

Evaluation of The Digital Learning Transition: A Qualitative Study of Its Design, Procedures, and Implementation

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Abstract: This study aims to analyse the evaluation of the digital transformation policy for learning at SMKN 2 Metro, covering the design, procedures and implementation of technology-based educational policies. The study employs a qualitative approach using the case study method. Data collection was carried out through observation, interviews and documentation, whilst data analysis was conducted through data reduction, data presentation and drawing conclusions using triangulation techniques. Unlike previous studies, which generally focused on the implementation of learning technologies or teachers' digital competences, this study fills a gap by comprehensively evaluating digital transformation policies using the CIPP Model to analyse the design, procedures and implementation of policies at vocational secondary schools. The research findings indicate that the digital transformation of learning at SMKN 2 Metro has been implemented through the use of a Learning Management System (LMS), digital learning resources, and the adoption of hybrid learning as a form of educational adaptation. However, challenges remain, including the uneven level of teachers' digital competence, limitations in technological infrastructure, the quality of the internet connection, and policy evaluation that remains predominantly administrative in nature. Analysis using the CIPP model indicates that the implementation of digital transformation has progressed reasonably well in terms of context, input, process and product, although there is still a need to strengthen technology-based learning evaluation. The Connectivism perspective suggests that learning is evolving towards a system based on digital connectivity and student-centred learning. The research findings confirm that the success of digital transformation in education is determined not only by the use of technology, but also by the readiness of human resources, the organisational culture of schools, and the effectiveness of continuous evaluation of educational policies.

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Introduction

The digital transformation of education has become a strategic issue in the development of the global education system since the COVID-19 pandemic, which has driven changes in learning processes, educational governance, assessment systems and the

implementation of technology-based policies (Hadiono & Santi, 2020). Education is evolving into a digital ecosystem that demands infrastructure readiness, human resource competencies, and policies that are adaptable to technological developments (Oliveira & De Souza, 2022; Mukul & Büyüközkan, 2023). In line with the development of Education 4.0, the integration of digital technology, artificial intelligence (AI) and flexible learning has become essential for improving the quality of education (Mohamed Hashim, Tlemsani, & Matthews, 2022; Zizikova, Nikolaev, & Levchenko, 2023).

The COVID-19 pandemic has accelerated the implementation of digital learning through the use of Learning Management Systems (LMS), virtual classrooms and various online learning platforms across many countries (Huber & Helm, 2020; Demartini et al., 2020). This transformation has not only changed the medium of learning but has also driven a shift towards student-centred learning supported by digital technology (Bogdandy, Tamas, & Toth, 2020). This situation calls for education policies capable of ensuring that the use of technology has a tangible impact on improving the quality of learning (Oliveira & De Souza, 2022).

On the other hand, digital transformation also presents challenges in the form of the digital divide, infrastructure limitations, educators' lack of digital skills, and the inadequate evaluation of technology-based education policies (Mukul & Büyüközkan, 2023). Advances in generative artificial intelligence further reinforce the need for adaptive learning evaluation systems, including in maintaining academic integrity and the effectiveness of digital education policy implementation (Chaudhry et al., 2023; Chan, 2023).

In Indonesia, the acceleration of digital transformation is being realised through various policies, such as Merdeka Belajar, the Merdeka Curriculum, school digitalisation, and the Merdeka Mengajar Platform. Nevertheless, their implementation still faces various challenges, including disparities in internet access, low levels of teachers' digital competence, and sub-optimal policy monitoring and evaluation (Muskania & Zulela, 2021; Ahyani & Dhuhani, 2024; Nashrullah et al., 2025). Systematic policy evaluation is required to ensure that digital transformation can improve the quality of education in a sustainable manner (Fionita et al., 2024).

This challenge is even more complex in vocational secondary schools, as teaching must integrate digital technology with the mastery of vocational competences in line with the needs of the industrial sector. Consequently, the success of digital transformation in vocational secondary schools is determined not only by the availability of technology, but also by the readiness of the curriculum, teachers' competences, and the effectiveness of the implementation of educational policies (Hasnida, Adrian, & Siagian, 2024).

SMKN 2 Metro is one of the schools that has implemented digital transformation through the use of a learning management system (LMS), digital learning resources, technology-based administrative systems, and hybrid learning. Initial observations indicate that teachers' digital competencies are not yet uniform, policy evaluation remains administratively oriented, and the use of technology does not yet fully support learner-centred learning. Furthermore, some teachers still face difficulties in designing learning assessments that are adaptable to developments in artificial intelligence (Yinping & Yongxin, 2023).

