



Curriculum Management Quality in Vocational High Schools: Planning, Organizing, Implementation, and Evaluation

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Abstract

Curriculum management quality is a fundamental determinant of educational effectiveness in vocational high schools (SMK). This study assesses curriculum management quality across four dimensions: curriculum planning (D1), curriculum organizing (D2), curriculum implementation (D3), and curriculum evaluation (D4), from the perspectives of school administrators and teachers. A quantitative survey design was employed involving 145 respondents selected through proportionate stratified random sampling across five SMK in West Sumatra, Indonesia. Data were collected using a validated questionnaire (44 items; Cronbach's alpha = 0.91) and analyzed using descriptive statistics and one-way ANOVA. Results indicate that overall curriculum management quality achieved a mean score of 3.69 out of 5.00 (Good category). Curriculum Planning (D1) achieved the highest mean (M = 3.82), while Curriculum Evaluation (D4) was the most critical dimension (M = 3.58). Significant differences in perceptions were found across respondent positions (F = 4.83, p = 0.003). This study contributes an integrated four-dimension quantitative framework for assessing curriculum management quality in SMK, providing empirical evidence that evaluation functions represent the weakest link in the curriculum management cycle and that multi-stakeholder data collection is essential for accurate institutional quality monitoring.

Keywords

curriculum evaluation; curriculum management; curriculum planning; SMK; vocational education

INTRODUCTION

Curriculum is the cornerstone of any educational system, serving as the primary vehicle through which knowledge, skills, and values are transmitted to learners. In vocational education, curriculum assumes particular significance because it must simultaneously address academic competency, industry-relevant technical skills, and

professional character development (Mulyasa, 2013; Rusman, 2012). Vocational high schools (Sekolah Menengah Kejuruan/SMK) in Indonesia operate under the mandate to produce graduates equipped with measurable professional competencies aligned with the national qualification framework (KKNI) and the demands of the labor market (Direktorat PSMK, 2018).

Curriculum management refers to the systematic process of planning, organizing, implementing, and evaluating curriculum to ensure it achieves its intended educational goals effectively and efficiently (Hamalik, 2010; Dakir, 2010). Effective curriculum management requires well-designed learning programs, structured organizational support, instructional leadership, and continuous quality assurance mechanisms (Rusman, 2012; Fattah, 2011). In the SMK context, the need to maintain alignment between curriculum content and rapidly evolving industry standards makes curriculum management a particularly demanding administrative and pedagogical responsibility (Cedefop, 2020; UNESCO-UNEVOC, 2019).

Despite its centrality, empirical research examining the quality of curriculum management in Indonesian SMK using a multidimensional quantitative framework remains limited. Most existing studies focus on individual dimensions, most frequently curriculum implementation, without systematically assessing planning, organizing, and evaluation functions in an integrated manner (Sagala, 2011; Nasbi, 2017). Few studies also compare perceptions across different stakeholder groups, including principals, vice principals, teachers, and administrative staff, despite the importance of multiple perspectives for comprehensive quality assessment (Mulyasa, 2013).

Several prior studies have examined specific aspects of SMK curriculum management. Wulandari et al. (2025) found that curriculum planning quality at SMK significantly predicted teacher performance, while Baartman et al. (2011) demonstrated that competency-based assessment in vocational education is most effective when embedded in systematically managed curriculum structures. However, these studies examined individual dimensions in isolation and relied predominantly on single-stakeholder data, typically teachers, without comparing perceptions across administrative and instructional positions. An integrated quantitative assessment covering all four management functions simultaneously, with multi-stakeholder comparison across principals, vice principals, teachers, and administrative staff, particularly in the post-

Merdeka Belajar policy context, remains absent from the literature. The novelty of this study lies in its simultaneous assessment of all four curriculum management dimensions using a validated multi-stakeholder instrument, enabling both diagnostic profiling of dimension-level quality and statistical comparison of perceptions across hierarchical positions within the same institutional context. This dual-level analytical approach, combining descriptive quality assessment with inferential stakeholder comparison, has not been applied in prior SMK curriculum management research. Therefore, this study aims to: (1) assess curriculum management quality in SMK across four dimensions; (2) compare perceptions across stakeholder positions; and (3) identify priority areas for institutional and policy improvement.

