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Teacher-Reported Project-Based Learning Practices in Elementary Schools and Madrasahs in Kota Tengah, Gorontalo

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Abstract. Project-based learning is central to efforts to make primary education more active and contextual, yet evidence about teachers' implementation practices remains locally uneven. This study describes planning, classroom implementation, and evaluation of project-based learning in five elementary schools and madrasahs in Kota Tengah District, Gorontalo. A descriptive questionnaire survey involved 47 teachers from a stated population of 90, complemented by selected interviews and school documentation. The 34-item instrument covered planning (10 items), implementation (17), and evaluation or follow-up (7). The original thesis classified all three dimensions as Good, with reported percentages of 89%, 90%, and 89%, respectively. Recalculation from the questionnaire's frequency appendix yielded 89.36%, 90.01%, and 88.75%, and an overall weighted score of 89.56%. The highest item scores concerned developmentally appropriate learning media (92.77%), an enjoyable classroom environment (92.34%), and alignment of resources and assessments with learning objectives (91.49%). Relatively lower scores involved activating pupils during planning, preparing assessment tools, individualized support, and parent communication. Interview accounts described diagnostic assessment, varied teaching methods, lesson reflection, and targeted guidance. These findings profile self-reported teaching practices, not experimentally measured pupil gains, and identify practical priorities for strengthening authentic project design and assessment.

Keywords: Elementary Education; Formative Assessment; Indonesia; Project-Based Learning; Teacher Practices.

1. BACKGROUND

Elementary education has an important role in developing the knowledge, dispositions, and social competencies through which children participate in contemporary society. Alongside foundational literacy and numeracy, primary schools are expected to provide opportunities for communication, collaboration, creativity, and critical reasoning (Fadly et al., 2026; Sihombing et al., 2026). These goals have strengthened interest in instructional arrangements that position pupils as participants in knowledge construction rather than recipients of explanations alone. Project-based learning (PjBL) is one such arrangement: pupils investigate a meaningful question, integrate information from different sources, cooperate where appropriate, and develop an identifiable product or response to an authentic problem. The approach is not defined merely by the presence of practical assignments, but by sustained inquiry, purposeful learning goals, and opportunities for pupil decision-making (Blumenfeld et al., 1991; Bell, 2010; Kokotsaki et al., 2016). In elementary settings, the challenge is to make these characteristics developmentally appropriate while retaining curricular coherence and effective teacher guidance (Salim & Hanif, 2026).

The relevance of PjBL in Indonesia has grown alongside implementation of the Merdeka Curriculum, which gives teachers flexibility to adapt materials, methods, and assessment to pupils' characteristics. Indonesian reviews describe differentiated instruction, formative

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assessment, and active project work as complementary directions in primary education (Hasan et al., 2024; Kristiyuana et al., 2025). Nevertheless, subject-based PjBL and the Project for Strengthening the Pancasila Student Profile (P5) are not interchangeable: the latter has a specific programmatic and curricular function, even though both may employ collaborative, contextual activities. Studies of P5 and early-childhood projects illustrate the value of local contexts and school support while also demonstrating variation across educational settings (Susanto et al., 2024; Widiastuti et al., 2024; Nurmala et al., 2025). Thus, the adoption of a project-oriented curriculum cannot in itself establish whether its classroom processes have been planned, enacted, and evaluated consistently.

Evidence on PjBL outcomes provides a rationale for examining implementation quality. A meta-analysis of 66 studies with 190 effect estimates found generally positive learning effects, although the magnitude differed by context and outcome (Zhang & Ma, 2023). In elementary science, Krajcik et al. (2023) studied 2,371 third-grade pupils across 46 schools in a project-based intervention supported by instructional materials and teacher development. Other syntheses indicate promising effects on achievement and motivation, but also substantial heterogeneity. Wijnia et al. (2024), for example, synthesized 132 reports and estimated a mean motivation effect of $d = 0.498$ across problem-, project-, and case-based forms of instruction. A recent mathematics meta-analysis estimated a positive pooled effect of $d = 0.529$, which declined to 0.275 after publication-bias adjustment (Wang et al., 2026). These findings suggest potential, not a guarantee that any classroom activity described as a project will produce improved pupil outcomes.

The central practical problem is how teachers translate broad curricular expectations into instructional decisions. Teachers must identify suitable problems, plan feasible project stages, organize learning resources, guide collaboration, and decide when and how to evaluate progress (Nurlelah et al., 2026). A study of implementation in 12 schools emphasized that the recognizable features of PjBL must be investigated through actual teacher and pupil activities rather than inferred from programme labels alone (Markula & Aksela, 2022). Evidence from 182 teachers also associated school collegiality and perceived support for professional autonomy and competence with motivation to implement project-based instruction (Hermansyah & Suyatno, 2026; Lam et al., 2010). When these supports are uneven, teachers may be confident in preparing routine lessons but less prepared to facilitate sustained inquiry, distribute meaningful roles, or assess the quality of project work. A descriptive assessment should therefore distinguish broad instructional readiness from direct evidence that all defining features of PjBL have been enacted.

Planning and evaluation represent particularly important parts of this translation. In a survey of 884 Indonesian early-primary teachers, 81% expressed a high need for project-based mathematics teaching modules, illustrating the continuing demand for usable classroom planning resources (Astuti & Zabit, 2024). A smaller Indonesian survey of 20 elementary teachers described the types of projects undertaken under the Merdeka Curriculum; posters accounted for 45% of reported activities, followed by interviews at 20% and several less frequent formats (Darmayanti et al., 2023). These studies show that teachers can recognize and report project activity while still requiring support in designing tasks and matching them to instructional objectives. At the classroom level, responsive teaching additionally depends on pupils' initial understanding, timely feedback, and adaptations for learners who progress at different rates (Deunk et al., 2018; Schildkamp et al., 2020).

