synthesised 29 empirical studies to characterise awareness, benefits, challenges, and effectiveness, concluding that micro-credentials remain at an early stage of development; Ahsan et al. (2023) reviewed 56 studies on implementation and proposed a conceptual framework for implementing micro-credentials in higher education; and Moore et al. (2025) examined assessment methods and delivery in 14 studies of digital micro-credentials. Across these reviews, a consistent observation is that the peer-reviewed evidence base is dominated by studies at the level of the individual learner, the course, or the digital badge as a pedagogical device, with comparatively little attention to the institutional conditions governing adoption and integration.

Closest to the present study, Msweli et al. (2022) synthesised both academic research and practitioner reports, finding that micro-credential activity has concentrated in STEM and education fields and in high-income countries. Their review demonstrates the value of looking beyond the peer-reviewed literature alone. It did not, however, hold the two evidence streams to an identical analytical framework in order to compare them dimension by dimension, nor did it focus on the institutional integration gap. Like all of these reviews, moreover, it predates the most recent practitioner evidence on institutional adoption trajectories.

Two gaps therefore remain. First, a sectoral gap: practitioner and policy reports increasingly document institutional adoption patterns, including signals of plateau, that the peer-reviewed literature has not yet examined, and no review has systematically compared the two evidence streams against a common analytical framework to establish where they converge and diverge. Second, a geographic and thematic mismatch: the academic literature is concentrated in implementation and readiness studies from a particular set of contexts and, disproportionately, at the level of pedagogy and digital-badge design; whereas, the clearest institutional adoption signals arise in practitioner reporting from

other contexts. The two evidence bases, in other words, may be describing different parts of the same phenomenon without speaking to one another.

This study addresses these gaps through a hybrid review that compares the peer-reviewed literature and major practitioner and policy reports on micro-credentials in higher education, coding both streams against an identical six-dimension analytical framework (adoption and offering; purposes and motivations; integration mechanisms; enabling conditions; barriers and constraints; and outcomes and evidence of value). In doing so, it asks how the peer-reviewed literature has characterised the institutional conditions that enable or constrain integration (RQ1); how practitioner and policy reports describe institutional adoption trajectories and what evidence they provide of growth, plateau, or decline (RQ2); and to what extent the peer-reviewed evidence base explains, predicts, or fails to address the institutional patterns documented in practitioner reports (RQ3). By holding both evidence streams to a common analytical lens, the review aims to clarify what is known, what is asserted, and what remains unexamined about the institutional integration of micro-credentials in higher education.

2. Methodology

2.1. Study Design

This study adopted a hybrid review design that combined a scoping review of the peer-reviewed literature with a structured documentary analysis of practitioner and policy reports. The scoping review component was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR; [Tricco et al., 2018](#)), and the flow of records is presented using the PRISMA 2020 flow diagram ([Page et al., 2021](#)). The documentary analysis component followed the procedures established by [Bowen \(2009\)](#). A scoping review was selected over a systematic review because the aim was to map the breadth of the evidence base, characterise how the field has been studied, and identify gaps, rather than to synthesise effect estimates or appraise the efficacy of a single intervention ([Arksey & O'Malley, 2005](#); [Munn et al., 2018](#)). The rationale for the hybrid design is methodological as well as substantive. Micro-credentials are a fast-moving phenomenon in which institutional and policy developments are frequently documented in practitioner and grey-literature reports before they are examined in the peer-reviewed literature. Reviewing the two evidence streams against an identical analytical framework therefore enables a direct comparison of how each characterises institutional adoption, integration, and value—a comparison that, to the authors' knowledge, has not previously been undertaken.

2.2. Research Questions

The review was guided by the following research questions:

RQ1. How has the peer-reviewed literature (2020–2026) characterised the institutional conditions that enable or constrain the integration of micro-credentials in higher education?

RQ2. How do major practitioner and policy reports describe institutional adoption trajectories, and what evidence do they provide of growth, plateau, or decline?

RQ3. To what extent does the peer-reviewed evidence base explain, predict, or fail to address the institutional patterns documented in practitioner reports?

2.3. Protocol and Registration

A working protocol specifying the research questions, search strategy, eligibility criteria, and data-extraction framework was developed and maintained by the research team prior to and throughout the review. The protocol has been registered with the

International Platform of Registered Protocols for Systematic Reviews and Meta-Analyses (INPLASY) under the number INPLASY202660050 (doi:10.37766/inplasy2026.6.0050).

2.4. Information Sources and Search Strategy

Four electronic databases were searched: Scopus, the Education Resources Information Center (ERIC), Lens.org, and Web of Science. These were selected to capture both education-specific (ERIC) and multidisciplinary, high-coverage (Scopus, Web of Science, Lens.org) indexing of the field. The search was conducted in May 2026, and was limited to records published between 2020 and 2026 and to items available in English. The search string combined three concept blocks—micro-credentials, higher education, and integration/adoption—using Boolean operators as follows: TITLE-ABS-KEY (“microcredential*” OR “micro-credential*” OR “digital badge*” OR “open badge*” OR “alternative credential”) AND (“higher education” OR university* OR tertiary OR postsecondary OR “degree program*”) AND (integrat* OR stack* OR embed* OR pathway* OR recognition OR adoption OR implementation OR institutional).

The reference lists of relevant reviews identified during screening were additionally examined to identify any further eligible primary studies (backward citation searching).

2.5. Eligibility Criteria

Records were assessed against the following inclusion criteria. To be included, a report had to:

- (i) Address micro-credentials (including digital or open badges) as a substantive focus, situated within a higher education context;
- (ii) Be published between 2020 and 2026;
- (iii) Have full text available in English;
- (iv) Be a peer-reviewed journal article (for the peer-reviewed stream);
- (v) Be published in a source indexed in at least one of the four databases searched.

Reports were excluded if they: were secondary or review articles (to avoid double-counting of primary studies and to reserve reviews for gap-justification); examined digital badges solely as a gamification or motivational device without reference to their credentialing function; were not situated in higher education; did not treat micro-credentials as a substantive focus; were published in a source not indexed in any of the four databases, or in a venue discontinued from indexing for publication-quality concerns; reported a dataset already reported in a companion publication by the same author group (in which case the more complete report was retained); or were not available in English in full text. Dissertations, conference papers, and book chapters were excluded at the screening stage on the basis of publication type.

2.6. Selection Process

Following the removal of duplicate records and records flagged as ineligible by automation tools, titles and abstracts were screened against the eligibility criteria. Reports passing this stage were sought for retrieval, and their full texts were assessed for eligibility. The selection process is summarised in the PRISMA 2020 flow diagram (Figure 1). Database searches identified 373 records (Scopus, $n = 64$; ERIC, $n = 75$; Lens.org, $n = 51$; Web of Science, $n = 183$). Prior to screening, 232 records were removed (duplicates, $n = 33$; records marked ineligible by automation tools, $n = 199$), leaving 141 records for screening. Of these, 40 were excluded on the basis of ineligible publication type, and 101 reports were sought for retrieval. Fourteen reports could not be retrieved in full text within the review timeframe. The remaining 87 reports were assessed for full-text eligibility, of which 22 were excluded with reasons (see Figure 1), yielding a final corpus of 65 included studies.