Previous research has largely focused on the implementation of digital transformation in general, the use of learning resources, and teachers' digital competences (Andita & Rafaela, 2024; Jannah et al., 2023; Nashrullah et al., 2025). Studies that specifically evaluate digital transformation policies in terms of design, procedures and implementation in vocational secondary schools remain relatively limited, particularly those employing a comprehensive evaluative approach.

Given this gap, this study aims to evaluate the digital transformation policy for learning at SMKN 2 Metro using the CIPP Model by analysing the aspects of context, input, process and product. This study is expected to contribute to the development of digital transformation policy evaluation that is not only oriented towards technology adoption but also towards improving the quality of learning through systematic and sustainable evaluation.

Muskania and Zulela (2021) explain that the digital transformation of education in Indonesia has so far continued to face challenges relating to schools' readiness and teachers' competence in the use of learning technologies. Ahyani and Dhuhan (2024) also point out that the digital transformation of education is not only concerned with the use of technological devices, but also involves changes to educational management, organisational culture, and learning assessment systems.

The Indonesian government has, in fact, undertaken various efforts to strengthen the digital transformation of education through the 'Merdeka Belajar' policy, the 'Kurikulum Merdeka', school digitalisation, the 'Merdeka Mengajar' platform, and the integration of learning technologies. Nashrullah et al. (2025) state that Indonesia's digital transformation of education is aimed at improving the quality of technology-based learning, strengthening teachers' competencies, and developing a digital education ecosystem. Triyunita et al. (2025) emphasise that teachers' digital competences are a key factor in the successful implementation of the digital transformation of education.

Although various policies have been introduced, the implementation of digital transformation in education in Indonesia continues to face a number of challenges. Jaysurrohman et al. (2021) point out that the evaluation of education policies in Indonesia often encounters obstacles in terms of coordination, execution, oversight and consistency of implementation. Fionita et al. (2024) explain that the monitoring and evaluation of education policies need to be carried out systematically to determine the effectiveness of programmes and their impact on the quality of education.

Another issue lies in the disparity in access to technology between urban and rural areas. Data from the Central Statistics Agency for 2024 show that the level of internet access for educational purposes in Indonesia's urban areas stands at over 82 per cent, whilst in some rural areas it remains below 60 per cent. This situation affects the effectiveness of the implementation of the national policy on the digital transformation of education.

At vocational secondary school level, digital transformation presents more complex challenges, as learning requires not only a grasp of theory but also competence-based practice and industrial technology. Vocational secondary schools are required to integrate digital learning with the needs of the Industry 4.0-based world of work. Hasnida, Adrian, and Siagian (2024) state that educational transformation in the digital age requires a suitable

curriculum, technological facilities, and teacher competencies to ensure the learning process runs effectively.

This phenomenon is also evident at SMKN 2 Metro, one of the vocational schools that has implemented various digital learning transformation programmes. Based on the results of initial observations, the school has been using digital learning platforms, technology-based learning media, digital administration systems, and online learning applications. Teachers have begun using Google Classroom, Canva Education, Learning Management Systems, and multimedia-based resources in the learning process.

Although the implementation of digital transformation is underway, several issues remain in its execution. Firstly, not all teachers possess the same level of digital competence in the development of learning media and technology. Secondly, the evaluation of school digital transformation policies has not been carried out comprehensively or on an ongoing basis. Thirdly, the use of learning technology remains focused on the use of applications and has not yet fully led to innovations in student-centred learning. Fourthly, there are differences in pupils' readiness to use digital technology due to factors such as devices and internet access.

Preliminary findings at SMKN 2 Metro indicate that some teachers still face difficulties in designing adaptive digital learning assessments that incorporate the use of AI and generative technology. This situation is consistent with the view of Yinping and Yongxin (2023), who state that the development of AI in education requires new learning assessment strategies to ensure that the use of technology continues to support pupils' attainment of competencies.

Another issue lies in the monitoring of school policies. The implementation of digital transformation policies remains predominantly focused on the technical execution phase rather than on evaluating the programme's impact on the quality of learning. Taali, Darmawan and Maduwinarti (2024) explain that the evaluation of education policies must encompass planning, implementation, monitoring and follow-up to ensure that policies are effective. In fact, numerous evaluations of digital transformation policies in education have already been carried out. Research by Andita and Rafaela (2024) discusses the acceleration of digital transformation in education to improve the quality of learning. Nashrullah et al. (2025) examine Indonesia's digital transformation in education from a national policy perspective. Jannah et al. (2023) investigate digital transformation in the management of Islamic education. These studies focus more on the general aspects of digital transformation implementation.