Project activity also requires attention to the conditions under which pupils participate. From a self-determination perspective, autonomy, competence, and relatedness help explain why learners may engage more deeply when they experience meaningful choices and supportive guidance (Ryan & Deci, 2020). A teacher-questionnaire investigation found that collaborative, authentic, and iterative project processes were associated with reported student engagement, although the study design did not isolate causal effects (Almulla, 2020[; Nurlelah et al., 2026). Studies of computational thinking and other competencies likewise suggest that PjBL can provide a setting for problem-solving and creativity, but outcomes depend on task structure and measurement (Zhang et al., 2024). The evidence base is not methodologically uniform. An umbrella review of 15 meta-analyses noted a broadly positive direction of findings while rating the methodological quality of the included reviews as critically low, underscoring the need for restrained interpretation (Farshad & Fortin, 2026).

These questions are relevant to Kota Tengah District, Gorontalo, where the underlying thesis reported preliminary observations over approximately four months at several elementary schools and madrasahs. The observations identified limited specialist training in project-based methods, shortages of project materials or facilities in some schools, and pupils who were enthusiastic but sometimes required close guidance. The thesis further identified variation in teacher understanding of project assessment and the practical conduct of project activities. Although international and Indonesian studies offer valuable accounts of outcomes, curriculum reform, and project design, the local evidence supplied with this study did not provide a systematic description of the three linked phases of planning, implementation, and evaluation in the participating schools. This descriptive gap motivates examination of teacher-reported instructional practice rather than another general statement that PjBL is beneficial.

The present study therefore asks how PjBL-related practices are planned, implemented, and evaluated by teachers in five elementary schools and madrasahs in Kota Tengah District. Specifically, it describes lesson-module preparation, initial assessment and resource selection; classroom delivery, participation and instructional media; and monitoring, individualized support, parent communication and teacher reflection. Data come from a five-category questionnaire completed by 47 teachers, supplemented by selected teacher interviews and documentation. The contribution lies in a transparent, item-level account of reported implementation patterns and areas requiring development. The study does not test the effects of an intervention on pupils' achievement, establish project fidelity through independent observation, or generalize statistically to every school in the district. Its practical aim is to inform better-targeted teacher support and school improvement.

2. THEORETICAL STUDIES

Defining Authentic Project-Based Learning

Project-based learning organizes the acquisition and application of knowledge around a sustained investigation that culminates in a product, explanation, presentation, or other publicly discussable outcome. The driving question connects disciplinary ideas with a problem pupils can understand, while project milestones distribute responsibility across planning, inquiry, construction, revision, and reflection (Blumenfeld et al., 1991; Bell, 2010). Its pedagogical meaning depends on how these elements operate together. A craft activity following a teacher demonstration, for example, is not automatically equivalent to a pupil-directed project; meaningful inquiry requires room for decisions and the use of information to answer the question. Reviews repeatedly identify authenticity, learner autonomy, collaboration, and assessment as distinguishing features (Kokotsaki et al., 2016; Markula & Aksela, 2022).

A primary-school project must also be adjusted to age and available support. Kaldi et al. (2011) documented project-based learning with primary pupils and reported improvements in aspects of content knowledge and group-work skills. Karaçalli and Korur (2014) reported statistically significant differences in fourth-grade achievement and retention, although not in attitudes, thereby showing that different outcome domains need not move together. A broader review of higher-education PjBL similarly found that studies frequently measured perceptions rather than independently scored products or longer-term learning (Guo et al., 2020). For the present investigation, the operational emphasis is on what teachers report doing during instruction; any claim about pupils' mastery or the quality of completed projects requires evidence beyond those teacher ratings.

Project Stages and Instructional Differentiation

The underlying thesis consolidates six instructional stages: identifying a driving question; designing the project; planning the schedule; monitoring progress; presenting and assessing the product; and evaluating the process. These stages can be considered within three management phases-planning, classroom execution, and evaluation that organize the questionnaire. During planning, teachers connect learning objectives with tasks and resources. During execution, they guide inquiry, manage group processes, and respond to emerging difficulties. During evaluation, they examine both product quality and the learning process. Teacher-directed scaffolding is compatible with PjBL when it helps pupils make increasingly independent decisions. Research on the adoption of student-centred problem-based teaching identifies role changes, collaborative culture, and inquiry support as continuing implementation difficulties; the related but distinct problem-based model provides a useful caution rather than direct evidence for project fidelity (Ertmer & Simons, 2006).

Differentiation adds a further requirement because pupils enter project work with different levels of prior knowledge and confidence. A systematic review of primary education found that ability grouping alone did not reliably improve outcomes, whereas broader instructional adaptation and suitable technology support appeared more promising (Deunk et al., 2018). Zimmerman (2002) describes self-regulated learning as involving goals, strategic action, monitoring, and self-evaluation, while Panadero (2017) highlights the intertwined cognitive and motivational processes of regulation. These perspectives suggest that project schedules and monitoring should help pupils recognize what is expected and evaluate their progress, rather than simply assigning groups an activity and waiting for a final product.

