



## **Digital Technology Integration in the Implementation of Outcome-Based Education (OBE) in English Curriculum at State Islamic Higher Education Institutions (PTKIN): A Systematic Literature Review**

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### **Abstract**

This study presents a systematic literature review examining the integration of digital technology in the implementation of Outcome-Based Education (OBE) in English language curricula at State Islamic Higher Education Institutions (PTKIN) within the policy framework of Merdeka Belajar-Kampus Merdeka (MBKM) and the Regulation of the Minister of Education, Culture, Research, and Technology Number 53 of 2023. Employing a Systematic Literature Review (SLR) approach guided by the PRISMA 2020 protocol, this study analyzed 35 peer-reviewed articles published between 2019 and 2024 from Scopus, Web of Science, ERIC, and Google Scholar databases. Empirical data indicate that as of December 2024, 27 of 59 PTKINs have achieved the highest accreditation level (Unggul) from BAN-PT, while the national Digital Literacy Index is only 3.54 out of 5.0 (Kominfo, 2022). The review identifies four dominant patterns of technology integration in OBE: Technology for Assessment, Technology for Content Delivery, Technology for Collaboration, and Technology for Personalization. Three context-specific challenges for PTKINs are also identified: (1) digital infrastructure gaps in the context of a national internet penetration rate of 72.78% (BPS, 2024); (2) lecturers' digital competency gaps; and (3) tensions between OBE standardization and Islamic institutional identity. Drawing on these findings, this study proposes a Technology-Enhanced OBE (TE-OBE) model contextually designed for English language programs at PTKINs, integrating Islamic values, contextual technology selection, authentic digital assessment, and sustained lecturer capacity building as its core components.

**Keywords:** Outcome-Based Education, digital technology, PTKIN, English curriculum, Merdeka Belajar, TE-OBE

### **Introduction**

The global transformation of higher education toward Outcome-Based Education (OBE) has driven comprehensive curriculum reform across the world, including Indonesia. OBE, as first conceptualized by Spady (1994), asserts that curriculum design should begin with the learning outcomes to be achieved rather than the content to be delivered. This paradigm shift represents not merely a technical-administrative change, but a fundamental transformation in how educational institutions understand the relationship between educational goals, learning processes, and graduate quality assurance.

In Indonesia, the commitment to OBE is explicitly articulated through a series of regulations. The Regulation of the Minister of Education and Culture Number 3 of 2020 on National Higher Education Standards (SN-DIKTI) mandates every study program to formulate measurable Graduate Learning Outcomes (CPL) integrated into every course. This regulation was further strengthened by the Regulation of the Minister of Education, Culture, Research, and Technology Number 53 of 2023, which establishes CPL as the primary benchmark for accreditation—a policy signal affirming that

OBE is no longer optional, but an institutional imperative. Within this context, the Merdeka Belajar-Kampus Merdeka (MBKM) policy encourages study programs to design curricula responsive to industrial needs and technological developments, offering an unprecedented level of flexibility in the history of Indonesian higher education.

State Islamic Higher Education Institutions (PTKINs)—encompassing State Islamic Universities (UIN), State Islamic Institutes (IAIN), and State Islamic Colleges (STAIN)—occupy a strategic position in Indonesia's higher education landscape. As of 2024, there are 59 PTKINs under the Directorate of Islamic Higher Education (Direktorat PTKI) of the Ministry of Religious Affairs, serving hundreds of thousands of students from Aceh to Papua. Accreditation achievements reflect significant improvement: from only 7 PTKINs achieving the highest accreditation level in 2022, the figure rose to 27 PTKINs by December 2024 (Kemenag, 2024)—an increase of 286% within two years. This reflects mounting institutional pressure on PTKINs to meet quality standards largely grounded in OBE principles.

The English Language Education (Tadris Bahasa Inggris/TBI) study program is one of the most widely distributed disciplines across PTKINs. Nearly every IAIN and UIN houses a TBI program within their Faculty of Tarbiyah and Educational Sciences. These programs face a dual pressure: on one hand, they are expected to produce graduates who are academically and professionally competent as English teachers; on the other, they must ensure the authentic integration of Islamic values throughout the curriculum—a dimension not always accommodated by conventional OBE frameworks developed in Western higher education contexts.