Studies that specifically analyse the evaluation of digital transformation policies in vocational secondary schools particularly in terms of policy design, procedures and implementation remain relatively limited. Much of the previous research has focused more on the use of learning technologies, the effectiveness of digital media, or teachers' competencies in online learning. Research on the evaluation of digital transformation policies using a qualitative approach in vocational schools is scarce, particularly in the context of schools in regional areas.

To clarify the position of this study in relation to previous research, Table 1 presents a summary of prior studies based on their research focus, key findings, research gaps, and the

contributions offered by this study (novelty). This presentation explicitly highlights the research gaps that have not yet been extensively explored, whilst also emphasising the conceptual contribution of this study to the evaluation of digital transformation policies in learning using the CIPP Model.

Tabel 1. Previous Research, Research Gap, and Research Novelty

Researcher	Research focus	Key Findings	Research Gap
Andita & Rafaela (2024)	Digital transformation in education	Examined strategies for accelerating digital transformation to improve the quality of learning.	Did not systematically evaluate the design, procedures, and implementation of digital transformation policies.
Jannah et al. (2023)	Digital transformation in Islamic educational management	Investigated digitalization in the governance and management of Islamic educational institutions.	Did not analyze the effectiveness of digital learning policies using an educational evaluation model.
Nashrullah et al. (2025)	Digital transformation policies in Indonesian education	Analyzed the direction of national digital education policies in Indonesia.	Did not examine policy implementation at the school level, particularly in vocational high schools.
Muskania & Zulela (2021)	Digital learning implementation	Identified challenges related to teachers' digital competencies and school readiness.	Focused on the implementation of digital learning rather than the evaluation of digital transformation policies.

Table 1 shows that previous research has largely focused on the implementation of digital transformation, the use of learning technologies, or digitisation policies in general. There has been little research to date that comprehensively evaluates digital transformation policies in vocational secondary education by integrating an analysis of policy design, implementation procedures and policy outcomes within a single evaluation framework. Unlike previous studies, which generally focused on the implementation of learning technologies or teachers' digital competences, this study comprehensively evaluates the interrelationships between the policy context, resource readiness, implementation processes, and the outcomes of digital learning transformation. This study focuses on the evaluation of the digital learning transformation policy at SMKN 2 Metro, using the CIPP Model (Context, Input, Process, Product) as the analytical framework. This approach yields a more comprehensive evaluation model for assessing the effectiveness of digital transformation policies whilst making a conceptual contribution to expanding the application of the CIPP Model as an evaluation framework for digital education policies that supports systematic decision-making in vocational secondary schools.

In light of this gap, this study offers a conceptual contribution by extending the application of the CIPP Model which was previously widely used to evaluate educational programmes to serve as a framework for evaluating digital transformation policies in learning. This model is not only used to assess the outcomes of implementation (product), but also to analyse the interrelationships between policy needs (context), resource readiness (input), the implementation process (process), and policy impact (product). Consequently, this study provides a more holistic evaluation framework for the development of digital

education policy, particularly in vocational secondary schools, and produces recommendations that can serve as a basis for decision-making in the planning, implementation and refinement of the digital transformation of learning.

Research Method

This study employs a qualitative approach, specifically a descriptive-evaluative research design, to analyse the evaluation process of the digital transformation policy for learning, covering the aspects of policy design, procedures and implementation at SMKN 2 Metro. The research location was selected through purposive sampling as the school has already implemented digital transformation through a Learning Management System (LMS), digital learning resources and technology-based learning policies. Data collection took place in February–March 2026. There were five research informants: one headteacher, one deputy headteacher for curriculum, two teachers and one student, selected using purposive sampling based on their involvement in the planning, implementation and evaluation of the digital learning transformation policy.

Data was collected through observation, in-depth interviews and documentation. Observations were carried out to examine the implementation of digital learning, whilst interviews utilised a semi-structured guide covering the policy formulation process, implementation procedures, implementation constraints, monitoring and evaluation, and the effectiveness of the policy in improving the quality of learning. Documentation included school policy documents, learning materials, evaluation reports, meeting minutes, and archives of technology-based learning activities. The research utilised the CIPP Model (Context, Input, Process, Product) as the policy evaluation framework. The ‘context’ aspect was used to identify the need for digital transformation; ‘input’ assessed the readiness of resources and infrastructure; ‘process’ analysed policy implementation; whilst ‘product’ assessed the outcomes of digital transformation on the quality of learning and pupils’ digital competences.