Engagement, School Support, and Curriculum Context

Project learning is frequently discussed as a potential means of fostering student motivation and participatory classrooms. Ryan and Deci (2020) explain why opportunities for choice are more effective when paired with experiences of competence and social connection. Almulla (2020) found relationships among authentic, collaborative and iterative learning experiences and engagement in a teacher survey, while Lam et al. (2010) connected perceived school support with teachers' motivation to continue PjBL. These relationships indicate that teaching practices are embedded in organizational circumstances; materials, time, collegial assistance, and teacher confidence can affect whether an intended project becomes a sustained learning experience. A critical review of professional development research cautions against assuming that any single workshop design will necessarily change classroom outcomes (Sims & Fletcher-Wood, 2021).

The Indonesian Merdeka Curriculum adds an explicit need to relate local teaching activity to curricular purpose. Hasan et al. (2024) review primary-school implementation under this reform, and Kristiyuana et al. (2025) locate PjBL alongside differentiation and formative assessment. Wulandari and Nawangsari (2024) describe potential learner benefits in a review of project learning under the curriculum. However, accounts of P5 activities must remain conceptually distinct from subject-based PjBL. Nurmala et al. (2025) and Susanto et al. (2024), for instance, describe schoolwide Pancasila profile projects and contextual themes; Aulina and Nurdiana (2024) and Widiastuti et al. (2024) discuss developmentally oriented early-childhood project work. Such cases contextualize local project culture but cannot be treated as direct measurements of how primary classroom lessons in Kota Tengah follow PjBL stages.

Assessment, Feedback, and Home-School Connections

Formative assessment concerns the use of information about current understanding to adjust instruction. Black and Wiliam (1998) place evidence, feedback, and learner participation at the centre of assessment for learning. Hattie and Timperley (2007) distinguish feedback on goals, present performance, and next steps from undirected praise, and Schildkamp et al. (2020) identify teacher knowledge, data literacy, beliefs, and collaboration as key prerequisites. In projects, this translates into diagnostic tasks before instruction, opportunities to examine work in progress, and evaluation of both group processes and individual understanding. Rubrics may clarify standards, but evidence indicates that their value depends on being actively used during learning (Panadero & Jonsson, 2013). Meta-analytic research further supports a role for pupil self-assessment in aspects of self-regulation and self-efficacy (Panadero et al., 2017).

Evaluation extends beyond the pupil–teacher interaction. Teacher-to-parent communication can offer families timely information about difficulties and progress, while its value depends on content and follow-up rather than contact frequency alone. A field experiment reported educational benefits from strategically structured teacher–parent communication (Kraft & Rogers, 2015); broader syntheses connect forms of parental involvement with achievement and adjustment, without implying identical effects across contexts (Wilder, 2014; Barger et al., 2019). Teacher reflection is another link between evidence and revised practice. Desimone (2009) proposes studying professional learning through changes in teacher knowledge, classroom activity, and pupil outcomes rather than through participation counts alone. Together these perspectives support an evaluation dimension covering monitoring, individualized assistance, parent contact, and reflective improvement.

3. RESEARCH METHODS

Design, Setting, and Research Questions

The research used a descriptive survey supported by teacher interviews and school documentation to examine the reported implementation of PjBL. The original thesis calls its approach “descriptive explanatory,” but the available procedures comprise frequency summaries and accounts of teaching practice; no experimental manipulation or explanatory statistical model was conducted. The present report therefore treats the study as a descriptive, cross-sectional account rather than a causal evaluation. One composite construct implementation of PjBL-related teaching practice—was divided into three dimensions: planning, classroom implementation, and evaluation or follow-up. These correspond to the three stated research questions. The selected sites were SDN 79 Kota Tengah, SDN 70 Kota Tengah, SDIT Az-Zahra, Madrasah Ibtidaiyah Muhammadiyah Unggulan Kota Gorontalo, and SDN 74 Kota Tengah, all in Kota Tengah District, Gorontalo.

School selection in the thesis was based on practical accessibility, available time, travel demands, and research costs. The methodology describes approximately three months of activity and specifically names February, May, and October 2025; these are nonconsecutive months, so the records do not establish a continuous three-month fieldwork interval. The tables identify questionnaire data processing in October 2025, while the preliminary account describes approximately four months of school observation. Data sources were teacher responses to a closed-ended questionnaire, selected interviews conducted face to face, and supporting photographs and documents. Quantitative findings are best interpreted as teachers' reported practices in the participating schools rather than observations of pupil performance.

Population and Participant Selection

The stated population was 90 teachers distributed across five institutions, from which the reported study sample included 47 teachers. Table 1 provides the full school-level population and sample allocation. The thesis uses the label purposive sampling, meaning that participants were chosen with practical and substantive considerations in mind. It also cites Slovin's formula to determine a nominal sample target, $n = N/(1 + Ne^2)$, with $N = 90$ and $e = 0.10$, producing 47.37 and a final sample of 47. This formula is a sample-size calculation; in the absence of random selection it does not establish a probability sample or a 10% sampling-error guarantee. Methodological work on purposeful selection similarly distinguishes information-oriented recruitment from probability sampling (Palinkas et al., 2015).

Table 1. Population and Sample Distribution Across the Five Participating Schools.

School	Population	Sample	Coverage (%)
SDN 79 Kota Tengah	16	8	50.00%
SDN 70 Kota Tengah	11	6	54.55%
SDIT Az-Zahra	12	6	50.00%
MIM Unggulan Kota Gorontalo	40	21	52.50%
SDN 74 Kota Tengah	11	6	54.55%
Total	90	47	52.22%

Source: original thesis population and sampling tables (2025). Coverage is sample divided by listed population; it is not a verified response rate.

