Transforming the Educator Profile in the Society 5.0 Era: Between Teacher Competency Standards and the TPACK Gap

Nizza Burdatul Hijjah
UIN Sunan Ampel Surabaya
nizzaburdatul@gmail.com

Putri Afina
UIN Sunan Ampel Surabaya
afinaputri475@gmail.com

Moh. Faizin
UIN Sunan Ampel Surabaya
faizin7172@gmail.com

Yahya Aziz
UIN Sunan Ampel Surabaya
yahyaaziz@uinsa.ac.id

Usman Yudi
UIN Sunan Ampel Surabaya
usmanyudiwildan@gmail.com

***Abstract**: Advances in digital technology have transformed the role of educators from mere instructors to technology-based facilitators. However, this transformation is often hindered by the gap between educational policies and the actual capabilities of teachers in the field. This study aims to analyze the empirical gap between digital competency requirements and the reality of educators' capabilities, as well as to assess the relevance of competency standards under Law No. 14 of 2005 in the Society 5.0 era. This study employs a qualitative method using a literature review approach. Data were analyzed descriptively and analytically by comparing the Technological Pedagogical Content Knowledge (TPACK) theoretical framework by Mishra and Koehler with the dynamics of curriculum change in Indonesia. The findings indicate a consistent "competency gap" from the KTSP era through the Merdeka Curriculum, where improvements in digital infrastructure have not been accompanied by substantial pedagogical transformation. An analysis of Law No. 14 of 2005 reveals that while aspects of professionalism have been addressed, the details regarding technological literacy remain general in nature,*

leading to a disconnect in the implementation of teacher training. This study concludes that revitalizing the educator profile requires a holistic strategy that integrates TPACK theory into national regulations so that the digital transformation of education is not merely technical but also addresses inclusive pedagogical aspects.

Keywords: *Educator Profile, Digital Competence, Empirical Gap, Law on Teachers and Lecturers, TPACK.*

Abstrak: *Kemajuan teknologi digital telah mengubah peran pendidik dari sekadar instruktur menjadi fasilitator berbasis teknologi. Namun, transformasi ini seringkali terhambat oleh kesenjangan antara kebijakan pendidikan dan kemampuan aktual guru di lapangan. Studi ini bertujuan untuk menganalisis kesenjangan empiris antara persyaratan kompetensi digital dan realitas kemampuan pendidik, serta untuk menilai relevansi standar kompetensi berdasarkan Undang-Undang No. 14 Tahun 2005 di era Masyarakat 5.0. Studi ini menggunakan metode kualitatif dengan pendekatan tinjauan pustaka. Data dianalisis secara deskriptif dan analitis dengan membandingkan kerangka teoritis Pengetahuan Konten Pedagogis Teknologi (TPACK) oleh Mishra dan Koehler dengan dinamika perubahan kurikulum di Indonesia. Temuan menunjukkan adanya "kesenjangan kompetensi" yang konsisten dari era KTSP hingga Kurikulum Merdeka, di mana peningkatan infrastruktur digital belum diiringi oleh transformasi pedagogis yang substansial. Analisis terhadap Undang-Undang Nomor 14 Tahun 2005 mengungkapkan bahwa meskipun aspek profesionalisme telah dibahas, detail mengenai literasi teknologi masih bersifat umum, yang menyebabkan kesenjangan dalam implementasi pelatihan guru. Studi ini menyimpulkan bahwa revitalisasi profil pendidik membutuhkan strategi holistik yang mengintegrasikan teori TPACK ke dalam peraturan nasional sehingga transformasi digital pendidikan tidak hanya bersifat teknis tetapi juga mencakup aspek pedagogis inklusif.*

Kata kunci: Profil Pendidik, Kompetensi Digital, Kesenjangan Empiris, Undang-Undang tentang Guru dan Dosen, TPACK.

