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Process E-Certificate Policy in Equivalency Education: Opportunities, Challenges, and Its Impact on the Recognition of Non-Formal Graduates in Indonesia

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ABSTRACT

Equivalency education plays an important role in Indonesia's national education system by providing alternative learning pathways for citizens who are unable to complete formal schooling through regular educational routes. However, graduates of non-formal education, particularly those from Paket A, Paket B, and Paket C, still face challenges related to certificate recognition, administrative verification, public trust, and acceptance by higher education institutions, employers, and public agencies. In response to these issues, the e-certificate policy has emerged as a significant instrument for strengthening the credibility, authenticity, and portability of educational credentials in the digital era. This study aims to analyze the opportunities, challenges, and impacts of e-certificate policy on the recognition of non-formal education graduates in Indonesia. The research employed a qualitative approach using secondary data analysis. Data were collected from regulations, government policy documents, institutional reports, scholarly articles, and relevant literature on digital credentials, equivalency education, and educational recognition. The data were analyzed through document review and content analysis by identifying regulatory foundations, institutional mechanisms, implementation challenges, and recognition outcomes. The findings show that e-certificate policy offers several opportunities, including faster certificate issuance, easier digital verification, reduced document falsification, improved administrative efficiency, and stronger institutional trust in non-formal education credentials. Nevertheless, the policy also faces challenges related to unequal digital infrastructure, limited institutional readiness, data protection risks, inconsistent recognition across sectors, and the continuing social stigma toward equivalency education graduates.

Keywords: Policy, Equivalency Education, Non-Formal Graduates, Digital

INTRODUCTION

Equivalency education in Indonesia occupies a strategic position within the national education system because it provides alternative learning pathways for citizens who cannot complete formal schooling through regular primary, junior secondary, or senior secondary routes. Through Paket A, Paket B, and Paket C, non-formal education

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offers legal and social access to educational certification that enables learners to continue to higher education, enter the labour market, or improve their social mobility.

However, despite its formal recognition, graduates of equivalency education often continue to face administrative, social, and institutional barriers, particularly when their certificates are evaluated by employers, universities, or public agencies. In this context, the emergence of electronic certificates, or e-certificates, becomes a significant policy issue because it is not merely a technical innovation in document issuance, but also a governance instrument that may strengthen the recognition, verification, and credibility of non-formal graduates in Indonesia (Chan et al., 2022; Davis, 2023; Peters, 2025; Law, 2025).

The issue of e-certificate policy is closely related to the broader transformation of educational credentialing in the digital era. Globally, educational systems are increasingly moving from paper-based certificates toward digital credentials that are easier to verify, store, share, and authenticate across institutions. This shift is especially relevant for non-formal education because learners in this sector often come from diverse social backgrounds, including school dropouts, working adults, disadvantaged communities, and individuals who require flexible learning pathways.

Digital credentials can potentially reduce bureaucratic delays, prevent document falsification, and increase the portability of educational recognition. Nevertheless, the effectiveness of such a policy depends on the reliability of the digital infrastructure, the clarity of regulatory authority, the trust of certificate users, and the capacity of educational institutions to manage digital records responsibly (Bruguera et al., 2025; Yılık, 2025; Chan et al., 2022; Peters, 2025). In Indonesia, the relevance of this issue has become stronger following the development of regulations and administrative systems related to the management of diplomas and electronic academic documents. Permendikbudristek No. 58 of 2024 regulates diplomas, diploma administration, transcripts, renewal mechanisms, foreign education documents, copies, and certificates related to diplomas issued before the 2024/2025 academic year.

The policy direction shows that diploma governance is being positioned as part of a broader digital administrative reform in education, including the implementation of electronic diploma dashboards and digital verification mechanisms. For equivalency education, especially Paket C, this policy context is important because it may influence how non-formal graduates are documented, verified, and accepted by formal institutions and the labour market (Ministry of Education, Culture, Research, and Technology, 2024; Chan et al., 2022; Rahmawati, 2025; Kholifah, 2025).

Previous studies on digital credentials, micro-credentials, and recognition of learning have shown that electronic certification can expand learner agency, strengthen employability, and support lifelong learning when it is supported by transparent assessment standards and trusted verification systems. However, these studies also warn that digital credentialing may create new inequalities when learners, schools, or non-formal education institutions do not have equal access to technology, administrative capacity, and digital literacy. Within the Indonesian context, this concern is highly relevant because equivalency education is often delivered through community learning centres and non-formal institutions with uneven institutional resources. Therefore, this article positions e-certificate policy not only as an administrative innovation, but also as a public policy issue involving equality, recognition, institutional trust, and the social

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legitimacy of non-formal education graduates (Law, 2025; Peters, 2025; Bruguera et al., 2025; Garcia, 2023).