THEORETICAL SUPPORT

Curriculum Management

Curriculum management is the application of management principles, specifically planning, organizing, implementing, and evaluating, to the curriculum as an educational program (Hamalik, 2010; Rusman, 2012). Drawing from the management cycle framework established by Terry (1977) and adapted to educational contexts by Fattah (2011), curriculum management encompasses four interrelated functions. Curriculum planning establishes learning objectives, content scope, industry alignment, and program structures. Curriculum organizing assigns roles, allocates resources, and arranges schedules to support curriculum delivery. Curriculum implementation executes the teaching-learning process through selected methods, media, and student engagement strategies. Curriculum evaluation assesses the extent to which curriculum goals are achieved and generates evidence for continuous improvement (Dakir, 2010; Nasbi, 2017).

Curriculum Management in Vocational Education

In the SMK context, curriculum management operates at the intersection of educational theory and labor market demands. The Indonesian SMK curriculum framework, governed by Permendikbud No. 34 of 2018 and subsequently the Kurikulum Merdeka (Kemendikbudristek, 2022), requires SMK to systematically manage competency-based programs aligned with specific occupational profiles. Curriculum management must therefore integrate industry partnership at all four stages: industry needs

inform planning, industry resources support organizing, industry-relevant contexts enrich implementation, and industry competency standards anchor evaluation (Cedefop, 2020; UNESCO-UNEVOC, 2019). Effective curriculum management in vocational schools is consequently both an administrative and a pedagogical challenge that requires leadership, coordination, instructional quality, and evidence-based assessment practice (Mulyasa, 2020; Sagala, 2011).

Theoretical Framework

The theoretical framework applied in this study integrates Hamalik's (2010) four-function curriculum management model with Rusman's (2012) vocational curriculum quality dimensions and Mulyasa's (2013) school-based management principles. As illustrated in Figure 1, the four curriculum management dimensions (Planning, Organizing, Implementation, Evaluation) function as an integrated system that collectively determines curriculum quality outcomes, specifically student competency development and overall program effectiveness. Principal leadership style is proposed as a moderating variable, consistent with findings from Fattah (2011) and Mulyasa (2020) on the role of school leadership in curriculum governance quality.