Introduction

Entering the Society 5.0 era, education is experiencing a paradigm shift in which digital technology is no longer positioned merely as a supporting tool, but as the main ecosystem of learning. This condition requires a transformation in the profile of educators, from

simply delivering subject matter to becoming technology-based facilitators.[1]

In the Indonesian education context, however, this transition is often constrained by a wide gap between curriculum policy ambitions and the actual capacity of educators in the field. The ambition of digitalization frequently collides with classroom realities. This "competency gap" is not merely an assumption, but a chronic problem that has persisted from the KTSP era to the Merdeka Curriculum era. Teacher readiness remains one of the sharpest obstacles. Instead of building interactive classrooms, many educators still use technology only as a passive presentation tool, such as displaying PowerPoint slides or playing videos. This obstacle is exacerbated by extreme infrastructure disparities. While urban schools often enjoy stable internet access, schools in remote areas still struggle with poor networks and unreliable electricity. At the same time, the presence of digital devices without strict supervision can become counterproductive; technology initially intended to support independent learning may instead become a source of entertainment distraction that weakens student discipline.[2] This lack of readiness is suspected to stem from the declining relevance of the competency standards contained in Law No. 14 of 2005 on Teachers and Lecturers.

Based on these issues, this study aims to analyze the empirical relationship between digital competency demands and educators' actual capabilities, as well as to examine the relevance of Law No. 14 of 2005 through the lens of Technological Pedagogical Content Knowledge (TPACK). The main focus of this study is to explain why improvements in digital infrastructure have not been accompanied by substantial pedagogical transformation. The urgency of this study lies in the need to revitalize educator profile standards in a more holistic way, so that digital transformation does not remain merely an administrative discourse but genuinely responds to the needs of contemporary learning

Studies on the obstacles to educational digitalization have been widely conducted. Azzahra, Al Farel, and Rahmadhani, for example,

[1] Muh Thoriq, Aziz Kusuma, and Fauzi Muharom, "Transformasi Peran Pendidik Dan Tren Pembelajaran Digital Di Era Teknologi" 2, no. 1 (2025): 45–54.

[2] Nabiilah Nurrahmah Fairi et al., "Challenges and Opportunities in Implementing a Digital Curriculum in Schools : A Perspective on Teacher Readiness , Infrastructure , and Students ' Learning Behavior," *TOFEDU : The Future of Education Journal* 4, no. 8 (2025): 4679–4684.

emphasize that the implementation of the Merdeka Curriculum still faces challenges related to educator readiness, infrastructure limitations, and unequal access to education. Their study shows that schools in urban areas are generally better prepared technologically, whereas schools in frontier, outermost, and disadvantaged regions still lack facilities and internet access.[3] Similarly, other research notes that the use of information and communication technology in learning requires support from various stakeholders, as well as adequate facilities and infrastructure such as laptops, computers, LCD projectors, and internet networks.[4] However, these studies remain focused on mapping the practical challenges of implementing the Merdeka Curriculum and have not specifically examined teachers' digital literacy as part of a pedagogical competency framework within national regulation. This is the research gap that the present study seeks to address.

This article offers a new perspective by integrating the Technological Pedagogical Content Knowledge (TPACK) framework into the analysis of national regulation. Based on this context, the study aims to analyze the empirical gap between digital competency demands and educators' actual capabilities, while also examining the relevance of Law No. 14 of 2005 through the TPACK framework. The main focus is to explain why the improvement of digital infrastructure has not been followed by substantial pedagogical transformation. The urgency of this study lies in the need to revitalize educator profile standards through appropriate regulatory adjustment. Systematically, the discussion begins with a description of the qualitative library research method, proceeds to examine educator competence based on Law No. 14 of 2005 and the concept of TPACK in the digital era, and concludes with an integrative analysis that maps the real gap occurring in the field.

[3] Inda Fani Azzahra, Muhammad Rizky, and Rani Rahmadhani, "Kurikulum Merdeka : Telaah Potensi Dan Tantangan Implementatif Dalam Mewujudkan Pendidikan Fleksibel Di Indonesia," *Jurnal pendidikan Indonesia* 5, no. 3 (2025).
[4] Romanto Ermi Wahyuni, Dian Hidayati, "Kesiapan Guru Terhadap Pembelajaran Berbasis Teknologi," *Jurnal Pendidikan dan Konseling* 4 (2022): 11238–11247.