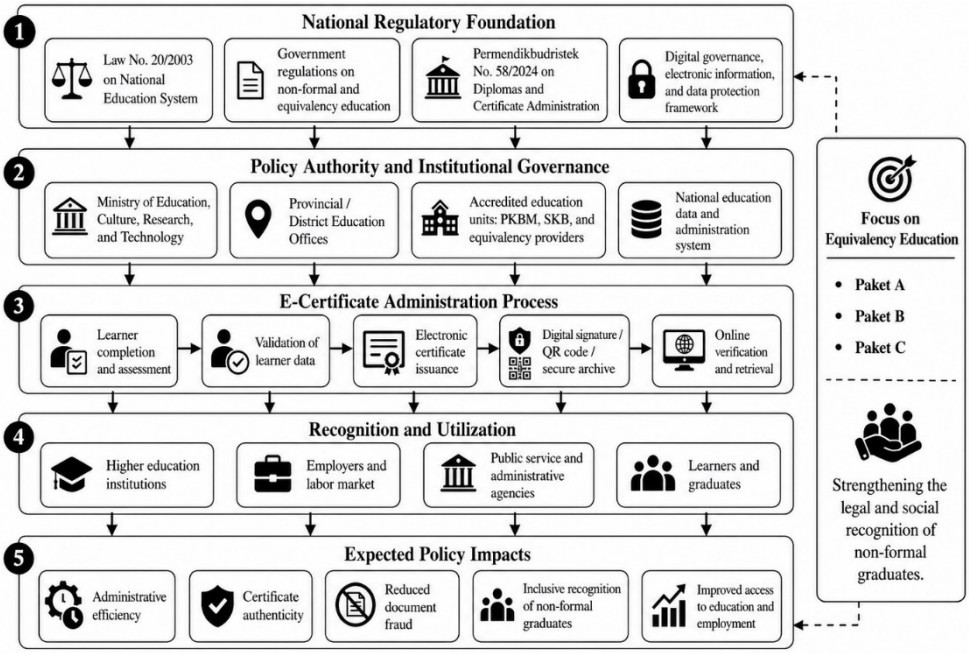

Figure 1. Regulatory Framework of E-Certificate Policy in Indonesia
Source: Author, 2026

The author's approach in discussing this issue is based on a policy-oriented analysis that connects three dimensions: regulatory design, institutional implementation, and recognition outcomes. The first dimension examines how the e-certificate policy is formally structured within Indonesia's education governance framework. The second dimension focuses on the readiness of institutions, including formal schools, non-formal education units, community learning centres, and education offices, to implement digital certificate management. The third dimension evaluates the possible impact of e-certificates on the recognition of non-formal graduates, particularly in relation to access to higher education, employment, public administration, and social acceptance. Through this approach, the discussion aims to bridge digital credential studies with the specific challenges of equivalency education in Indonesia (Yılık, 2025; Davis, 2023; Chan et al., 2022; Nawas, 2025).

The urgency of this topic lies in the fact that certificate recognition is not only a matter of document validity, but also a matter of educational justice. Graduates of Paket A, Paket B, and Paket C require certificates that are not merely legally valid, but also socially trusted and institutionally accepted. If e-certificate policy is implemented effectively, it can reduce the stigma attached to non-formal education by ensuring that equivalency certificates are verifiable, secure, and administratively equal to certificates from formal education pathways. Conversely, if the policy is implemented without adequate infrastructure, public communication, or institutional coordination, it may reinforce existing inequalities by making recognition dependent on digital access and bureaucratic capacity. This article therefore seeks to explain both the opportunities and challenges of e-certificate policy as a mechanism for strengthening inclusive educational recognition in Indonesia (Ali, 2025; Chan et al., 2022; Kholifah, 2025; Rahmawati, 2025).

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The scientific contribution of this article lies in its attempt to place e-certificate policy within the intersection of digital governance, non-formal education, and credential recognition. While existing studies have examined digital credentials, micro-credentials, and learner recognition in broader educational contexts, fewer discussions have specifically addressed how electronic certificate policy affects equivalency education graduates in Indonesia. In doing so, the article contributes to academic debates on inclusive education, lifelong learning, and the digital transformation of educational administration (Peters, 2025; Law, 2025; Bruguera et al., 2025; Yılık, 2025).