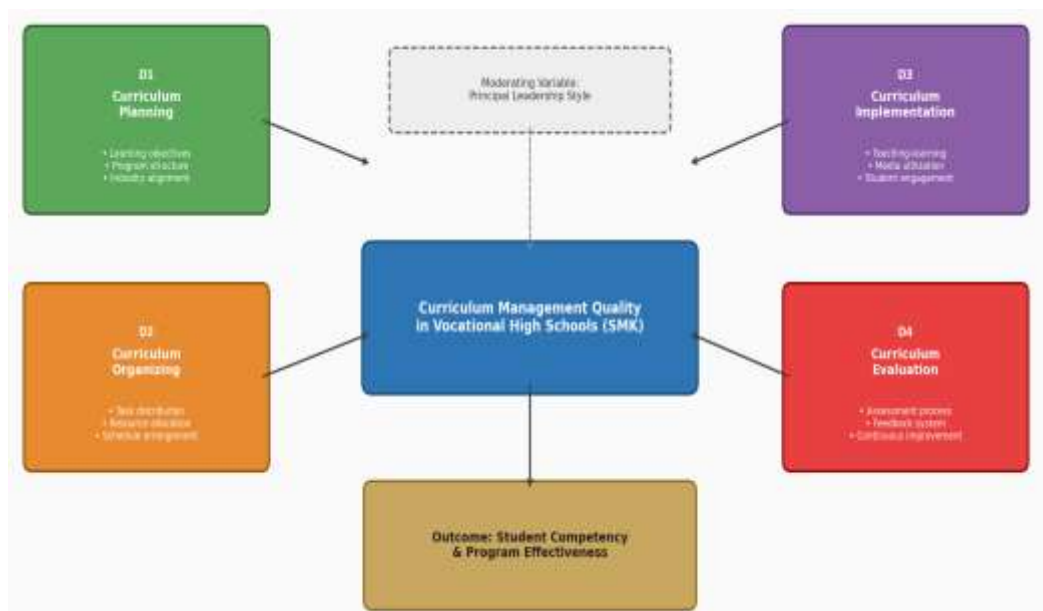


Figure 1. Conceptual Framework: Curriculum Management Dimensions and Their Relationship to Vocational Education Outcomes

METHOD

This research employed a quantitative survey design, appropriate for systematically measuring perceptions across a defined population using standardized instruments (Fraenkel et al., 2012; Creswell, 2014). The survey approach enables efficient data collection from large samples and supports statistical comparison across subgroups (Sugiyono, 2019).

The research was conducted at five SMK Negeri in West Sumatra, Indonesia, during the 2024/2025 academic year. The target population comprised all school administrators and teachers ($N = 218$). The sample size of 145 respondents was determined using the Slovin formula with a 5% margin of error: $n = N / (1 + N \cdot e^2) = 218 / (1 + 218 \cdot 0.05^2) = 218 / 1.545 \approx 141$, rounded up to 145 to account for potential non-response and ensure proportional representation across all five schools and four position categories (Sugiyono, 2019). Participants were selected using proportionate stratified random sampling, stratifying by position and school to ensure representative coverage. The final sample consisted of 145 respondents (principals: $n=4$; vice principals: $n=8$; teachers: $n=108$; administrative staff: $n=25$), as presented in Table 1.

Table 1. Sample Distribution by School and Position

School	Principal	Vice Principal	Teachers	Admin Staff	Total
SMK Negeri 1	1	2	22	5	30
SMK Negeri 2	1	2	21	5	29
SMK Negeri 3	1	2	22	5	30
SMK Negeri 4	1	1	22	5	29
SMK Negeri 5	0	1	21	5	27
Total	4	8	108	25	145

Data were collected using a validated self-administered questionnaire comprising 44 items structured around four curriculum management dimensions based on Hamalik (2010), Rusman (2012), and Mulyasa (2013), as shown in Table 2. Items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Content validity was assessed by three expert validators (Content Validity Ratio/CVR = 0.89). Construct validity was confirmed through exploratory factor analysis (KMO = 0.87; all factor loadings > 0.60). Internal consistency was measured using Cronbach's alpha: overall (alpha

= 0.91), D1 (alpha = 0.87), D2 (alpha = 0.85), D3 (alpha = 0.88), and D4 (alpha = 0.84), all exceeding the accepted threshold of 0.70 (Hair et al., 2019).

Table 2. Questionnaire Structure: Dimensions and Number of Items

Dimension	Code	Key Sub-Indicators	Items
Curriculum Planning	D1	Objectives; content mapping; industry alignment; lesson planning	12
Curriculum Organizing	D2	Task distribution; resource allocation; scheduling; coordination	10
Curriculum Implementation	D3	Teaching methods; media use; student engagement; differentiation	12
Curriculum Evaluation	D4	Assessment clarity; feedback; competency scoring; documentation	10
Total			44

Data were analyzed using IBM SPSS Statistics 26. Descriptive statistics including mean, standard deviation, frequency, and percentage were computed for each dimension and for the overall scale. Mean scores were categorized using five-interval criteria adapted from Arikunto (2012): Very Good (4.21 to 5.00), Good (3.41 to 4.20), Adequate (2.61 to 3.40), Poor (1.81 to 2.60), and Very Poor (1.00 to 1.80). One-way ANOVA was conducted to examine perception differences across respondent positions, followed by Tukey's HSD post-hoc test where the F statistic was significant. Prior to ANOVA, data normality was verified using the Kolmogorov-Smirnov test (all $p > 0.05$) and homogeneity of variance was confirmed using Levene's test ($p > 0.05$).