Research Method

This article uses a qualitative research design with a library research approach. The chosen design is a conceptual analysis of educational policy. In other words, this study does not collect field data through questionnaires or interviews, but focuses on critically examining and analyzing the alignment between legal regulation and theories of digital education.

The data sources in this study are entirely secondary data divided into two groups. The first group consists of official government regulatory documents, namely Law No. 14 of 2005 on Teachers and Lecturers, as well as documents describing the development of Indonesian curricula from the KTSP era to the Merdeka Curriculum. The second group consists of relevant scientific journal articles and books that discuss digitalization and teacher capacity in Indonesia.

To organize the literature systematically, the researchers searched for articles through Google Scholar, Garuda (Garba Rujukan Digital), and ScienceDirect, limiting publications to the last ten years (2016-2026). The selected articles had to meet three criteria: they discussed teacher competence, addressed the use of technology in learning in Indonesia, and presented data on real obstacles faced by teachers in the field. The search process used keywords such as "teacher digital competence," "Law on Teachers and Lecturers," "TPACK," and "curriculum gap."

All collected data were analyzed using descriptive content analysis. The researchers used the Technological Pedagogical Content Knowledge (TPACK) framework as the main analytical tool to examine the provisions of Law No. 14 of 2005. The analysis assessed whether the existing teacher competency standards remain appropriate or have become outdated when confronted with the needs of the current Society 5.0 era.

Finally, to maintain objectivity and avoid speculative interpretation, the researchers conducted triangulation by comparing three perspectives: the content of the legal text, the empirical findings of previous studies, and the ideal conditions proposed by the TPACK framework.

Result/Finding And Discussion

Educator Competence Based on Law No. 14 of 2005

Law No. 14 of 2005 on Teachers and Lecturers serves as the highest legal instrument regulating professional standards for educators in Indonesia. Article 1 of this law affirms that teachers are professional educators whose main duties are to educate, teach, guide, direct, train, assess, and evaluate students in formal education. This professional status is not granted automatically; it must be realized through four main competencies obtained through professional education and proven by an educator certificate. These competencies include pedagogical, personal, social, and professional competence. The four competencies are interconnected and constitute the primary foundation for realizing quality education.[5]

Pedagogical competence is the first pillar and is defined as teachers' ability to manage students' learning. This competence has a broad scope, ranging from a deep understanding of students' physical, intellectual, socio-emotional, and moral characteristics to the ability to design and implement an educational curriculum. In the explanation of the law, teachers are expected to conduct dialogical learning and facilitate the development of students' potential so that they can actualize themselves optimally.

Personal competence requires teachers to possess personal qualities that reflect a stable, mature, wise, and authoritative personality. Teachers are expected to serve as role models for students and society through behavior consistent with religious, legal, and social norms. [6]

From Buya Hamka's perspective, teachers must possess attractive personal qualities such as noble character, intelligence, empathy, courage, and wisdom. A teacher should also know their place; those who understand their dignity and position will not be arrogant or dishonest. This competence emphasizes work ethic, pride in being an educator, and strong commitment to the professional code of ethics.[7]

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[5] Musbikhin, "Kompetensi Pendidik Dalam Berbagai Perspektif," *Jurnal Ummul Qura* XIII, no. 1 (2019): 14–26.

[6] Slamet Riyadin, "Kebijakan Pengembangan Profesionalisme Guru PNS," *JKMP* (n.d.): 219–234.

[7] Kuliyatun Arbi Rismawan, Iswati, "Kompetensi Kepribadian Guru Dalam Perspektif Buya Hamka Dan Undang-Undang Republik Indonesia Tentang Guru Dan Dosen Nomor 14 Tahun 2005," *PROFETIK: Jurnal Mahasiswa Pendidikan Agama Islam* 4, no. 1 (2023): 65–74.