Based on this background, the article argues that e-certificate policy in equivalency education should be understood as a strategic reform that carries both administrative and social implications. On the one hand, it creates opportunities for faster verification, stronger document security, more efficient public services, and broader recognition of non-formal graduates. On the other hand, it also presents challenges related to digital inequality, institutional readiness, data protection, public trust, and the consistency of recognition across education and employment sectors. Therefore, the discussion of e-certificate policy must go beyond technical implementation and examine how the policy can ensure that graduates of non-formal education receive equal, credible, and sustainable recognition within Indonesia's education system and wider society.

METHODOLOGY

This study employed a qualitative research design based on secondary data analysis to examine the e-certificate policy in equivalency education and its implications for the recognition of non-formal graduates in Indonesia. Secondary data were selected because the issue under study is closely related to policy documents, regulatory frameworks, institutional reports, and academic literature that explain the development of electronic certificate governance, non-formal education administration, and digital credential recognition. The data sources used in this study included national education regulations, official policy documents, government publications, scholarly journal articles, and relevant reports discussing digital certification, equivalency education, educational recognition, and public service digitalization. This approach enabled the study to interpret policy direction, identify implementation opportunities and challenges, and position e-certificate policy within the broader discourse of educational governance and lifelong learning (Johnston, 2017; Bowen, 2009).

The data collection process was conducted through document identification, source selection, content screening, and thematic classification. The selected documents were examined based on their relevance to three main analytical categories: regulatory foundations of e-certificate policy, institutional mechanisms for certificate administration, and the recognition of non-formal education graduates in education and employment sectors. The analysis was carried out using content analysis by reading, coding, comparing, and interpreting the information contained in each document. This method allowed the study to identify recurring themes, policy patterns, institutional gaps, and possible impacts of electronic certificate implementation in equivalency education. To strengthen analytical validity, the study applied source triangulation by comparing information from regulations, academic studies, and institutional publications (Krippendorff, 2019; Schreier, 2012).

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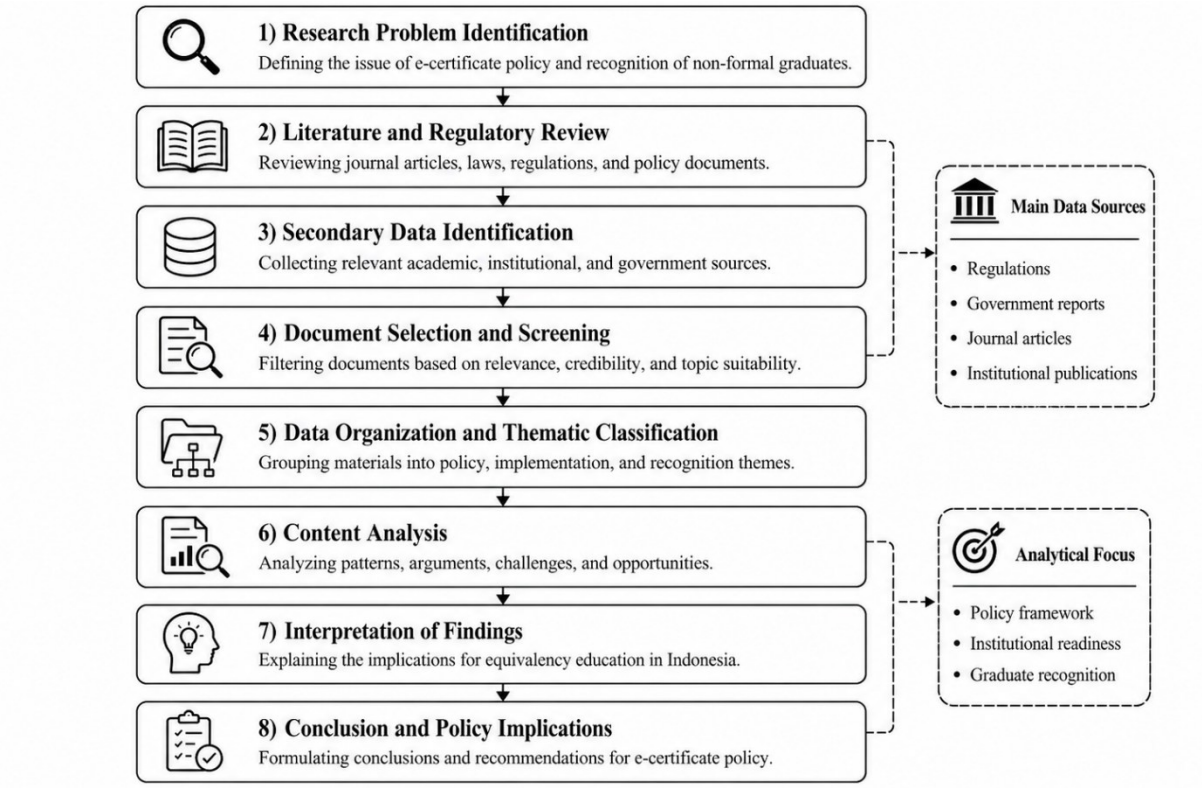

