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ARTICLE

Bridging Digital Transformation and Curriculum Reform

Feronica Via Christiany [1], Destriana Nugraha[2,*]

[1] College of Management, National Yunlin University of Science and Technology
[2] College of Management, National Yunlin University of Science and Technology

Abstract
This study examines the mediating role of technology readiness in the relationship between digital transformation, technology innovation, and curriculum development in Indonesian higher education institutions. Despite the implementation of national initiatives such as Kampus Merdeka and SPADA Indonesia to strengthen digital literacy and encourage educational innovation, curriculum reform remains uneven across universities. A quantitative approach was employed, with data collected from 200 respondents and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that digital transformation significantly influences curriculum development through both direct and indirect pathways, with technology readiness serving as a key mediating factor. In contrast, technology innovation does not directly affect curriculum development and contributes only when supported by adequate institutional readiness. These results indicate that innovation initiatives alone are insufficient to drive sustainable curriculum reform without strong organizational capacity, digital infrastructure, governance support, and strategic alignment. The study highlights the importance of strengthening technology readiness as an institutional capability that enables universities to translate digital initiatives into meaningful educational outcomes. Theoretically, this research extends the literature by positioning technology readiness not merely as a supporting condition for technology adoption but as a strategic capability that shapes the effectiveness of digital transformation and innovation in higher education. Practically, the findings provide valuable insights for policymakers and university leaders seeking to accelerate curriculum modernization and improve the effectiveness of digital transformation strategies in developing higher education systems.

Keywords: Digital Transformation; Technology Innovation; Technology Readiness; Curriculum Development; Higher Education.

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1. Introduction

The rapid evolution of digital technologies has accelerated transformation across various sectors, including higher education. Universities worldwide are increasingly required to adapt their academic systems, learning processes, and governance structures to meet the demands of the digital era (Kaushik & Agrawal, 2021a). In Indonesia, this transformation has been supported through several government initiatives designed to improve educational quality, accessibility, and relevance. Programs such as Kampus Merdeka, SPADA Indonesia, and the Digital Talent Scholarship seek to align higher education outcomes with labor market requirements and the competencies needed in the twenty-first century (Gouda, 2022).

Despite these efforts, many Indonesian universities continue to encounter significant challenges in translating digital transformation policies into meaningful curriculum reform. Persistent issues include outdated curricula, inadequate technological infrastructure, fragmented governance systems, and limited faculty preparedness to support digitally enabled learning environments (Giles, 2019; Okeji et al., 2020). Consequently, although digital transformation has become a strategic priority, its implementation often fails to generate substantial improvements in curriculum quality and educational outcomes (Yao et al., 2024).

Digital transformation and technology innovation have been widely recognized as important drivers of curriculum enhancement. Through the adoption of flexible learning approaches, data-driven decision making, and competency-based educational models, institutions can better prepare graduates for future workforce demands (Magnusson et al., 2022; Ren & Lin, 2024). However, the success of these initiatives largely depends on an institution's level of technology readiness. Technology readiness refers to the capability and willingness of an organization to adopt, integrate, and effectively utilize technological resources and digital tools (Mohsen et al., 2024; Piwowar-Sulej et al., 2024). Without adequate infrastructure, organizational support, and faculty competencies, digital transformation initiatives may remain superficial and fail to produce sustainable curricular improvements (Sting, 2021).

An additional challenge facing higher education institutions in Indonesia is the instability of the policy environment. Frequent changes in ministerial leadership have contributed to discontinuities in curriculum-related policies, making long-term educational reform difficult to sustain (Sabani, 2020). These conditions are further complicated by fragmented governance structures and uneven institutional capacities, which reduce the effectiveness of digital transformation initiatives and limit their impact on curriculum development.

Although previous studies have extensively examined digital transformation and educational innovation (Ramirez-Asis et al., 2024), empirical evidence regarding their combined influence on curriculum development remains limited, particularly in emerging higher education systems (Jain & Jain, 2022). Existing research has primarily focused on technology adoption frameworks, such as TAM, TOE, and UTAUT, or on barriers associated with digital implementation and infrastructure readiness (Roos et al., 2023). Comparatively little attention has been given to understanding how technology readiness functions as an organizational capability that links digital transformation and innovation efforts to curriculum reform. This gap is especially relevant in developing countries where policy inconsistency, institutional fragmentation, and varying levels of digital maturity continue to affect higher education performance (Butcher et al., 2024; Susanti et al., 2019).