Social competence relates to the teacher's ability, as a member of society, to communicate and interact effectively. This includes interactions with students, fellow educators, education personnel, parents, and the surrounding community. Law No. 14 of 2005 emphasizes the importance of being inclusive, objective, and non-discriminatory. Meanwhile, professional competence refers to broad and deep mastery of subject matter. Teachers are not only required to master curriculum content, but also the structure and methodology of the disciplines underlying that content. Professionalism also includes the ability to develop subject matter creatively and continuously through research and scientific publication. [8]

A deeper analysis shows that the formulation of the four competencies in Law No. 14 of 2005 remains heavily based on the conventional physical classroom. This regulation, enacted two decades ago, does not explicitly include technological indicators as an integral part of teachers' pedagogical practice. When viewed through the Technological Pedagogical Content Knowledge (TPACK) framework, Law No. 14 of 2005 strongly covers Pedagogical Knowledge (teaching methods) and Content Knowledge (mastery of subject matter), but still neglects Technological Knowledge (mastery of technology).

It is true that this law may still be considered relevant because of its macro-level character. However, its overly general nature creates new problems in the Society 5.0 era. Because the central regulation does not specify obligations related to digital technology mastery in detail, derivative policies such as teacher training programs in different regions often lack clear direction. In the digital era, teachers' social competence should no longer be limited to direct communication with parents; it should also extend to the ability to collaborate through digital platforms and uphold ethics in cyberspace. Likewise, professional competence now requires data literacy. Therefore, this discussion argues that Law No. 14 of 2005 can no longer be read merely in a normative manner. There must be a serious effort to insert technological indicators into the interpretation of these competencies

[8] Difa U L Husna, Reni Sasmita, and Rofingatus Sholokhah, "Urgensi Kompetensi Sosial Bagi Guru PAI Dalam Pembelajaran Daring," *JURNAL PENGEMBANGAN PROFESI PENDIDIK INDONESIA* 1, no. 1 (2021): 18–25.

so that Indonesian educators are not unprepared to face the demands of the times.[9]

Technological Pedagogical Content Knowladge (TPACK) in the Digital Era

The development of the digital era has shifted the orientation of learning from mere content delivery toward learning processes that are more interactive, adaptive, and technology-based.[10] In this context, educators need more than mastery of subject matter and teaching strategies. They also need the ability to select, use, and integrate technology appropriately according to students' characteristics and learning objectives. This is where the Technological Pedagogical Content Knowledge, or TPACK, framework becomes important because it positions technology not merely as a supporting tool, but as an integral part of pedagogy and content mastery. Rahmadi explains that TPACK is a new type of knowledge that educators need to master in order to integrate technology effectively into twenty-first-century learning.[11]

Structurally, TPACK consists of three main domains: content knowledge, pedagogical knowledge, and technological knowledge. These domains intersect to produce more complex forms of understanding, such as pedagogical content knowledge, technological content knowledge, technological pedagogical knowledge, and technological pedagogical content knowledge. Therefore, teachers with TPACK are not merely those who can operate digital devices. They must be able to determine which type of technology is most relevant to the characteristics of the content, teaching methods, and intended learning outcomes. Sintawati and Indriani emphasize that TPACK is a theoretical framework that brings together technology, pedagogy, and

[9] Abdul Khobir et al., "Implementasi UU . No . 14 Tahun 2005 Dalam Pengembangan Kompetensi Profesional Guru Era Modern" 7, no. 14 (2025): 820–829.

[10] M Arsyad Said et al., "Integrasi Teknologi Pendidikan : Strategi Peningkatan Kompetensi Guru Dan Efisiensi Pengelolaan Pendidikan Di Era Digital" 4, no. 4 (2026): 24446–24451.

[11] Imam Fitri Rahmadi, "Technological Pedagogical Content Knowledge (TPACK): Kerangka Pengetahuan Guru Abad 21," *Jurnal Pendidikan Kewarganegaraan* 6, no. 1 (2019).

subject matter so that learning becomes more effective, efficient, and engaging.[12]

When this theoretical framework is brought into the reality of teacher competence in Indonesia, TPACK appears to be a luxury that remains difficult to reach. In twenty-first-century learning, TPACK is closely related to educators' digital literacy demands for designing technology-assisted learning and digital assessment.[13] However, a common misunderstanding in practice is equating TPACK merely with Technological Knowledge (TK).