Figure 2. Research Process Flow for Analyzing E-Certificate Policy in Equivalency Education
Source: Author, 2026

This figure will illustrate the stages of the research process, including secondary data identification, document selection, data screening, thematic classification, content analysis, interpretation of findings, and formulation of conclusions related to e-certificate policy and the recognition of non-formal graduates in Indonesia. The research was conducted through several stages, beginning with the formulation of the research focus, followed by the collection of secondary data, selection of relevant documents, thematic coding, data interpretation, and conclusion development. The analysis emphasized the relationship between policy design, institutional readiness, digital certificate administration, and recognition outcomes for graduates of Paket A, Paket B, and Paket C. The use of secondary data allowed the study to develop a systematic understanding of how e-certificate policy may function as an instrument for strengthening the legal, administrative, and social legitimacy of non-formal education graduates in Indonesia.

RESULTS AND DISCUSSION

1. Regulatory Transformation of E-Certificate Policy in Indonesian Equivalency Education

The development of e-certificate policy in Indonesian equivalency education reflects a broader transformation in the governance of educational credentials. The results of secondary data analysis indicate that electronic certification should not be viewed merely as a digital replacement for printed certificates, but as a policy instrument that connects legal validity, administrative accountability, and public recognition. In the context of Paket A, Paket B, and Paket C, the policy becomes significant because graduates

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of non-formal education often require stronger documentary legitimacy when accessing higher education, employment, and public administrative services. Therefore, the regulatory transformation of e-certificates is closely related to the state's responsibility to ensure that alternative education pathways are equally recognized within the national education system (Chakroun & Keevy, 2018; UNESCO Institute for Lifelong Learning, 2012).

The first finding shows that the regulatory framework of e-certificate policy is shaped by the interaction between education law, non-formal education policy, diploma administration rules, and digital governance regulations. This means that the implementation of e-certificates in equivalency education requires coordination between educational authorities, digital administration systems, and institutions responsible for data security and document verification. In this sense, e-certificates function as part of a wider public policy architecture that seeks to modernize education administration while maintaining the legal status of learning outcomes obtained through non-formal channels (European Commission, 2024; Council of the European Union, 2022).

The second finding indicates that the policy value of e-certificates lies in their ability to support recognition, portability, and verification. For equivalency education graduates, portability is especially important because their certificates must be usable across different institutional settings, including schools, universities, workplaces, and government offices. A certificate that can be verified online has stronger practical value because it reduces dependence on manual confirmation and physical document submission. This condition can improve institutional trust, particularly when digital records are integrated into official education databases and supported by transparent quality assurance mechanisms (OECD, 2021; OECD, 2023).