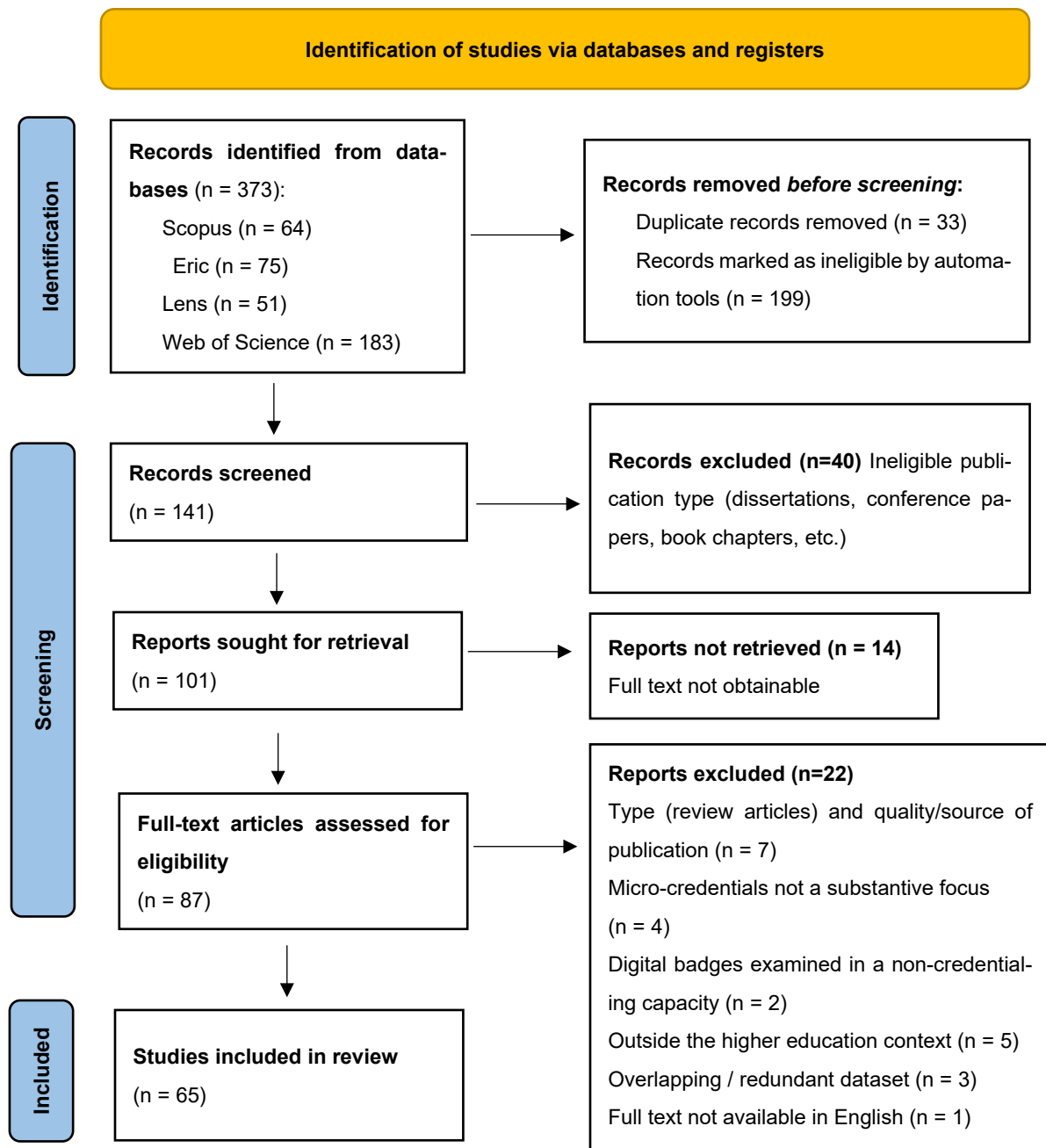


Figure 1. Flow diagram of literature search according to the PRISMA guidelines.

2.7. Data Extraction and the Coding Framework

A standardised extraction template was used to record descriptive metadata for each included report—identifier, author(s), year, title, source, country, and study type (empirical-quantitative, empirical-qualitative, empirical-mixed, conceptual, case study, or review). The same analytical framework was applied to both the peer-reviewed and the practitioner/policy streams so that the two could be compared directly. The country of study context for each report was also recorded, and where no single national context applied (e.g., multi-country or conceptual studies), the report was classified by region or as international. Each report was coded against six analytical dimensions:

- D1—Adoption and offering: patterns, scale, and trajectory of micro-credential offering or uptake, including any growth, plateau, or decline observed.

- D2—Purposes and motivations: the drivers articulated for offering micro-credentials (e.g., employability, workforce development, revenue, learner demand, strategic positioning).
- D3—Integration mechanisms: stackability, embedding within degrees, non-credit-to-credit pathways, and recognition or credit transfer.
- D4—Enabling conditions: strategic alignment, leadership, resourcing, faculty engagement, employer partnership, and quality-assurance frameworks.
- D5—Barriers and constraints: resources, legacy systems and mindsets, faculty buy-in, standardisation, quality assurance, accreditation, and recognition gaps.
- D6—Outcomes and evidence of value: learner, institutional, or employer outcomes, with attention to whether claims were empirically evidenced or asserted.

Each dimension was coded as Yes, Partial, or No, accompanied by a short evidence note paraphrasing or quoting the source. A coding of Partial was applied where a dimension was addressed but not developed, or was treated normatively or aspirationally rather than empirically. In addition, each report received four summary flags: a plateau signal (Yes/No/Not applicable); an evidence-strength rating (Strong/Moderate/Weak / Assertion-only), recorded independently of a report's topical relevance; a thematic cluster; and an overall relevance rating (High/Medium/Low) with respect to the review's focus on institutional integration.

The thematic cluster noted above warrants fuller definition, since in Table 1 it functions as a column in its own right. Whereas the six dimensions record cross-cuttingly whether a given theme is present in a study (Yes/Partial/No), the Cluster column captures each study's primary analytical focus—its centre of gravity—so that the corpus can be described by where scholarly attention concentrates, not only by which themes each study happens to touch. Clusters were derived inductively from the coded evidence notes and consolidated into four principal categories: readiness and implementation (readiness frameworks, maturity models, implementation case studies, and sector-wide adoption surveys); strategy, integration, and stackability (credit recognition, qualification-framework alignment, and the embedding of micro-credentials within degrees); pedagogy and assessment (micro-credentials and digital badges as instruments of teaching, learning, assessment, and course design); and employer and recognition (the labour-market reception and value of micro-credentials). A small residual set—quality-assurance and recognition analyses, continuing-education credentialing, a technological-verification contribution, and one theoretical critique—was retained under an 'other' label. Each study was assigned to the single cluster that best represented its dominant contribution; where a study spanned more than one, the primary focus of its research questions and findings governed the assignment.

Table 1. Coding matrix for the peer-reviewed corpus ($n = 65$), against the six-dimension analytical framework.

Author/Year	Source	Country	Type	D1	D2	D3	D4	D5	D6	Plat.	Evid.	Cluster	Rel.
Ahad et al. (2025)	Educ. Inf. Technol.	Bangladesh	Emp-QN	±	+	±	+	+	±		M	Readiness/implementation	M
Ahmat et al. (2021)	Asian J. Univ. Educ	Malaysia	Conc	±	+	+	+	+	−		A	Readiness/implementation	M
Alenezi et al. (2024)	Education Sciences	Saudi Arabia	Conc+S	±	+	+	+	+	±		M	Employer/employability	H
Alt (2023)	Current Psychology	Israel	Emp-QN	−	±	−	±	±	+		M	Pedagogy/assessment	L
Bal et al. (2022)	TechTrends	USA	Emp-MX	±	+	±	+	±	+		M	Pedagogy/progr- amme- effectiveness	L–M

Table 1. Cont.

