

Integrating Local Wisdom into Twenty-First Century Curriculum Transformation: Evidence from Indonesian Schools

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ABSTRACT

This qualitative case study examines how local wisdom has been integrated into curriculum transformation at SMK Negeri 2 Ponorogo, a vocational secondary school in East Java, Indonesia. Using semi-structured interviews (n=25), classroom observations, curriculum document analysis, and field notes, the study investigated mechanisms through which vocational schools pursue culturally responsive education while maintaining alignment with national standards. Five major themes emerged from thematic analysis: (1) local wisdom appears as contextual learning resources embedded within subjects rather than as independent curriculum content; (2) teachers actively interpret national curriculum objectives through professional judgment and contextual knowledge, producing varied curriculum enactment across programs; (3) students associate local wisdom integration with authentic learning experiences through community-based projects and apprenticeships with traditional practitioners, though without reported effects on academic achievement; (4) curriculum transformation occurs through continuous negotiation between national standards, industry competencies, assessment requirements, and cultural preservation rather than through curriculum replacement; and (5) school leadership facilitates curriculum innovation through distributed decision-making and collaborative support rather than directive mandates. The study contributes to curriculum transformation literature by positioning local wisdom as a contextual mediating resource through which national competencies can be developed, rather than as cultural content competing with standardized curricula. Findings suggest that sustainable vocational curriculum transformation in centralized education systems may occur more effectively through facilitated teacher enactment and professional agency than through top-down policy mandates. The research provides empirical evidence from Southeast Asian vocational education, a context underrepresented in international curriculum scholarship. Results may inform curriculum developers, vocational school leaders, teachers, and educational policymakers designing culturally responsive curriculum initiatives within standardized governance structures. Future research employing comparative case studies across different vocational disciplines and regions could strengthen understanding of how schools navigate tensions between standardization and cultural responsiveness.

Keywords: Vocational Curriculum; Local Wisdom; Curriculum Transformation; Culturally Responsive Education; Teacher Agency

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INTRODUCTION

Twenty-first century curriculum frameworks emphasize the development of competencies that extend beyond disciplinary knowledge to encompass critical thinking, creativity, collaboration, and contextual problem-solving (Binkley et al., 2012; Voogt & Roblin, 2012). International organizations including UNESCO and OECD have articulated explicit expectations for curriculum transformation that integrate these competencies while maintaining responsiveness to local and regional contexts (OECD, 2022). Competency-based curriculum design, as articulated in recent policy documents, positions learning outcomes around demonstrable capacities rather than content accumulation, requiring schools to construct learning experiences that connect disciplinary knowledge with authentic applications in specific economic and cultural contexts (Anderson, 2020). This normative orientation toward contextual and competency-based learning has particular relevance in vocational education, where curriculum must prepare graduates simultaneously for participation in global labor markets and for meaningful engagement within their communities (UNESCO, 2021). Within this framework, local wisdom—understood as the accumulated knowledge, practices, and values developed through generations of community interaction with specific environments and economic systems—presents a resource for curriculum design that can simultaneously advance twenty-first century competency development while anchoring learning in cultural authenticity and regional economic potential (Snively & Corsiglia, 2001; Dillon & Diksha, 2021). The integration of local wisdom into vocational curriculum thus represents both a practical necessity for contextual relevance and a normative commitment to culturally responsive education.

Current implementation of vocational curriculum in Indonesian schools reveals substantive gaps between these normative expectations and institutional practice. SMK Negeri 2 Ponorogo, a vocational high school recognized for institutional commitment to both cultural preservation and curriculum innovation, exemplifies broader tensions within Indonesian vocational education: curriculum frameworks continue to emphasize standardized competency specifications aligned with national standards and sector-wide skill requirements, while the integration of local wisdom and indigenous knowledge remains episodically incorporated rather than systematically embedded within curriculum architecture (Raharjo & Yudha, 2023). Evidence from curriculum documents and classroom observation indicates that local cultural content, when present, typically functions as supplementary material or co-curricular activity rather than as foundational orientation for competency development (Sudartini & Utomo, 2022). Teachers and curriculum designers experience documented challenges in translating implicit local knowledge into explicit learning outcomes and competency frameworks that align with national assessment requirements, creating operational tensions between cultural responsiveness and standardization (Sughesti & Yudha, 2024). This implementation gap reflects not institutional resistance to cultural integration but rather the absence of explicit models for how indigenous knowledge systems can be reconceptualized within competency-based curriculum architecture rather than positioned as supplementary to it.

Recent scholarship on curriculum transformation, culturally responsive pedagogy, and indigenous knowledge integration demonstrates growing international recognition of the educational potential in connecting local wisdom with twenty-first century competency frameworks. Studies examining culturally responsive curriculum design across diverse educational contexts have documented positive effects on student engagement, conceptual understanding, and motivation toward learning, with particular strength when local knowledge structures are positioned as legitimate epistemological foundations rather than enrichment (Agirdag et al., 2020; Schofield et al., 2021). Research on vocational curriculum innovation, particularly in Southeast Asian contexts, indicates that integration of regional economic potential and local industry knowledge into curriculum design produces stronger alignment between learning outcomes and graduate employment pathways (Pillay, 2020; Sondakh et al., 2023). Studies investigating indigenous knowledge in science and mathematics education have established that pedagogical approaches incorporating traditional ecological knowledge, agricultural practices, and mathematical applications within specific cultural contexts enhance conceptual transfer and student motivation (Aikenhead & Ogawa, 2007; Sookoh, 2023). However, existing scholarship reveals significant limitations regarding vocational education specifically: most curriculum integration studies focus on elementary or general secondary schools, leaving vocational education underexplored despite its distinctive characteristics and student demographics; many empirical investigations evaluate implementation fidelity without proposing systematic curriculum redesign models; studies examining local wisdom integration remain concentrated in sub-Saharan African and Pacific educational contexts, with limited evidence from Southeast Asian vocational schools; and few investigations articulate explicit frameworks for how local wisdom can function as foundational orientation rather than supplementary content within competency-based vocational curriculum. This body of literature establishes that culturally responsive curriculum design produces meaningful educational outcomes, yet leaves largely unanswered the question of how local wisdom can be systematically operationalized within vocational education transformation in Indonesian institutional contexts.

The examination of how local wisdom can be integrated into vocational curriculum transformation addresses multiple dimensions of educational significance. At the level of institutional practice, vocational schools in regions with distinctive economic systems and cultural heritage face operational challenges in developing curriculum that maintains cultural authenticity while meeting national competency standards and global labor market requirements; systematic evidence from schools successfully negotiating this tension could inform curriculum development in comparable contexts across Indonesia and Southeast Asia. From a cultural policy perspective, documentation of how local wisdom functions as curricular foundation rather than supplementary content contributes to broader institutional commitment to cultural preservation within systems increasingly oriented toward standardization and global alignment (Triana & Yudha, 2024). Sustainable development frameworks increasingly emphasize the connection between cultural identity, economic resilience, and environmental stewardship, positioning culturally grounded

vocational education as foundational to regional development pathways that balance global engagement with local specificity (UNEP, 2022). For curriculum policymakers and vocational education leaders, empirical evidence regarding operationalization of local wisdom within competency frameworks addresses a documented gap between policy aspirations toward culturally responsive education and practical mechanisms for implementation.

This study examines how local wisdom has been integrated into curriculum transformation at SMK Negeri 2 Ponorogo through analysis of curriculum documents, implementation practices, and stakeholder perspectives. The research objective encompasses three interrelated dimensions: first, to document and analyze mechanisms through which local wisdom has been operationalized within specific competency areas in the school's curriculum; second, to examine how this integration functions within vocational education's dual requirement to prepare graduates for both regional labor market participation and broader economic opportunities; and third, to develop an evidence-based framework for contextual curriculum transformation that positions local knowledge as foundational to competency development rather than supplementary to it. This investigation contributes to scholarship on vocational curriculum through several dimensions of originality: it integrates curriculum transformation theory with indigenous knowledge systems in vocational education, a combination underrepresented in existing literature; it provides empirical evidence from an Indonesian vocational school, addressing the geographic concentration of culturally responsive curriculum research in non-Asian contexts; and it proposes an explicit model for curriculum redesign rather than evaluating implementation of existing frameworks. Analysis of SMK Negeri 2 Ponorogo's approach to integrating local wisdom provides evidence regarding feasibility and mechanisms for contextually grounded vocational curriculum transformation, with implications for vocational schools throughout Indonesia operating within similar regional contexts.

METHOD

Research Design

This study employed a qualitative case study design to examine how local wisdom has been integrated into curriculum transformation within vocational education. The case study approach enables in-depth exploration of curriculum planning, implementation processes, school organizational culture, and stakeholder perspectives within their authentic educational context (Yin, 2018; Merriam & Tisdell, 2016). Unlike surveys or experimental designs that prioritize breadth and generalizability, case study methodology permits examination of complex phenomena embedded within specific institutional and cultural settings, making it particularly suited to understanding curriculum transformation as a multidimensional process involving interactions among policy, practice, teacher knowledge, student learning, and community values (Stake, 2006). The study focused on a single information-rich case, namely SMK Negeri 2 Ponorogo, selected specifically because the institution has documented experience in curriculum innovation while simultaneously maintaining explicit commitment to cultural preservation (Creswell & Poth, 2017). This

bounded system provided opportunity to investigate how local wisdom functions within curriculum transformation rather than examining curriculum policy in isolation from institutional practice.