The study included eight teachers from SDN 79, six from SDN 70, six from SDIT Az-Zahra, 21 from the Muhammadiyah madrasah, and six from SDN 74. These figures represent 52.22% of the listed teacher population in aggregate, although that ratio is not a documented questionnaire response rate because numbers invited to participate and any refusals were not reported. Recruitment criteria beyond the source's description of purposive selection were not specified. Inference is therefore confined to the teachers who provided answers and to the contextual information supplied by their schools. Differences between schools are not tested because the available result tables aggregate the 47 respondents and do not present a complete school-by-school response matrix.

Questionnaire Dimensions and Operational Measures

The questionnaire contains 34 statements answered on five ordered categories: strongly unsuitable (1), unsuitable (2), sometimes (3), suitable (4), and strongly suitable (5). Ten items address planning (items 1-10), including preparing teaching modules, assessing pupils' initial competence, choosing strategies, selecting resources, and aligning assessment with objectives. Seventeen items address implementation (items 11-27), including time management, lesson reflection, content mastery, pupil participation, learning media, classroom climate, and methods of explanation. Seven items cover evaluation and follow-up (items 28-34), including ongoing monitoring, individual help, assessment selection, communication with parents, use of results for subsequent teaching, and professional reflection. The original questionnaire and frequency appendix establish these item counts despite miscounts in some narrative introductions.

The five response options are treated as ordered categories, and each item is displayed through its complete response-frequency distribution. Multi-item scores are used here solely as descriptive summaries of teacher agreement or perceived practice. Sullivan and Artino (2013) caution that individual Likert-type responses and composite multi-item scales should not be interpreted interchangeably or treated automatically as interval-level measures. The thesis does

not provide the results of an instrument validation exercise, a factor analysis, or an internal-consistency coefficient. Tavakol and Dennick (2011) explain that Cronbach's alpha can contribute to a reliability assessment but does not establish dimensionality; no alpha value is imputed for this dataset. The article therefore avoids presenting unreported psychometric or construct-validity claims.

Interviews, Documentation, and Qualitative Interpretation

Selected teachers were interviewed face to face through oral questions; the thesis states that a mobile phone and field notes were used for recording. Interview topics included diagnostic assessment, lesson-module design, varied teaching methods, pupil reflection, classroom rules, individualized support, assessment formats, family communication, and teachers' professional learning. The appendix identifies 31 coded interview entries, some with repeated codes, which does not verify 31 unique interview participants. Interviews are therefore referred to as selected teacher accounts without assigning a precise number of distinct interviewees. Photographs and administrative documents supplied contextual corroboration of research visits and selected school activities, but not independent outcome measurements.

Qualitative results were presented in the source as illustrative quotations and narrative summaries associated with individual questionnaire indicators. In this manuscript, the accounts are synthesized as contextual themes, not as frequencies across all 47 teachers. Braun and Clarke (2006) provide a recognized framework for systematically identifying recurring themes, and Nowell et al. (2017) stress transparent coding and an auditable analytic trail. The source does not document a complete formal coding protocol, inter-coder agreement, or independently reproducible theme development, so these standards are discussed as interpretive benchmarks rather than methods claimed to have been executed. Integration occurs at the level of explanation: the interview material clarifies what certain questionnaire items may mean in practice, consistent with the distinction between complementary and merged data in mixed-methods research (Fetters et al., 2013).

Data Processing, Scoring, and Analysis Boundaries

The original analysis reports the percentage for each response option as its frequency divided by 47, multiplied by 100. For item i, the weighted score was calculated as $S_i = 5f_5 + 4f_4 + 3f_3 + 2f_2 + f_1$, with a maximum of 47 × 5 = 235. A dimension percentage equals the sum of item scores divided by 235 multiplied by the number of items in that dimension, then multiplied by 100. The original categories were Very Good (91-100%), Good (81-90%), Fairly Good (71–80%), Less Good (61–70%), and Not Good (below 60%); the printed classification leaves precisely 60% unspecified. Counts and weighted totals were rechecked against the 34-

item response recap provided in the thesis appendix. Both the source's rounded percentages and the recalculated percentages are reported explicitly.

The source uses descriptive summaries but supplies no hypothesis test, confidence interval, effect-size estimate for pupils, comparative control group, or verified measure of project-product quality. The absence of independent project rubrics and observations is relevant because PjBL evaluations may alternatively employ task products, achievement tests, pupil interviews, or observation protocols (Guo et al., 2020; Markula & Aksela, 2022). The study's questionnaire was accompanied by a confidentiality assurance and a statement that participation would not affect teachers' employment. The available thesis materials do not document a separate ethics review determination. Consequently, this manuscript makes no claim about formal ethics clearance and limits all conclusions to the evidence actually supplied.

4. RESULTS AND DISCUSSION

Results

Overall Distribution of Teacher-Reported Practices

Data from 47 teachers were tabulated across 34 questionnaire items. The source reports three domain-level percentages: planning 89%, classroom implementation 90%, and evaluation and follow-up 89%; each is assigned the category Good. The thesis also gives an overall Good rating of 89%. Recalculation from the questionnaire's response-frequency appendix yields 2,100 of 2,350 possible points for planning (89.36%), 3,596 of 3,995 for implementation (90.01%), and 1,460 of 1,645 for evaluation (88.75%). Combining all 34 items produces 7,156 of 7,990 points, or 89.56%. These values are not interchangeable with the original rounded summary, because the source includes inconsistent rounding and some mislabeled cells. Table 2 provides both sets of values without treating the recalculation as an additional respondent dataset.