Data analysis utilised the interactive model developed by Miles, Huberman and Saldaña, which comprises data condensation, data presentation and drawing conclusions. The data were subsequently analysed thematically through a process involving transcription, open coding, grouping codes into categories, identifying themes based on the CIPP framework, and interpreting the relationships between themes to explain the effectiveness of the digital transformation policy for learning.

Data validity was ensured through source triangulation, methodological triangulation, member checking and peer debriefing. Triangulation was carried out by comparing the results of observations, interviews and documentation, whilst member checking was conducted by asking informants to confirm summaries of interview results and the researchers’ interpretations. Data validation was reinforced through discussions amongst the researchers and by cross-checking the findings against supporting documents to enhance the credibility, reliability and confirmability of the research results.

Result and Discussion

1. Evaluation of the Digital Learning Transformation Policy Document at SMKN 2 Metro

The research findings indicate that SMKN 2 Metro has a clear and well-structured policy direction for the digital transformation of learning. Based on the school’s

documentation, its vision and mission have incorporated the strengthening of digital technology as part of efforts to improve educational quality and prepare graduates for the Industry 4.0 era. The school also has an annual work plan that includes the development of digital-based learning, the use of a Learning Management System (LMS), and the enhancement of teachers' digital competencies.

School policy documents indicate the existence of a principal's decision regarding the implementation of digital learning and the use of online learning platforms following the COVID-19 pandemic. In addition, the school has developed Standard Operating Procedures (SOPs) for hybrid learning as well as policies governing the use of Google Classroom and the school's LMS as the primary platforms for digital learning.

According to an interview with the Vice Principal for Curriculum:

"Schools began accelerating their digital transformation following the COVID-19 pandemic. Initially, this involved only online learning, but it has since evolved into an integrated digital learning system utilizing an LMS and interactive learning apps."

The implementation documents for the Merdeka Curriculum also highlight the integration of learning technology into instructional modules, digital assessments, and technology-based learning projects.

Table 2. Results of the Evaluation of School Policy Documents

No	Document	Research Findings	Description
1	School Vision and Mission	Focusing on the advancement of digital technology	Already implemented
2	School Work Plan	There is a program to digitize learning	Active walking
3	SK Digitization of Learning	There is an LMS usage policy	Effective as of 2021
4	SOP Hybrid Learning	Establishing digital learning procedures	Used by teachers
5	Merdeka Curriculum Document	Integration of learning technology	Supporting digital transformation

Based on Table 1, it can be concluded that SMKN 2 Metro already has a policy framework in place that supports the implementation of digital transformation in learning. The existence of a vision and mission that integrate technological enhancement, the school's work programme, the decision on the digitisation of learning, and the standard operating procedures (SOPs) for hybrid learning indicates that digital transformation has been systematically designed at the policy level (context). This situation forms the basis for the provision of resources (input) and the delivery of digital-based learning (process). Consequently, the quality of digital transformation implementation is significantly influenced by the clarity of the policy direction set by the school.

This finding is reinforced by a statement from the headteacher, who remarked that:

"Digital transformation is not merely the use of learning applications; it has become an integral part of school policy to improve the quality of learning and ensure graduates are prepared to face technological developments."

A teacher also remarked that:

"The existence of standard operating procedures (SOPs) and policies on the use of the Learning Management System (LMS) provides teachers with a common framework for delivering digital learning, ensuring its implementation is more focused."

These findings demonstrate a correlation between the ‘context’ and ‘input’ components within the CIPP Model. Clear policies facilitate the provision of supporting tools and form the basis for a more structured implementation of digital learning.

2. Evaluation of Digital Instructional Planning Documents

The research findings indicate that the majority of teachers at SMKN 2 Metro have integrated digital technology into their teaching materials. Based on an analysis of teaching module documentation, teachers use digital learning media such as interactive videos, Canva Education, interactive PowerPoint presentations, e-books, and digital assessment platforms.

The ATP and CP documents indicate that instruction is beginning to focus on strengthening students’ digital literacy. Instructional assessment tools are also beginning to use Google Forms, Quizizz, and Kahoot as digital assessment tools.