RESULT AND DISCUSSION

Respondent Profile

The sample comprised 145 respondents: 4 principals (2.8%), 8 vice principals (5.5%), 108 teachers (74.5%), and 25 administrative staff (17.2%). In terms of educational background, 85 respondents (58.6%) held a bachelor's degree, 52 (35.9%) a master's degree, and 8 (5.5%) a doctorate. Teaching experience ranged from less than 5 years ($n=28$, 19.3%) to more than 20 years ($n=20$, 13.8%), with the majority in the 11 to 20 year bracket ($n=52$, 35.9%). The complete respondent profile is presented in Figure 2.

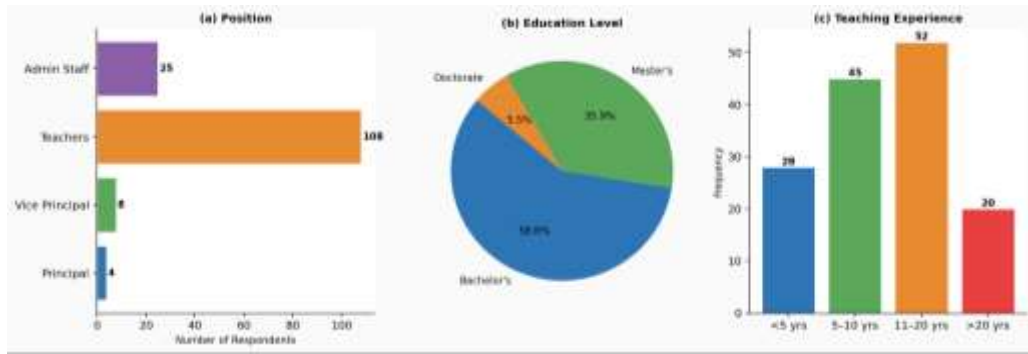


Figure 2. Respondent Profile: Position, Education Level, and Teaching Experience

Overall Curriculum Management Quality

Table 3 presents descriptive statistics for each curriculum management dimension and the overall score. Figure 3 visualizes the mean scores across all dimensions.

Table 3. Descriptive Statistics of Curriculum Management Dimensions

Dimension	N	Min	Max	Mean	SD	Category
D1: Curriculum Planning	145	2.60	5.00	3.82	0.52	Good
D2: Curriculum Organizing	145	2.40	5.00	3.64	0.58	Good
D3: Curriculum Implementation	145	2.50	5.00	3.71	0.55	Good
D4: Curriculum Evaluation	145	2.20	4.80	3.58	0.61	Good
Overall	145	2.45	4.95	3.69	0.54	Good