Research Site

SMK Negeri 2 Ponorogo is a public vocational secondary school located in Ponorogo, East Java, Indonesia. The school serves approximately 800 students distributed across eleven vocational programs, including agribusiness, tourism, hospitality, mechanical engineering, electrical engineering, business administration, and cultural arts. Established to provide vocational preparation aligned with regional economic characteristics and labor market opportunities, the school has progressively integrated local cultural content into selected vocational programs over the past decade. The institution offers structured vocational instruction combining classroom learning with industry-based apprenticeship and practical experience components, following the Indonesian dual-system vocational education model. SMK Negeri 2 Ponorogo was selected purposively because the school has systematically attempted to integrate local cultural wisdom, particularly related to traditional craftsmanship, agricultural practices, and cultural heritage, into curriculum design for specific vocational programs. School leadership and curriculum documentation demonstrated explicit awareness of the tension between standardized national curriculum requirements and local contextual relevance, positioning the institution as an information-rich setting for investigating how schools operationalize culturally responsive curriculum transformation.

Participants

Participants were selected through purposive sampling to ensure inclusion of individuals with direct knowledge of curriculum development, implementation, and community cultural dimensions (Lincoln & Guba, 1985). Inclusion criteria required that participants either held formal roles in curriculum planning and implementation, taught within programs incorporating local wisdom, had direct observation of curriculum enactment, or represented community knowledge holders recognized for expertise in local cultural traditions relevant to vocational learning. Twenty-five participants were recruited, including school administrators, curriculum specialists, classroom teachers, students enrolled in programs integrating local wisdom, and community cultural leaders (Table 1).

Table 1. *Participant Characteristics and Roles*

Participant Category	Number	Roles and Responsibilities
School Administration	2	Principal; Vice Principal for Curriculum and Instruction
Curriculum Development Team	3	Curriculum coordinators and specialist staff responsible for program design and implementation oversight

Participant Category	Number	Roles and Responsibilities
Classroom Teachers	10	Teachers across vocational programs with direct responsibility for curriculum enactment; 7 taught in programs explicitly incorporating local wisdom content
Students	8	Enrolled in vocational programs integrating local wisdom; represented across three program areas
Community Cultural Leaders	2	Recognized experts in traditional craftsmanship and cultural heritage; served as informal curriculum consultants

The principal and vice principal for curriculum provided perspectives on institutional decision-making, policy interpretation, and curriculum innovation processes. Curriculum development team members articulated technical aspects of how local wisdom was operationalized within competency frameworks and learning outcome specifications. Teachers offered insights regarding classroom implementation, instructional challenges, student responses, and mechanisms for translating curriculum specifications into learning activities. Students provided perspectives on how curriculum integration of local wisdom affected their learning experiences, engagement, and perceived relevance of vocational content. Community cultural leaders contributed knowledge regarding authenticity and cultural appropriateness of content incorporated into vocational learning, as well as insights regarding how traditional knowledge systems relate to contemporary vocational practice.

Data Sources

Data were collected from multiple sources to enable triangulation and develop comprehensive understanding of curriculum integration processes. Semi-structured interviews were conducted with all twenty-five participants using an interview protocol developed by the research team. Interviews lasted 45 to 60 minutes and addressed topics including curriculum planning processes, decisions regarding local wisdom integration, implementation challenges, stakeholder perspectives on cultural authenticity, and perceived effects on student learning. Classroom observations were conducted across selected vocational classes during instructional periods, generating field notes documenting teaching practices, student engagement, use of local knowledge content, and interactions between instructors and learners. Curriculum documents including official program curricula, competency specifications, learning outcome descriptions, and course syllabi were systematically collected and examined. Lesson plans from teachers implementing curricula incorporating local wisdom were obtained to assess alignment between curriculum intentions and instructional planning. School policies related to cultural integration, community partnerships, and curriculum innovation were reviewed. Student projects, assignments, and learning artifacts produced within programs integrating local wisdom were examined to assess how students engaged with local knowledge content. Photographs of learning activities, classroom displays, and community engagement events

were collected to document visual dimensions of curriculum implementation. Field notes recorded observations, contextual details, informal conversations, and researcher reflections throughout the fieldwork period. This multiplicity of data sources enabled examination of curriculum integration from diverse perspectives and through diverse evidence forms, reducing dependence on any single data type and strengthening evidentiary basis for interpretations.

Instruments

The research team developed three primary instruments for data collection. The interview protocol contained open-ended questions organized around key research themes including curriculum planning and decision-making, local wisdom content selection and integration, implementation processes, stakeholder perspectives, and perceived outcomes. Questions were framed to elicit narratives and detailed descriptions rather than brief responses, enabling exploration of participant reasoning and contextual knowledge. The classroom observation guide provided a structured framework for documenting classroom interactions, pedagogical strategies, content coverage, student participation patterns, and integration of local knowledge content without imposing predetermined categorical judgments. The observation guide specified focus areas including instructional methods, use of local wisdom resources, student engagement indicators, and evidence of cultural authenticity, while permitting observers to record detailed descriptions and contextual notes. The curriculum document analysis checklist specified dimensions for examining official curriculum documents, including explicit statements regarding local wisdom integration, competency frameworks incorporating indigenous knowledge, learning outcome specifications, assessment approaches, and alignment between stated intentions and detailed curriculum content. All three instruments were submitted for expert review by two senior scholars with expertise in curriculum studies and qualitative research methodology. Feedback addressed clarity of questions, appropriateness of observation focus areas, and comprehensiveness of document analysis dimensions. Instruments were revised to incorporate expert suggestions, enhancing their validity and appropriateness for the research context.

Data Collection Procedures

Data collection occurred across three phases spanning six months of engagement with the research site. During the preparation phase, the research team obtained written permission from school administration to conduct research within the institution. Ethical approval was obtained from the university ethics committee prior to data collection. Research purposes and procedures were explained to potential participants, and written informed consent was obtained from all participants before interviews or observations. Recruitment emphasized voluntary participation and the option to withdraw at any time without consequences.

The fieldwork phase involved primary data generation. Semi-structured interviews were scheduled individually with all twenty-five participants during periods that did not

disrupt instructional activities. Interviews were digitally recorded with participant permission and conducted in Indonesian or English according to participant preference. Classroom observations were conducted across eight vocational classes identified as incorporating local wisdom content, with observations typically spanning full instructional periods of 90 to 120 minutes. Multiple observations of each classroom were conducted to capture variation across different instructional contexts and topics. Curriculum documents were systematically collected from the school, including official program specifications from the ministry of education, school-developed curriculum supplements, lesson plans, assessments, and policy documents. Student projects and learning artifacts were photographed or collected with participant permission. Field notes documented observations, contextual details, and researcher reflections throughout the fieldwork period.

The verification phase involved follow-up data collection and member checking procedures. After initial analysis of interview data, follow-up interviews were conducted with selected participants (n=8) to clarify emerging themes, explore apparent contradictions, and verify researcher interpretations. Member checking was conducted with curriculum development team members and selected teachers to solicit feedback on preliminary findings regarding how local wisdom had been integrated into curriculum. Participants reviewed summaries of findings related to their involvement and provided corrections, clarifications, and additional context.

Data organization procedures included verbatim transcription of all interviews within two weeks of collection, with transcriptions reviewed against audio recordings for accuracy. Interview transcripts were entered into qualitative analysis software along with coded field notes from observations and document analysis. All identifying information was removed from transcripts and replaced with participant codes to maintain confidentiality. Digital files were stored on a secure, password-protected server accessible only to the research team.

Data Analysis

Data analysis followed Thematic Analysis methodology as described by Braun and Clarke (2006), implemented across six iterative phases. During the familiarization phase, the research team independently read interview transcripts, observation field notes, and document summaries to develop initial familiarity with data content, patterns, and preliminary interpretations. Researchers noted emerging impressions and areas of interest without imposing predetermined coding schemes.

Initial coding involved systematic examination of data to identify meaningful units of information relevant to research objectives. Codes were generated inductively from the data rather than from predetermined theoretical frameworks. For example, codes emerged including "curriculum planning process," "stakeholder negotiation," "cultural authenticity concerns," "teacher resource constraints," and "student engagement with traditional knowledge." The qualitative analysis software NVivo 15 was used to organize and manage codes applied across the dataset.

The searching themes phase involved grouping related codes into candidate themes capturing broader patterns within the data. Codes addressing curriculum decision-making processes were assembled into a candidate theme regarding institutional curriculum governance. Codes documenting how local knowledge was selected, adapted, and incorporated into learning activities were grouped into themes regarding mechanisms of integration. Codes reflecting teacher and student experiences were organized into themes regarding implementation and learning experiences.

Reviewing themes involved examining candidate themes for coherence and distinctiveness, assessing whether proposed themes were supported across multiple data sources and participant perspectives. Some initial candidate themes were merged when they overlapped substantially; others were subdivided when they contained distinct subpatterns. Themes were examined for alignment with curriculum transformation theory while remaining grounded in participant perspectives and empirical evidence.

Defining themes involved articulating the essential meaning of each theme, determining its boundaries, specifying its relationship to other themes, and documenting evidence supporting each theme. Thematic definitions were written with specificity sufficient that an external researcher could identify theme-related content within the dataset.

The writing findings phase involved producing narrative descriptions of each theme, supported by evidence including direct participant quotations, observational descriptions, and curriculum document analysis. Findings were organized to address specific research objectives regarding curriculum planning processes, implementation mechanisms, local wisdom integration strategies, and stakeholder perspectives.

Coding was conducted iteratively throughout data analysis rather than as a linear process, with the research team returning to earlier data as new understanding emerged and conducting additional coding to explore developing interpretations. This iterative approach enabled progressive refinement of thematic understanding and verification of emerging patterns across the complete dataset.