Table 2. Reported and Independently Recomputed Summary of the 34-Item Questionnaire.

Dimension	Items	Weighted score	Possible score	Reported %	Recalc. %
Planning	10	2,100	2,350	89%	89.36%
Implementation	17	3,596	3,995	90%	90.01%
Evaluation	7	1,460	1,645	89%	88.75%
Overall	34	7,156	7,990	89%	89.56%

Original reported percentages are retained. Recalculated percentages use the complete frequencies for 47 respondents and the stated item weights.

The percentage distribution is comparatively narrow across the three dimensions. Implementation is numerically highest in both the original and recalculated summaries, but the difference from planning and evaluation is approximately one percentage point. No uncertainty

estimates or group comparisons were reported, so those small differences should not be interpreted as statistically significant advantages. At the item level, however, the five-category frequency data identify useful contrasts: some practices are rated above 91%, whereas preparation for active participation and the provision of individual learning support receive lower, though still predominantly positive, scores. Figures based on the aggregated source summaries should therefore be read alongside item-level counts rather than as proof that all components of PjBL operate equally well.

Planning of Project-Based Instruction

Planning was measured by ten statements related to lesson preparation, initial assessment, learning objectives, resources, methods, aids, and the alignment of instruction and assessment. In two items, preparing material from multiple sources and matching assessment with the stated learning objectives, the weighted score reached 215 out of 235 (91.49%). Preparing a teaching module, using preliminary ability analysis, delivering competency-aligned instruction, and beginning lessons with an introductory connection each scored 211 (89.79%). The lowest planning score was for choosing instructional methods intended to activate pupils, at 202 (85.96%), followed by the preparation of teaching aids that support understanding, at 204 (86.81%). All ten response distributions and scores are reproduced in Table 3.

Table 3. Planning Items: Response Frequencies, Weighted Scores, and Percentages.

Item	Teacher-reported practice	5 / 4 / 3 / 2 / 1	Score	Reported %	Recalc. %
1	Prepares a teaching module before class	27 / 16 / 4 / 0 / 0	211	90%	89.79%
2	Builds modules from an analysis of pupils' initial abilities	25 / 21 / 0 / 1 / 0	211	90%	89.79%
3	Selects strategy using initial-test findings	25 / 19 / 3 / 0 / 0	210	89%	89.36%
4	Communicates expected competencies	23 / 23 / 1 / 0 / 0	210	89%	89.36%
5	Prepares material from books, the internet and other sources	29 / 16 / 2 / 0 / 0	215	91%	91.49%
6	Aligns assessment with learning objectives	28 / 18 / 1 / 0 / 0	215	91%	91.49%
7	Prepares methods intended to activate pupils	20 / 22 / 4 / 1 / 0	202	86%	85.96%
8	Prepares instructional aids that support understanding	22 / 20 / 4 / 1 / 0	204	87%	86.81%
9	Delivers lessons aligned with targeted competencies	24 / 22 / 1 / 0 / 0	211	90%	89.79%
10	Begins the lesson with an aperception activity	25 / 21 / 0 / 1 / 0	211	90%	89.79%

Frequency order: 5 = strongly suitable, 4 = suitable, 3 = sometimes, 2 = unsuitable, 1 = strongly unsuitable. Each item has 47 responses, maximum score 235. “Reported” is the original source summary; “Recalc.” uses questionnaire-appendix counts.

Interview accounts explain the relatively positive scores for module preparation and ability analysis. Teachers described using diagnostic questions, initial tests, observation, informal interviews, or other preliminary activities to distinguish pupils who had already grasped an idea from those requiring support. Some explained that lesson content, assignments, and evaluation formats were altered according to pupils' characteristics rather than applied uniformly. Participants described beginning instruction with questions about everyday experience for example, the use of money while shopping or with a song, game, or recap of a previous lesson. These reports describe purposeful lesson preparation, but the source does not contain a systematic audit of actual lesson modules or a count of projects whose driving questions, milestones, and final products met independent PjBL criteria.

The interview material also points to an important distinction between generic active teaching and sustained project work. Teachers mentioned combining lectures with group discussion, educational games, role play, outdoor activities, problem-based tasks, and projects. Their descriptions suggest adaptive method choice rather than reliance on a single technique. Nonetheless, neither the planning questionnaire nor the summarized interviews establishes how frequently each respondent organized the complete sequence of an authentic project. The generally positive scores should therefore be read as evidence of teacher-reported preparation and pedagogical flexibility, not as a project-specific fidelity index. The lower planning scores for active-learning methods and instructional aids identify feasible priorities for subsequent professional guidance and school resource provision.

Classroom Implementation and Student Participation

Seventeen items assessed the conduct of instruction. The strongest item concerned using learning media appropriate to pupils' cognitive, affective, and psychomotor development: 31 teachers selected the highest category, 15 selected the next category, and one selected the middle category. Its weighted score was 218 of 235 (92.77%). Creating an enjoyable classroom atmosphere followed with 217 (92.34%). Classroom rules agreed upon with pupils reached 215 (91.49%), while content mastery and responding to participation each reached 214 (91.06%). Teachers' reports were therefore especially positive about selecting instructional media and maintaining a supportive participatory climate. Table 4 contains the complete distribution for all 17 items.

Table 4. Implementation Items: Response Frequencies, Weighted Scores, and Percentages.