To address this gap, the present study investigates the mediating role of technology readiness in the relationship between digital transformation, technology innovation, and curriculum development. It is argued that digital transformation initiatives and technological innovation alone are insufficient to generate meaningful curriculum change

unless institutions possess the readiness required to adopt and sustain technological advancements. By integrating digital transformation, technology innovation, technology readiness, and curriculum development into a unified conceptual framework, this study contributes to the advancement of digital transformation literature within the higher education context. Furthermore, the findings are expected to provide practical guidance for policymakers and university leaders in designing strategies that promote effective curriculum innovation while considering institutional readiness and contextual challenges. Unlike many previous studies, this research is situated within the realities of Indonesia's higher education landscape, where policy transitions, structural inertia, and disparities in digital readiness continue to shape the success of educational transformation initiatives.

2. Literature Review and Hyphotesis Development

This study is grounded in the premise that digital transformation, technology innovation, and institutional readiness collectively shape curriculum development within higher education institutions. Digital transformation is understood as a comprehensive organizational process involving the integration of digital technologies into institutional structures, operational processes, and organizational culture to improve effectiveness and create value (Vial, 2019). Within higher education, digital transformation extends beyond the mere digitization of learning materials and encompasses curriculum redesign, assessment innovation, and governance modernization (OECD, 2020). Previous studies suggest that digital transformation facilitates the shift toward competency-based curricula, enabling more personalized, flexible, and data-driven learning environments (Chao et al., 2016). Nevertheless, evidence from developing countries indicates that the impact of digital transformation is often constrained by organizational, financial, and cultural barriers (Gouda, 2022). In Indonesia, despite initiatives such as Kampus Merdeka and SPADA Indonesia, many institutions continue to face difficulties in translating digital policies into substantive curriculum reform (Suryadarma et al., 2006). These findings imply that successful transformation requires not only technological adoption but also institutional preparedness and strategic alignment (Yao et al., 2024).

Technology innovation represents another important driver of educational reform. It refers to the development, adoption, and institutionalization of emerging technological tools and pedagogical systems designed to enhance learning quality and administrative efficiency (Zreen et al., 2024). Examples include learning analytics, adaptive learning systems, gamified learning environments, and artificial intelligence-based instructional platforms (Adomako Boakye et al., 2024). However, many innovation initiatives remain fragmented and dependent upon individual actors rather than being embedded within institutional strategies. Studies conducted in Southeast Asia suggest that technological innovation frequently lacks sustainability because it is not supported by long-term governance structures or strategic planning mechanisms (Mohsen et al., 2024). Similar patterns have been observed in Indonesia, where the implementation of innovative digital pedagogies is often disconnected from curriculum evaluation processes and quality assurance systems. Consequently, technology innovation should be viewed not merely as technological novelty but as a strategic capability that requires organizational support, infrastructure, and institutional commitment to generate meaningful educational outcomes.

The present study places particular emphasis on technology readiness as a key institutional capability. Technology readiness refers to an organization's ability and willingness to adopt, integrate, and utilize emerging technologies effectively (Ansari et al., 2023). This capability encompasses technological infrastructure, human resources, organizational culture, and governance systems that collectively determine institutional digital maturity (Al-Emran et al., 2018). Within higher education settings, readiness is reflected in faculty digital competencies, leadership commitment, organizational

flexibility, and the capacity to respond to technological change (Tang et al., 2025). While traditional technology adoption frameworks such as TAM, TOE, and UTAUT generally regard readiness as a prerequisite for technology utilization, more recent studies emphasize its role as a transformative capability that enables institutions to embed digital technologies into both academic and managerial processes.

This perspective is consistent with Dynamic Capability Theory, which argues that organizations achieve sustainable adaptation by developing the ability to sense emerging opportunities, seize strategic advantages, and continuously reconfigure internal resources (Teece, 2007). Within Indonesian higher education, these capabilities are reflected in universities' efforts to respond to policy changes, restructure governance systems, and mobilize resources to support digital learning initiatives. However, the development of such capabilities remains uneven. Large public universities often possess stronger governance mechanisms and technological infrastructures, whereas many private and regional institutions continue to face constraints related to funding, leadership continuity, and organizational flexibility. Therefore, technology readiness serves as an important explanatory mechanism for understanding why digital transformation and technological innovation contribute to curriculum development in some institutions while producing limited outcomes in others.