Trustworthiness

Trustworthiness of findings was established through systematic application of criteria articulated by Lincoln and Guba (1985): credibility, transferability, dependability, and confirmability. Credibility—the extent to which findings accurately represent participant experiences and perspectives—was established through triangulation across multiple data sources including interviews, observations, documents, and artifacts. Convergence across diverse data forms regarding how local wisdom was integrated into curriculum strengthened confidence in accuracy of findings. Member checking, involving presentation of preliminary findings to selected participants for verification and clarification, provided direct verification of researcher interpretations against participant understanding. Prolonged engagement with the research site across six months enabled development of nuanced understanding of institutional context and identification of patterns across time.

Transferability—the potential applicability of findings to comparable settings—was supported through detailed description of the research site, participant characteristics, and contextual factors affecting curriculum integration. While case study findings from a single institution cannot be statistically generalized, detailed contextual description enables readers to assess relevance of findings to other vocational schools operating in comparable regional and institutional contexts.

Dependability—the consistency of research procedures and appropriateness of methodological decisions—was established through documentation of all data collection and analysis procedures, maintained in an audit trail. The audit trail included detailed notes regarding research decisions, revisions to instruments, emerging analytical interpretations, and rationales for methodological choices. Peer debriefing with colleagues external to the research team provided external review of methodological decisions and evolving interpretations, identifying potential biases or interpretative limitations.

Confirmability—the extent to which findings are supported by data rather than reflecting researcher bias—was advanced through maintenance of the audit trail, explicit grounding of interpretations in participant statements and observational evidence, and systematic attention to discrepant cases where participant perspectives or observational evidence diverged from dominant patterns. Negative cases and contradictory evidence were examined thoroughly rather than minimized, and findings incorporated acknowledgment of variation and complexity within the data.

Ethical Considerations

Ethical approval for this research was obtained from the university ethics committee prior to data collection. Written informed consent was obtained from all participants, with explanations of research purposes, data collection procedures, how data would be used, and confidentiality protections. Participation was entirely voluntary, and participants were explicitly informed of their right to withdraw from the study at any time without consequences. Consent documents were provided in both Indonesian and English.

Anonymity and confidentiality were maintained throughout the research process. Participant names were replaced with coded identifiers in all transcripts, field notes, and analytical documents. Institutional identifying details were limited in research reports to preserve confidentiality of the school. Digital files containing raw data were stored on a secure, password-protected server with access restricted to the research team. Audio recordings were deleted after transcription and member checking verification was complete. Research findings are reported in ways that do not identify individual participants or enable identification through combination of characteristics.

Data Analysis Framework

Table 2 Data Analysis Framework

Research Objective	Data Source	Instrument	Analysis Technique
Examine curriculum planning processes and decision-making regarding local wisdom integration	Semi-structured interviews with curriculum team and administrators; school policy documents; curriculum specifications	Interview protocol; document analysis checklist	Thematic analysis; pattern matching across sources
Examine curriculum implementation and instructional enactment of local wisdom integration	Classroom observations; interviews with teachers and students; lesson plans	Observation guide; interview protocol	Thematic analysis; cross-source triangulation
Identify mechanisms through which local wisdom is operationalized within competency frameworks	Curriculum documents; lesson plans; student projects; observation field notes	Document analysis checklist; observation guide	Thematic analysis; interpretive pattern identification
Develop evidence-based recommendations for contextual curriculum transformation	All data sources synthesized across objectives	All instruments	Interpretive synthesis; thematic integration

FINDING AND DISCUSSION

RESEARCH RESULT

Analysis of interview data, classroom observations, curriculum documents, and school policies revealed five major themes regarding how SMK Negeri 2 Ponorogo integrated local wisdom into curriculum transformation. These themes describe the mechanisms through which the school attempted to align vocational learning with both national standards and local contextual relevance, the roles of various stakeholders in curriculum adaptation, and the learning experiences generated through this integration process.

Theme 1: Local Wisdom Appears as a Contextual Learning Resource Rather Than an Independent Subject

Local wisdom integration at SMK Negeri 2 Ponorogo occurred primarily as contextual learning resources embedded within existing vocational subjects rather than as a distinct curriculum area with separate learning outcomes. Analysis of curriculum documents revealed that the school's officially approved programs followed national competency standards without establishing separate competencies explicitly addressing

local knowledge or cultural heritage. However, teachers across multiple programs—particularly in agribusiness, tourism, hospitality, and cultural arts—incorporated references to local industries, Ponorogo cultural heritage, community practices, and regional identity as examples within their instruction.

The Vice Principal for Curriculum articulated the institutional approach to local wisdom integration:

"We follow the national curriculum structure because that is required, but within each subject, teachers can choose examples and applications that connect to Ponorogo's context. Local wisdom becomes the context for learning, not a separate subject."(VP01)

This positioning reflected a deliberate institutional choice to maintain alignment with national standards while creating space for contextual adaptation within existing subject areas.

Classroom observations documented this integration pattern. In an agribusiness class studying crop production systems, the teacher connected national competency standards regarding soil management and nutrient cycling to traditional Ponorogo agricultural practices. The lesson included discussion of indigenous intercropping systems, seasonal planting calendars developed through generations of community practice, and regional agricultural cooperatives. Students examined soil samples from local fields and compared local practices with scientific frameworks presented in the curriculum.

The teacher explained the pedagogical rationale for this approach:

"The national curriculum requires students to understand soil chemistry and plant nutrition. But in Ponorogo, students should learn this through what their families and neighbors actually do in farming. That makes it real."(T03)

In a tourism program class on cultural heritage management, observations documented teaching regarding Ponorogo's traditional crafts, historical sites, and cultural practices that attracted visitors. The curriculum document for this course specified competencies regarding tourism product development and cultural interpretation without explicitly naming local heritage content. However, the teacher's lesson plan and classroom activities centered on Ponorogo-specific cultural sites and traditional crafts, treating them as the primary context for developing tourism competencies. Students conducted research on local artisan practices, interviewed community craft makers, and developed tourist information materials describing local cultural heritage.

Curriculum document analysis revealed limited operational guidance for contextual integration. Official program curricula contained general statements such as "learning should connect to regional economic potential" and "students should understand the cultural context of their vocational field," but documents provided minimal specification regarding which local content should be integrated into which subjects, or how teachers should operationalize these general statements.

A curriculum team member reflected on the absence of detailed guidance:

"The national curriculum gives us the framework and learning outcomes. How we apply those to Ponorogo—that's up to us. But we don't have a detailed guide saying 'in unit three, teach this specific local practice.' Teachers have to figure out where local wisdom fits."(CT01)

Integration of local wisdom depended substantially on individual teacher initiative rather than systematic curriculum structure. Teachers demonstrated varied approaches to contextual integration. Some teachers deliberately designed learning activities incorporating local knowledge throughout their courses; other teachers integrated local examples sporadically as illustrations of concepts.

The principal acknowledged this variation:

"Some teachers are more creative in using local context than others. We encourage it, but we don't mandate it. Different teachers bring different interests and knowledge about Ponorogo culture." (P01)

Local wisdom functioned as a contextual layer integrated within national curriculum structures rather than as an independent curriculum domain. The school maintained formal alignment with national standards while creating informal space for teachers to embed local knowledge within their subjects. This approach preserved national compliance while enabling curricular responsiveness to local context, but relied on teacher initiative rather than systematic curriculum design.

Theme 2: Teachers Adapt Curriculum Through Professional Interpretation

Teachers actively reinterpreted national curriculum objectives to incorporate local knowledge, demonstrating that curriculum transformation occurred through teachers' professional judgment and contextual knowledge rather than through formal curriculum revision. Interview data revealed that teachers understood themselves as active agents mediating between national standards and local context, engaging in continuous interpretation regarding how prescribed competencies could be achieved through locally relevant content and examples.

A teacher in the cultural arts program described this interpretive process:

"The national curriculum says students should understand traditional arts and cultural preservation. That's the outcome I need. But how I teach it—whether I focus on batik, wood carving, or wayang—depends on what's strong in Ponorogo. I choose the content that achieves the outcome while connecting to our community."(T07)

This description illustrated teachers' active role in selecting which local knowledge examples best served national learning objectives.

Different teachers integrated local wisdom differently, with no uniform implementation pattern across the school. In the hospitality program, one teacher emphasized local food traditions and traditional cooking methods as contexts for teaching

nutrition standards, food safety, and culinary technique. Another teacher in the same program focused more heavily on conventional food service management, with less explicit integration of local culinary traditions. Both teachers met the same national competency requirements but achieved this through different contextual pathways.

A third teacher in the hospitality program explained the variation:

"I work in hospitality, but I'm not from Ponorogo originally. I know the national standards well, but I'm still learning about local food culture. A teacher from Ponorogo who knows the traditional dishes and their importance might teach this differently."(T05)

Experienced teachers demonstrated greater confidence and initiative in contextual curriculum design. Teachers with ten or more years of teaching experience described deliberate processes of selecting local content aligned with learning objectives.

One experienced teacher shared perspective developed over years of practice:

"Over time, you learn which local examples work best for teaching abstract concepts. I've developed my own connections between what students need to know and how Ponorogo examples can teach it. I didn't have this at the beginning of my career."(T09)

This teacher had developed extensive curriculum materials incorporating local industries, agricultural practices, and cultural knowledge aligned with national competencies in agribusiness education.

Novice teachers, in contrast, tended to rely more heavily on textbooks and national curriculum guidance, with less frequent incorporation of local knowledge.

A teacher in her second year of teaching noted:

"I follow the textbook pretty closely because I'm still learning how to teach these subjects well. When I have ideas about using local examples, sometimes I'm not sure if they fit with what students need to learn. I might do more of that as I get more experience."(T02)

Her classroom observations showed competent instruction aligned with national standards, but minimal integration of local context.