Item	Teacher-reported practice	5 / 4 / 3 / 2 / 1	Score	Reported %	Recalc. %
11	Follows the planned lesson time allocation	24 / 20 / 3 / 0 / 0	209	90%	88.94%
12	Closes lessons with pupil-involved reflection or summary	27 / 16 / 4 / 0 / 0	211	90%	89.79%
13	Demonstrates command of the subject matter	26 / 21 / 0 / 0 / 0	214	91%	91.06%
14	Connects material with pupils' own experiences	27 / 18 / 2 / 0 / 0	213	91%	90.64%
15	Explains material until pupils understand comprehensively	24 / 22 / 1 / 0 / 0	211	90%	89.79%
16	Assigns tasks supporting the development of knowledge	21 / 25 / 1 / 0 / 0	208	88%	88.51%
17	Involves pupils as active subjects of learning	23 / 23 / 1 / 0 / 0	210	89%	89.36%
18	Uses media suited to cognitive, affective and psychomotor development	31 / 15 / 1 / 0 / 0	218	93%	92.77%
19	Uses updated and curriculum-relevant learning materials	24 / 19 / 4 / 0 / 0	208	88%	88.51%
20	Encourages pupil creativity	24 / 23 / 0 / 0 / 0	212	90%	90.21%
21	Creates an enjoyable classroom environment	30 / 16 / 1 / 0 / 0	217	92%	92.34%
22	Responds to each pupil's participation	26 / 21 / 0 / 0 / 0	214	91%	91.06%
23	Holds question-and-answer sessions	23 / 23 / 1 / 0 / 0	210	89%	89.36%
24	Agrees classroom rules jointly with pupils	28 / 18 / 1 / 0 / 0	215	91%	91.49%
25	Varies lectures with discussion or other methods	24 / 20 / 3 / 0 / 0	209	89%	88.94%
26	Uses methods that facilitate understanding	23 / 23 / 1 / 0 / 0	210	89%	89.36%
27	Creates evaluation tools aligned with content and goals	22 / 22 / 3 / 0 / 0	207	88%	88.09%

Frequency order: 5 = strongly suitable, 4 = suitable, 3 = sometimes, 2 = unsuitable, 1 = strongly unsuitable. Each item has 47 responses, maximum score 235. “Reported” is the original source summary; “Recalc.” uses questionnaire-appendix counts.

Items relating to instructional delivery were somewhat lower. Assignments intended to support pupils' knowledge and the use of current, curriculum-relevant materials each scored 208 (88.51%); the lowest implementation item was construction of evaluation instruments consistent with content and goals, at 207 (88.09%). The item on varying lectures with discussions or alternative approaches scored 209 (88.94%). These figures remain in the positive range, but their relative position matters: self-reported classroom atmosphere was rated more favourably than some practical components of evaluating learning or adapting tasks. Differences in wording and the shared-response method also limit interpretation of these rankings as objective measures of instructional quality.

Teachers described ending lessons by asking oral questions about the day's activities, using short quizzes, or inviting pupils to restate important ideas. In lower grades, oral prompts were preferred where pupils could not yet formulate detailed written reflections; older pupils could contribute written summaries. Respondents also described linking unfamiliar material to

familiar experience, incorporating games and discussions, and inviting pupil contributions when classroom rules were established. In one recurrent theme, rules were formulated as positive commitments collectively discussed by teachers and pupils. These accounts support the view that classroom engagement and reflection were important elements of reported practice, but they do not constitute direct evidence of improvement in student creativity, achievement, or collaborative competence.

Evaluation, Individual Guidance, and Follow-Up

Evaluation and follow-up were measured through seven items covering monitoring, remedial support, evaluation during instruction, assessment formats, parent communication, instructional improvement, and professional reflection. The highest item was teachers' use of assessment results for self-reflection and professional growth, with 213 points out of 235 (90.64%). Adapting evaluation types to conducted activities reached 210 (89.36%) and direct monitoring of pupils reached 209 (88.94%). Two items received the lowest weighted scores, 206 of 235 (87.66%): providing special guidance to pupils experiencing learning difficulties and communicating pupils' learning development to parents. Table 5 presents all frequencies in the original five response categories.

Table 5. Evaluation and follow-up items: response frequencies, weighted scores, and percentages

Item	Teacher-reported practice	5 / 4 / 3 / 2 / 1	Score	Reported %	Recalc. %
28	Directly monitors pupil progress	23 / 23 / 0 / 1 / 0	209	90%	88.94%
29	Offers special guidance to pupils with learning difficulties	22 / 22 / 2 / 1 / 0	206	88%	87.66%
30	Evaluates learning while instruction is ongoing	24 / 19 / 4 / 0 / 0	208	88%	88.51%
31	Adapts evaluation types to activities carried out	24 / 21 / 2 / 0 / 0	210	89%	89.36%
32	Communicates pupil progress to parents	22 / 22 / 2 / 1 / 0	206	88%	87.66%
33	Uses evaluation results to improve subsequent instruction	22 / 24 / 0 / 1 / 0	208	88%	88.51%
34	Uses assessment results for self-reflection and professional improvement	25 / 22 / 0 / 0 / 0	213	91%	90.64%

Frequency order: 5 = strongly suitable, 4 = suitable, 3 = sometimes, 2 = unsuitable, 1 = strongly unsuitable. Each item has 47 responses, maximum score 235. “Reported” is the original source summary; “Recalc.” uses questionnaire-appendix counts.