An interview with one of the teachers revealed that:

“The use of digital media makes learning more interactive and encourages students to participate more actively in the learning process.”

Nevertheless, there are still some teachers who use digital media in a basic way and have not yet fully developed technology-based learning innovations.

Table 3. Results of the Evaluation of Instructional Planning Documents

No	Learning Materials	Findings	Conditions
1	Digital Teaching Module	Using digital media	Good
2	ATP And CP	Loading digital literacy	Pretty good
3	Educational Materials	Canva, videos, interactive PowerPoint presentations	Currently in use
4	Evaluation Tools	Google Form, Quizizz	Used by some teachers
5	E-books and Multimedia	Used in specific learning contexts	Not yet evenly distributed

The results in Table 2 show that teaching materials have incorporated the use of digital technology, although the level of implementation is not yet consistent across all teachers. The integration of digital media into teaching modules, ATP, CP and assessment tools indicates that school policies are beginning to be translated into lesson planning. However, variations in teachers’ abilities mean that the quality of implementation still varies between subjects.

This is reinforced by one teacher who stated:

“We have been using Google Forms, Canva and Quizizz, but the development of learning materials still depends on the individual capabilities of each teacher.”

A pupil also remarked that:

“In some subjects, lessons are already very interactive, but in other subjects, they still use standard presentations.”

These findings demonstrate a relationship between the ‘input’ component namely, teacher competence and the ‘process’ component within the CIPP Model. The better the teachers’ preparedness, the more effective the implementation of digital learning is perceived to be by the pupils.

3. Implementation of Digital Transformation in Education

The results of the observation indicate that the implementation of digital transformation at SMKN 2 Metro has been quite successful. Teachers use Google Classroom to distribute materials and assignments. In some subjects, teachers also use Zoom Meetings and Google Meet for synchronous learning.

Student activity on digital platforms shows an increase in participation in technology-based learning. Students are more active in digital discussions, submitting assignments online, and using interactive learning media. The results of interviews with students indicate that:

"Digital learning is more engaging because it makes extensive use of videos and interactive quizzes."

The visual documentation reveals the use of LCD projectors, computer labs, and school internet access to support technology-based learning. Although implementation has been successful, the study identified several challenges, such as limited internet connectivity, varying levels of teachers' digital proficiency, and suboptimal use of the LMS in some subjects.

Table 4. Implementation of Digital Transformation in Education

No	Implementation Aspects	Research Findings
1	Use of an LMS	Used by most teachers
2	Interactive Media	Canva, Quizizz, Kahoot
3	Synchronous Learning	Google Meet and Zoom
4	Student Participation	Increasing
5	Challenges	The Internet and digital literacy

Table 3 shows that the implementation of digital transformation has taken place through the use of LMS, interactive media and synchronous learning. The increase in learner participation indicates that technology not only serves as a medium for delivering content, but is also capable of enhancing learner engagement in the learning process. However, limitations in internet connectivity and variations in teachers' digital competence mean that the quality of implementation is not yet entirely consistent.

Teachers reported that:

"The LMS is very helpful for managing learning, but when the internet connection is unstable, the learning process becomes less effective."

Pupils also explained:

"We are more active when lessons use videos and interactive quizzes, but sometimes internet access is a problem."

These findings suggest that the success of the 'process' component is influenced by the readiness of resources (input), particularly infrastructure and teachers' digital competence. This situation subsequently impacts the 'outcome' (product) in the form of increased pupil participation.

4. Evaluation of Monitoring and Supervision of Digital Learning

The research findings indicate that the school has been monitoring and supervising the implementation of digital transformation in learning. The principal and the vice principal for curriculum oversee the use of digital media and the implementation of technology-based learning. Meeting minutes show that the school regularly discusses challenges in digital

learning, the effectiveness of the LMS, and the improvement of teacher competencies. Student learning achievement data indicates an improvement in digital technology skills in learning. Interview results with the school principal explain that:

“Monitoring is conducted to ensure that teachers are actively using educational technology and not merely going through the motions for administrative purposes.”

Although supervision is already in place, evaluations of digital transformation policies still focus more on administrative aspects than on the overall impact on the quality of learning.