This variation did not appear to represent inconsistent implementation of a prescribed model; rather, it reflected teachers' differential capacity and confidence in adapting national curriculum to local context.

The curriculum team acknowledged this reality:

"We have teachers at different levels. Some are very skilled at finding local applications for national learning outcomes. Others are still developing that ability. We support professional development, but we accept that integration will vary."(CT02)

Interview data indicated that teachers valued autonomy in curriculum interpretation. When asked about preferences for either more detailed national guidance regarding local integration or greater flexibility in curriculum design, most teachers expressed preference for flexibility.

One teacher stated:

"If the national curriculum specified exactly which local examples to use, I'd have less opportunity to use my judgment and knowledge of Ponorogo. I prefer having learning outcomes defined and then deciding how to teach them."(T04)

Teachers functioned as curriculum interpreters rather than curriculum implementers, actively adapting national standards to local context through professional judgment. This adaptation process produced varied implementations without uniform patterns. Experienced teachers demonstrated greater confidence in contextual curriculum design, while novice teachers relied more heavily on standardized materials. Teachers valued autonomy in curriculum interpretation over prescriptive guidance.

Theme 3: Students Associate Local Wisdom with Authentic Learning Experiences

Students described local wisdom integration as enhancing the authenticity and relevance of vocational learning, connecting classroom content with familiar community environments, practices, and economic activities. Interview data indicated that students perceived learning activities incorporating local knowledge and community engagement as more meaningful than textbook-based instruction alone.

Students experienced local wisdom through multiple activity types. Community-based projects positioned students in direct contact with local practitioners and industries. In the agribusiness program, students visited local farms managed by family members or community members, observed actual farming practices, and interviewed farmers about decision-making processes, traditional ecological knowledge, and market dynamics.

One student reflected on the impact of community-based learning:

"When we studied about crop selection and soil management in class, it was theoretical. But when we went to my uncle's farm and he showed us why he chooses certain crops and how he manages the soil based on what he learned from his father—that made sense. I understood why the textbook says what it says." (S03)

Collaboration with traditional craft makers and artisans provided direct exposure to cultural knowledge. In the cultural arts program, students apprenticed with community wood carvers, batik artists, and weavers. These relationships extended beyond observational learning; students actively participated in production processes under guidance of experienced practitioners.

A student who worked with a traditional wood carver described the learning experience:

"I'm learning carving techniques that my teacher knows, but also learning from the carver—his knowledge about wood types, design traditions, how to preserve these

skills. School teaches design and production, but the carver teaches the culture and meaning." (S06)

Regional cultural events and festivals provided contexts for student engagement with local traditions. The school arranged student participation in Ponorogo's traditional art festivals and cultural celebrations. Students performed traditional dances, assisted in event organization, and engaged with cultural preservation activities. This participation positioned students as contributors to cultural continuity rather than external observers of local traditions.

Local entrepreneurship examples connected vocational learning to community economic activity. Students in hospitality and business programs studied local food businesses, tourism enterprises, and craft production as case studies for business management and entrepreneurial practice. Rather than using generic business case studies from national textbooks, students analyzed businesses they knew—local restaurants, tourism operations, craft shops—interviewing owners and observing management practices.

One student explained the relevance of using local business contexts:

"We study business management in class, but using restaurants in Ponorogo that we can actually visit makes it clear how what we're learning applies here. We can see how the owner uses the management principles in real situations."(S01)

Students reported that these activities made vocational learning more meaningful because they connected classroom knowledge with familiar social and economic environments. Rather than learning competencies in abstract form, students developed understanding through contexts they recognized and in which they held some prior knowledge or family connection.

A student summarized the perceived value of local context:

"Sometimes in school you learn things that feel disconnected from real life. But when learning connects to Ponorogo—to what people here actually do—it feels like it matters for my future here."(S04)

However, students also noted limitations in local wisdom integration. Some students reported inconsistency across different classes and teachers.

One student observed:

"In some classes we work with local businesses and community people. In other classes we just use the textbook. I prefer when it's connected to Ponorogo, but it doesn't happen in all my classes."(S02)

This observation aligned with the Theme 2 finding that local integration varied by teacher.

Students did not report that local wisdom integration resulted in stronger academic performance or higher grades. Instead, they described it as affecting engagement and perceived relevance. Interview questions regarding whether local wisdom integration

affected their understanding of national competencies or their grades produced limited responses; students could not articulate clear performance effects.

When asked directly whether they believed local context made them learn better, one student replied:

"I think it helps me understand how this relates to my life and Ponorogo. Whether it makes me score higher on tests, I'm not sure." (S07)

Students associated local wisdom integration with authentic and relevant learning experiences that connected classroom content to community contexts and family knowledge. Participation in community-based projects, collaboration with traditional practitioners, and engagement with local entrepreneurship examples contributed to students' perception of vocational learning as meaningful. However, students could not articulate clear effects on academic performance or national competency attainment.

Theme 4: Curriculum Transformation Is Negotiated Between National Standards and Local Context

The most substantial finding involved the process through which curriculum transformation occurred at SMK Negeri 2 Ponorogo: rather than replacing national curriculum with local curriculum, teachers and administrators continuously negotiated curriculum design to accommodate both national standard requirements and local contextual responsiveness. This negotiation process reflected neither full compliance with standardized national curriculum nor adoption of an alternative locally-focused curriculum, but rather a hybrid approach balancing competing demands.

Interview data revealed the tensions underlying this negotiation.

The Vice Principal for Curriculum described the challenge directly:

"The national curriculum defines what students must learn—the competencies are set by the ministry. We cannot ignore that. But we're also responsible to Ponorogo. We need graduates who understand national standards but also understand their own culture and how to use that in work. Finding that balance is the main curriculum challenge."(VP01)

Teachers articulated similar tensions when discussing their curriculum decisions.

A teacher in agribusiness stated:

"National standards require students to learn scientific agriculture—soil chemistry, pest management, modern farming technology. Those are important. But Ponorogo has strong agricultural traditions. Can I teach both? Yes, but I have to be deliberate about how I connect them. I can't teach them as two separate things."(T08)

This negotiation occurred across multiple dimensions. First, teachers balanced coverage of national competency standards with time allocated to local content. National curricula prescribed specific learning outcomes with associated time allocations. Teachers

reported that incorporating local knowledge examples and community-based learning required additional instructional time beyond standard allocations.

One teacher explained:

"The national curriculum says I need to cover certain competencies in two semesters. If I add field visits to local businesses, community interviews, and apprenticeships, I need more time. So I have to figure out which activities directly teach national competencies and which add local context without extending the time too much."(T04)

Second, teachers negotiated between assessment requirements and local content relevance. National assessment systems and school examinations evaluated student attainment of prescribed competencies using standardized instruments. These assessments did not specifically evaluate students' understanding of local wisdom or ability to apply knowledge within local contexts. Teachers reported that this assessment structure could create pressure to emphasize test preparation over contextual learning. However, curriculum team members stated that assessments, while standardized nationally, permitted demonstration of competency through diverse contexts.

One curriculum specialist noted:

"The assessment measures whether students meet the competency. It doesn't matter whether they demonstrate it through a local example or a generic textbook example. So I can assess student understanding of business management using the local restaurant they studied, not a case study from the textbook." (CT03)

Third, teachers negotiated between industry competency requirements and cultural content. Vocational education in Indonesia is designed to prepare graduates for specific industries and occupations. Curriculum competencies reflect industry-defined skill requirements. When local industries differed from national industry standards, or when local cultural content appeared less directly aligned with industry competencies, teachers had to decide how much emphasis to place on cultural content. For example, in the tourism program, national standards emphasized contemporary tourist attractions and service standards reflecting global tourism trends. Local Ponorogo cultural traditions, while valuable to cultural preservation, sometimes appeared less directly aligned with contemporary tourism industry expectations. Teachers in this program described balancing curriculum time between teaching contemporary tourism management and supporting students' engagement with traditional cultural heritage.

A curriculum team member articulated this negotiation explicitly:

"National standards are built on what industries need. If a student learns only traditional knowledge and doesn't develop skills the industry expects, they won't get hired. So we can't replace the national curriculum with local curriculum. But we can teach the national competencies using local knowledge as the context where possible." (CT01)

Document analysis revealed that the school's official curriculum documents maintained formal alignment with national standards while the operational curriculum—actual lesson planning and instruction—incorporated local content. This pattern reflected deliberate institutional strategy: maintain compliance with required standards through official documentation while enabling teachers flexibility in how standards are achieved through classroom practice.

Fourth, teachers negotiated between preserving local traditions and supporting student mobility. Several teachers articulated concern that excessive emphasis on local knowledge might limit students' ability to function in broader economic contexts.

One teacher stated:

"Our graduates need to work in Ponorogo, but some will move to other cities for better opportunities. If I teach only local agricultural practices, they might not be prepared for agriculture in Java or Sumatra that does things differently. I need to teach both—strong local knowledge and understanding that agriculture varies by region." (T03)

The negotiation process was not resolved once and then applied uniformly. Instead, it occurred continuously as teachers made weekly curriculum decisions regarding which examples to use, which community partnerships to develop, which assessment strategies to employ, and how to balance instructional time. Interview data indicated that this ongoing negotiation reflected normal curriculum work rather than exceptional circumstances. Teachers described curriculum design as inherently involving judgment calls regarding how to balance competing demands, and local wisdom integration was understood as one dimension of these routine negotiation processes.