Many stakeholders, including policymakers, assume that when teachers can use laptops, prepare presentation materials, or operate online meeting applications, they are already digitally competent. In fact, the essence of digital pedagogy in TPACK does not lie in the sophistication of the tools used, but in teachers' critical decisions about how technology can bring difficult subject matter to life.

Therefore, TPACK in the digital era must no longer be understood narrowly as computer training for teachers. It should be positioned as an extension of educator competence in making critical and contextual technology-based pedagogical decisions. Without a comprehensive understanding of TPACK, digital transformation in schools will only produce pseudo-digitalization: wooden blackboards are replaced by digital screens, but teachers' classroom methods remain one-directional and monotonous.

Analysis of Theory and Competence

Normatively, educator competence in Indonesia is regulated by Law No. 14 of 2005 on Teachers and Lecturers. Article 10 paragraph (1) states that teacher competence includes pedagogical competence, personal competence, social competence, and professional competence.[14] These four competencies indicate that teachers are viewed as professionals whose responsibilities are not limited to delivering content, but also include managing learning, shaping students' character, communicating effectively, and mastering their

[12] Mukti Sintawati and Fitri Indriani, "Pentingnya Technological Pedagogical Content Knowledge (TPACK) Guru Di Era Revolusi Industri 4.0" (2019): 417–422.

[13] Rahmadi, "Technological Pedagogical Content Knowledge (TPACK): Kerangka Pengetahuan Guru Abad 21."

[14] Fitri Mulyani, "Konsep Kompetensi Guru Dalam Undang-Undang Nomer 14 Tahun 2005 Tentang Guru Dan Dsen (Kajian Ilmu Pendidikan Islam)," *Jurnal Pendidikan Universitas Garut* 03 (2009): 1–8.

fields of knowledge in depth. Mulyani explains that pedagogical competence relates to teachers' ability to manage students' learning, personal competence relates to role modeling, social competence relates to communication and interaction, and professional competence relates to broad and deep mastery of subject matter. [15]

When critically examined through the lens of TPACK, it becomes clear that the four competencies in the law deeply accommodate only two main dimensions. Pedagogical competence is closely related to Pedagogical Knowledge (PK) because it requires teachers to understand strategies, planning, and assessment in learning. Professional competence, meanwhile, directly intersects with Content Knowledge (CK), because teachers are required to master instructional content accurately and deeply.[16]

The fundamental problem lies in the absence of an explicit emphasis on Technological Knowledge (TK) within the body of Law No. 14 of 2005. The regulation seems to assume that technology mastery is merely an optional supplement outside the core competencies of teachers. Although the government has attempted to address this gap through Ministerial Regulation No. 16 of 2007, which mentions the importance of mastering information and communication technology for self-development, the placement of technological indicators remains largely administrative rather than instructional-pedagogical.[17]

As a result, a systematic failure has occurred in translating technology integration into classroom practice. Teachers in the field often misunderstand the essence of learning digitalization. As noted by Suyamto and Masykuri, many educators struggle to develop learning tools that truly combine content, methods, and technology in a

[15] Joko Suyamto and Mohammad Masykuri, "Analisis Kemampuan TPACK (Technological, Pedagogical, Aand Content, Knowledge) Guru Biologi SMA Dalam Menyusun Perangkat Pembelajaran Materi Sistem Peredaran Darah," *INKUIRI : Jurnal Pendidika IPA* 9, no. 1 (2020): 44–53.

[16] Dewi Widiana Rahayu Akhwani, "Analisis Komponen TPACK Guru SD Sebagai Kerangka Kompetensi Guru Profesional Di Abad 21," *Jurnal Basicedu* 5, no. 4 (2021): 1918–1925.

[17] Ahmad Rafiky et al., "Relevansi Kompetensi Guru Berdasarkan UU No 14 Tahun 2005 Di Era Society 5.0," *Jurnal Ilmu Manajemen Dan Pendidikan* 2, no. 1 (2025): 485–493.

balanced manner.[18] Technology use in schools therefore remains trapped at a superficial level. Laptops, projectors, and internet access are used only as supplements for one-way presentation, which theoretically cannot yet be called TPACK-based learning.