The selected teacher interviews describe several modes of evaluation: diagnostic activities intended to identify initial difficulties; formative checks during lessons; summative assessment after a learning sequence; and attention to attitudes or affective development. Written tasks were sometimes supplemented by online quizzes, oral questioning, or teacher-designed digital evaluation activities. Participants described responding to pupils who

struggled by visiting their desks, explaining a concept again, posing follow-up questions, offering individual assistance during available times, or discussing continuing difficulties with families. These descriptions provide plausible examples of follow-up, although the records do not report a common remedial protocol or the proportion of pupils whose learning subsequently improved.

Teacher-parent communication was reported through routine report-card discussions, phone contact, messages, and meetings in circumstances requiring closer support. Some interview accounts mention contacting families monthly or when a particular problem emerged. Teachers also described using pupils' answers and assessment outcomes to reconsider the methods, media, or difficulty level of subsequent teaching. Reflection sometimes included the need to improve their knowledge of digital technologies because pupils were increasingly familiar with such tools. Overall, these accounts suggest that respondents recognized evaluation as both pupil support and a means of modifying teaching. The available evidence does not show the frequency, timeliness, or quality of feedback delivered for actual completed project products.

Integrated Interpretation of the Numerical Record

Taken together, the 34 items form a largely favourable descriptive profile for the five participating schools. The evidence is strongest for reporting what teachers said they routinely prepare or do: selecting learning media, gathering teaching resources, ensuring an encouraging classroom climate, and using assessments for professional reflection. The lowest scores, relative to the same instrument, cluster around activating pupils during planning, preparing aids, aligning evaluation tools during implementation, individual guidance, and parent contact. Those patterns can guide local professional development without implying that the differences are large or statistically meaningful. As the questionnaire predominantly describes general pedagogical practice, these scores also provide only indirect information on full project cycles, project quality, and student learning outcomes.

The original thesis summary contains errors that affect precision but not the broad category stated by the author. One implementation item is shown elsewhere with 48 responses, whereas the 34-item frequency appendix contains 47 for that item and yields its reported weighted score of 207. The original implementation summary uses an inconsistent ideal value, the evaluation summary repeats planning statements, and the printed overall average does not follow from the displayed domain averages. This article uses the complete, internally consistent questionnaire recap for calculated percentages while retaining the source's original 89%, 90%,

and 89% domain results for transparency. Any subsequent inferential analysis should use verified respondent-level data, which were not available for independent reanalysis.

Discussion

Strength of Planning and the Challenge of Authentic Projects

The favourable planning ratings suggest that participating teachers were accustomed to writing lesson modules, assessing initial pupil understanding, and identifying teaching resources. These are important enabling conditions for PjBL, but they should not be equated with documented implementation of authentic projects. Markula and Aksela (2022) show why enactment needs to be studied through how teachers organize inquiry and allocate pupil responsibility in actual lessons. The local interviews indicate that teachers adapt activities to ability levels, yet the questionnaire does not directly ask respondents to identify a driving question, planned project milestones, revision opportunities, or assessment of a final product. Consequently, the evidence is most persuasive as a profile of instructional preparedness and least persuasive as a measure of distinctive PjBL fidelity. The demand for better teaching modules found among 884 early-primary teachers elsewhere in Indonesia reinforces the practical value of developmentally appropriate planning resources (Astuti & Zabit, 2024).

The lower planning scores for active methods and learning aids identify an important implementation tension. Teachers can be effective in organizing lessons but face constraints when converting ideas into resource-intensive inquiry. In a descriptive survey of Indonesian primary teachers, project types varied substantially, from posters to interviews and practical activities (Darmayanti et al., 2023). Such variation is not necessarily undesirable; authentic projects need not be costly. However, the conceptual literature emphasizes that pupil investigation, meaningful decisions, and a coherent product matter more than the appearance of project activity (Blumenfeld et al., 1991; Kokotsaki et al., 2016). Access to equipment and time should therefore be considered together with task quality. Work on instructional differentiation also cautions that identifying pupil readiness is useful only when it leads to appropriate modifications of instruction, rather than simply sorting pupils into levels (Deunk et al., 2018).

Reported Classroom Engagement Versus Measured Outcomes

The highest implementation items concern suitable instructional media, a pleasant classroom atmosphere, and collaboratively agreed rules. These responses are consistent with supportive, participatory teaching, and they accord with the motivational significance of autonomy, competence, and relatedness (Ryan & Deci, 2020). Teachers' accounts of games, questions, dialogue, and pupil-generated class commitments likewise indicate efforts to move

beyond uninterrupted lecture delivery. Yet engagement is a multidimensional construct; liking a classroom activity is not synonymous with mastering the disciplinary concepts or producing a high-quality project. Evidence from fourth-grade science shows that improvements in achievement and retention may not be mirrored by changes in measured attitude (Karaçalli & Korur, 2014). In a primary-school project study, achievement, social skills, and affective outcomes were likewise differentiated rather than assumed to develop identically (Kaldi et al., 2011).

Meta-analytic literature generally supports the promise of PjBL while imposing substantial interpretive qualifications. Chen and Yang (2019) and Zhang and Ma (2023) found positive average educational effects but described variability across educational contexts, tasks, and research designs. A review of online PjBL in Indonesia pooled 16 studies and reported a large estimate for thinking-related skills; its online-learning context is distinct from the present local survey (Mardizal et al., 2023). Wijnia et al. (2024) identified an average motivation effect of $d = 0.498$ across related student-centred instructional models, but did not find that one named model universally dominated the others. The more recent umbrella review warns that the quality of existing meta-analyses can limit confidence in headline claims (Farshad & Fortin, 2026). For mathematics specifically, Wang et al. (2026) estimated $d = 0.529$, reduced to 0.275 after publication-bias adjustment. None of these external effect sizes is a result of the Kota Tengah questionnaire, and none should be transferred to its sample as if pupil outcomes had been measured there.