Curriculum documentation showed that formal curriculum revision processes at the school level occurred rarely, approximately every three to four years. However, curriculum adaptation through daily teacher decision-making happened continuously.

The principal described this distinction:

"We don't revise the whole curriculum frequently because that requires ministry approval. But teachers adapt how they teach constantly, responding to what they learn about student needs and community resources. That ongoing adaptation is where local wisdom gets integrated." (P01)

Curriculum transformation at SMK Negeri 2 Ponorogo was not a matter of replacing national standards with local curriculum, but rather a continuous process of negotiating how national competencies could be achieved through contextually responsive instruction. Teachers balanced multiple competing demands: coverage of national standards with incorporation of local content, standardized assessment requirements with contextual relevance, industry competency expectations with cultural preservation, and local knowledge with students' potential geographic mobility. This negotiation occurred through daily curriculum decision-making rather than through formal curriculum revision processes.

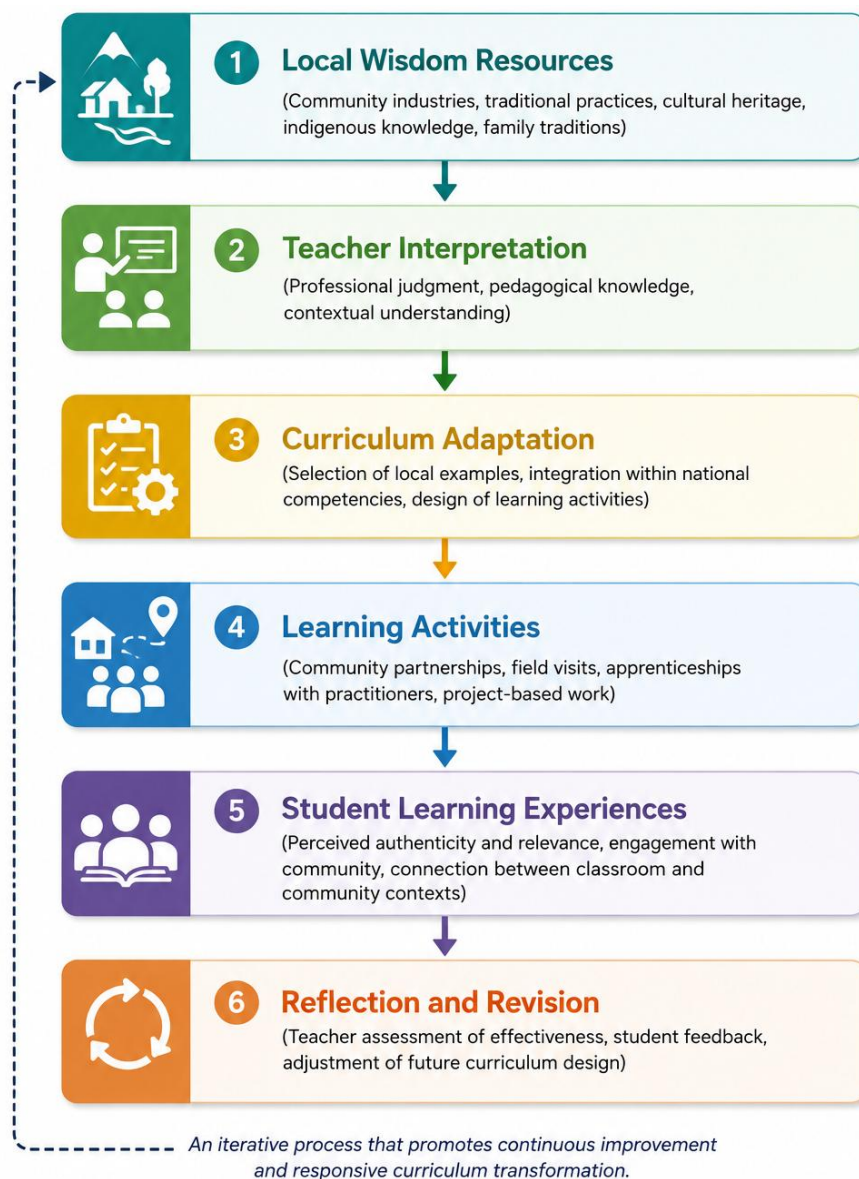


Figure 1. Process of Local Wisdom Integration into Curriculum Transformation
Theme 5: School Leadership Facilitates Rather Than Directs Curriculum Innovation

Curriculum innovation involving local wisdom integration emerged through distributed leadership and collaborative decision-making rather than through principal directive or formal policy implementation. The principal and curriculum leadership team facilitated conditions enabling teacher-initiated innovation without imposing specific curriculum changes through top-down mandate.

The principal described the leadership approach directly:

"My role is to create an environment where teachers can experiment with connecting learning to Ponorogo context. I don't tell teachers 'integrate local wisdom here.' Instead, I ask teachers what community partnerships might

strengthen their programs, and I help remove barriers. If a teacher wants to work with local artisans or farmers, I support that. The principal directs, but teachers innovate." (P01)

This facilitative leadership manifested through several mechanisms. The principal allocated resources to support teacher-initiated contextual learning activities. School budgets included allocations for field visits to local businesses and industries, guest speaker fees for community practitioners, transportation for community-based learning, and modest stipends for community members who contributed to student learning. When teachers proposed a community partnership or field-based learning activity, the principal evaluated whether resources could be allocated to support it.

The curriculum team functioned collaboratively, with curriculum specialists supporting teacher initiatives rather than implementing top-down curriculum mandates.

One curriculum specialist explained:

"When a teacher comes to me with an idea about incorporating local farming practices into agribusiness learning, I help them think through how that connects to national competencies and how to structure it as a learning activity. I'm not telling them what to do; I'm helping them develop their idea." (CT02)

Teachers described considerable autonomy in curriculum decision-making.

The Vice Principal for Curriculum stated:

"Each teacher has primary responsibility for their own course curriculum. They work within national standards, but the daily curriculum decisions—which examples to use, which community resources to develop, how to sequence content—those are the teacher's decisions." (VP01)

This autonomy appeared valued by teachers; when asked about preferred levels of curriculum guidance from administration, teachers generally preferred flexibility over prescriptive direction.

Community members participated primarily as resource persons rather than as curriculum decision-makers. Community cultural leaders and local practitioners contributed knowledge and expertise through involvement in student learning activities, but did not participate in formal curriculum planning meetings or policy decisions.

One community leader explained:

"The school asks me to work with students and teach them about carving. I do that because I want young people to learn these skills and understand the culture. But the school decides what the students need to learn and how my involvement fits into that." (CL01)

Curriculum innovation evolved gradually through routine school practices rather than through formal policy changes. The principal and curriculum team members could not identify a specific moment when a decision was made to "integrate local wisdom into

curriculum." Instead, they described a gradual process over several years through which teachers increasingly developed community partnerships and incorporated local knowledge within their existing teaching.

The Vice Principal reflected:

"Ten years ago, our teachers taught mostly from textbooks. Over time, more teachers started working with local businesses and community people. We supported that when it happened. It wasn't a formal decision; it evolved." (VP01)

This evolutionary change process meant that local wisdom integration was not implemented uniformly across the school at a single point in time. Different programs and teachers had incorporated local content at different rates and to different degrees.

The principal stated:

"We're not trying to change everything at once. Different programs are at different stages. The tourism and cultural arts programs have strong local content integration. Hospitality is developing it. Other programs are slower. That's okay; it's a process."(P01)

The absence of formal policy requiring local wisdom integration had consequences regarding sustainability and consistency. Without explicit curriculum policy, integration depended on teacher initiative and administrative support, both of which could change with personnel transitions.

One curriculum specialist expressed concern about this vulnerability:

"Right now we have teachers who are passionate about connecting learning to Ponorogo. If those teachers retire or transfer, what happens to those connections? Without it being written into curriculum policy, it might disappear unless new teachers pick it up."(CT03)

School leadership also facilitated curriculum innovation by protecting instructional time from competing demands and by managing relationships with higher educational authorities. The principal negotiated with the provincial education office to permit curriculum flexibility while maintaining alignment with national standards. This included advocating for recognition that field-based and community-engaged learning activities counted toward required instructional time, even though they occurred outside classrooms.

Curriculum innovation involving local wisdom integration occurred through facilitative rather than directive leadership. The principal and curriculum team created conditions supporting teacher initiative, allocated resources for community partnerships and field-based learning, and maintained collaborative rather than hierarchical decision-making processes. Community members contributed expertise without formal involvement in curriculum decisions. Innovation evolved gradually through routine practices rather than through formal policy implementation, creating both flexibility and potential vulnerability regarding sustainability.