Learning can only be considered TPACK-based when technology is selected not because it is trendy or available, but because it has a clear pedagogical function, can help visualize difficult content concepts, and supports students in achieving learning objectives more meaningfully. Thus, this analysis emphasizes that juxtaposing Law No. 14 of 2005 with TPACK reveals an urgent need to reconstruct national legal standards, so that Technological Knowledge (TK) is no longer marginalized but is secured as an integral part of teacher professionalism in the digital era.

The Existing Gap

Although regulation and theory have positioned teachers as professional educators who must master pedagogical, professional, social, personal, and technological competencies, practice in the field still shows significant gaps. These gaps are especially visible in the difference between the demands of digital learning and the ability of some teachers to integrate technology substantially into the learning process.

The study by Suyamto, Masykuri, and Sarwanto on senior high school biology teachers shows that teachers' content knowledge reached a good category at 72%, whereas technological knowledge scored much lower at only 42.8%, leaving teachers' overall TPACK score in the moderate category.[19] This data indicates that teachers tend to be stronger in mastering content than in integrating technology pedagogically.

This gap is exacerbated by patterns of technology use that are not yet oriented toward improving learning quality. Many teachers already have smartphones or laptops, but their use remains superficial, such as replacing the blackboard with PowerPoint presentations, searching for material on Google, or handling school administrative tasks. In contrast, technology integration within the TPACK

[18] Suyamto and Masykuri, "Analisis Kemampuan TPACK (Technological, Pedagogical, Aand Content, Knowledge) Guru Biologi SMA Dalam Menyusun Perangkat Pembelajaran Materi Sistem Peredaran Darah."
[19] Ibid.

framework requires teachers to design curricula, select digital tools that fit the characteristics of the subject matter, and develop interactive digital assessments. In line with this, Oktaviana and Yudha also show that digital learning problems are not only related to the availability of internet networks or devices, but also to human resource readiness, technological skills, and the unequal distribution of ICT training for educators.[20]

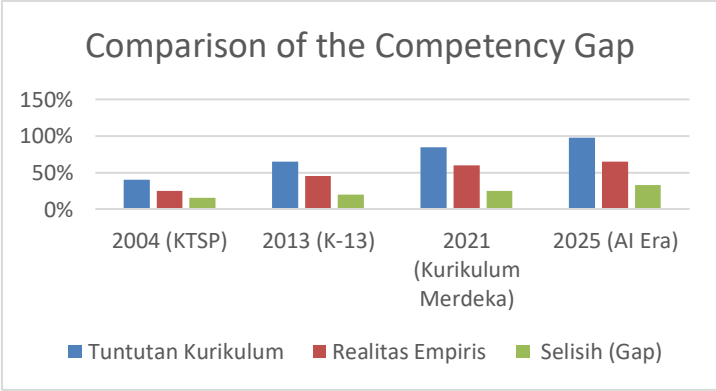
This gap demonstrates that educational digital transformation cannot be achieved solely by providing technological devices. Educators need continuous training, practical mentoring, and the development of learning models that are genuinely TPACK-based. Without strengthening these competencies, technology risks being used instrumentally rather than transformatively. In other words, technology becomes merely a visual aid and does not yet change the quality of learning interaction, the way students construct understanding, or the way teachers assess learning outcomes. This condition is an important challenge for educational institutions and policymakers to ensure that teacher competence in the digital era does not stop at the ability to use devices, but develops into the ability to design digital learning that is pedagogical, relevant, and meaningful.[21]

To map how this competency gap has developed over time, Table 1 presents a comparison between curriculum-related technological demands and the reality of teacher readiness in the field.

Table 1. Comparison of the Competency Gap

[20] Chrisnaji Banindra Yudha Eva Oktaviana, "Tecnological Pedagogical Content Knowledge (TPACK) Dalam Pembelajaran Abad Ke-21" 5, no. Snip 2021 (2022): 57–64.

[21] Irma Savitri Sadikin et al., "Pelatihan Pembuatan Bahan Ajar Adaptif Berbasis Artifical Intelliegence (AI) Untuk Meningkatkan Kompetensi Digital Guru Di SD Penggilingan 01 Jakarta" 6 (2025): 377–391.