Simultaneously, the rapidly evolving digital technology landscape opens transformative opportunities for OBE implementation. National internet penetration has reached 72.78% (BPS, 2024), rising from 69.21% in 2023. The national Digital Literacy Index, measured by the Ministry of Communication and Information Technology through a survey of 10,000 respondents across 514 districts and cities, recorded a score of 3.54 out of 5.0 in 2022—categorized as "moderately good" but not yet optimal. In the higher education environment, Haetami (2025) notes that many educators in Indonesia lack the digital literacy and professional training needed to effectively integrate AI into their instructional strategies—a finding that underscores the persistence of the competency gap despite rapid technological advancement.

The gap between the transformative potential of technology and the reality of its implementation at PTKINs forms the point of departure for this study. Existing literature on OBE in Indonesia remains predominantly focused on general public universities or technical and scientific higher education contexts—while studies specifically exploring the intersection of OBE, digital technology, and the institutional context of PTKINs in the field of English language education remain scarce. This gap constitutes the scholarly urgency and academic contribution of the present systematic literature review.

This study aims to: (1) map the literature landscape on digital technology integration in OBE English language curricula; (2) identify patterns, challenges, and opportunities for implementation in the context of Indonesian PTKINs; and (3) propose a conceptual Technology-Enhanced OBE (TE-OBE) model that is contextually responsive to the institutional characteristics of PTKINs.

## **Research Methodology**

### **Research Design**

This study employs a Systematic Literature Review (SLR) method following the PRISMA 2020 protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The SLR approach was selected based on epistemological considerations: to produce a comprehensive, transparent, and replicable synthesis of knowledge from multiple existing studies, thereby providing a strong conceptual foundation for the proposed TE-OBE model. This approach is considered more appropriate than a narrative review because it prioritizes systematization and minimization of selection bias.

### **Data Sources and Search Strategy**

Literature searches were conducted systematically across four databases: (1) Scopus, as the primary database for internationally indexed publications; (2) Web of Science, for source quality triangulation; (3) ERIC (Education Resources Information Center), specifically for language education literature; and (4) Google Scholar, to capture Indonesian-language publications and relevant conference proceedings. The publication period was restricted to January 2019 through December 2024 to ensure relevance with recent MBKM policy developments and current educational technology dynamics.

The search strategy employed keyword combinations in both English and Indonesian using Boolean operators. In English: ("Outcome-Based Education" OR "OBE" OR "competency-based curriculum") AND ("English language teaching" OR "ELT" OR "English curriculum") AND ("digital technology" OR "e-learning" OR "AI" OR "technology integration") AND ("Islamic higher education" OR "PTKIN" OR "Indonesia"). In Indonesian: ("OBE" OR "kurikulum berbasis capaian") AND ("bahasa Inggris" OR "TBI") AND ("teknologi digital" OR "e-learning") AND ("PTKIN" OR "UIN" OR "IAIN" OR "MBKM").

### **Inclusion and Exclusion Criteria**

Articles were included if they met all of the following criteria: (1) addressed OBE implementation in the context of language education, higher education, or Islamic education; (2) incorporated digital technology as a variable or factor under exploration; (3) were written in Indonesian or English; (4) constituted peer-reviewed journal articles, conference proceedings, or book chapters; (5) were available in full-text format; and (6) were published within the specified timeframe. Articles were excluded if they constituted non-academic opinions, editorials, or unpublished theses; focused on primary or secondary education without relevance to higher education; or lacked direct connection to the core research variables.

### **Selection Process and Analysis**

The selection process was carried out in four stages in accordance with the PRISMA protocol. Stage one (Identification): 412 articles were identified across the four databases. Stage two (Screening): After removing duplicates and screening titles and abstracts, 98 articles remained. Stage three (Eligibility): full-text reading yielded 35 articles meeting all inclusion criteria. Stage four (Included): These 35 articles constituted the final corpus for analysis.

Data were extracted using a standardized form covering: (1) article identity (author, year, journal/proceedings, country); (2) research aims and questions; (3) research context and subjects; (4) research methodology; (5) technologies explored; (6) key findings; and (7) theoretical and practical implications. Analysis employed a thematic synthesis approach (Thomas & Harden, 2008), generating integrative themes across studies through line-by-line coding, development of descriptive themes, and generation of analytical themes.