Table 1. Major Themes and Subthemes in Local Wisdom Integration

Theme	Subtheme	Main Evidence Source
Local Wisdom as Contextual Resource	Integration embedded within subjects rather than separate curriculum	Curriculum documents, teacher interviews, classroom observation
	Teachers select local examples reflecting teacher initiative	Teacher interviews, curriculum document analysis
	Limited operational guidance for integration	Curriculum documents, curriculum team interviews
Teachers Curriculum Interpreters	Active reinterpretation of national standards	Teacher interviews, classroom observation
	Variation across teachers and programs	Classroom observation, teacher interviews
	Experience and confidence affect depth of integration	Teacher interviews, curriculum team interviews
	Teachers value curriculum autonomy	Teacher interviews
Students' Authentic Learning Experiences	Community-based projects and partnerships	Student interviews, classroom observation, curriculum documents
	Apprenticeship with traditional practitioners	Student interviews, observation, school activity documentation
	Connection to familiar economic and social contexts	Student interviews
	Perceived relevance without demonstrated achievement effects	Student interviews
Curriculum Negotiation	Balancing national standards with local context	Teacher interviews, curriculum team interviews, curriculum documents
	Negotiation across multiple dimensions: time, assessment, industry standards	Teacher interviews, curriculum documents
	Continuous negotiation rather than one-time decision	Teacher interviews, curriculum team interviews
	Operational curriculum differs from formal documentation	Document analysis, classroom observation

Theme	Subtheme	Main Evidence Source
Facilitative Leadership	Principal enables rather than directs innovation	Principal and vice principal interviews, curriculum team interviews
	Distributed decision-making and teacher autonomy	Teacher interviews, curriculum team interviews
	Collaborative rather than hierarchical curriculum team	Curriculum team interviews
	Gradual evolution rather than formal policy implementation	Leadership interviews, institutional history
	Potential sustainability concerns	Curriculum team interviews

Table 2. Representative Participant Quotations by Theme

Theme	Participant Code	Representative Quotation
Local Wisdom as Contextual Resource	VP01	"We follow the national curriculum structure because that is required, but within each subject, teachers can choose examples and applications that connect to Ponorogo's context."
	T03	"The national curriculum requires students to understand soil chemistry and plant nutrition. But in Ponorogo, students should learn this through what their families and neighbors actually do in farming."
	CT01	"The national curriculum gives us the framework and learning outcomes. How we apply those to Ponorogo—that's up to us."
Teachers as Curriculum Interpreters	T07	"The national curriculum says students should understand traditional arts. That's the outcome I need. But how I teach it—whether I focus on batik, wood carving, or wayang—depends on what's strong in Ponorogo."
	T09	"Over time, you learn which local examples work best for teaching abstract concepts. I've developed my own connections between what students need to know and how Ponorogo examples can teach it."
	T02	"I follow the textbook pretty closely because I'm still learning how to teach these subjects well. When I have ideas about using local examples, sometimes I'm not sure if they fit."

Theme	Participant Code	Representative Quotation
Students' Authentic Learning Experiences	S03	"When we studied crop selection in class, it was theoretical. But when we went to my uncle's farm and he showed us why he chooses certain crops, that made sense."
	S06	"I'm learning carving techniques from my teacher, but also from the carver—his knowledge about wood types, design traditions, how to preserve these skills."
	S01	"We study business management in class, but using restaurants in Ponorogo that we can visit makes it clear how what we're learning applies here."
Curriculum Negotiation	VP01	"We need graduates who understand national standards but also understand their own culture. Finding that balance is the main curriculum challenge."
	T08	"National standards require scientific agriculture. But Ponorogo has strong agricultural traditions. I can teach both, but I have to be deliberate about how I connect them."
	CT01	"We can't replace the national curriculum with local curriculum. But we can teach the national competencies using local knowledge as the context."
Facilitative Leadership	P01	"My role is to create an environment where teachers can experiment with connecting learning to Ponorogo context. I don't tell teachers to integrate local wisdom. Instead, I ask teachers what community partnerships might strengthen their programs."
	CT02	"When a teacher comes to me with an idea about incorporating local farming practices, I help them think through how that connects to national competencies. I'm helping them develop their idea."

Table 3. Sources of Evidence by Theme

Theme	Interview Data	Classroom Observation	Curriculum Documents	School Policy/Administrative Documents
Local Wisdom as Contextual Resource	Teachers, administrators, curriculum team describing integration approach	Observation of local content embedded within subject instruction	Curriculum specifications, lesson plans, course syllabi	School policy statements on curriculum flexibility
Teachers as Curriculum Interpreters	Teachers describing decision-making processes, variation in practice	Classroom observation documenting different approaches in local integration	Lesson plans showing varied content to selection	Administrative communications regarding teacher autonomy
Students' Authentic Learning Experiences	Student descriptions of learning activities, perceived relevance	Observation of community-based projects, apprenticeships, field visits	Documentation of community partnerships, project assignments	School records of community collaborations
Curriculum Negotiation	Teachers and administrators articulating tensions and balancing processes	Observation of instructional choices reflecting competing demands	Comparison of formal curriculum documents with operational lesson plans	Policy documents regarding national standards compliance and local flexibility
Facilitative Leadership	Principal, vice principal, curriculum team describing leadership approach	Observation of collaborative curriculum meetings, teacher autonomy in classrooms	Documentation of curriculum decision-making processes	Official school leadership meeting resource allocation decisions

DISCUSSION

This qualitative case study examined how local wisdom has been integrated into curriculum transformation at SMK Negeri 2 Ponorogo, a vocational secondary school in East Java, Indonesia. Five empirical themes emerged regarding mechanisms of integration, teacher roles, student experiences, curriculum negotiation processes, and institutional

leadership. These findings invite interpretation through multiple theoretical lenses and comparison with international curriculum scholarship, revealing insights regarding how schools can pursue contextual curriculum responsiveness while maintaining alignment with standardized national requirements.

Local Wisdom as Contextual Curriculum Knowledge

The finding that local wisdom emerged primarily as contextual learning resources embedded within existing subjects rather than as an independent curriculum domain reflects broader theoretical debates regarding how culturally relevant knowledge can be operationalized within standardized curriculum systems. Contextual curriculum theory, as articulated by Herbart and contemporary scholars, positions learning content within authentic social and economic contexts where knowledge has practical significance (Bransford et al., 2000; Trevarthen & Malloch, 2017). The positioning of local wisdom as contextual layer rather than separate content domain appears consistent with situated learning theory, which proposes that knowledge is fundamentally connected to the contexts in which it is acquired and applied (Lave & Wenger, 1991). In the SMK Negeri 2 Ponorogo context, teachers embedded local agricultural practices, traditional crafts, and community entrepreneurship within national competency frameworks—not as supplementary enrichment but as contexts through which prescribed learning outcomes could be developed. This approach differs from curriculum models that treat indigenous knowledge as alternative content competing with standardized curricula for instructional time and curricular legitimacy.

Place-based education scholarship provides relevant theoretical context for understanding this integration pattern. Place-based approaches position local environments, communities, and cultural practices as primary learning resources, proposing that education becomes more engaging and meaningful when connected to students' geographic and cultural contexts (Smith & Sobel, 2010; Haas & Nachtigal, 2016). Research on culturally responsive pedagogy indicates that instruction integrating students' cultural backgrounds and community knowledge produces stronger engagement and perceived relevance (Gay, 2018; Ladson-Billings, 2014). However, the SMK Negeri 2 Ponorogo approach suggests an important variation: rather than positioning local content as alternative to national standards, the school used local context as the vehicle through which national competencies could be developed. This represents what might be termed "contextual integration" rather than "content replacement"—a distinction with significant implications for how schools operating within standardized systems can pursue cultural responsiveness.

This integration pattern may reflect practical constraints inherent in Indonesian educational governance. National curriculum structures are mandated, assessments are standardized nationally, and vocational competencies are defined by industry associations and ministry requirements. Within these structural constraints, embedding local wisdom as contextual resources enables schools to maintain formal compliance with national standards while creating pedagogical space for cultural responsiveness. The absence of

separate local wisdom competencies, or formal curriculum policies requiring integration, produces flexibility: teachers can incorporate local content without requiring formal curriculum revision processes, ministry approval, or reallocation of instructional time. This flexibility contrasts with curriculum models requiring formal restructuring to introduce new content, which may involve lengthy bureaucratic processes and potential resistance from standardized assessment systems.

The contextual integration approach also addresses pedagogical concerns regarding knowledge organization. Rather than requiring students to learn separate bodies of knowledge—national curriculum content in one domain and local wisdom in another—contextual integration enables development of understanding that synthesizes both, positioning local practices as applications and illustrations of national competencies. This approach aligns with constructivist learning theory emphasizing that learners develop understanding by integrating new information with existing knowledge and authentic contexts (Von Glasersfeld, 1995; Piaget, 1954). However, the absence of explicit curriculum guidance regarding which local content should be integrated within which subjects created reliance on teacher initiative and professional judgment, a pattern discussed further in subsequent sections.

Teachers as Curriculum Interpreters

The finding that teachers actively reinterpreted national curriculum objectives rather than implementing predetermined curriculum models reflects decades of curriculum scholarship documenting teachers' role as curriculum interpreters and shapers (Stenhouse, 1975; Schwab, 1969). Contemporary curriculum enactment theory emphasizes that teachers do not simply implement curriculum as written, but rather engage in ongoing interpretation and adaptation responsive to student needs, local contexts, and instructional realities (Remillard, 2005; Brown & Edelson, 2003). The SMK Negeri 2 Ponorogo findings align with this theoretical position: teachers operated as active agents interpreting national competency standards through local knowledge, selecting examples and contexts that connected prescribed learning outcomes with Ponorogo-specific content.

Teacher agency—the capacity of teachers to make meaningful decisions regarding curriculum content, pedagogy, and assessment—emerged as central to how local wisdom integration occurred. Scholars conceptualize teacher agency as multidimensional, involving both the structural capacity of schools to permit teacher decision-making and individual teachers' sense of efficacy and willingness to exercise interpretive authority (Priestley et al., 2015; Biesta & Tedder, 2007). At SMK Negeri 2 Ponorogo, institutional structures provided teachers considerable autonomy in curriculum interpretation; administrators articulated preference for teacher flexibility over prescriptive guidance. This institutional stance enabled teachers to make interpretive decisions regarding which local knowledge resources could serve learning objectives, which community partnerships could enhance instruction, and how prescribed competencies could be contextualized.

However, the findings also document significant variation in how teachers exercised this agency, with experience functioning as a key differentiating factor.