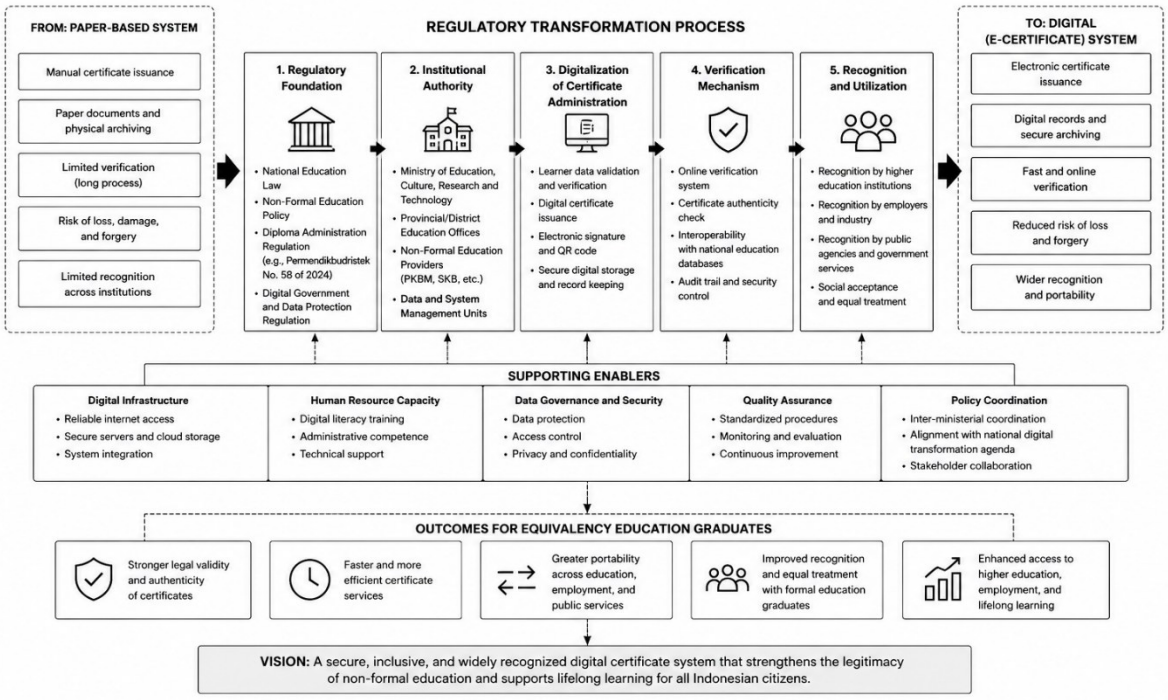

Figure 3. Regulatory Transformation Model of E-Certificate Policy in Indonesian Equivalency Education
Source: Author, 2026

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The third finding reveals that the adoption of e-certificates may help address the long-standing problem of document authenticity. In conventional certificate systems, verification often depends on physical signatures, institutional stamps, and manual administrative checks, all of which may be vulnerable to loss, delay, or falsification. By contrast, digital certificates can include verification codes, secure archives, electronic signatures, and traceable data records. However, technological security must be supported by clear institutional procedures because the legitimacy of a certificate depends not only on digital tools, but also on the credibility of the issuing authority (Alsobhi et al., 2023; Samala et al., 2025).

The fourth finding suggests that e-certificate policy can strengthen the formal position of equivalency education within Indonesia's education governance system. When certificates issued by non-formal education institutions are managed through standardized digital mechanisms, the distinction between formal and non-formal graduates may become less discriminatory in administrative practice. This does not mean that e-certificates automatically eliminate social stigma, but they can provide a stronger documentary basis for equal treatment. The policy therefore has the potential to reduce recognition gaps by ensuring that learning achievements from Paket A, Paket B, and Paket C are documented in a reliable and verifiable manner (Yılık, 2025; Peters, 2025).

The fifth finding emphasizes that regulatory transformation must be accompanied by institutional readiness. Equivalency education providers, including PKBM, SKB, and other accredited non-formal education units, may have different levels of administrative capacity, digital infrastructure, and human resource competence. Without institutional strengthening, e-certificate policy may create uneven implementation across regions. This is especially relevant for non-formal learners who often come from socially and economically diverse backgrounds and depend on accessible public education services. Thus, the success of e-certificate policy depends on whether the regulatory framework can be translated into practical, equitable, and technically reliable implementation at the institutional level (Arbarini et al., 2022; Anggrayni, 2025).

2. Opportunities of E-Certificate Policy for Recognition and Administrative Efficiency

The implementation of e-certificate policy creates important opportunities for improving the recognition of non-formal education graduates. The first opportunity is the strengthening of certificate credibility through digital verification. In equivalency education, credibility is crucial because graduates often have to prove that their qualifications are legally equivalent to formal school certificates. When e-certificates are connected to official databases and can be checked online, universities, employers, and public agencies can verify graduate status more easily. This condition may increase trust in non-formal education credentials and support the broader principle that learning outcomes from different pathways should be recognized fairly (UNESCO-UNEVOC, 2018; OECD, 2024).