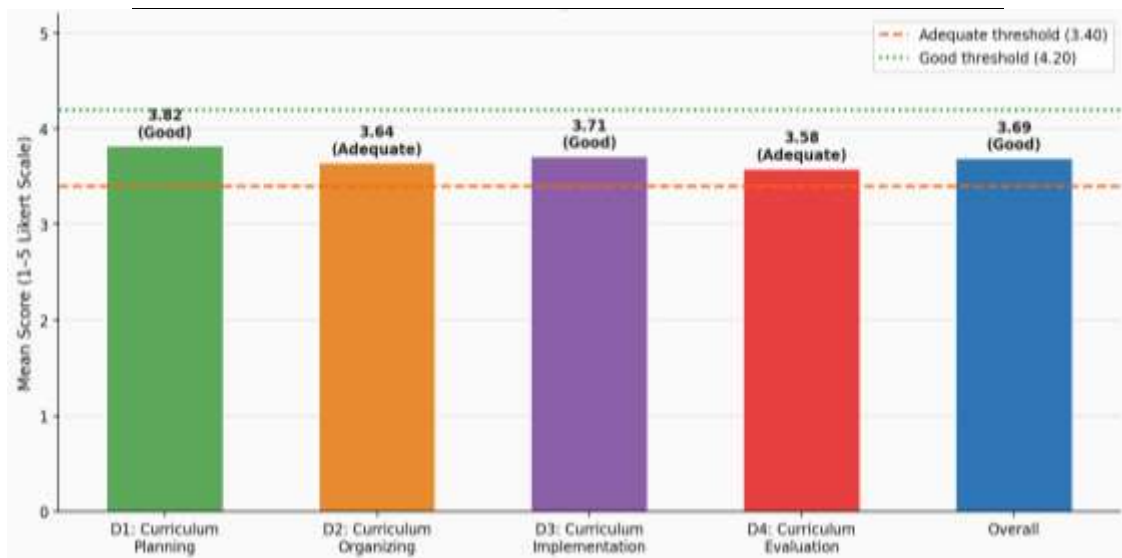


Figure 3. Mean Scores of Curriculum Management Dimensions

Overall curriculum management quality received a mean score of 3.69 (SD = 0.54), placing it in the Good category. This indicates that curriculum management practices at the surveyed SMK generally meet expected standards, yet notable gaps persist, particularly in Curriculum Evaluation (D4, M = 3.58) and Curriculum Organizing (D2, M = 3.64).

Curriculum Planning (D1) achieved the highest mean ($M = 3.82$), reflecting the relative strength of formal planning mechanisms at these institutions. These findings align with Sagala (2011) and Hamalik (2010), who observed that Indonesian schools tend to invest greater institutional energy in planning-stage documentation than in ongoing evaluation cycles. The Merdeka Belajar framework has reinforced planning processes through its structured Capaian Pembelajaran requirements (Kemendikbudristek, 2022), which partly accounts for the relative strength of D1.

Curriculum Planning (D1) — Highest Dimension

Curriculum Planning achieved the highest mean score of 3.82, classified as Good. At the indicator level, learning objective alignment ($M = 3.95$) and structured lesson plan completeness ($M = 3.88$) were the strongest items, while industry-based content mapping ($M = 3.72$) and competency standard integration ($M = 3.68$) recorded the lowest scores within D1. The strength of lesson planning is consistent with mandatory documentation requirements under Permendikbud No. 16 of 2022. However, the lower scores on industry alignment suggest that, despite the link and match policy mandate, the integration of authentic industry content into formal curriculum planning documents remains inconsistent across institutions. This pattern is consistent with UNESCO-UNEVOC (2019) and Wulandari et al. (2025), who identified industry-curriculum alignment as a persistent challenge in Southeast Asian vocational education systems.

Curriculum Organizing (D2) and Implementation (D3)

Curriculum Organizing (D2) received a mean of 3.64, reflecting generally adequate structures for task distribution and resource allocation, though cross-departmental coordination scored lower. Administrative staff rated D2 lower than teachers ($M = 3.48$ vs. $M = 3.71$), suggesting that coordination mechanisms are less transparent to those managing administrative support functions. Effective curriculum organizing requires clear role delineation and systematic resource mapping applied consistently across all stakeholder groups (Fattah, 2011; Rusman, 2012).

Curriculum Implementation (D3) received a mean of 3.71, reflecting adequate execution of teaching-learning processes. Student engagement indicators ($M = 3.68$) and differentiated instruction ($M = 3.62$) registered the lowest scores within this dimension.

These results indicate that curriculum delivery is occurring but does not consistently address the diverse learning needs of vocational students. This finding is consistent with Mayer (2009) and Mulyasa (2013), who emphasize that meaningful vocational learning requires contextual and differentiated instructional strategies. The Teaching Factory model under Merdeka Belajar holds potential to strengthen D3, but requires consistent institutional support structures to be effective (Kemendikbudristek, 2022).