Experienced teachers with a decade or more of teaching described deliberate, theoretically informed approaches to contextual curriculum design; they articulated explicit reasoning regarding how local examples served specific learning objectives. Novice teachers, conversely, relied more heavily on textbook guidance and appeared less confident in making interpretive curriculum decisions. This variation reflects research on teacher expertise and adaptive expertise specifically. Adaptive expertise—the capacity to apply professional knowledge flexibly to novel situations—develops through sustained engagement with complex problems, reflection on practice, and accumulated experience (Hatano & Inagaki, 1986; Schwillie et al., 2013). Teachers with ten or more years of experience had developed adaptive expertise enabling them to recognize connections between local knowledge and prescribed competencies; newer teachers were still developing this capacity.

The variation in curriculum enactment observed across SMK Negeri 2 Ponorogo teachers should not be interpreted as inconsistent implementation of a prescribed model, but rather as differential capacity for curriculum interpretation. Curriculum enactment scholarship increasingly emphasizes that variation in how teachers enact curriculum reflects not failure of implementation fidelity but rather the inherent nature of curriculum as an interpretive process (Remillard, 2005; Cohen & Ball, 1999). Each teacher's interpretation reflected their professional knowledge, understanding of local context, pedagogical judgments, and experience. This variation may be not only inevitable but potentially desirable: different teachers brought different knowledge about Ponorogo culture and industries, different pedagogical strengths, and different student relationships. A standardized implementation model might have reduced contextual responsiveness rather than enhanced it.

The finding that teachers valued autonomy in curriculum interpretation over prescriptive guidance regarding which local content to teach has implications for how curriculum guidance is developed. Rather than specifying particular local examples that teachers should incorporate, curriculum frameworks might more effectively support contextual integration by articulating general principles regarding how local knowledge can be connected to competencies, then trusting teachers to identify appropriate local examples through their professional judgment. This approach reflects what Schwab (1969) termed the "practical" dimension of curriculum—the wisdom teachers develop through engagement with particular classrooms, students, and communities.

Authentic Learning Through Local Community Engagement

The finding that students associated local wisdom integration with authentic and relevant learning experiences, while not demonstrating measured achievement effects, invites interpretation through authentic learning and experiential learning theories. Authentic learning emphasizes that knowledge acquisition becomes more meaningful when students engage with content in contexts resembling how that knowledge is actually used outside schools (Wiggins, 1998; Newmann et al., 1996). At SMK Negeri 2 Ponorogo, students' participation in community-based projects, apprenticeships with traditional

practitioners, and engagement with local entrepreneurship examples positioned them as participants in actual vocational practice rather than as consumers of abstract curriculum content. A student's description of learning crop selection through visiting a family farm exemplifies this authenticity: the student engaged with actual agricultural decision-making, observed how theoretical principles about soil management and crop selection operated in practice, and connected classroom learning to lived family experience.

Experiential learning theory, as articulated by Kolb and others, proposes that learning occurs through cycles of experience, reflection, conceptualization, and application (Kolb, 1984; Dewey, 1938). The curriculum practices documented at SMK Negeri 2 Ponorogo appear consistent with this model: students participated in authentic experiences (visiting farms, apprenticing with craft makers), engaged in reflection on those experiences within classroom discussion, connected experiences to theoretical concepts taught in class, and applied understanding to new contexts through projects. This cyclical process may account for students' perception that local wisdom integration enhanced meaningfulness without necessarily producing measured achievement effects in traditional assessments.

The absence of reported effects on academic achievement merits careful interpretation. Students were asked whether they perceived local wisdom integration as affecting their test scores or grades; they could not articulate clear effects. This finding should not be interpreted as indicating that authentic learning approaches lack impact on achievement, given the substantial research documenting relationships between authentic and experiential learning and academic outcomes (Hmelo-Silver et al., 2007; Mergendoller et al., 2019). Rather, it may reflect that students did not perceive transparent connections between their experiences in local contexts and standardized assessments, which typically do not explicitly evaluate students' ability to apply knowledge within local contexts. This potential disconnect between authentic learning experiences and standardized assessment instruments represents a known tension in educational systems attempting to balance culturally responsive instruction with standardized accountability (Au, 2007; Darling-Hammond, 2004).

Community-based learning scholarship provides additional theoretical context. Research on service learning, community-based learning, and youth-community partnerships documents that structured engagement with communities can enhance student motivation, foster sense of agency, and support development of vocational competencies (National Research Council, 2015; Furco & Billig, 2002). The SMK Negeri 2 Ponorogo practices of student participation in cultural festivals, apprenticeships with community practitioners, and community entrepreneurship case studies positioned students as contributors to community life rather than external observers. This participation-based positioning appears consistent with scholarship on youth development emphasizing that adolescents benefit from meaningful roles in communities and opportunities to contribute to collective goals (Lerner & Lerner, 2011).

However, findings also suggest that community engagement occurred inconsistently across programs and teachers. This variation reflects research on the implementation of community-based learning, which indicates that sustained community

partnerships require substantial coordination, ongoing relationship management, and alignment with school schedules and curriculum (Warren et al., 2009; Sandy & Holland, 2006). While some teachers at SMK Negeri 2 Ponorogo had developed robust community partnerships, others incorporated community engagement more sporadically. This variation may reflect the resource demands of community-based learning, the necessity for individual teachers to develop and maintain partnerships, and potential tensions between formal curriculum requirements and community-based learning demands.

Curriculum Transformation as Negotiation Rather Than Replacement

The most theoretically significant finding involves the process through which curriculum transformation occurred: rather than replacing national curriculum with local curriculum, teachers and administrators continuously negotiated curriculum design to accommodate both standardized requirements and local contextual responsiveness. This process can be interpreted through curriculum change theory, which conceptualizes curriculum transformation not as replacement of one curriculum with another, but as adaptive processes involving negotiation among multiple stakeholder values and systemic constraints (Fullan, 2007; Hargreaves & Shirley, 2009).

Curriculum change scholarship distinguishes between curriculum implementation (putting mandated changes into practice) and curriculum enactment (the ongoing interpretive process through which teachers shape curriculum in classrooms). The SMK Negeri 2 Ponorogo case indicates that local wisdom integration occurred primarily through enactment rather than implementation: no formal curriculum revision mandating local wisdom integration took place. Instead, teachers gradually adapted how they taught within existing curriculum structures, incorporating local examples, developing community partnerships, and positioning local knowledge as context for national competencies. This pattern of gradual curriculum enactment may produce more sustainable change than top-down curriculum revision requiring ministry approval and formal policy implementation (Cuban, 1990; Tyack & Cuban, 1995).

The negotiation process described in findings—teachers balancing coverage of national standards with local content time, negotiating between assessment requirements and contextual learning, aligning industry competencies with cultural preservation, and preparing graduates for both local and broader economic opportunities—reflects what Berman and McLaughlin (1978) termed the "mutual adaptation" model of curriculum change. Rather than teachers simply implementing predetermined changes, mutual adaptation emphasizes that curriculum change involves ongoing adjustment as teachers encounter implementation realities. At SMK Negeri 2 Ponorogo, this adaptation process was not problematic but rather represented normal curriculum work through which teachers exercised professional judgment regarding how to balance competing demands.

This interpretation has significant implications for understanding vocational curriculum transformation in developing and middle-income countries. Vocational education systems in countries like Indonesia operate within complex constraint structures: national curriculum and assessment requirements, industry competency standards, limited

resources, teacher capacity variation, and expectations to both prepare graduates for local employment and support students' geographic mobility. Curriculum transformation in these contexts appears unlikely to involve wholesale replacement of national curricula with alternative models. Instead, transformation may more realistically involve what might be termed "contextualized implementation"—how teachers and schools adapt national curriculum within their particular contexts using available local resources.

The finding that formal curriculum revision occurred rarely (approximately every three to four years) while curriculum adaptation through daily teacher decision-making happened continuously suggests an important distinction between formal curriculum policy and operational curriculum. Curriculum scholars have long documented this distinction; official curriculum as written in policy documents often differs substantially from the curriculum actually taught (Goodson, 1994; Apple, 2004). At SMK Negeri 2 Ponorogo, this distinction appeared functional: maintaining formal alignment with national standards through official curriculum documentation while enabling operational curriculum flexibility through teacher decision-making permitted the school to achieve both compliance with national requirements and responsive adaptation to local context. This dual-level curriculum strategy may represent a realistic adaptation to the governance structures of centralized education systems.

However, this finding also suggests structural vulnerabilities. Without explicit curriculum policy institutionalizing local wisdom integration, the practice depends on individual teacher initiative and administrative continuity. Teachers who retire or transfer and are replaced by teachers without commitment to contextual integration could result in reversion to more textbook-dependent instruction. Curriculum team members explicitly expressed concern about this vulnerability. This suggests that while gradual teacher-initiated curriculum adaptation may be more sustainable than top-down mandates in some respects, it also creates fragility if not eventually institutionalized through curriculum policy.

Distributed Leadership Supports Sustainable Curriculum Innovation

The finding that curriculum innovation involving local wisdom integration emerged through facilitative leadership and distributed decision-making, rather than principal directive or formal policy implementation, reflects recent scholarship on distributed leadership in education. Distributed leadership theory emphasizes that effective school improvement involves leadership practices distributed across multiple organizational members rather than concentrated in formal administrators (Harris, 2008; Spillane, 2006). At SMK Negeri 2 Ponorogo, the principal functioned as facilitator creating conditions enabling innovation rather than directing specific curriculum changes. The principal allocated resources for teacher-initiated community partnerships, protected instructional time for field-based learning, negotiated with higher authorities for curriculum flexibility, and maintained collaborative rather than hierarchical decision-making. Curriculum specialists supported teacher initiatives by helping teachers think through how local content connected to national competencies and how to structure learning activities.