The second opportunity concerns administrative efficiency. Paper-based certificate management often requires long bureaucratic procedures, especially when learners need copies, legalization, replacement documents, or manual confirmation from the issuing institution. E-certificates can simplify this process by allowing documents to be issued, stored, retrieved, and verified digitally. For learners in equivalency education, this is particularly useful because many of them are working adults, disadvantaged

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learners, or individuals with limited time to visit administrative offices. Therefore, digital certificate systems may reduce transaction costs and improve access to educational services (OECD, 2023; UNESCO Institute for Lifelong Learning, 2022).

The third opportunity is related to graduate mobility. E-certificates can help Paket A, Paket B, and Paket C graduates move more easily between education, employment, and public service systems. In practice, recognition is not only about whether a certificate is legally valid, but also whether it can be accepted quickly by certificate users. When verification is fast and transparent, graduates may face fewer barriers when registering for higher education, applying for jobs, or fulfilling administrative requirements. This shows that e-certificates may support inclusive mobility by reducing procedural uncertainty faced by non-formal education graduates (European Commission, 2022; MICROBOL, 2022).

The fourth opportunity lies in the possibility of integrating e-certificates with broader lifelong learning policies. Equivalency education is part of lifelong learning because it allows learners to continue education beyond conventional age, place, and institutional boundaries. Digital certificates can strengthen this function by making learning achievements more visible, traceable, and usable. In the long term, e-certificate systems may also support the development of flexible learning records, where formal, non-formal, and informal achievements can be connected within a more inclusive recognition framework (UNESCO, 2021; UNESCO Institute for Lifelong Learning, 2015).

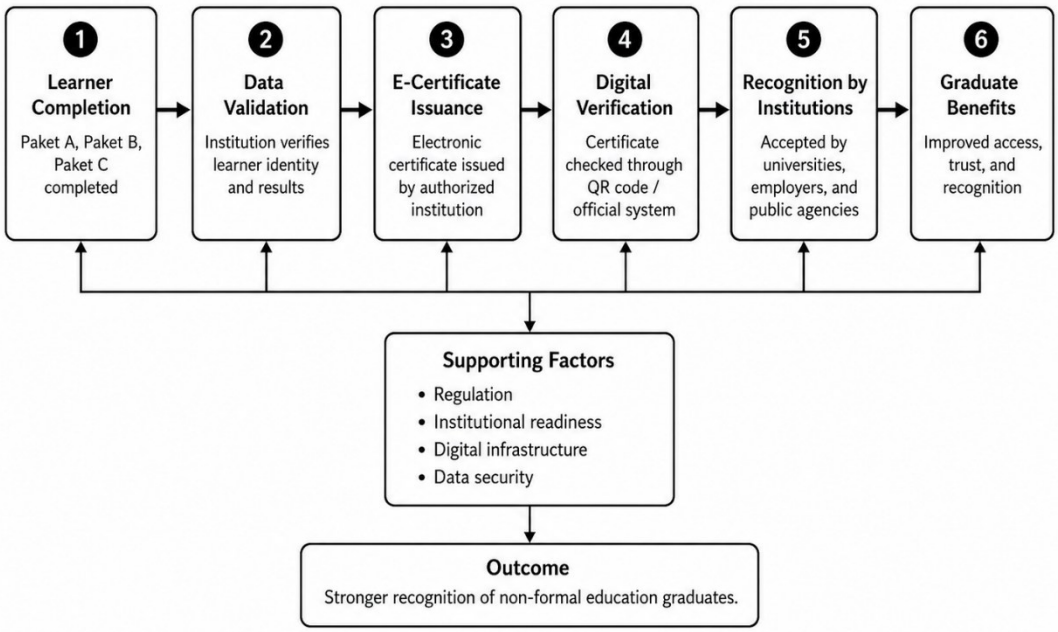

Figure 4. E-Certificate Recognition Pathway for Non-Formal Education Graduates
Source: Author, 2026

The fifth opportunity is the reduction of certificate fraud. Academic document falsification can weaken public trust in education systems, particularly when verification mechanisms are weak or fragmented. E-certificates can address this problem by providing digital authentication features, such as QR codes, serial numbers, electronic signatures, and secure institutional databases. However, these features must be supported by data governance standards and institutional accountability. In equivalency

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education, this is important because stronger authenticity mechanisms can help protect legitimate graduates from being disadvantaged by fraudulent documents issued outside official systems (Chaniago, 2021; Emeka, 2024).