Table 5. Evaluation of Monitoring and Supervision

No	Evaluation Aspects	Findings
1	Instructional Supervision	Held regularly
2	Monitoring LMS	Conducted periodically
3	School Meeting Evaluation	Discussing the challenges of digitization
4	Learning Impact Assessment	Not yet optimal
5	Strengthening Teachers' Competencies	Still needed

The results in Table 4 show that the monitoring mechanism has been carried out routinely, but remains focused on administrative compliance rather than evaluating the impact on the quality of learning. This situation indicates that the ‘process’ component has been implemented, but evaluation of the ‘product’ aspect has not yet been fully utilised as a basis for policy refinement. The headteacher emphasised that monitoring is carried out to ensure that policy implementation adheres to standards, whilst teachers expect supervision that is more oriented towards improving the quality of digital learning rather than merely ensuring administrative compliance.

5. Evaluation of Digital Facilities and Infrastructure

The findings indicate that SMKN 2 Metro has adequate facilities to support digital transformation, such as computer labs, a school internet network, LCD projectors, and multimedia learning devices. School inventory data indicates an increase in the number of technological devices since 2021 as part of the post-COVID-19 pandemic education digitization program. The school has also received digitization assistance in the form of computers and internet networks from the government. Interviews with school staff reveal that:

“Technology has been quite helpful for learning, but some devices still need to be updated to function more effectively.”

These findings indicate that schools’ digital infrastructure is fairly well-developed, although there is still a need to improve the quality of networks and digital learning devices.

Table 6. Digital Facilities and Infrastructure

No	Infrastructure	Conditions
1	Computer Lab	Available
2	School Internet	Pretty good
3	LCD Projector	Currently in use
4	School LMS	It's already underway
5	Multimedia Devices	Needs improvement

According to Table 5, digital infrastructure readiness is considered adequate to support digital transformation, but the quality of the internet connection and device upgrades remain challenges. These findings indicate that the necessary inputs are in place, but are not yet fully capable of supporting the effectiveness of the process. Educational staff explained that schools continue to carry out maintenance on their facilities, whilst teachers hope to see an improvement in network quality so that digital learning can take place more effectively.

6. Teacher Competencies and Training in Digital Transformation

Research findings indicate that the school has conducted various educational technology training programs for teachers, such as digital learning workshops, training on the digital-based Merdeka Curriculum, and training on the use of interactive learning media. Training certificates show that most teachers have participated in educational technology training since 2021. However, the level of technological proficiency among teachers still varies. Interviews with teachers revealed that:

“Training has been conducted frequently, but some teachers still need guidance in using digital learning applications and AI.”

These findings indicate that strengthening teachers’ digital competencies remains a key priority in supporting the success of the digital transformation of learning at SMKN 2 Metro.

Table 7. Teacher Competencies and Training

No	Training Program	Findings
1	Digital Learning Workshop	Held regularly
2	Merdeka Curriculum Training	It's already underway
3	Interactive Media Training	Attended by most teachers
4	AI Training	Still limited
5	Teachers' Digital Competencies	Not yet evenly distributed

Table 6 shows that schools have provided a range of training programmes, but ensuring an even distribution of teachers’ digital competences remains a challenge. This indicates that the provision of training programmes as an input component has not yet fully resulted in consistent implementation (process). One teacher remarked that the training was very helpful, but that guidance is still needed on the use of AI and the development of digital learning resources. This situation affects the ‘product’ outcome, namely the quality of digital learning, which still varies from teacher to teacher.

7. Key Findings of the Study

Based on the research findings, the digital transformation of learning at SMKN 2 Metro has progressed quite well in terms of policy, implementation, and the use of learning technologies. The school has established a policy direction for educational digitization, infrastructure support, and the implementation of technology-based learning. Nevertheless, the study identified several key issues, namely the uneven distribution of teachers’ digital competencies, policy evaluations that remain largely administrative, incomplete optimization of the Learning Management System (LMS), and the need to strengthen AI-based digital learning evaluations and student-centered learning. These findings indicate that educational

digital transformation requires not only technology but also continuous policy evaluation to ensure that the implementation of digital learning can substantively improve the quality of education.

The research findings show that schools have made various efforts to support digital transformation through the development of technology-based learning policies, the use of Learning Management Systems (LMS), the strengthening of teachers' digital competencies, and the integration of digital learning media into teaching and learning activities. These implementations represent the education sector's adaptation to global technological advancements that are accelerating the digitization of education across various countries (Huber & Helm, 2020; Oliveira & De Souza, 2022). This situation indicates that the digital transformation of education has evolved into a strategic necessity for enhancing the quality of learning and the competitiveness of graduates in the Society 5.0 era (Mukul & Büyüközkan, 2023).