Curriculum development itself has become increasingly influenced by digital pressures and policy reforms. National initiatives such as Kampus Merdeka and Merdeka Belajar were introduced to improve curriculum flexibility and strengthen alignment with labor market demands and twenty-first-century competencies. Nevertheless, several reports indicate that many universities continue to struggle with integrating digital literacy, critical thinking, and industry collaboration into curriculum structures (BRIN, 2023; World Bank, 2021). International evidence suggests that successful curriculum innovation requires a supportive ecosystem characterized by digital governance, data-driven decision making, and continuous professional development (OECD, 2020; QAA, 2022; UNESCO, 2023). In Indonesia, disparities in digital readiness between regions and institution types continue to contribute to uneven curriculum modernization efforts.

Although a growing body of literature has examined digital transformation and technology innovation within educational contexts, empirical studies investigating the mediating role of technology readiness remain limited. Most previous studies treat readiness as a contextual factor rather than a strategic capability. Furthermore, few studies have integrated digital transformation, technology innovation, technology readiness, and curriculum development within a single empirical framework, particularly in developing-country contexts. To address this gap, this study proposes a conceptual model that positions technology readiness as a mediating mechanism linking digital transformation and technology innovation to curriculum development outcomes.

The conceptual framework is informed by the Technology–Organization–Environment (TOE) framework (Baker, 2012), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, 2022), and the Technology Readiness Index (TRI) (Ansari et al., 2023). These perspectives collectively explain how technological, organizational, and environmental conditions influence institutional behavior toward innovation and technology adoption. Unlike traditional approaches that regard readiness solely as an antecedent, the present study conceptualizes technology readiness as a dynamic institutional capability that transforms digital initiatives into sustainable curriculum outcomes. This perspective is particularly relevant in Indonesia, where policy volatility, governance complexity, and readiness disparities continue to influence higher education reform.

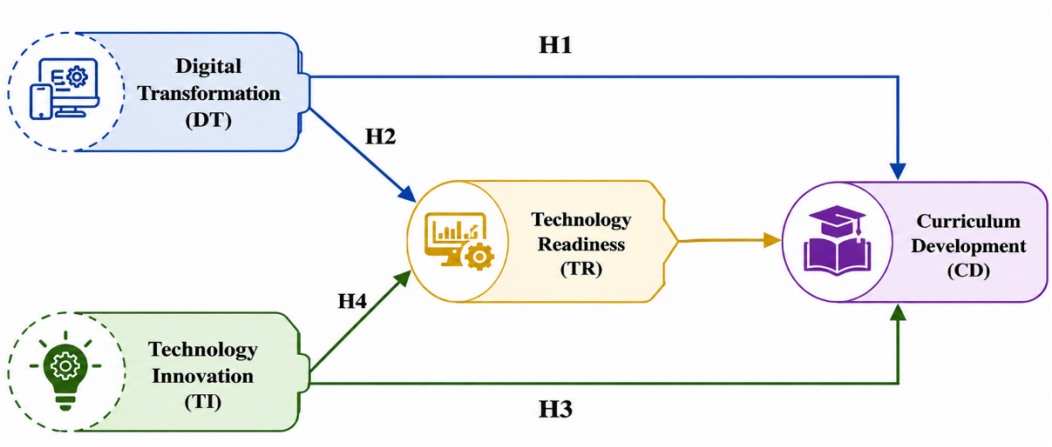

Figure 1 .Conceptual Framework

Based on the theoretical foundations and previous empirical findings, the following hypotheses were formulated:

H1. Digital transformation has a positive and significant effect on curriculum development.

H2. Technology innovation has a positive and significant effect on curriculum development.

H3. Technology readiness mediates the relationship between digital transformation and curriculum development.

H4. Technology readiness mediates the relationship between technology innovation and curriculum development.