A deeper analysis of Table 1 shows that the development of this gap can be divided into four crucial phases:

1. Early Transformation: The Mechanical Literacy Era (2004-2012)

During the decade of the Competency-Based Curriculum (KBK) and KTSP implementation, educators' digital competency standards remained at a basic functional level, with a target achievement of 40%. At this time, the main demands focused only on clerical abilities, such as the digitalization of classroom administration and the operation of basic hardware. However, empirical reality shows that teacher readiness reached only 25%. The 15% gap was mainly driven by limited infrastructure access and limited personal device ownership, as technology was still regarded as an optional element in the instructional process rather than the heart of pedagogy itself.[22]

2. Media Integration Escalation: The Pedagogical Literacy Era (2013-2020)

Entering the Curriculum 2013 era, competency demands increased sharply to 65% in line with the obligation to integrate multimedia technology into every subject. Educators were required not only to be technologically literate, but also to construct digital teaching materials. Although empirical reality shows that teacher capacity rose

[22] Transformasi Digital Pendidikan, Maisa Hurul Aeni, and Universitas Negeri Jakarta, "Pengaruh Literasi Digital Terhadap Kesiapan Guru Dalam" 6, no. 01 (2026): 192–199.

to 45%, the gap actually widened to 20%. This phenomenon reveals that even though device ownership had expanded, classroom use remained superficial. Technology was more often used to move static text onto projection screens without transforming learning interaction in a more meaningful way.[23]

3. Forced Digital Disruption: The Merdeka Curriculum Era (2021-2024)

The global pandemic and the launch of the Merdeka Curriculum pushed competency targets to an ambitious level of 85%. The government introduced an integrated digital ecosystem such as Platform Merdeka Mengajar (PMM), which required instant adaptation. Field reality responded quite progressively, with teacher capacity increasing to 60%, driven by urgent needs during distance learning. However, the 25% gap persisted in the form of operational disparity. Teachers were often trapped in massive digital administration, so energy that should have been allocated to methodological innovation was instead absorbed by compliance with complex platform systems.[24]

4. Educator Existential Crisis: The Artificial Intelligence Era (2025-2026)

At present, amid the acceleration of artificial intelligence (AI) and the concept of deep learning, educator competency standards have been set near perfection, at 98%. Educators are now required to have strong capabilities in data literacy, AI ethics, and algorithm-based learning personalization. Unfortunately, the curve of teacher readiness tends to level off at 65%, producing the deepest gap in the history of curriculum development, namely 33%. This lag is no longer caused by a lack of tools, but by the speed of technological evolution, which exceeds formal training cycles. The emergence of this "cognitive gap" becomes a serious threat because students, as digital natives, adopt AI far more quickly than educators can adapt pedagogically.[25]

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[23] Margaretha Lidya Sumarni et al., "Pengaruh Kompetensi Technological Pedagogical Content Knowledge (TPACK) Terhadap Keterampilan Guru Dalam Mengimplemtasikan Pembelajaran Berbasis Digital" 5, no. 4 (2024): 4958–4965.

[24] Afrizal et al., "The Influence of Digitalization, Digital Competency, Self-Efficacy on Teacher Educational Performance Afrizal," *Tekno-Pedagogi : Jurnal Teknologi Pendidikan* 15, no. 2 (2025).

[25] Nur Asiah et al., "Literasi Digital Guru Dan Kesiapan Implementasi Kurikulum Abad 21 Di Indonesia : Sintesis Tematik Temuan Studi Systematic Literature Review" 5, no. 3 (2026): 5713–5723.

Based on these era-based shifts, it is clear that adding physical technology to schools will never be sufficient. Without strengthening TPACK competence, technology is at high risk of being used instrumentally and mechanically rather than transformatively. In other words, laptops and internet access may end up as decorative visual aids without changing the quality of classroom interaction, the way students build independent understanding, or the way teachers evaluate learning outcomes.

Therefore, this condition is both a sharp warning and a crucial challenge for policymakers. Future legal reconstruction of teacher competency standards must no longer stop at administrative formalities, but must be directed toward nationwide practical mentoring capable of producing educator profiles with pedagogical, relevant, and meaningful digital learning design capabilities.