Author/Year	Source	Country	Type	D1	D2	D3	D4	D5	D6	Plat.	Evid.	Cluster	Rel.
Bobrytska et al. (2025)	Ricerche Ped. Didattica	Ukraine	Emp-MX	±	+	±	+	+	+		M	Strategy/ integration	M
Brown et al. (2023)	J. Interactive Media Educ	International	Conc	±	+	±	+	+	−	N	A	Strategy/ integration	H
Bruguera et al. (2025)	Distance Education	Spain	Emp-QL	±	+	±	+	+	±		M	Stackability/ integration	M
Çevik et al. (2024)	J. Qual. Res. Educ	Turkey	Emp-QL	±	+	+	+	+	−		M	Readiness/ implementation	M
J. K. Cheng et al. (2025)	Educ. Inf. Technol.	Malaysia	Emp-QL	+	+	+	+	+	±		M	Readiness/ implementation	M
Z. Cheng et al. (2020)	J. Comput. High. Educ	USA	Emp-QL	−	±	−	±	±	+		M	Pedagogy/ assessment	L
Dang and Tang (2026)	J. App. Res. HE	Hong Kong	Conc	±	+	+	+	+	−		A	Strategy/ integration	H
Desmarchelier and Cary (2022)	Int. J. Educ. Tech. HE	Australia	Conc	±	+	+	±	+	−		A	Strategy/ integration	M
Donnelly and Maguire (2020)	Eur. J. ODE-Learning	Ireland	Conc	±	+	+	+	+	±		W	Readiness/ implementation	M
Eltahir et al. (2023)	The Qualitative Report	Malaysia	Emp-QL	−	±	−	±	±	±		M	Pedagogy/ assessment	L
Felton et al. (2023)	Industry and HE	USA	Case	+	+	±	+	+	±		W	Readiness/ implementation	M
Gallagher and Tóth (2026)	Int. J. Sust. HE	Europe	Emp-MX	±	±	±	±	+	±		M	Pedagogy/ curriculum (sustainability)	M
Goulding et al. (2024)	HE Res. and Dev	UK	Emp-MX	−	±	−	±	+	+		M	Pedagogy/ assessment	L
Hains-Wesson (2025)	Issues in Educ. Res	Australia	Emp-QL	±	+	±	+	+	±		M	Strategy/ integration	M
Hartnett (2021)	Australasian J. Educ. Tech	New Zealand	Emp-MX	+	+	±	+	+	±		M	Readiness/ implementation	M
Halim (2022)	Int. J. E-Learning and HE	Malaysia	Conc	±	+	±	±	±	−		A	Readiness/ implementation	L
Halim et al. (2024)	Asian J. Univ. Educ	Malaysia	Emp-QL	±	+	±	+	+	−		M	Readiness/ implementation	M
Hou et al. (2026)	Studies in HE	Asia (4)	Emp-QL	±	+	+	+	+	±		M	QA/recognition	H
Iatrellis et al. (2024)	Trends in HE	Europe	Conc	+	+	+	+	±	−		W	Readiness/ implementation	H
Ibáñez Ayuso (2025)	J. Learn. for Dev	Europe	Emp-MX	±	+	±	±	+	±		M	Strategy/ integration	M
Jaaffar et al. (2026)	Int. El. J. Math. Educ	Malaysia	Emp-MX	−	±	−	±	−	+		M	Pedagogy/ assessment	L
Jaalam et al. (2023)	Asean J. Eng. Educ	Malaysia	Conc	±	+	−	±	−	−		A	Pedagogy	L
Keoy et al. (2024)	J. Inf. and Knowl. Mgmt	Malaysia	Emp-QN	+	+	±	+	+	±		M	Readiness/ implementation	H
Lang and Sharp (2023)	Inf. Sys. Educ. J	USA	Emp-QN	+	+	−	±	±	−	N	M-S	Adoption/ prevalence	H
Langseth et al. (2024)	Tech Know Learn	Norway	Emp-QL	+	+	±	+	+	±	N	M	Readiness/ implementation	H
Liu (2025)	Contemp. Educ. Frontiers	China	Emp-MX	±	+	±	+	+	±		M	Pedagogy/ implementation	M
Lok et al. (2022)	BMC Medical Education	UAE	Emp-QL	−	+	±	±	+	±		M	Professional/ CPD credentialing	L

Table 1. Cont.

Author/Year	Source	Country	Type	D1	D2	D3	D4	D5	D6	Plat.	Evid.	Cluster	Rel.
Maina et al. (2022)	Int. J. Educ. Tech. HE	Europe	Emp-MX	±	+	+	+	±	+		M-S	Strategy/ integration	H
Martín Gilete and Blanco García (2024)	Eur. Pub. and Soc. Innov. Rev	Spain	Emp-MX	–	±	–	±	±	+		W	Pedagogy/ assessment	L
McGreal (2025)	Canadian J. Learn. Tech	Caribbean	Emp-QN	+	+	±	+	+	±		M	Readiness/ implementation	H
McGreal and Olcott (2022)	Smart Learn. Environ	International	Conc	+	+	+	+	+	±	N	W	Strategy/ integration	H
Miller and Jorre de St Jorre (2024)	Teaching in HE	Australia	Emp-QL	–	+	±	±	+	±		M	Employer/ recognition	H
Minerva et al. (2024)	J. E-Learn. Knowl. Soc	Italy	Conc	±	+	+	+	–	–		A	Stackability/ integration	M
Narayanaswamy et al. (2024)	Sustainability	USA	Emp-QN	±	+	+	±	+	+		M-S	Employer- perspective/ recognition	H
Ngoc et al. (2025)	Studies in HE	Australia	Emp-QN	–	+	±	±	±	+		M-S	Employer/ employability	H
Norman et al. (2024)	J. Clin. Transl. Sci	USA	Emp-QN	±	+	±	±	±	+		M	Pedagogy/ programme- effectiveness	L
Patterson and Hepburn (2025)	Am. J. Distance Educ	Canada	Case (desc)	±	+	±	+	±	±		W	Readiness/ implementation	M
Pelizzari and Ferrari (2025)	Excell. and Innov. Learn. Teach	Italy	Emp-QN	–	±	–	±	+	+		M	Pedagogy/ assessment	L
Pirkkalainen et al. (2023)	Educational Research	Europe	Emp-MX	+	+	±	+	+	±	N	M	Readiness/ implementation	H
Raghavan et al. (2025)	Turkish Online J. Dist. Educ	Malaysia	Emp-MX	+	+	+	+	±	+		M-S	Readiness/ implementation	H
Rami et al. (2023)	Asian J. Univ. Educ	Malaysia	Emp-QL	±	+	±	+	+	–		W	Readiness/ implementation	M
Reed et al. (2024)	Discover Education	USA	Emp-QL	±	±	–	+	+	±		M	Pedagogy/ assessment (design)	L
Reid and Schultz (2026)	Canadian J. Study Adult Educ	Canada	Conc	±	+	±	+	–	±		W/A	Staff-PD/ programme- description	L
Santally et al. (2024)	J. Learn. for Dev	Mauritius	Emp-QL	±	+	+	+	+	±		M	Readiness/ implementation + recognition	H
Sargent et al. (2023)	J. Interactive Media Educ	UK	Emp-QL	±	+	+	±	±	±		W	Stackability/ integration	M
Selvaratnam and Sankey (2021)	Open Praxis	Australasia	Emp-QN	+	+	+	+	±	±	N	M-S	Readiness/ implementation	H
Sousa-Vieira et al. (2022)	Applied Sciences	Spain	Emp-QN	–	±	–	±	±	+		M	Pedagogy/ assessment	L
Sovetkanova et al. (2026)	Frontiers in Education	Kazakhstan	Emp-MX	±	+	+	+	+	+		M	Stackability/ integration	M
Sullivan (2025)	Innovative HE	USA	Case (desc)	+	+	±	+	±	±		W	QA/recognition	H
Tan et al. (2024)	Turkish Online J. Dist. Educ	Malaysia	Emp-QL	±	+	+	+	+	–		W	Stackability/ integration	H
Tanim et al. (2026)	IET Software	Bangladesh	Tech	–	±	+	±	+	±		M	Technological- verification/ integration	L
Thorne et al. (2023)	Int. J. Inf. Learn. Tech	USA	Case (desc)	±	+	+	+	±	–		W/A	Strategy/integ- ration/recognition	H