Curriculum Evaluation (D4) — Most Critical Dimension

Curriculum Evaluation (D4) recorded the lowest mean of 3.58, making it the most critical dimension requiring improvement. Indicator-level analysis revealed that feedback timeliness ($M = 3.45$) and remedial and enrichment program implementation ($M = 3.42$) were the lowest-scoring items across the entire instrument, both approaching the boundary of the Adequate category (below 3.40). Detailed indicator scores for D1 and D4 are presented in Figure 4 and Table 4.

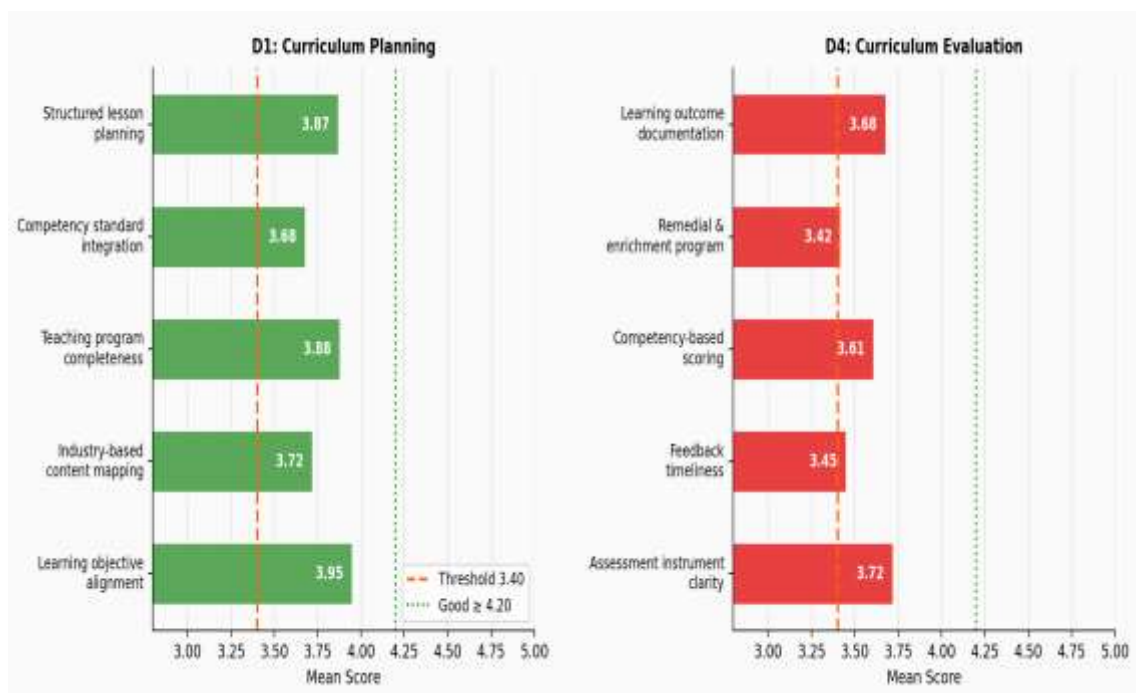


Figure 4. Indicator-Level Mean Scores: D1 (Curriculum Planning) and D4

Table 4. Indicator-Level Scores: D1 (Curriculum Planning) and D4 (Curriculum Evaluation)

Dimension	Indicator	Mean	SD	Category
D1: Curriculum Planning	Learning objective alignment	3.95	0.48	Good
	Industry-based content mapping	3.72	0.55	Good
	Teaching program completeness	3.88	0.50	Good
	Competency standard integration	3.68	0.57	Good
	Structured lesson planning	3.87	0.51	Good
	Assessment instrument clarity	3.72	0.54	Good
D4: Curriculum Evaluation	Feedback timeliness	3.45	0.62	Good
	Competency-based scoring	3.61	0.58	Good
	Remedial & enrichment program	3.42	0.65	Good
	Learning outcome documentation	3.68	0.56	Good

The low scores on feedback timeliness and remedial programs reveal a systemic weakness in formative assessment practice. In competency-based vocational education, assessment must function not only as summative measurement but also as a continuous feedback mechanism that informs both teacher instruction and student learning direction (Majid, 2014; Permendikbud No. 53, 2015). Baartman et al. (2011) demonstrated that assessment quality is the strongest predictor of student competency achievement in vocational programs, as it closes the learning loop between instruction and improvement. The D4 scores suggest this loop is not fully operational at the surveyed institutions, a finding consistent with Wirawan (2020) and Stufflebeam and Coryn (2014), who documented the chronic underinvestment in formative evaluation within Indonesian educational institutions.