Analysis of Findings

Based on the review of theory, regulation, and previous research findings, the educator profile in the digital era requires the integration of professional, pedagogical, social, personal, and technological competencies. Law No. 14 of 2005 provides a normative basis for teacher competence, while TPACK theory provides a conceptual framework for translating these competencies into digital learning practice. Thus, educator competence in the digital era cannot be understood separately. Teachers cannot rely only on content mastery, teaching methods, or the ability to use technology. These three elements must be integrated so that learning can respond to students' needs and the development of the times.

The analysis also shows that TPACK can serve as a bridge between regulatory demands and the needs of twenty-first-century learning. Pedagogical and professional competencies, which have long formed the main foundation of the teaching profession, need to be strengthened through technological literacy. Teachers with TPACK can select digital media rationally, adjust teaching methods to the characteristics of the subject matter, and create more participatory learning experiences. In this context, technology is not positioned as an end in itself, but as a means to strengthen the learning process. TPACK-based learning can encourage students to become more active, independent, critical, and capable of using technology productively.

However, the review also shows that there remains a distance between the ideal concept and implementation reality. Previous studies indicate that teachers' mastery of technology remains lower than their mastery of subject matter. This indicates that teacher professional development must

be directed toward strengthening integrative capabilities rather than merely providing technical training in application use. Teachers need to be trained to formulate learning objectives, choose pedagogical strategies, determine appropriate technologies, and evaluate their impact on students' understanding. Therefore, strengthening TPACK becomes one important strategy for improving educator quality in the digital era.

Based on this explanation, educator competence in the digital era should be understood as dynamic and continuously developing. Regulation provides the foundation for the competencies that teachers must possess, while TPACK provides practical direction for how these competencies should be applied in modern learning. The gap found in the field shows the need to strengthen digital literacy, provide continuous training, and shift the paradigm from mere technology use toward meaningful technology integration. Therefore, professional educators in the digital era are those who can master subject matter, understand students, select appropriate learning strategies, and use technology ethically, creatively, and pedagogically.

Conclusion

This study concludes that the digital transformation of education in Indonesia is currently constrained by a regulatory anomaly: the legal standards of the teaching profession in Law No. 14 of 2005 are no longer synchronized with the needs of the generative artificial intelligence (AI) era. Analysis using the Technological Pedagogical Content Knowledge (TPACK) framework shows that Law No. 14 of 2005 has a fundamental weakness because it focuses mainly on the conventional classroom, namely Pedagogical Knowledge and Content Knowledge, while neglecting Technological Knowledge as a core competence that should be legally binding.

This study provides a new theoretical contribution to educational policy studies by deconstructing the common assumption that the failure of school digitalization in Indonesia is rooted primarily in physical infrastructure problems. Through the integration of the TPACK framework, this study conceptually demonstrates that the root problem lies in macro-regulatory stagnation and the emergence of a "cognitive gap," in which the speed of technological evolution and students' digital adaptation as digital natives have surpassed formal training cycles and the pedagogical capacity of educators.

Based on these findings, several strategic recommendations with policy and practical implications are formulated as follows:

1. Policy recommendation for regulators: The Ministry of Primary and Secondary Education, together with the House of Representatives of the Republic of Indonesia, needs to reconstruct the legal standards of teacher competence, either through a limited revision of Law No. 14 of 2005 or through the formulation of a new implementing Government

Regulation. The new regulation must secure TPACK indicators and data literacy as essential requirements of educator professionalism, rather than treating them as optional administrative abilities.

2. Practical implication for training institutions and schools: Teacher training programs, especially in-service training, must be redesigned completely. They should shift from mechanical training, such as operating applications or completing digital platforms such as PMM, toward instructional-pedagogical training. Schools should be encouraged to build teacher working-group ecosystems that focus on simulating the integration of teaching methods, subject-matter characteristics, and AI-based tools.
3. Future research agenda: Because this study is limited to macro-level library analysis, future researchers are encouraged to conduct empirical field research, such as mapping or quantitatively testing teachers' TPACK scale in remote areas. This would help determine how far socio-economic factors influence teachers' actual digital readiness.

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