3. Research Methods

The empirical investigation employed a quantitative research design using a cross-sectional survey approach. This design was selected because it enables the examination of relationships among latent variables and facilitates mediation analysis through Partial Least Squares Structural Equation Modeling (PLS-SEM), which is appropriate for predictive and exploratory research involving relatively small to medium sample sizes (Sarstedt et al., 2021). The study population consisted of academic and administrative personnel from Indonesian higher education institutions who were actively involved in digital transformation, curriculum development, or educational innovation initiatives. A purposive sampling technique was applied to ensure that respondents possessed relevant experience and sufficient familiarity with institutional digitalization processes.

Data were collected through an online questionnaire distributed via academic networks, institutional mailing lists, and the Forum Perguruan Tinggi Digital Indonesia (FPTDI). Participation was voluntary, respondent anonymity was maintained, and informed consent was obtained prior to data collection. To reduce common method bias, questionnaire items were arranged in separate sections and included varied wording as well as reverse-coded statements (Podsakoff et al., 2012). A total of 200 valid responses were obtained, exceeding the minimum sample size recommended for PLS-SEM analysis (Hair et al., 2017). The sample consisted of respondents from both public universities (58%) and private universities (42%), with faculty members accounting for 65% of participants and administrative personnel representing 35%. Most respondents held postgraduate qualifications, including master's degrees (72%) and doctoral degrees (18%).

The measurement instrument was adapted from established scales used in previous studies and subsequently evaluated through expert review involving specialists in digital education and curriculum design. A pilot test involving 30 respondents was conducted to assess item clarity, reliability, and validity. All variables were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Digital

Transformation (DT) was measured using five indicators adapted from Vial (2019), Technology Innovation (TI) was assessed through four indicators derived from Teräs (2022), Technology Readiness (TR) was measured using five indicators adapted from Kaushik and Agrawal (2021b), and Curriculum Development (CD) was measured through five indicators adapted from Suryadarma et al. (2006).

Table 1. Variable Definitions and Measurement Indicators

Variable	Indicator	Source
Digital Transformation (DT)	DT1. Integration of digital technologies into teaching and learning activities	Vial (2019); Ng et al. (2021)
	DT2. Existence of a clear digital strategy across departments	
	DT3. Use of digital tools to enhance academic administrative services	
	DT4. Top management commitment to digital transformation	
	DT5. Curriculum updated to reflect digital competencies and skills	
Technology Innovation (TI)	TI1. Frequent exploration of new pedagogical technologies	Teräs (2022)
	TI2. Use of innovative curriculum delivery methods (e.g., flipped classroom)	
	TI3. Faculty encouragement to experiment with digital tools	
	TI4. Institutional support for technology-based learning solutions	
Technology Readiness (TR)	TR1. Availability of sufficient digital infrastructure	Kaushik and Agrawal (2021a, b)
	TR2. Faculty digital competence and training	
	TR3. Institutional culture supports technology adoption	
	TR4. Existence of clear technology governance policies	
	TR5. Technology investments aligned with academic goals	
Curriculum Development (CD)	CD1. Regular curriculum review to meet industry and future skill demands	Suryadarma et al. (2006)
	CD2. Inclusion of digital literacy and 21st-century skills	
	CD3. Data and stakeholder input support curriculum revision	
	CD4. Technology enhances curriculum flexibility and relevance	
	CD5. Strategic and structured approach to curriculum innovation	

Data analysis was performed using SmartPLS 4. The analytical procedure consisted of two stages. First, the measurement model was evaluated through tests of internal consistency reliability, convergent validity, and discriminant validity. Second, the

structural model was assessed using path coefficients, coefficient of determination (R^2), and bootstrapping procedures to test direct and mediating relationships among the constructs (Hair et al., 2017; Sarstedt et al., 2021). Although several HTMT values marginally exceeded the recommended threshold, additional procedures including item purification, cross-loading analysis, Fornell–Larcker evaluation, and conceptual boundary assessments were conducted to strengthen discriminant validity. These procedures support the robustness of the measurement model and ensure the validity of the proposed structural relationships.

4. Results

4.1 Measurement Model Assessment

The measurement model was first evaluated to determine the reliability and validity of the research constructs. The results indicate that all indicators achieved loading values above the recommended threshold of 0.70, with most values exceeding 0.90. For Digital Transformation (DT), indicator loadings ranged from 0.935 to 0.975, while Technology Innovation (TI) exhibited loadings between 0.947 and 0.969. Similarly, Technology Readiness (TR) recorded loading values ranging from 0.937 to 0.954, and Curriculum Development (CD) showed loadings between 0.925 and 0.975. These findings demonstrate strong convergent validity, indicating that each indicator adequately represents its underlying construct.