**Findings and Discussion,**

**Findings**

**Profile of the Literature Reviewed**

Of the 35 articles analyzed, 19 articles (54.3%) constituted empirical studies (qualitative, quantitative, or mixed-method), while 16 articles (45.7%) were conceptual studies or literature reviews. Geographical distribution showed a dominance of research from Malaysia (28.6%), Indonesia (25.7%), and South Asian countries such as Pakistan and Bangladesh (17.1%)—a pattern reflecting a Muslim-majority Asian context relevant to the PTKIN study. In terms of research methodology, case studies and surveys dominated the empirical approaches, while framework analysis and comparative studies were prevalent among conceptual works.

The following table presents the distribution profile of the literature by research focus and institutional context:

**Table 1:** Distribution profile of the literature by research focus and institutional context

| No. | Research Focus                             | Number of Articles (%) |
|-----|--|------------------------|
| 1   | Technology integration in OBE assessment   | 9 (25.7%)              |
| 2   | Technology-based OBE curriculum design     | 8 (22.9%)              |
| 3   | Lecturers' digital competency in OBE       | 7 (20.0%)              |
| 4   | E-learning platforms and learning outcomes | 6 (17.1%)              |
| 5   | OBE in Islamic education contexts          | 5 (14.3%)              |

**Factual Context: PTKINs and the Challenges of Digital Transformation**

Before presenting the analytical findings, it is essential to situate this review within an accurate factual context. As of 2024, the PTKIN system in Indonesia encompasses 59 state institutions under the Directorate of Islamic Higher Education of the Ministry of Religious Affairs—comprising UINs, IAINs, and STAINs—in addition to 848 private Islamic higher education institutions (PTKIS). The leap in accreditation achievement from 7 PTKINs with the highest accreditation in 2022 to 27 PTKINs by December 2024 reflects an extraordinary acceleration of quality transformation (Kemenag, 2024). Yet behind these impressive figures lies a more complex reality.

National internet penetration data from BPS (2024) reveals a rate of 72.78%—a figure that appears high but conceals sharp geographical inequities. PTKINs located in provincial capitals or large cities generally have adequate digital infrastructure. By contrast, PTKINs and IAINs in remote districts—such as IAIN Curup in Rejang Lebong Regency, Bengkulu, IAIN Ternate, or STAIN Wajo in South Sulawesi—face genuine connectivity challenges. National household computer ownership stands at only 18.52% in 2024—an indicator that directly impacts students' ability to access learning technology from outside campus.

At the digital literacy level, Indonesia's Digital Literacy Index score of 3.54 out of 5.0 (Kominfo, 2022) places the country in the "moderate" category—not yet reaching "good." More critically, Haetami (2025) found in a study on AI-driven educational transformation that many educators in Indonesia lack the digital literacy and professional development needed to effectively integrate AI, and that national training programs have been unable to keep pace with technological advancement, resulting in significant inconsistencies in competency across institutions and regions.

### **Patterns of Digital Technology Integration in English OBE**

Thematic synthesis of the 35 articles identifies four primary patterns of technology integration in English OBE that are consistently identifiable across diverse geographical and institutional contexts.

The first pattern is Technology for Assessment (TfA). This is the most extensively explored pattern in the literature (25.7% of articles). Learning Management System (LMS) platforms such as Moodle, Canvas, and Google Classroom are used to design formative assessments directly aligned with Course Learning Outcomes (CPL). Learning analytics enable lecturers to track each student's learning progress in real time and take corrective measures before summative assessment. Mufanti et al. (2024), in a large-scale study of 632 English teachers across 31 provinces in Indonesia, found that despite confidence in OBE policies, teachers struggle significantly with formulating clear and measurable learning outcomes—a challenge that can be directly addressed through integrated digital assessment tools. In the English language context, TfA is particularly relevant because language competencies (speaking, writing, reading, listening) require authentic assessment that is difficult to conduct efficiently without technological support.

The second pattern is Technology for Content Delivery (TfCD). The use of interactive videos, academic podcasts, and multimedia content to deliver material aligned with CPL has become increasingly widespread. Flipped classroom approaches—where students independently engage with content through video before face-to-face sessions—have been found effective in increasing time for more complex communicative activities in language classrooms. Suparman (2023), in a study of flipped classroom implementation in an Indonesian EFL context, found that this model significantly enhanced student engagement and communicative competence, although internet access challenges and digital readiness remained limiting factors to be anticipated. Specifically in the context of IAIN Curup, Hidayah and Prihantoro (2022) found that ICT use in English language learning during the post-pandemic era positively impacted students' growth mindset, metacognition, and learning engagement, with the important caveat that effectiveness depends heavily on lecturers' readiness to integrate technology pedagogically rather than merely technically.