Evaluation as Responsive Teaching and Professional Learning

The evaluation responses indicate that teachers attach considerable value to monitoring and self-reflection, yet report somewhat weaker practice in individualized guidance and communication with families. This distinction matters because assessment becomes formative when evidence changes what teachers and pupils do next. Black and Wiliam (1998) frame classroom assessment as an ongoing source of learning information, while Hattie and Timperley (2007) specify the value of feedback that explains goals, progress, and next steps. Project tasks can make such feedback concrete through checkpoints, peer review, and assessment of work in progress. Reviews of rubric-based assessment and self-assessment suggest that visible criteria and pupil participation can strengthen self-regulated learning, but the tools must be meaningfully employed (Panadero & Jonsson, 2013; Panadero et al., 2017). The source thesis does not provide a project-specific rubric, limiting evaluation of this particular component.

Individual help may be especially important for pupils whose baseline understanding differs or who find collaborative project tasks difficult. In the interviews, teachers describe oral questioning, repeated explanation, and additional support during or beyond class time. Such actions are compatible with responsive instruction, but their effectiveness was not independently tested. At the organizational level, diagnostic and formative practices also depend on teachers' knowledge, confidence, and ability to interpret evidence, as shown in a synthesis of 54 studies (Schildkamp et al., 2020). The findings suggest a practical emphasis on helping teachers link assessment evidence to specific lesson adjustments. They do not establish which technique is most effective in these schools, and the absence of instrument validation makes fine-grained ranking of evaluation subitems inappropriate.

Communication with parents appears as both a relatively lower questionnaire item and a recurring interview concern. Evidence on parent involvement suggests that home–school connections differ in their association with pupil outcomes according to the kind of engagement examined (Barger et al., 2019; Wilder, 2014). A field experiment also indicates that carefully structured messages from teachers to families can improve educational outcomes in some settings (Kraft & Rogers, 2015). For Kota Tengah, the practical implication is to define when teachers should contact families, what information to share, and how follow-up actions will be documented, rather than simply to increase message volume. Reports of teachers' digital self-development likewise point to the need to use assessment results as prompts for specific improvements in classroom practice. The causal sequence between professional learning, changed instruction, and pupil outcomes described by Desimone (2009) is relevant for evaluating such initiatives rather than assuming training attendance alone is sufficient.

Institutional Constraints, Transferability, and Further Verification

Preliminary school observations identified limitations in teacher-specific preparation and project facilities despite positive aggregate self-ratings. This apparent contrast is unsurprising: a respondent may report satisfactory daily planning and classroom management yet lack the materials, time, or collaborative structure for larger projects. Evidence from Indonesian P5 studies suggests that school leadership, access to resources, teacher collaboration, and family participation can shape implementation, although P5 and subject-based PjBL remain distinct curricular arrangements (Nurmala et al., 2025; Susanto et al., 2024). Broader reviews of Merdeka Curriculum practices similarly locate project activity within teacher capacity and differentiated assessment (Hasan et al., 2024; Wulandari & Nawangsari, 2024). Developmentally appropriate support, not simply more complex projects, is an important principle for working with younger learners (Aulina & Nurdiana, 2024; Widiastuti et al., 2024).

Several methodological limitations constrain transferability. The study covers 47 teachers from five accessible institutions with purposive selection; no randomized sampling, baseline student data, comparator schools, or direct observations of complete project cycles are reported. The instrument contains broad classroom-practice items, and neither its factor structure nor reliability is documented. Interview examples clarify responses but cannot supply prevalence estimates or independent achievement effects, particularly because the number of distinct interview participants is uncertain. Quantitative transcription inconsistencies also warrant continued checking against the original response sheets. A subsequent study could incorporate school-stratified recruitment, direct examination of project plans and artefacts, structured observations, pupil work and learning measures, an independently validated project rubric, and transparent qualitative coding. Such design choices would permit stronger claims about implementation fidelity and outcome relationships than the present descriptive survey can support (Guo et al., 2020; Sims & Fletcher-Wood, 2021; Nowell et al., 2017).

5. CONCLUSIONS AND SUGGESTIONS

The study describes a generally favourable teacher-reported profile of project-related instruction across five elementary schools and madrasahs in Kota Tengah District. The thesis classified planning (89%), implementation (90%), and evaluation or follow-up (89%) as Good; a calculation based on the 34 complete item-frequency distributions yielded 89.36%, 90.01%, and 88.75%, respectively. Preparation of learning materials, alignment of assessment with objectives, selection of suitable media, and the creation of a supportive classroom climate received comparatively high ratings. Relatively lower item scores concerned planning for active learning, preparing appropriate evaluation instruments, individualized assistance, and communication with families. Interview accounts indicated that teachers used diagnostic checks, adapted methods, reflection, and follow-up guidance in their classrooms.

These findings extend the local descriptive evidence on teaching practice under project-oriented curriculum expectations, but they do not demonstrate that pupils completed authentic project cycles or achieved measurable learning gains. The study's purposive teacher sample, self-reported questionnaire, limited instrument-validation information, and discrepancies in some source tables constrain broader interpretation. Schools can respond by providing accessible project materials, practical support for designing driving questions and milestones, and assessment tools that examine processes as well as final products. Teacher development and family communication should be followed by observable changes in practice. Further research should validate the questionnaire, inspect lesson plans and project artefacts, observe

pupil collaboration, and include independent learning measures before evaluating the effectiveness of PjBL outcomes.

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