The constructs also demonstrated high internal consistency reliability. Composite Reliability (CR) values ranged from 0.977 to 0.982, whereas Cronbach's Alpha (CA) values varied between 0.970 and 0.977. All values exceeded the recommended threshold of 0.70 (Hair et al., 2017), confirming the reliability of the measurement instrument. Furthermore, the Average Variance Extracted (AVE) values ranged from 0.895 to 0.917, surpassing the minimum criterion of 0.50 and indicating that the constructs explained a substantial proportion of variance in their respective indicators.

Overall, the results confirm that the measurement model possesses satisfactory validity and reliability. The combination of high indicator loadings, strong internal consistency, and robust AVE values provides a solid basis for proceeding with the structural model analysis.

Table 2. Measurement Model Evaluation Results

Variable	Loading Factor	AVE	Composite Reliability (CR)	Cronbach's Alpha (CA)
Digital Transformation (DT)		**0.915**	**0.982**	**0.977**
DT1 (Use of digital tools in teaching and learning)	0.967			
DT2 (Clear digital strategy across departments)	0.935			
DT3 (Digital tools for academic administration)	0.964			
DT4 (Leadership support for digital change)	0.942			
DT5 (Curriculum aligned with digital skills)	0.975			
Technology Innovation (TI)		**0.917**	**0.978**	**0.970**
TI1 (Exploring new teaching technologies)	0.956			

Variable	Loading Factor	AVE	Composite Reliability (CR)	Cronbach's Alpha (CA)
TI2 (Innovative delivery methods)	0.947			
TI3 (Encouragement to try digital tools)	0.958			
TI4 (Institutional support for tech-based learning)	0.969			
Technology Readiness (TR)		**0.895**	**0.977**	**0.971**
TR1 (Adequate digital infrastructure)	0.939			
TR2 (Faculty have digital skills and training)	0.953			
TR3 (Supportive culture for tech adoption)	0.937			
TR4 (Clear tech-related governance policies)	0.954			
TR5 (Tech investment aligned with goals)	0.951			
Curriculum Development (CD)		**0.911**	**0.981**	**0.975**
CD1 (Regular review to meet future skills)	0.957			
CD2 (Digital literacy embedded in curriculum)	0.949			
CD3 (Stakeholder input in curriculum revision)	0.925			
CD4 (Technology enhances flexibility and relevance)	0.964			
CD5 (Structured approach to curriculum innovation)	0.975			

3.2 Discriminant Validity Assessment

Discriminant validity was evaluated using the Heterotrait–Monotrait Ratio (HTMT) and the Fornell–Larcker criterion. According to Henseler et al. (2015), HTMT values below 0.85 or 0.90 indicate adequate discriminant validity, while values exceeding 0.95 may suggest insufficient differentiation between constructs.

The HTMT results revealed that several construct pairs exceeded the liberal threshold of 0.90. Specifically, the values for DT–CD (1.008), TR–CD (1.017), and TI–DT (0.984) were relatively high, indicating potential overlap among these constructs. Given their conceptual interconnectedness, some degree of association is expected; however, values exceeding 1.00 may indicate limited empirical distinction at the indicator level.

Table 3.HTMT Results

Construct Relationship	Heterotrait–Monotrait Ratio (HTMT)
DT ↔ CD	1.008
TI ↔ CD	0.972
TI ↔ DT	0.984

Construct Relationship	Heterotrait–Monotrait Ratio (HTMT)
TR ↔ CD	1.017
TR ↔ DT	0.993
TR ↔ TI	0.973

To further assess discriminant validity, the Fornell–Larcker criterion was applied. The square roots of the AVE values for Digital Transformation (0.956), Technology Innovation (0.958), Technology Readiness (0.946), and Curriculum Development (0.954) exceeded the correlations between constructs. This result indicates that each construct shares more variance with its own indicators than with other constructs in the model.

Although certain correlations, such as the relationship between Digital Transformation and Curriculum Development, approached the AVE threshold, they remained within acceptable limits considering the strong convergent validity and theoretical relatedness of the constructs. Consequently, the overall findings provide adequate support for discriminant validity.