Table 1. Cont.

Author/Year	Source	Country	Type	D1	D2	D3	D4	D5	D6	Plat.	Evid.	Cluster	Rel.
Trede et al. (2026)	HE Res. and Dev	Australia	Emp-QL	–	±	–	±	±	+		M	Pedagogy/ staff-PD (inclusion)	L
Trepule et al. (2021)	Informatics in Education	Lithuania	Emp-QL	±	+	+	+	+	±		M	Recognition/ assessment Pedagogy/	M
Van de Laar et al. (2024)	Open Learning	Europe	Emp-MX	±	+	±	±	±	+		M	programme- effectiveness + access/equity Readiness/ implementation	L–M
Varadarajan et al. (2025)	Distance Education	New Zealand	Emp-QL	±	+	+	+	+	±	N	M	Stackability/ integration	H
Venaruzzo and Diaz (2025)	Distance Education	Australia	Emp-MX	–	+	–	±	±	±		W	Stackability/ integration	L
Ward et al. (2023)	J. Interactive Media Educ	UK	Emp	±	+	+	+	±	±		M	Stackability/ integration	H
Wheelahan and Moodie (2021)	J. Curriculum Studies	Australia/Canada	Conc	–	+	±	–	+	–		A	Critique/curri- culum-theory Pedagogy/	H
Yao et al. (2025)	Cogent Education	China	Emp-MX	±	+	–	±	±	+		M	programme- effectiveness	L

Legend: Dimensions: D1 Adoption and offering; D2 Purposes and motivations; D3 Integration mechanisms; D4 Enabling conditions; D5 Barriers and constraints; D6 Outcomes and evidence of value. Coding: + = Yes; ± = Partial; – = No. Plat. (plateau signal): N = no plateau; blank = not applicable. Type: Conc = conceptual; Conc+S = conceptual + survey; Emp-QL/QN/MX = empirical qualitative/quantitative/mixed; Case = case study (desc = descriptive); Tech = technical design-and-development; Emp = empirical (unspecified). Evid. (evidence strength): S = strong; M = moderate; M–S = moderate-to-strong; W = weak; A = assertion-only; W/A = weak/assertion-only. Rel. (relevance): H = high; M = medium; L = low; L–M = low-to-medium.

2.8. Coding Procedure and Reliability

Each source was coded against the six-dimension framework by the full author team, which was divided into three groups of three (Group 1: J.V., M.F. and I.L.; Group 2: D.B., M.D. and V.M.; Group 3: N.S., A.P. and B.V.). Within each group, the members independently read the full text of every source assigned to it before assigning dimension values and summary flags. Discrepancies among coders were resolved through discussion until consensus was reached, and the agreed value was entered in the master extraction table. A final cross-group consistency check was then carried out to ensure that the dimensions and summary flags had been applied uniformly across the three groups. To assess the reliability of the coding framework, a randomly selected subset of 10 studies (approximately 15% of the corpus) was independently re-coded by three researchers across all six dimensions. Agreement was substantial (Fleiss' $\kappa = 0.67$; 80% mean pairwise agreement), and all disagreements occurred between adjacent categories (Yes/Partial or Partial/No), with no instance of opposing (Yes/No) codings. This pattern indicates that the framework was applied consistently, with residual variation confined to the boundary between partial and substantive engagement, which was resolved through consensus. The authors take full responsibility for the final codings and interpretations.

2.9. Practitioner and Policy Report Stream

Because practitioner and policy reports are not comprehensively indexed in academic databases and cannot be retrieved through a systematic keyword search in the same way as peer-reviewed articles, the practitioner stream was assembled through purposive (criterion-based) sampling, an approach appropriate to documentary analysis of grey literature (Bowen, 2009). Rather than seeking exhaustiveness, the aim was to identify a bounded set of authoritative reports that speak directly to the institutional adoption, policy, and framework dimensions on which the peer-reviewed literature is comparatively silent.

Reports were included if they met the following three criteria. They had to be:

- Issued by a recognised authority whose frameworks and guidelines are widely referenced and adopted across the higher-education sector—an intergovernmental organisation (e.g., OECD, European Union), a national or sectoral higher-education body (e.g., UPCEA, national governments), a cross-national framework initiative (e.g., MICROBOL), or a major credential provider (e.g., Coursera);
- Directly relevant to the higher-education sector, addressing the institutional adoption, policy, quality-assurance, or qualification-framework dimensions of micro-credentials rather than pedagogy or technical implementation;
- Published between 2020 and 2026 and publicly available in full.

Applying these criteria yielded the eight reports listed in Table 2. Two features of the resulting set are worth noting. First, because authoritative reports of this kind originate from different national and supranational systems, the final selection spans an international range of contexts—the United States, the European Union, the European Higher Education Area, Australia, and OECD/global perspectives—ensuring that the practitioner evidence was not confined to a single system. Second, these reports recur frequently as references within the peer-reviewed corpus itself, corroborating their recognised influence on scholarly and institutional discourse. The two UPCEA surveys (UPCEA & EvoLLLution, 2021; UPCEA et al., 2026) were retained together because their longitudinal comparability provides the study’s principal signal of an adoption trajectory.

Table 2. Coding matrix for the practitioner/policy corpus ($n = 8$).

ID	Publisher	Year	Scope	Data Basis	D1	D2	D3	D4	D5	D6	Plat.	Evid.	Rel.
UPCEA2026	UPCEA and EvoLLLution	2026	USA	Survey ($n = 290$)	+	+	±	+	+	±	Anc.	S/W	H
UPCEA2021	UPCEA and EvoLLLution	2021	USA	Survey ($n = 604$)	+	+	±	+	+	±	N	S	M
OECD2021	OECD	2021	Internat.	Policy analysis	+	+	±	±	+	±	N	M	M
OECD2023	OECD	2023	Internat.	Policy analysis	±	+	±	±	+	±	N	M	M
EU2022	Council of the EU	2022	EU	Policy instrument	–	+	+	+	±	–		W	M–H
MICROBOL	MICROBOL Project	2022	EHEA	Working group	–	+	+	+	±	–		W	H
Coursera	Coursera	2025	Internat.	Learner/employer survey	+	+	±	±	+	+	N	M	M
AusGov	Australian Government	2022	Australia	Policy framework	–	+	+	+	±	–		W	M–H

Legend: Dimensions: D1 Adoption and offering; D2 Purposes and motivations; D3 Integration mechanisms; D4 Enabling conditions; D5 Barriers and constraints; D6 Outcomes and evidence of value. Coding: + = Yes; ± = Partial; – = No. Evid. (evidence strength): S = strong; M = moderate; W = weak. UPCEA 2026 is strong on adoption but weak on value/outcomes (S/W). Plat. Anc. = anchor plateau case; N = no plateau; blank = not applicable. Rel. H = high; M = medium; M–H = medium-to-high. Internat. = international.