The third pattern is Technology for Collaboration (TfC). Collaborative platforms such as Google Workspace, Microsoft Teams, and Padlet facilitate outcome-based learning projects involving both synchronous and asynchronous interaction. This pattern is highly relevant to MBKM's

encouragement of cross-campus and cross-disciplinary collaboration. Several TBI programs at PTKINs have utilized collaborative platforms to connect students with partner institutions abroad in international academic writing projects—a learning experience that simultaneously develops intercultural communicative competence as a key graduate attribute.

The fourth pattern is Technology for Personalization (TfP). Adaptive learning tools that adjust learning pathways to individual needs represent the most prospective yet most challenging pattern to implement, particularly in PTKIN contexts with infrastructure constraints. Asim et al. (2021), in a systematic review of factors impacting student learning outcomes in OBE, affirm that data-driven personalization is the most significant factor in driving learning outcome achievement—highly relevant for addressing the pronounced heterogeneity of language proficiency among PTKIN students, who enter programs with widely varied English language educational backgrounds (from madrasah aliyah with limited curricula to international high schools).

**Table 2:** Patterns of Digital Technology Integration

| Integration Pattern             | Core Technologies                    | Relevance for TBI PTKIN                    |
|---------------------------------|--------------------------------------|--|
| Technology for Assessment       | LMS, e-portfolio, learning analytics | High — assessment of 4 language skills     |
| Technology for Content Delivery | Video, podcast, flipped classroom    | High — language content & Islamic values   |
| Technology for Collaboration    | Google Workspace, Teams, Padlet      | Moderate — infrastructure-dependent        |
| Technology for Personalization  | Adaptive learning, AI tools          | Moderate-High — requires lecturer capacity |

**Discussion**

**Context-Specific Challenges at PTKINs**

The literature synthesis identifies three clusters of challenges that are characteristically specific and interrelated in the PTKIN context—challenges that cannot be resolved by simply adopting approaches from other institutional settings.

The first challenge is the Digital Infrastructure and Connectivity Gap. Although national internet penetration has reached 72.78% (BPS, 2024), its distribution is highly uneven. Haetami (2025) explicitly notes that students in eastern Indonesian provinces frequently cannot access AI-enabled tools due to regional infrastructure disparities and limited institutional support. This situation has direct implications for the implementability of TfP and TfC patterns that require stable internet connectivity and adequate devices. Household computer ownership of only 18.52% at the national level (BPS, 2024) compounds this condition: PTKIN students in remote areas cannot be assumed to have sufficient personal device access for technology-based learning outside campus.

The second challenge is the Lecturer Digital Competency Gap. This is the most consistently recurring challenge in the literature reviewed. National training programs for educators have been unable to keep pace with technological development, generating significant inconsistencies in digital competency among lecturers across institutions (Haetami, 2025). A foundational study by Apriani and Hidayah (2019) at STAIN Curup—which subsequently transformed into IAIN Curup—identified that English language lecturers for non-English study program students used only three types of ICT in their teaching: speakers, educational games, and website resources, as these were deemed most

accessible and affordable. This finding illustrates a limited and pragmatic pattern of ICT use—driven not by unwillingness, but by constraints in access and training. In the specific context of PTKINs, this challenge is multilayered: lecturers must not only master technology technically, but also integrate it pedagogically and in alignment with Islamic values that constitute the institution's distinctiveness.

The third challenge is the Tension Between OBE Standardization and Islamic Identity. PTKINs carry a dual mandate not shared by any general public university: meeting national academic quality standards (centered on OBE and MBKM) while simultaneously maintaining and developing Islamic identity as their institutional distinctiveness. This tension is most evident in the process of formulating CPL: generic learning outcomes suggested by SN-DIKTI and BAN-PT accreditation frameworks must be translated into contextual and Islamically-grounded CPMK—a process requiring simultaneously high curriculum design competencies and deep theological understanding. When technology is integrated into this process, the complexity increases further: technology must be selected, curated, and used with consideration for Islamic ethics—including issues of privacy, responsible AI use, and the potential social impacts of specific technologies.