Table 4. Discriminant Validity

Indicator	Curriculum Development	Digital Transformation	Technology Innovation	Technology Readiness
CD1	0.957	0.967	0.910	0.930
CD2	0.949	0.912	0.906	0.953
CD3	0.925	0.905	0.911	0.937
CD4	0.964	0.934	0.879	0.954
CD5	0.975	0.975	0.906	0.949
DT1	0.957	0.967	0.910	0.930
DT2	0.920	0.935	0.947	0.915
DT3	0.948	0.964	0.926	0.933
DT4	0.906	0.942	0.896	0.900
DT5	0.975	0.975	0.906	0.949
TI1	0.874	0.901	0.956	0.877
TI2	0.920	0.935	0.947	0.915
TI3	0.911	0.917	0.958	0.906
TI4	0.916	0.916	0.969	0.920
TR1	0.909	0.885	0.883	0.939
TR2	0.949	0.912	0.906	0.953
TR3	0.925	0.905	0.911	0.937
TR4	0.964	0.934	0.879	0.954
TR5	0.933	0.935	0.889	0.946

4.3 Structural Model Analysis

The structural model was evaluated by examining both direct and total effects among the study variables. The results indicate that Digital Transformation (DT) exerts a moderate positive direct effect on Curriculum Development (CD) with a path coefficient of 0.487. Furthermore, DT strongly influences Technology Readiness (TR) ($\beta = 0.757$), suggesting that institutions undergoing digital transformation tend to develop stronger readiness capabilities necessary for curriculum modernization.

Technology Readiness was also found to have a substantial positive effect on Curriculum Development ($\beta = 0.618$), highlighting its important role in facilitating curriculum improvement initiatives. In contrast, Technology Innovation (TI) demonstrated only a limited direct contribution to Curriculum Development, with a total effect of 0.031. Meanwhile, Digital Transformation exhibited a total effect of 0.955 on

Curriculum Development, indicating that both direct and indirect pathways contribute significantly to curriculum reform.

These findings suggest that digital transformation represents the strongest determinant of curriculum development, while technology readiness functions as a critical mechanism through which transformation efforts generate meaningful educational outcomes.

Table 5. Structural Model Results and Total Effects

Constructs	Total Effects	Path Coefficients
DT → CD	0.955	0.487
DT → TR	0.757	0.757
TI → CD	0.031	0.105
TI → TR	0.220	0.220
TR → CD	0.618	0.618

4.4 Mediation Analysis

To examine the mediating role of Technology Readiness, specific indirect effects were assessed. The indirect effect of Digital Transformation on Curriculum Development through Technology Readiness was substantial ($\beta = 0.467$). This finding indicates that digital transformation contributes to curriculum reform not only directly but also indirectly through enhanced institutional readiness. Therefore, Technology Readiness partially mediates the relationship between Digital Transformation and Curriculum Development.

By contrast, the indirect effect of Technology Innovation on Curriculum Development through Technology Readiness was smaller ($\beta = 0.136$) but remained meaningful. Because the direct effect of Technology Innovation on Curriculum Development was weak and statistically insignificant, the findings indicate that Technology Innovation influences curriculum outcomes primarily through readiness-related mechanisms.

Overall, the mediation results support the argument that Technology Readiness serves as a strategic capability that enables institutions to translate both transformation and innovation initiatives into sustainable curriculum improvements.

Table 6. Specific Indirect Effects and Mediation Results

Construct	Specific Indirect Effects
DT → TR → CD	0.467
TI → TR → CD	0.136

4.5 Partial and Full Mediation Effects

The mediation analysis revealed two distinct patterns. First, the relationship between Digital Transformation and Curriculum Development exhibited partial mediation. Both the direct effect ($\beta = 0.487$) and the indirect effect through Technology Readiness ($\beta = 0.467$) were statistically significant. This suggests that curriculum reform can be influenced directly through institutional transformation efforts while also benefiting from enhanced readiness capabilities.

Second, the relationship between Technology Innovation and Curriculum Development demonstrated full mediation. Although the indirect effect through Technology Readiness was significant ($\beta = 0.136$), the direct effect remained insignificant. This finding indicates that innovation initiatives alone are insufficient to produce curriculum reform unless supported by adequate readiness infrastructure, digital competencies, and governance mechanisms.