The eight practitioner and policy reports ($n = 8$) comprised institutional, sectoral, and governmental documents identified as influential in the field: (UPCEA & EvoLLLution, 2021; UPCEA et al., 2026); OECD (2021, 2023); the European Commission Council Recommendation (Council of the European Union, 2022); the MICROBOL framework (MICROBOL, 2022); the Australian National Microcredentials Framework (Australian Government, 2022); and the Coursera Micro-Credentials Impact Report (Coursera, 2025). The same six-dimension framework and consensus procedure were applied, with all eight coded by the full author team; given the small size of this set, a separate reliability coefficient was not computed. An international spread of reports was deliberately retained so that the practitioner evidence was not drawn from a single national context.

2.10. Data Synthesis

Coded data were synthesised narratively and presented in tabular form (Tables 1 and 2). Frequencies of Yes/Partial/No codings across the six dimensions were tabulated for each stream, and thematic clusters were used to organise the narrative synthesis. Particular analytical attention was given to two cross-cutting comparisons: first, between the peer-reviewed and practitioner streams (the sectoral comparison); and second, across the geographic and disciplinary distribution of the corpus. The corpus was tabulated by country and world region to examine the geographic spread of the evidence base and its alignment with the contexts in which practitioner evidence on institutional adoption has emerged. Consistent with the scoping-review method, the synthesis maps the distribution and characteristics of the evidence and distinguishes empirically evidenced findings from assertion, rather than appraising the effectiveness of micro-credentials per se. Throughout the synthesis, conclusions were weighted according to the strength of their supporting evidence. Findings drawn from empirical studies rated as offering moderate or moderate-to-strong evidence were treated as the firmer basis for the review's claims; whereas, those resting on conceptual, descriptive, or assertion-based sources were reported as propositions, arguments, or illustrative cases rather than as established findings. This distinction is signalled in the text through the attribution of claims: empirical studies are described as showing or finding; whereas, conceptual and critical contributions are described as proposing, arguing, or documenting in principle.

3. Results

3.1. Overview of the Corpus

The sixty-five peer-reviewed studies included in this review trace a field that is young, lively, and unmistakably gathering pace. Only two of the included studies were published in 2020; by 2023 the annual count had risen to twelve, and 2024 and 2025 each contributed fifteen studies, with a further eight already published in 2026 at the time of the search. More than half of the corpus (58.5%) thus appeared in the last three years alone, a tempo that speaks to the urgency with which higher education researchers have turned their attention to micro-credentials, but also one that cautions against expecting a settled or mature evidence base.

Methodologically, the corpus leans toward the qualitative and the exploratory. Empirical studies predominate (47 of 65; 72.3%), comprising nineteen qualitative, sixteen mixed-methods, eleven quantitative designs, and one technical design-and-development study. The remaining eighteen studies are conceptual papers, descriptive case studies, or model-development contributions without primary data. Sample sizes within the empirical work are characteristically modest, interview and focus-group studies of five to twenty-two participants, single-course pilots, and small institutional surveys are the norm, with only a handful of larger datasets, such as a web-scraping census of 1860 United States universities (Lang & Sharp, 2023) and a workforce survey of 1464 employed adults (Raghavan et al., 2025).

The strength of the evidence reflects this profile. Using the four-level rating applied during coding, the majority of studies were assessed as offering moderate evidence (38 of 65; 58.5%), a further six as moderate-to-strong, while eleven were rated weak and ten rested largely or wholly on assertion. No study was rated as offering strong evidence outright, a finding that echoes the calls, repeated across the included reviews of this literature, for more robust and longitudinal designs (Thi Ngoc Ha et al., 2023; Ahsan et al., 2023).

3.2. Geographic Distribution

Geographically, the corpus is wide but uneven (Table 3). Asia, including the Middle East, contributes the largest share of studies (22 of 65; 33.8%), with Malaysia alone accounting for eleven studies, more than any other single country, reflecting the early and deliberate national framework established by the Malaysian Qualifications Agency in 2019. Europe follows with eighteen studies (27.7%), North America with eleven (16.9%; nine from the United States and two from Canada), and Oceania with nine (13.8%). Africa is represented by a single independent study from Mauritius, with Sub-Saharan African contexts otherwise appearing only through European-coordinated projects (Maina et al., 2022; Van de Laar et al., 2024) and Latin America is absent altogether.

Table 3. Geographic distribution of the included peer-reviewed studies ($n = 65$).

World Region	<i>n</i>	%	Countries/Contexts (<i>n</i>)
Asia (incl. Middle East)	22	33.8	Malaysia (11), Bangladesh (2), China (2), Hong Kong (1), Israel (1), Kazakhstan (1), UAE (1), Saudi Arabia (1), Turkey (1), multi-context Asia comparative (1)
Europe	18	27.7	Spain (3), UK (3), Italy (2), Ireland (1), Lithuania (1), Norway (1), Ukraine (1), Europe-regional/multi-country (6)
North America	11	16.9	USA (9), Canada (2)
Oceania/Australasia	9	13.8	Australia (6), New Zealand (2), Australasia-regional (1)
International/cross-regional	3	4.6	Global/conceptual scope (2), Australia–Canada (1)
Africa	1	1.5	Mauritius (1)
Caribbean	1	1.5	Commonwealth Caribbean regional (1)

One feature of this distribution deserves particular attention. The United States, the context in which practitioner evidence of an institutional adoption plateau is most clearly documented, contributes only nine peer-reviewed studies, and of these, the majority examine course-level or programme-level questions. Just one (Lang & Sharp, 2023) directly measures institutional adoption, finding that only 6.8% of US universities offered micro-credentials on a major badging platform. The geography of the scholarly evidence and the geography of the adoption question, in other words, barely overlap, a mismatch to which we return in the Discussion.

3.3. Thematic Landscape

When the studies are grouped by their primary thematic concern, the field resolves into four broad territories of roughly comparable size, with a scattering of smaller settlements between them. The largest cluster addresses institutional readiness and implementation (21 studies; 32.3%), spanning readiness frameworks and maturity models (Varadarajan et al., 2025; Iatrellis et al., 2024), implementation case studies (J. K. Cheng et al., 2025), leadership perspectives (Rami et al., 2023), and sector-wide adoption surveys (Selvaratnam & Sankey, 2021; Hartnett, 2021; McGreal, 2025). A second territory concerns strategy, integration, and stackability (16 studies; 24.6%), where questions of credit recognition, qualification-framework alignment, and the embedding of micro-credentials within degrees are worked through (Brown et al., 2023; Tan et al., 2024; Ward et al., 2023; Sargent et al., 2023).