### **Opportunities and Identified Best Practices**

Alongside the complexity of challenges, this review identifies a number of promising opportunities and best practices that can serve as references for model development.

First, a conducive policy momentum. The Regulation of the Minister of Education, Culture, Research, and Technology Number 53 of 2023, which integrates and simplifies CPL, creates a "window of opportunity" for PTKINs to undertake more innovative TBI curriculum redesign. The diversification of final project formats, for instance, opens space for technology-based projects—such as the development of digital English learning modules, academic podcasts, or online course design—as alternatives to conventional theses that simultaneously serve as authentic demonstrations of learning outcomes.

Second, OBE-based digital portfolio practices. Several TBI programs at UINs and IAINs have experimented with e-portfolios as longitudinal instruments for documenting CPL achievement. Platforms such as Mahara or Google Sites are used to document student learning artifacts—from speaking recordings, academic writing samples, to learning reflections—collectively providing comprehensive evidence of competency attainment. This approach is relevant not only for assessment purposes but also as a professional portfolio that enhances graduate employability.

Third, ethically guided AI tool utilization. This review finds that the guided and ethical use of AI writing tools (such as Grammarly, QuillBot, and ChatGPT)—accompanied by explicit discussion of Islamic academic ethics—can enhance student academic writing competency while simultaneously developing critical technology literacy. This approach transforms the threat of academic dishonesty into an opportunity for authentic 21st-century competency development, aligned with MBKM's emphasis on experiential and authentic learning.

Fourth, international collaboration through technology. Several PTKINs reviewed have developed virtual exchange programs with universities in Malaysia, Qatar, and Turkey—leveraging technology to facilitate cross-cultural experiences that support the development of intercultural communicative competence as a key CPL of TBI programs. These programs are relatively affordable as they require no physical mobility, yet produce significant CPL outcomes aligned with the internationalization agenda that constitutes a priority for the Directorate of Islamic Higher Education.

### **Rationale for Model Development**

Based on the synthesis of findings from the 35 articles reviewed and the factual context of PTKINs presented above, this study proposes a conceptual Technology-Enhanced OBE (TE-OBE) model specifically designed for English language study programs at PTKINs. This model does not aim to replace existing OBE frameworks, but rather to provide contextually relevant operational guidance—acknowledging the uniqueness and complexity of PTKINs as modern Islamic academic institutions operating within a dynamic national policy ecosystem.

The TE-OBE model is constructed upon three fundamental premises. First, technology is an enabler, not an end: the selection and use of technology must always be grounded in its capacity to enhance CPL achievement, not in the sophistication of the technology itself. Second, contextualization is key: models effective in general public universities or international institutions cannot simply be transplanted to PTKINs without adaptation, accounting for infrastructure constraints, lecturer capacity, and Islamic values. Third, sustainability requires an ecosystem: the success of TE-OBE depends not only on individual lecturers or students, but on an institutional ecosystem of support—encompassing policy, infrastructure, human resource development, and academic culture.

### **Components of the TE-OBE Model**

The TE-OBE model comprises four core components that interact cyclically and mutually reinforce each other, with Islamic Academic Identity as the foundational dimension binding all components together.

**First Component: Islamic Values-Informed Outcome Design.** This is the stage of designing CPL and CPMK that ensures the authentic integration of Islamic values—not as a formal add-on, but as an orienting framework that permeates every aspect of curriculum design. Operationally, this means the CPL of TBI programs at PTKINs encompasses not only linguistic and pedagogical competencies, but also relevant Islamic character dimensions: academic integrity (*amanah*), critical thinking grounded in evidence (*tafakkur*), cross-religious and cross-cultural communication competency (*tawasuth*), and a scholarly orientation toward societal benefit (*ilmu amaliah*). These dimensions are then operationalized into measurable CPMK indicators that can be digitally assessed.

**Second Component: Contextual Technology Selection.** Technology selection is conducted using a contextual matrix considering four variables: (a) available infrastructure at the PTKIN's location; (b) existing lecturer digital competency; (c) ethical compatibility with Islamic values; and (d) evidential effectiveness in improving targeted CPL. This matrix produces differentiated "technology packages" for PTKINs with high capacity (UINs in major cities) versus those with limited capacity (IAINs/STAINs in remote areas)—acknowledging that no single technological solution is appropriate for all contexts.