The sixth opportunity concerns the improvement of public perception toward non-formal education. Digital certificates can help demonstrate that equivalency education is not an inferior pathway, but a legitimate part of the national education system. When graduates receive certificates that are secure, traceable, and administratively equal to formal education documents, their social legitimacy may increase. Nevertheless, public perception will only improve if e-certificate implementation is accompanied by policy communication, institutional quality assurance, and consistent recognition by certificate users (Ngoc Ha et al., 2025; Gamage et al., 2025).

3. Challenges in Implementing E-Certificate Policy in Equivalency Education

Despite its opportunities, the implementation of e-certificate policy also presents several challenges. The first challenge is the unequal digital capacity among non-formal education providers. Equivalency education institutions are not always supported by the same level of infrastructure, internet access, administrative systems, and trained personnel. In urban areas, digital certificate management may be easier to implement because institutions tend to have better technological facilities. However, in rural, coastal, or disadvantaged regions, limited infrastructure may hinder the effective issuance and verification of e-certificates. This inequality must be addressed so that digital policy does not create new forms of exclusion (OECD, 2024; UNESCO, 2025).

The second challenge is institutional coordination. E-certificate policy involves multiple actors, including ministries, education offices, data administrators, non-formal education providers, higher education institutions, and employers. If these actors do not share the same procedures and understanding, the policy may be implemented inconsistently. For example, a certificate may be legally valid but still questioned by employers or universities due to lack of familiarity with digital verification systems. Therefore, coordination is needed not only at the technical level, but also at the level of policy communication and institutional recognition (OECD, 2025; UNESCO Institute for Lifelong Learning, 2023).

The third challenge relates to data protection and digital security. E-certificates contain sensitive personal and academic information, including learner identity, education history, completion status, and institutional records. If these data are not properly protected, digital certificate systems may expose learners to risks such as data leakage, identity misuse, or unauthorized access. For equivalency education graduates, many of whom may already face social vulnerability, data protection is especially important. Thus, e-certificate policy must be supported by secure platforms, strict access control, and clear responsibility for data management (Dale-Jones & Keevy, 2021; Ifenthaler, 2022).

The fourth challenge is the risk of reducing recognition to a technical matter. While digital verification can improve administrative efficiency, it cannot automatically solve deeper social problems related to the perception of non-formal education. Graduates of Paket A, Paket B, and Paket C may still face stigma if society continues to view equivalency education as less valuable than formal schooling. Therefore, e-certificate policy must be combined with efforts to improve the quality of learning,

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assessment standards, institutional accreditation, and public awareness. Recognition requires both technical validity and social acceptance (Singh, 2015; UNESCO-UNEVOC, 2025).

The fifth challenge concerns standardization. E-certificate systems require consistent rules regarding certificate format, verification features, issuing authority, archival procedures, and access mechanisms. If different institutions apply different formats or verification methods, users may become confused and distrustful. Standardization is therefore necessary to ensure that e-certificates issued by equivalency education providers are comparable, credible, and administratively interoperable. In this context, policy coherence becomes essential because digital certificates must function across institutional and regional boundaries (Aurora European Universities Alliance, 2024; 4EU+ Alliance, 2024).

The sixth challenge is the need to ensure that digital transformation remains inclusive. E-certificate policy should not disadvantage learners who have limited access to digital devices, internet networks, or digital literacy. Many participants in equivalency education may rely on assistance from learning centres, family members, or local education officers to access administrative services. Therefore, implementation must include offline support mechanisms, help desks, user guidance, and accessible verification procedures. Without these supports, e-certificates may benefit digitally literate users while leaving vulnerable learners behind (UNESCO, 2022; OECD, 2026).

4. Impact of E-Certificate Policy on the Recognition of Non-Formal Graduates

The impact of e-certificate policy on non-formal graduates can be understood through three main dimensions: legal recognition, administrative recognition, and social recognition. Legal recognition refers to the formal validity of equivalency certificates within the national education system. Administrative recognition refers to the ability of institutions to process and verify those certificates efficiently. Social recognition refers to the acceptance of graduates by universities, employers, public agencies, and society. The findings suggest that e-certificate policy has the potential to strengthen all three dimensions, but only when supported by credible regulation, reliable systems, and consistent institutional acceptance (Cedefop, 2025; European Commission, 2024).