The third, and strikingly large, territory is pedagogical: seventeen studies (26.2%) examine micro-credentials or digital badges as instruments of teaching, learning, assessment, or course design, from learner motivation (Alt, 2023; Z. Cheng et al., 2020) and student experience (Goulding et al., 2024; Pelizzari & Ferrari, 2025) to programme effectiveness in single courses (Bal et al., 2022; Yao et al., 2025). A fourth, smaller cluster gathers the employer and recognition studies (seven studies; 10.8%), in which the labour-market reception of micro-credentials is examined directly (Miller & Jorre de St Jorre, 2024; Bruguera et al., 2025; Narayanaswamy et al., 2024; Hains-Wesson, 2025). The remainder comprises

quality-assurance and recognition analyses (Hou et al., 2026; Trepule et al., 2021), professional and continuing-education credentialing (Lok et al., 2022), a technological-verification contribution (Tanim et al., 2026), and one sustained theoretical critique (Wheelahan & Moodie, 2021).

3.4. The Six Dimensions in the Peer-Reviewed Literature

Coding the corpus against the six analytical dimensions reveals a literature whose attention is distributed in a distinctly uneven way (Table 1). The purposes and motivations of micro-credentials (D2) are by far the most fully developed dimension: fifty-three studies (81.5%) engage them substantively, and not a single study ignores them. Employability, workforce alignment, and lifelong learning recur almost as an article of faith across contexts as different as Malaysian public universities, Spanish labour-market studies, and Caribbean stakeholder surveys. Enabling conditions (D4) and barriers (D5) are similarly well-tended ground: thirty-nine studies (60.0%) examine the former substantively and thirty-eight (58.5%) the latter, painting a consistent picture in which leadership commitment, quality assurance, and resourcing enable, while definitional confusion, weak recognition, faculty hesitancy, and resource constraints impede.

The dimensions closest to this review's central concern, however, are markedly thinner (Table 4). Adoption and offering (D1) is fully addressed by only thirteen studies (20.0%); thirty-seven more touch it partially, typically through trajectory language, fields described as 'emerging,' 'in their infancy,' or 'gaining traction', rather than through measured uptake. Integration mechanisms (D3), the core construct of this review, are substantively examined in twenty-four studies (36.9%) and partially in twenty-seven (41.5%), but the treatment is frequently aspirational: stacking and credit recognition are proposed, recommended, or modelled far more often than they are observed in operation. Outcomes and evidence of value (D6) fare least well of all: only eighteen studies (27.7%) provide measured outcomes of any kind, and even these rest predominantly on self-reported perception, satisfaction, confidence, perceived employability, rather than on demonstrated learning gains or labour-market effects. Fifteen studies offer no outcome evidence at all.

Table 4. Coding of the six analytical dimensions across the peer-reviewed corpus ($n = 65$).

Dimension	Yes, n (%)	Partial, n (%)	No, n (%)
D1 Adoption and offering	13 (20.0)	37 (56.9)	15 (23.1)
D2 Purposes and motivations	53 (81.5)	12 (18.5)	0 (0.0)
D3 Integration mechanisms	24 (36.9)	27 (41.5)	14 (21.5)
D4 Enabling conditions	39 (60.0)	25 (38.5)	1 (1.5)
D5 Barriers and constraints	38 (58.5)	23 (35.4)	4 (6.2)
D6 Outcomes and evidence of value	18 (27.7)	32 (49.2)	15 (23.1)

Perhaps the most consequential finding of the coding exercise concerns what the literature does not yet ask. None of the sixty-five peer-reviewed studies directly examines a plateau or stalling in institutional adoption: for fifty-eight studies the question does not arise at all, while the remaining seven describe growth-oriented or early-stage trajectories. To be sure, several studies gesture toward the conditions under which adoption might falter, tempered expectations in the strategic literature (McGreal & Olcott, 2022), organisational inertia in the Nordic case (Langseth et al., 2024), and the gap between policy intention and implementation in Australasia (Selvaratnam & Sankey, 2021). Yet the plateau itself, as an empirical phenomenon documented in the most recent practitioner data, has so far found no direct scholarly examination.

3.5. The Practitioner and Policy Stream

The eight practitioner and policy reports, coded against the identical six dimensions, present an almost mirror-image profile (Table 2). Where the academic literature is thin on adoption, the practitioner surveys are strongest precisely there: the two UPCEA surveys (UPCEA & EvoLLLution, 2021; UPCEA et al., 2026), the OECD analyses (OECD, 2021, 2023), and the Coursera impact report (Coursera, 2025) all address adoption and offering substantively, and it is the longitudinal comparison between the two UPCEA surveys that yields the central empirical signal motivating this review, individual involvement in credential innovation rising even as institutional embrace remains statistically flat (53% in 2025 against 54% in 2021), with perceived fiscal benefit declining.

The policy instruments, the EU Council Recommendation, the MICROBOL framework, and the Australian National Microcredentials Framework (Australian Government, 2022), show the complementary pattern: silent on adoption (D1 coded No in all three), but substantive on integration mechanisms and enabling conditions (D3 and D4 coded Yes throughout), as befits documents whose purpose is to construct the recognition architecture—qualification-framework alignment, credit values, quality standards—within which adoption might later deepen. Across the practitioner stream as a whole, outcome evidence (D6) remains as scarce as in the scholarly stream: only the Coursera report claims measured value outcomes, and these rest on learner and employer self-report within a provider's own ecosystem.

3.6. Comparing the Two Streams

Set side by side, the two evidence streams divide the six dimensions between them with an almost uncomfortable neatness. The peer-reviewed literature holds the deeper conceptual ground—purposes, enabling conditions, barriers, and the theoretical critique of credentialing itself—while the practitioner stream holds nearly all of the systematic adoption evidence and the only longitudinal trajectory data. Integration mechanisms are discussed in both streams but operationalised in neither: academic studies propose pathways that policy documents codify, yet measured accounts of stacking, credit transfer, and recognition functioning at scale are almost wholly absent from both. And the plateau, documented in the practitioner stream's most recent and most rigorous longitudinal data, has no scholarly counterpart whatsoever. The two studies, examining the same phenomenon over the same years, have in effect kept different ledgers: one recording why micro-credentials should work and what hinders them, the other recording whether institutions are, in fact, embracing them.

4. Discussion

4.1. Two Evidence Streams, Two Different Ledgers

The central finding of this review is best understood as a division of labour that nobody planned. Held against an identical analytical framework, the peer-reviewed literature and the practitioner and policy reports turn out to have been keeping different ledgers of the same phenomenon. The scholarly stream has carefully recorded why micro-credentials ought to work—the purposes they serve, the conditions they require, the obstacles they meet—while the practitioner stream has recorded whether institutions are, in fact, embracing them. Each ledger is genuinely informative; neither, on its own, is sufficient. The result is a field in which the most pressing empirical question of the moment—why institutional commitment appears to have stalled even as individual engagement deepens (UPCEA et al., 2026)—falls between the two streams, documented by one and theorised by neither.

A note on interpretation is warranted before proceeding. Throughout the discussion that follows, we distinguish between what the stronger empirical studies demonstrate and what the conceptual and critical literature proposes; where a claim rests principally on weaker evidence, this is made explicit, and such claims are advanced as arguments to be tested rather than as settled conclusions.