The research findings also indicate that the implementation of digital transformation in education at SMKN 2 Metro still faces various challenges, such as uneven digital competencies among teachers, infrastructure limitations in several areas, and policy evaluations that remain predominantly administratively oriented. This situation demonstrates that the success of digital transformation in education cannot be measured solely by the availability of technology, but also by the effectiveness of policy implementation, the readiness of the school organization, and the ability of all components of the education system to integrate technology pedagogically. This finding reinforces the view of Ahyani and Dhuhani (2024), who explain that the digital transformation of education requires changes in educational management, organizational culture, and learning evaluation systems that are adaptive to developments in digital technology. In analyzing the implementation of the digital learning transformation policy at SMKN 2 Metro, this study uses the CIPP Evaluation Model developed by Daniel Stufflebeam as its primary theoretical framework. Taali, Darmawan, and Maduwinarti (2024) explain that the CIPP model is an effective evaluation approach because it not only focuses on the program's final outcomes but also systematically and continuously assesses the policy implementation process.

Table 8: Analysis of the CIPP Model in the Digital Transformation of Learning

CIPP Components	Evaluation Focus	Research Findings at SMKN 2 Metro	Analysis
Context	Background and policy needs	Digital transformation is taking place in the wake of the COVID-19 pandemic and the implementation of the Merdeka Curriculum	Schools are responding to the call for the digitization of education and the need for 21st-century skills
Input	Availability of resources and facilities	An LMS, computer labs, internet access, and teacher training are available	The infrastructure is adequate, but teachers' digital skills are not yet consistent
Process	Implementation of digital policies	Teachers use Google Classroom, Quizizz, Canva Education, and hybrid learning	The implementation is currently underway but is still facing technical challenges and issues with teacher adaptation

CIPP Components	Evaluation Focus	Research Findings at SMKN 2 Metro	Analysis
Product	Results of policy implementation	Student participation has increased and digital literacy has improved	Policy evaluation remains administrative in nature and is not yet fully based on the quality of learning

In terms of context, the digital transformation of learning at SMKN 2 Metro was driven by the need to adapt in the wake of the COVID-19 pandemic, the implementation of the Merdeka Curriculum, and the strengthening of students' digital competencies in the Society 5.0 era. The school developed technology-based learning policies to improve the quality of learning and graduates. This finding aligns with the research by Nashrullah et al. (2025), which states that the digital transformation of education is a crucial strategy for improving the quality of technology-based learning.

In terms of inputs, the school is supported by computer labs, internet connectivity, LCD projectors, Google Classroom, and the school's Learning Management System (LMS), as well as digital learning training programs for teachers. However, teachers' digital competencies still vary; some have been able to develop interactive learning media, while others still utilize technology at a basic level. This situation indicates that the readiness of human resources is a key factor in the success of educational digital transformation, as stated by Triyunita et al. (2025).

In terms of process, the digital transformation of learning is carried out through interactive media, hybrid learning, digital assessment, and the use of Canva Education, Quizizz, Kahoot, Google Meet, and instructional videos. However, its implementation is still hampered by internet connectivity issues, limited devices, and variations in teachers' digital competencies. In terms of outcomes, digital transformation has increased student engagement, the use of interactive media, and students' digital literacy. Nevertheless, policy evaluations remain focused on the administrative aspects of technology use, so ongoing evaluations are needed to more comprehensively measure its impact on the quality of learning.

In addition to using the CIPP model, this study was analyzed using the Connectivism theory developed by George Siemens. This theory explains that learning in the digital age takes place through networks of information, technology, and connectivity, so that knowledge is acquired not only from teachers but also from various digital sources (Siemens, 2023). The research findings indicate that students at SMKN 2 Metro utilize LMS, instructional videos, and interactive media as learning resources, thereby shifting learning toward student-centered learning. However, the use of technology is still often limited to presentation tools, so strengthening digital pedagogy remains necessary.

This study also employs Everett Rogers' Diffusion of Innovations theory to explain the adoption of digital innovations in schools. The research results indicate that digital transformation has been occurring gradually since the COVID-19 pandemic, progressing from the use of Google Classroom and Zoom to interactive media and LMS. Teachers with better digital competencies tend to adopt innovations more quickly. These findings confirm

that the diffusion of innovation is influenced by individual readiness, organizational culture, and educational policy support (Rogers, 2022).