This distributed leadership approach aligns with instructional leadership theory, which positions school leaders as responsible for creating school cultures that support continuous improvement in teaching and learning (Robinson et al., 2008; Leithwood et al., 2004). The SMK Negeri 2 Ponorogo principal's emphasis on creating an environment where teachers could experiment with contextual learning, rather than mandating specific practices, reflects this orientation. Research on instructional leadership indicates that leaders who create cultures of continuous improvement, provide resources and support for instructional innovation, and maintain collaborative relationships with teachers produce stronger school effectiveness outcomes than leaders who rely primarily on evaluation and compliance monitoring (Robinson et al., 2008).

The collaborative functioning of the curriculum team at SMK Negeri 2 Ponorogo resembles what scholarship terms professional learning communities—groups of educators engaged in collective inquiry regarding how to improve instructional practice (DuFour et al., 2006; Stoll & Louis, 2007). Rather than curriculum specialists transmitting predetermined changes to teachers, curriculum team members engaged collaboratively with teachers regarding how to operationalize local wisdom integration, providing expertise on curriculum design while respecting teacher professional judgment. This collaborative model appears more consistent with evidence regarding how professional learning communities support sustainable instructional improvement than models based primarily on top-down curriculum mandates (Vescio et al., 2008).

The finding that curriculum innovation evolved gradually through routine practices rather than through formal policy changes offers insights regarding sustainability of curriculum transformation. Rapid, top-down curriculum reform has frequently produced limited lasting change; when external mandates decrease in pressure or administrative attention shifts, schools often revert to previous practices (Datnow et al., 2002; Farley-Ripple et al., 2018). Gradual curriculum enactment involving teacher agency and distributed leadership, conversely, may produce deeper institutionalization because changes emerge from teachers' professional commitment and understanding rather than external mandates. However, as noted in the previous section, this gradual approach also creates vulnerabilities regarding sustainability if not eventually formalized through policy.

Community participation in curriculum innovation occurred at SMK Negeri 2 Ponorogo primarily through resource roles rather than decision-making roles. Community cultural leaders and practitioners contributed expertise and engaged students through apprenticeships and demonstrations, but did not participate in formal curriculum planning. This pattern differs from some curriculum reform models emphasizing that community members should participate in curriculum decision-making (Warren et al., 2009). The limitation may reflect both practical constraints (curriculum decisions require technical expertise regarding national standards and assessment) and cultural patterns regarding educational authority in Indonesian contexts where professional educators maintain primary responsibility for curriculum decisions. However, the involvement of community members as knowledge resources rather than curriculum planners enabled their expertise to be incorporated while preserving professional curricular authority.

Integrative Synthesis: Curriculum Transformation as Dynamic Interaction

The five empirical findings collectively suggest that curriculum transformation in vocational education should be conceptualized not as curriculum replacement—substituting local wisdom for national standards—but rather as dynamic interaction among multiple elements: local wisdom as contextual resource, teacher professional agency and interpretation, authentic community-based learning experiences, continuous negotiation among competing demands, and distributed institutional leadership. This perspective extends existing curriculum transformation theory by introducing local wisdom not primarily as curriculum content to be taught alongside national standards, but as mediating resource through which national competencies can be developed while maintaining cultural responsiveness.

The dynamic interaction model proposed by these findings offers alternative perspective to both traditional curriculum models emphasizing standardized content delivery and alternative models positioning indigenous knowledge as replacement for standardized curricula. Instead, local wisdom functions within a complex system where teachers make ongoing interpretive decisions regarding how national competencies can be achieved through contextually meaningful content and activities. This occurs not through formal curriculum revision but through daily curriculum enactment, supported by institutional structures enabling teacher autonomy and facilitative leadership. The resulting curriculum is neither fully standardized nor fully localized, but rather represents negotiated accommodation of multiple values and constraints.

This conception has implications for understanding how schools in developing and middle-income countries can pursue culturally responsive education within centralized curriculum systems. Rather than viewing standardized national curricula as obstacles to cultural responsiveness, this framework suggests that contextualized enactment of standardized curricula can produce responsiveness without requiring fundamental curriculum restructuring. This interpretation responds to concerns that emphasis on cultural responsiveness might delegitimize national curriculum structures designed to ensure equity and prevent educational inequality across regions.

The findings also suggest that curriculum transformation in vocational education requires attention to teacher professional development and capacity building. If teachers are primary agents through whom local wisdom integration occurs, investments in teachers' adaptive expertise, contextual knowledge, and confidence in curriculum interpretation become central to supporting transformation. This differs from reform models emphasizing curriculum documents or standards development, suggesting that curriculum change in vocational education may be fundamentally dependent on teacher development.

Theoretical Contribution

This study extends curriculum enactment theory by documenting how teachers adapt national curriculum to local contexts through active interpretation and professional

judgment, without requiring formal curriculum revision. The findings contribute to culturally responsive curriculum literature by positioning local wisdom as contextual mediating resource rather than as curriculum content replacing standardized curricula. This perspective introduces an alternative approach to cultural responsiveness in standardized systems: instead of treating cultural knowledge as supplementary content competing for instructional time, local wisdom can be integrated as the contexts through which prescribed competencies are developed. The study provides empirical evidence from Southeast Asian vocational education, an educational context underrepresented in international curriculum scholarship. Findings contribute to distributed leadership theory by documenting how facilitative, collaborative leadership enables gradual curriculum innovation through teacher agency rather than through top-down mandates. The case of SMK Negeri 2 Ponorogo illustrates how vocational schools in middle-income countries can pursue contextually responsive curriculum transformation while maintaining alignment with national standards and industry competencies.

Practical Implications

Findings offer several implications for educational practitioners and policymakers. For curriculum developers and vocational education leaders, the study suggests that curriculum transformation involving cultural responsiveness need not require comprehensive curriculum restructuring. Instead, providing teachers with curriculum frameworks that specify learning outcomes while permitting flexibility in contextual application may enable schools to achieve both standardization and responsiveness. Teacher professional development should emphasize adaptive expertise and contextual curriculum design rather than techniques for implementing predetermined curriculum. For school leaders, findings indicate that distributed, collaborative leadership creates conditions supporting teacher-initiated innovation more effectively than top-down curriculum mandates. Allocating resources for community partnerships, protecting instructional time for field-based learning, and maintaining collaborative curriculum governance may support sustainable curriculum transformation. For teachers, findings validate the professional judgment and contextual knowledge teachers apply in interpreting curriculum. Teachers should be encouraged to develop community partnerships, recognize how local knowledge resources can serve prescribed learning objectives, and engage in collaborative curriculum design. For educational policymakers, the study suggests that national curriculum frameworks should permit sufficient flexibility for teachers to incorporate local contexts while maintaining alignment with standards. Policymakers should also recognize that sustainable curriculum transformation often occurs through gradual teacher enactment rather than rapid policy-driven reform, and that supporting this process requires sustained investment in teacher professional development and adequate school resources.

CONCLUSION

This qualitative case study of SMK Negeri 2 Ponorogo indicates that curriculum transformation in vocational education emerges through contextual adaptation of national curriculum frameworks rather than through substitution or replacement of standardized requirements. Local wisdom functioned as a contextual foundation enabling teachers to embed indigenous knowledge, community practices, and regional industries within prescribed national competencies, thereby creating learning experiences that maintained formal alignment with standardized systems while achieving cultural responsiveness. This contextualization process was not accomplished through formal curriculum revision or policy implementation, but rather through continuous cycles of teacher professional interpretation, community collaboration, and adaptive enactment. The integration of local wisdom depended fundamentally on three interdependent elements: teacher agency and professional judgment regarding how national learning outcomes could be achieved through locally meaningful content and activities; direct collaboration with community practitioners and local industries that positioned students as participants in authentic vocational practice; and school leadership that facilitated teacher initiative through resource allocation, collaborative decision-making, and institutional protection of instructional flexibility. Significantly, curriculum transformation at this institution represented an ongoing and iterative process of adaptation rather than a discrete reform event. Teachers continuously negotiated among competing demands—national standards, industry competencies, assessment requirements, and cultural preservation—through daily curriculum decisions that accumulated into gradual institutional change. This pattern suggests that sustainable curriculum transformation involving local wisdom integration may occur more effectively through facilitated teacher enactment than through top-down policy mandates.

The study contributes to curriculum transformation literature by reconceptualizing local wisdom not primarily as cultural content to be inserted alongside standardized curriculum, but rather as a contextual mediating resource through which national competencies can be developed and interpreted. This perspective offers an alternative approach to cultural responsiveness within centralized education systems, suggesting that schools need not choose between standardization and cultural authenticity, but rather can pursue both through deliberate curriculum enactment. The findings provide empirical evidence from Indonesian vocational education, a context underrepresented in international curriculum scholarship, and demonstrate that the processes documented at SMK Negeri 2 Ponorogo may have relevance for vocational schools operating within similar governance structures and facing comparable tensions between standardization and contextualization. For curriculum developers and school leaders, the study suggests that supporting local wisdom integration requires attention not primarily to curriculum documents but to teacher professional development, community partnerships, and institutional structures enabling teacher autonomy and collaboration. Future research employing comparative case study designs could examine whether similar patterns of curriculum transformation emerge across different vocational disciplines, geographic regions, or educational levels, and whether mixed-methods approaches combining

qualitative case analysis with quantitative measures of student learning might illuminate relationships between contextual curriculum adaptation and educational outcomes. Such investigations would strengthen empirical understanding of how schools in developing and middle-income countries can navigate tensions between standardized accountability and culturally responsive education.

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