This pattern refines, rather than contradicts, what previous reviews have reported. Earlier syntheses observed that micro-credential research remains at an early stage (Thi Ngoc Ha et al., 2023), that implementation is under-theorised (Ahsan et al., 2023), and that activity concentrates in particular fields and high-income contexts (Msweli et al., 2022). The present review adds the cross-stream dimension: it is not simply that the academic literature is young, but that its attention is systematically allocated away from the institutional-trajectory questions on which the practitioner evidence is now most insistent. More than a quarter of the corpus examines micro-credentials and digital badges as pedagogical instruments in single courses; barely a fifth measures adoption at all; and longitudinal designs are entirely absent. A similar conclusion has recently been reached, from within a single discipline, by Parrales-Bravo (2026), whose review of microlearning in software engineering found enthusiasm ‘considerably outstripping’ empirical support and credentialing frameworks lacking validation of employer recognition, suggesting that the imbalance identified here is not an artefact of our corpus but a structural feature of the field.

4.2. The Recognition Bottleneck

If the two ledgers agree on anything, it is on where the system currently binds. Across methods, regions, and stakeholder groups, the same constraint surfaces again and again: recognition. Employers in Australia, Spain, and the United States voice cautious interest in micro-credentials while withholding trust pending clearer standards, rigour, and verification (Miller & Jorre de St Jorre, 2024; Bruguera et al., 2025; Narayanaswamy et al., 2024); students perceive prestige and legitimacy gaps; quality-assurance agencies across four Asian systems report the absence of common standards (Hou et al., 2026); and education leaders in contexts as distant as Mauritius and Malaysia call for formal anchoring in national qualification frameworks and credit systems (Santally et al., 2024; Tan et al., 2024). The quantitative evidence sharpens the point: employers value transcribed, credit-bearing micro-credentials significantly more than non-transcribed ones (Narayanaswamy et al., 2024), which suggests that the labour-market value of a micro-credential is not intrinsic to it but is conferred by precisely the institutional integration that remains, in most systems, incomplete.

Read this way, the practitioner-documented plateau and the scholarly recognition literature illuminate one another. The plateau is what a recognition bottleneck looks like at sector scale: institutions experiment at the periphery—through non-credit badges, supplementary certificates, and pilot programmes—but hesitate to undertake the deeper integration into credit, curriculum, and quality-assurance machinery on which, the evidence suggests, durable value depends. The strategic literature anticipated exactly this hesitation, warning that micro-credentials are ‘not a panacea’ and unlikely to become a major revenue stream (McGreal & Olcott, 2022) and asking whether institutions were embracing credentials out of strategy or fear of missing out (Brown et al., 2023). Organisational accounts supply the mechanism: loosely coupled systems, interpretive struggles among stakeholders, and thin leadership support allow innovation to persist in pockets without institutional consolidation (Langseth et al., 2024).

4.3. *The Integration Gap and Its Geography*

The review also clarifies the spatial structure of the field's blind spot. The scholarly corpus is anchored in Malaysia, Europe, and Australasia—contexts of active framework-building—where the questions that matter are readiness, design, and policy alignment. The clearest longitudinal signals of institutional hesitation, by contrast, arise from the United States, which contributes almost no peer-reviewed institutional-adoption research beyond a single platform census (Lang & Sharp, 2023). The two geographies barely converse. This matters because the conditions that appear to underlie the US plateau—market saturation of short courses, weak credit articulation, contested fiscal benefit—are not unique to one system; the Australasian surveys already show policy intention outrunning implementation (Selvaratnam & Sankey, 2021), and adoption surveys in Malaysia and the Caribbean record persistently low or uneven uptake behind enthusiastic framing (Keoy et al., 2024; McGreal, 2025). Whether these systems converge on the US trajectory, or whether strong national qualification frameworks alter the path, is precisely the comparative question the current literature cannot answer.

Two cautions must qualify how the plateau is interpreted. First, the signal derives principally from a single national context and a single survey series (UPCEA & EvoL-Lution, 2021; UPCEA et al., 2026); although that series is longitudinal and its sample robust, the flat trend it records may not extend to systems with different funding models, regulatory arrangements, or qualification frameworks. The plateau is best understood, therefore, as a well-documented hypothesis about the United States rather than an established feature of global higher education. Second, even within that context, the flat trend admits of several explanations that the present evidence cannot yet distinguish. It may reflect a genuine stalling of institutional commitment; but it may equally reflect the saturation of an early-adopter market, in which the institutions most disposed to offer micro-credentials have already done so and later adopters have yet to follow, producing an apparent plateau that is in fact a pause between waves of diffusion. It may also be shaped by measurement: a survey that captures institutional “embrace” through self-report may register stability where underlying practice is quietly changing, or may be sensitive to shifts in respondent composition between survey rounds. Finally, contextual factors specific to the period—post-pandemic budgetary retrenchment, competing strategic priorities, and tempered expectations following an initial surge of enthusiasm—could depress reported embrace without signalling a durable ceiling on adoption. Distinguishing among these explanations is precisely the task that the current evidence base, lacking comparative and longitudinal institutional studies, is not yet equipped to perform; we therefore advance the plateau not as a settled conclusion but as the motivating question that a more integrated evidence base must resolve.

It is also worth naming what the integration gap is not. It is not a deficiency of purpose: this review found purposes and motivations to be the most thoroughly developed dimension in the entire corpus, and recent narrative syntheses rightly document the genuine promise of micro-credentials for employability, inclusion, and lifelong learning (Gamage & Dehideniya, 2025). Nor is it merely an implementation lag that time will close on its own. The critical literature has long argued that micro-credentials carry an in-built tension—between modular, labour-market-responsive provision and the curricular coherence and powerful knowledge of a qualification (Wheelahan & Moodie, 2021); between transformative and instrumental conceptions of learning (Gallagher & Tóth, 2026). The plateau may thus be read not only as an operational shortfall but as the surface expression of an unresolved question about what kind of educational object a micro-credential is to be: a supplement at the periphery of the qualification system, or a recognised component within it. The evidence assembled here suggests that institutions have largely chosen the former

by default, and that the value the labour market is prepared to assign to micro-credentials may remain capped until that choice is made deliberately.

4.4. Implications for Institutions, Policy, and Research

For institutional leaders, the implication of this review is uncomfortable but actionable: the constraint on micro-credential value lies less in course design, where the literature is already rich, than in governance. The instruments exist. Readiness and maturity frameworks now specify the institutional dimensions that integration requires (Varadarajan et al., 2025; Iatrellis et al., 2024); governance models with review boards, taxonomies, and evaluation rubrics have been documented in practice (Sullivan, 2025); and credit-articulation mechanisms, from APEL-based recognition to skills-profiled mapping of credentials onto existing degrees, have been piloted (Tan et al., 2024; Ward et al., 2023). What the evidence does not yet show is these instruments being adopted at scale, and the practitioner data suggest that without them, experimentation accumulates while embrace stalls.

For policymakers, the cross-stream comparison underlines that recognition architecture is a necessary but insufficient condition. The qualification-framework instruments of 2022 established definitional and quality foundations (Council of the European Union, 2022; MICROBOL, 2022; Australian Government, 2022); yet, the systems with the most developed frameworks still report uneven implementation, indicating that frameworks require accompanying incentives, funding models, and employer engagement to translate into institutional commitment.

For research, the agenda follows directly from the gaps this review has mapped, and four priorities are especially pressing. Each is specified here in terms of the design that would be required to address it, since the field's difficulty has been less an absence of questions than an absence of the study designs capable of answering them.

First—direct, longitudinal study of institutional adoption.