Furthermore, this study was analyzed using the Technology Acceptance Model (TAM) developed by Fred Davis. The TAM theory explains that technology acceptance is influenced by perceived usefulness and perceived ease of use. The results of the study indicate that teachers and students accept the use of learning technologies because they are considered capable of enhancing learning effectiveness and facilitating access to information. The use of Google Classroom, Canva Education, and Quizizz is perceived to make learning more interactive and flexible. However, the level of technology acceptance is still influenced by the ability to use digital applications and the quality of the internet connection. The easier the technology is to use and the greater the perceived benefits, the higher the level of technology acceptance in learning. These findings reinforce Davis's (2023) view that the perception of benefits and ease of use are key factors in the successful implementation of educational technology.

The implementation of the digital learning transformation policy at SMKN 2 Metro has been carried out through the strengthening of school policies, the use of a Learning Management System (LMS), the integration of digital learning media, and the adoption of hybrid learning. The school has utilized various digital platforms such as Google Classroom, Canva Education, Quizizz, Kahoot, and Google Meet to support a more flexible and interactive learning process. Research findings also show that the digital transformation of learning has a positive impact on increasing student participation, developing digital literacy, and diversifying the learning media used by teachers. Students have become more active in accessing digital learning resources, and learning is shifting toward technology-based student-centered learning.

However, the study identified several challenges in the implementation of digital transformation policies, including uneven digital competencies among teachers, limited technological infrastructure in certain areas, unstable internet connectivity, and policy evaluations that remain more administratively oriented than focused on the quality of learning. These conditions indicate that the digital transformation of education still requires strengthening human resource competencies, developing digital pedagogy, and establishing a more comprehensive policy evaluation system.

In practical terms, the research findings suggest that digital transformation policies at school level should be directed towards strengthening evaluation systems focused on improving the quality of learning, rather than merely on fulfilling administrative requirements. Monitoring of policy implementation should not only assess the intensity of use of LMS, digital media or technological devices, but also evaluate their impact on learner engagement, the effectiveness of learning strategies, the development of digital literacy, and the attainment of learning competences.

The research findings also highlight the need to strengthen school policies through the continuous development of teachers' digital competences, the provision of more equitable infrastructure, and the formulation of evaluation indicators based on the quality of digital learning. Periodic policy evaluation using the CIPP Model framework can serve as a basis for decision-making by headteachers in designing teacher capacity-building programmes,

developing digital infrastructure, and refining the implementation of technology-based learning. Thus, digital transformation not only brings about changes in the use of technology but also drives continuous improvements in the quality of learning that are adaptable to developments in digital education.

Conclusion

The digital transformation of learning at SMKN 2 Metro demonstrates that the implementation of technology-based education policies has become a vital part of the development of the learning system in the wake of the COVID-19 pandemic. The implementation of these policies relates not only to the use of technology, but also to the school's organisational readiness, teachers' digital competences, the learning culture, and the effectiveness of the evaluation of education policies.

Based on an analysis of the CIPP Model developed by Daniel Stufflebeam, the implementation of digital transformation has progressed reasonably well in terms of context, input, process and product, although there are still challenges regarding teachers' digital competence, the equitable use of technology, and the evaluation of technology-based learning. George Siemens' Connectivism perspective suggests that learning is evolving towards a system based on digital connectivity and student-centred learning. These findings confirm that the success of digital transformation in education is determined not only by the availability of technology, but also by continuous policy evaluation, the strengthening of digital pedagogy, and the enhancement of teachers' competences so that technology can substantially improve the quality of learning.

In practical terms, the research findings have implications for the development of digital transformation policies in vocational schools, namely the need to establish an evaluation system that is not only focused on meeting administrative requirements but also on improving the quality of learning. Schools need to strengthen policies for the continuous improvement of teachers' digital competencies, optimise the use of Learning Management Systems (LMS), provide adequate infrastructure, and develop evaluation indicators based on the quality of learning as a basis for decision-making in the digital transformation of education.

This study has limitations as it was conducted at only one vocational secondary school with a limited number of informants; consequently, the findings cannot yet be generalised to the entire context of vocational education. Furthermore, as this study employed a qualitative approach, it did not quantitatively measure the impact of digital transformation on students' learning outcomes. Therefore, it is recommended that future research involve a greater number of schools with diverse characteristics, utilise a mixed-methods or longitudinal approach, and develop a digital transformation policy evaluation model that integrates indicators of learning quality, digital competence, and the use of artificial intelligence-based technology to produce more comprehensive policy recommendations.

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