The distinction between partial and full mediation highlights the varying roles of readiness across institutional change processes. While digital transformation can independently influence curriculum development, technology innovation requires readiness as an enabling condition before meaningful educational outcomes can be achieved.

5. Discussion

The findings of this study demonstrate that Technology Readiness (TR) serves as a crucial mechanism through which Digital Transformation (DT) and Technology Innovation (TI) contribute to Curriculum Development (CD) within Indonesian higher education institutions. These results indicate that the implementation of digital transformation initiatives alone is insufficient to generate meaningful curriculum reform. Instead, institutions must possess adequate technological readiness, including supportive infrastructure, organizational capabilities, governance mechanisms, and human resource competencies, to effectively translate digital initiatives into sustainable educational improvements.

From a theoretical standpoint, the results contribute to the ongoing development of the TOE and UTAUT frameworks by positioning readiness as more than a contextual prerequisite for technology adoption. The findings suggest that technology readiness functions as a dynamic organizational capability that enables institutions to convert technological resources and innovation initiatives into tangible educational outcomes. This interpretation is consistent with Dynamic Capability Theory, which emphasizes the importance of continuously sensing opportunities, mobilizing resources, and reconfiguring organizational processes in response to environmental change. Within this perspective, readiness acts as an institutional bridge that connects digital transformation efforts with curriculum enhancement and long-term learning improvement.

Another important finding concerns the insignificant direct relationship between Technology Innovation and Curriculum Development. This result suggests that innovation initiatives do not automatically lead to curriculum improvement unless they are supported by sufficient institutional readiness. In many Indonesian universities, technological innovations are often implemented as isolated projects, pilot programs, or temporary initiatives driven by external funding and regulatory compliance requirements. Consequently, these innovations frequently remain disconnected from broader curriculum planning and institutional development processes. This finding supports previous post-pandemic research indicating that innovation efforts lacking organizational readiness rarely produce substantial and sustainable curriculum transformation.

The findings should also be interpreted within the broader institutional context of Indonesian higher education. National initiatives such as Kampus Merdeka, SPADA Indonesia, and Key Performance Indicators (IKU) are implemented through complex governance structures involving ministries, university management, faculty leadership, and study program administrators. Such multilayered arrangements often create variations in policy interpretation, implementation speed, and institutional commitment. Universities characterized by flexible governance systems, strong digital leadership, and decentralized decision-making tend to develop higher levels of technology readiness, enabling them to implement curriculum reform more effectively. Conversely, institutions operating within rigid bureaucratic structures or experiencing frequent policy changes may succeed in adopting digital technologies without achieving meaningful curricular transformation. These contextual realities help explain why technology readiness emerged as a significant mediating variable and reinforce its role as a strategic capability that determines the effectiveness of digital transformation efforts in higher education.

6. Conclusions

This study demonstrates that technology readiness plays a crucial mediating role in connecting digital transformation and technology innovation with curriculum development in higher education institutions. The findings indicate that digital transformation alone is insufficient to generate meaningful curriculum reform unless it is supported by adequate institutional readiness, including technological infrastructure, governance systems, organizational support, and human resource capabilities. Technology readiness therefore functions not only as a prerequisite for technology adoption but also as a strategic capability that enables institutions to convert digital initiatives into sustainable educational improvements.

The study contributes to the literature by positioning technology readiness as a dynamic institutional capability that bridges digital transformation and curriculum outcomes. From a practical perspective, the findings suggest that policymakers and university leaders should prioritize readiness development alongside investments in digital technologies and innovation initiatives. Integrating readiness indicators into quality assurance systems, institutional performance evaluation, and digital transformation strategies may strengthen the effectiveness of curriculum modernization efforts.

Despite its contributions, this study has several limitations. The cross-sectional design restricts causal interpretation, while the use of purposive sampling may limit the generalizability of the findings. In addition, some constructs exhibited relatively high conceptual overlap, although this can be justified by the close relationship between digital transformation, readiness, and curriculum development within higher education contexts. Future studies are encouraged to employ longitudinal designs, broader institutional samples, and comparative analyses to further examine the role of technology readiness in supporting sustainable curriculum innovation across different educational settings.

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