The first impact is improved legal certainty for graduates. When e-certificates are issued through official systems and linked to recognized education records, graduates gain stronger proof that their learning achievements are valid. This is important for equivalency education because graduates often need to demonstrate that their certificates are equivalent to formal school qualifications. Digital certificates can provide a more transparent basis for recognition because certificate users can directly confirm the authenticity of documents through official verification channels (Chakroun et al., 2022; UNESCO, 2018).

The second impact is improved access to higher education and employment. In many cases, the value of a certificate depends on how easily it can be accepted by institutions that make decisions about admission, recruitment, or administrative eligibility. E-certificates can support this process by reducing verification delays and increasing confidence in document authenticity. For Paket C graduates, this is particularly important because they may use their certificates to apply for universities, vocational training, or employment opportunities. Therefore, e-certificates can become

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an enabling mechanism for educational and occupational mobility (OECD, 2025; Peters, 2025).

The third impact is the strengthening of institutional accountability. Digital certificate systems require education providers to maintain accurate learner records, validate completion data, and issue documents through standardized procedures. This can improve the quality of administration in equivalency education institutions because certificate issuance becomes part of a traceable governance process. At the same time, accountability also depends on the ability of institutions to correct data errors, respond to verification requests, and protect learner information. Thus, e-certificates can promote better governance if they are embedded within a responsible administrative system (OECD, 2021; Ifenthaler et al., 2022).

The fourth impact is the potential reduction of stigma toward non-formal education graduates. When equivalency certificates are issued in a secure and modern format, they may help change the perception that non-formal education is administratively weaker than formal schooling. However, stigma reduction requires more than digital documentation. It also requires public education, employer awareness, and institutional policies that explicitly recognize Paket A, Paket B, and Paket C graduates. E-certificates may provide the technical foundation for recognition, but social legitimacy must be built through consistent acceptance and quality assurance (UNESCO Institute for Lifelong Learning, 2022; Singh, 2015).

The fifth impact is the emergence of a more integrated education data ecosystem. If implemented effectively, e-certificates can connect learner records, institutional databases, certificate verification systems, and recognition mechanisms across sectors. This integration can help policymakers monitor certificate issuance, prevent duplication, and improve service delivery for non-formal learners. Nevertheless, integration must be managed carefully to avoid excessive centralization, privacy risks, or technical dependency. A balanced system should combine interoperability, institutional autonomy, learner protection, and public accountability (European Union, 2022; OECD, 2023).

The overall discussion shows that e-certificate policy can become a strategic instrument for strengthening the recognition of non-formal education graduates in Indonesia. Its success depends on the alignment between regulation, technology, institutional capacity, and public trust. If these elements are integrated, e-certificates can improve administrative efficiency, certificate authenticity, and graduate mobility. However, if implementation is fragmented, the policy may only digitize existing problems without resolving deeper issues of inequality and recognition. Therefore, e-certificate policy should be developed as an inclusive education governance reform that protects learners, supports institutions, and ensures equal recognition for graduates of equivalency education (UNESCO, 2018; OECD, 2024).

CONCLUSION

E-certificate policy in equivalency education represents an important transformation in Indonesia's non-formal education governance. The policy is not only related to the digitalization of certificate issuance, but also to the strengthening of legal validity, administrative accountability, and institutional trust in Paket A, Paket B, and Paket C graduates. Through electronic certificate systems, the recognition of non-formal graduates can become more transparent, verifiable, and equal to formal education

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pathways, particularly when certificates are supported by official databases, digital signatures, QR codes, and standardized verification procedures.

The findings show that e-certificate policy offers several opportunities, including faster certificate services, reduced document falsification, improved data management, and wider acceptance by universities, employers, and public agencies. However, the implementation of this policy also faces significant challenges, such as unequal digital infrastructure, limited institutional readiness, data protection risks, lack of public understanding, and inconsistent recognition across sectors. Therefore, the success of e-certificate policy depends on strong coordination among education authorities, non-formal education providers, digital system managers, and certificate users.

Overall, e-certificate policy has the potential to strengthen the social and institutional legitimacy of equivalency education graduates in Indonesia. To achieve this goal, the policy must be implemented inclusively, securely, and consistently so that digital transformation does not create new barriers for learners in non-formal education. The development of e-certificate systems should be accompanied by capacity building for institutions, public communication, data security standards, and continuous evaluation. In this way, e-certificates can become a strategic instrument for supporting lifelong learning, equal educational recognition, and broader access to education and employment opportunities for non-formal graduates.

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