The plateau can only be confirmed, refuted, or contextualised by institution-level panel studies that follow the same universities across successive years, rather than by repeated cross-sectional snapshots. Such studies should track not merely whether micro-credentials are offered, but the depth of their institutional embedding—whether they are credit-bearing, integrated into programme structures, and governed through formal quality-assurance processes—using consistent, operationally defined indicators. A three- to five-year panel design would allow genuine trajectories, rather than inferred ones, to be observed.

Second—comparative international studies using a shared instrument.

Because the practitioner plateau is documented principally in the United States while the scholarly evidence is concentrated in Malaysia, Europe, and Australasia, the most valuable single contribution would be a matched, cross-national study applying an identical institutional-adoption instrument across systems with contrasting qualification frameworks—for example, the United States, the European Higher Education Area, Australia, and a rapidly developing system such as Malaysia. Such a design would test directly whether strong national frameworks alter the adoption path, or whether the plateau is a common destination reached by different routes.

Third—outcome measures that move beyond perception.

The review found that evidence of value rests overwhelmingly on self-reported perception. The field now requires studies that link micro-credential completion to verifiable outcomes: employment and progression records, wage and mobility effects, and credit-transfer or subsequent-enrolment data. Employer-recognition claims, in particular, would benefit from experimental or quasi-experimental designs—for instance, résumé-audit or hiring-decision studies that compare candidates with and without transcribed micro-

credentials—which would establish labour-market value more robustly than attitudinal surveys alone.

Fourth—integration observed in operation, not in proposal.

Stacking, credit transfer, and recognition are, at present, far more often modelled or recommended than observed functioning at scale. Research is needed that documents these mechanisms in live operation—how many learners actually stack credentials toward qualifications, how credit is transferred in practice, and where recognition succeeds or fails—ideally through institutional case studies paired with administrative data.

A unifying recommendation.

Underlying all four priorities is a single structural need: a shared framework for measuring institutional adoption and integration, agreed across the academic and practitioner communities, so that scholarly and sector evidence become directly comparable. The central finding of this review—that the two evidence streams have run on parallel tracks, examining the same phenomenon without converging—is itself an argument for such a framework. Until researchers and practitioners measure adoption in commensurable terms, the field will continue to know a great deal about why micro-credentials should succeed, and comparatively little about whether, where, and under what institutional conditions they actually do.

4.5. Limitations

This review carries limitations that should temper its conclusions. First, the practitioner stream was purposively rather than systematically assembled, and although the eight reports were selected for their authority and relevance, the set is not exhaustive. Other grey-literature sources—for example, additional national qualification-framework documents or commercial market analyses such as those produced by HolonIQ—could nuance the picture, particularly regarding regions under-represented in the present selection. The reported cross-stream patterns should therefore be read as characterising the most influential practitioner evidence available, rather than the entirety of the grey literature; while we would not expect the inclusion of further reports to overturn the central finding that systematic institutional-adoption evidence resides predominantly outside the peer-reviewed literature, it may qualify the specifics of the adoption trajectory. Second, the plateau signal itself derives principally from one national context and one survey series (UPCEA & EvoLLution, 2021; UPCEA et al., 2026). While its longitudinal design and sample are robust, generalisation beyond the United States remains an open empirical question rather than a settled fact. Third, the six-dimension coding, though applied identically across both streams and verified by all authors, involves interpretive judgement, particularly at the boundary between partial and substantive engagement; the inter-rater reliability check reported in Section 2.8 (Fleiss' $\kappa = 0.67$, with all disagreements confined to adjacent categories) indicates that this residual subjectivity was contained and did not produce categorical divergence.

Fourth, the search was restricted to English-language full texts, which, as the geographic distribution shows, likely under-represents scholarship from Latin America, Africa, and non-Anglophone Asia. Finally, in a field moving this quickly, any synthesis is a photograph of a moving object: several included studies were published while this review was underway, and the picture assembled here will itself require updating as the post-2026 evidence arrives.

5. Conclusions

This hybrid review set out to hold two bodies of evidence on micro-credentials in higher education—sixty-five peer-reviewed studies and eight practitioner and policy

reports—to a single analytical framework, and to ask whether the scholarly literature can account for the institutional adoption patterns that practitioner data now document. Across the three questions that guided the review, the picture is sobering in its clarity: the two evidence streams have been keeping different ledgers.

In answer to the first question (RQ1), the peer-reviewed literature has characterised the institutional conditions for integration richly but unevenly. It is most fully developed on purposes and enabling conditions—furnishing readiness frameworks, governance models, and credit-articulation mechanisms—yet its attention concentrates at the course and pedagogical level, and it remains comparatively thin on adoption as an institution-level phenomenon. The scholarship, in other words, explains well what micro-credentials require and why they should matter, while saying far less about whether institutions are taking them up.

That gap is precisely where the practitioner and policy evidence answers the second question (RQ2). Read against the same framework, these reports document adoption trajectories directly, and it is here—not in the academic corpus—that the systematic signal of a plateau in institutional commitment resides, alongside the evidence of earlier growth and uneven, sometimes stalling, uptake. The measurement of whether micro-credentials are actually being embraced has so far been carried almost entirely by practitioner reporting.

The third question (RQ3) asks how far the peer-reviewed base explains, predicts, or fails to address these documented patterns—and the answer is that it largely fails to address them: the plateau has, to date, received no direct scholarly examination. Yet when the two streams are read together, they converge on a single constraint with remarkable consistency—recognition. Employers withhold trust pending visible standards and rigour; learners sense prestige and legitimacy gaps; quality-assurance systems lack common reference points; and credit-bearing, transcribed credentials command demonstrably greater labour-market value than supplementary badges. The evidence suggests that the value of a micro-credential is not intrinsic but conferred—by the very integration into curriculum, credit, and quality assurance that most institutions have so far approached tentatively, and at the periphery. The plateau, on this reading, is not a verdict on the idea of micro-credentials; it is the predictable consequence of innovation that has accumulated at the edges of the qualification system without yet being invited into its core.

What this review reveals, then, is less a collision than two parallel tracks that should merge into one road, and have not yet. What follows is a direct agenda. Institutions hold instruments the literature has already furnished—readiness frameworks, governance models, credit-articulation mechanisms—and the question before their leaders is no longer how to design micro-credentials but whether to integrate them deliberately. Policymakers hold recognition architectures that now require incentives and employer engagement to become lived practice. And researchers hold the largest task: longitudinal, institution-level, and comparative study of adoption trajectories; outcome research that moves beyond perception to verified effects; and integration research that observes stacking and credit transfer in operation rather than in proposal. Micro-credentials have been abundantly promised. Whether they will be institutionally embraced—and prove worthy of that embrace—is a question the next phase of research, policy, and institutional practice must now answer together.

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Abbreviations

The following abbreviations are used in this manuscript:

CPD	Continuing Professional Development
ERIC	Education Resources Information Center
EU	European Union
HEI(s)	Higher Education Institution(s)
HOLONIQ	Market intelligence and analytics company (education, healthcare, and impact-driven markets)
INPLASY	International Platform of Registered Systematic Review and Meta-analysis Protocols
MICROBOL	Micro-credentials Linked to the Bologna Key Commitments (project)
MOOC	Massive Open Online Course
ODL	Open and Distance Learning
OECD	Organisation for Economic Co-operation and Development
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PRISMA-ScR	PRISMA extension for Scoping Reviews
QA	Quality Assurance
STEM	Science, Technology, Engineering, and Mathematics
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UPCEA	University Professional and Continuing Education Association
APEL.M	Accreditation of Prior Experiential Learning Micro-credentials

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