**Third Component: Authentic Technology-Based Assessment.** This involves designing authentic technology-based assessments that measure CPL achievement holistically—not limited to cognitive assessment (language knowledge), but encompassing performance assessment (ability to use language in authentic contexts) and reflective assessment (ability to evaluate one's own learning process). E-portfolio serves as the central instrument in this component, enabling longitudinal and multidimensional documentation of CPL achievement evidence. Video recording and speech analysis tools are used for speaking competency assessment; collaborative writing platforms for writing assessment; and digital reading response tools for reading comprehension assessment.

Fourth Component: Capacity Building for TPACK. A lecturer capacity development program focused on strengthening Technological Pedagogical Content Knowledge (TPACK) within the OBE context. This program is designed in stages: from conceptual understanding of OBE and technology, to skills in curriculum design integrating both, to research and data-based digital evaluation competencies. This capacity development cannot be a one-off event (one-shot training), but must be ongoing and community-based (community of practice) among TBI lecturers across the PTKIN ecosystem.

### **The TE-OBE Cyclical Mechanism**

The four components operate in a cycle beginning with Islamic Values-Informed Outcome Design, moving to Contextual Technology Selection, then to Authentic Technology-Based Assessment, and returning to the beginning through Capacity Building for TPACK, which continually updates lecturer competencies with each cycle. Assessment data—collected digitally and analyzed through learning analytics—serves as feedback for improving CPL formulation, technology selection, and capacity development programs in subsequent cycles. This cyclical mechanism reflects the Continuous Quality Improvement (CQI) principle at the heart of OBE, and simultaneously constitutes a response to the dynamic policy landscape (MBKM, SN-DIKTI) that continues to evolve.

### **Conclusion and Suggestion**

This systematic literature review has generated three primary and interrelated findings. First, digital technology integration in OBE English language curricula demonstrably holds significant potential for enhancing learning outcome achievement effectiveness—particularly through the four identified patterns: TfA, TfCD, TfC, and TfP. However, this effectiveness is highly context-dependent and cannot be generalized without accounting for local factors.

Second, PTKINs face characteristically specific and layered challenges: infrastructure disparities compounded by national geographical inequities (only 72.78% internet penetration, and household computer ownership of 18.52%); lecturer digital competency gaps unaddressed by existing training programs; and the tension between OBE standardization and Islamic identity requiring deep conceptual resolution. These three challenges cannot be addressed in isolation, but require a systemic and integrative approach.

Third, the proposed TE-OBE model offers an operational framework responsive to PTKINs' complexity. The model does not aim to present a ready-made solution, but rather an adaptive framework that can be contextualized to the capacity, needs, and characteristics of each PTKIN—with Islamic Academic Identity as a non-negotiable foundation.

Based on these findings and the proposed model, this study formulates four strategic recommendations. First, for the Directorate of Islamic Higher Education of the Ministry of Religious Affairs, a specific policy on technology integration in PTKIN OBE curricula needs to be developed, accompanied by operational guidelines acknowledging institutional capacity diversity. Providing

adequate digital infrastructure—especially at PTKINs in remote areas—should be an investment priority, as it constitutes a minimum prerequisite that cannot be circumvented.

Second, for PTKIN leadership: developing sustained and contextually relevant TPACK programs for TBI lecturers should be a priority agenda. These programs should not be top-down and uniform, but accommodate the diversity of lecturer capacities and needs through a community of practice approach. As Hidayah and Prihantoro (2022) demonstrate, the positive impact of ICT on English language learning is only fully realized when lecturers possess pedagogical readiness—not merely technical tool-operating skills. This reinforces the argument that lecturer training programs must be pedagogically integration-oriented, not merely tool-introduction focused.

Third, for TBI study programs: implementation of the TE-OBE model should begin with the most feasible components given the institution's existing capacity—not necessarily from scratch and all at once. A staged (incremental) approach with data-based evaluation at each stage will be more sustainable than a comprehensive transformation that risks implementation failure.

Fourth, for future researchers: this study recommends empirical research to test the TE-OBE model through case studies or action research at several PTKINs with different characteristics—in terms of geographical location, infrastructure capacity, and stage of OBE curriculum development. This empirical validation is necessary to refine and strengthen the evidential foundation of the model that currently remains conceptual.

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