Differences in Perceptions by Respondent Position

One-way ANOVA revealed statistically significant differences in overall curriculum management perceptions across respondent positions ($F(3,141) = 4.83, p = 0.003$), as shown in Table 5. Tukey's HSD post-hoc test identified significant pairwise differences between principals and teachers ($p = 0.018$) and between vice principals and

administrative staff ($p = 0.041$), with leadership positions consistently rating curriculum management quality higher than frontline staff.

Table 5. One-Way ANOVA: Curriculum Management Perceptions by Respondent Position

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.218	3	1.406	4.83	0.003*
Within Groups	41.027	141	0.291		
Total	45.245	144			

This perceptual divergence carries important theoretical and practical implications. Principals and vice principals, who are responsible for policy formulation and institutional performance reporting, tend to evaluate curriculum management quality based on documentation compliance and planning completeness, which are the relatively stronger areas. Teachers and administrative staff, who experience day-to-day implementation realities, rate quality based on operational efficiency, resource adequacy, and feedback cycle effectiveness, which are areas scoring comparatively lower (Fattah, 2011; Sagala, 2011). These findings underscore the importance of multi-stakeholder data collection in curriculum management evaluation and caution against relying solely on leadership self-assessment as a proxy for institutional quality (Wirawan, 2020; Stufflebeam and Coryn, 2014).

CONCLUSION

This study assessed the quality of curriculum management in five vocational high schools (SMK) through four dimensions: curriculum planning, organizing, implementation, and evaluation. The findings indicate that overall curriculum management was categorized as good, with Curriculum Planning emerging as the strongest dimension, reflecting relatively effective curriculum design and alignment with institutional objectives. In contrast, Curriculum Evaluation received the lowest score, indicating weaknesses in systematic monitoring, feedback utilization, and continuous improvement processes. Furthermore, significant differences in perceptions among respondent groups suggest that curriculum management quality is experienced differently across organizational levels, highlighting the importance of inclusive and multi-stakeholder evaluation mechanisms. Based on these findings, schools should strengthen formative

curriculum evaluation practices by establishing structured monitoring cycles, timely feedback systems, and follow-up improvement programs. Curriculum management teams are also encouraged to enhance collaboration with industry partners to ensure stronger alignment between curriculum content and workforce competency requirements. At the policy level, education authorities should develop comprehensive curriculum management monitoring frameworks that incorporate perspectives from school leaders, teachers, and other stakeholders to reduce perception gaps and support evidence-based decision-making. Theoretically, this study contributes to the curriculum management literature by providing empirical support for the multidimensional nature of Hamalik's curriculum management model within the vocational education context, demonstrating that curriculum functions exhibit different levels of effectiveness rather than operating uniformly. The study also confirms the existence of stakeholder perception gaps in educational management and reinforces the central role of evaluation as a critical yet often underdeveloped component of the curriculum management cycle. Despite these contributions, the findings should be interpreted with caution due to several limitations, including the restricted sample of public vocational schools in West Sumatra, the reliance on self-reported questionnaire data, and the cross-sectional design that does not capture changes over time. Therefore, future studies are recommended to include a broader range of vocational schools across different regions and governance types, employ mixed-methods approaches combining surveys with document analysis and field observations, and investigate contextual factors such as leadership style, organizational culture, and industry engagement that may influence curriculum management effectiveness. Such efforts would strengthen the generalizability of findings and provide deeper insights into strategies for improving curriculum management quality in vocational education.

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