

The Effectiveness of the Utilization of the Differentiated Instruction on the Development of the Learning Domains of the Grade 1 Learners in Nabua East District, Division of Camarines Sur

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ARTICLE INFORMATION	ABSTRACT
Article history: Published: October 2026	The study examined differentiated instruction and its perceived effectiveness for Grade 1 learning domains in Nabua East District, Division of Camarines Sur, during School Year 2025–2026. Descriptive and correlational analyses summarized assessments attributed to teachers and school heads. Findings were grouped by big, medium, and small schools; participant counts and detailed sampling and instrument specifications were not reported. Weighted means and ranks described content, process, product, and learning-environment practices and perceived cognitive, physical, socio-emotional, and language development. Kendall's coefficient of concordance and chi-square tests assessed agreement on indicator rankings across three groups. Utilization domain means ranged from 3.89 to 4.28 and were classified Much Utilized; the reported overall mean was 4.08. Perceived effectiveness was Much Effective overall (4.13), with physical development highest (4.34), followed by socio-emotional development (4.20), and cognitive and language development (both 3.99). High concordance and significant agreement were reported, but several combinations of test statistics and indicator counts require verification. Content and product findings identify priorities in assessment participation, access, and meaningful demonstrations of learning. The study supports professional learning, instructional resources, school-head feedback, play, and family partnerships. The findings concern perceived practices and developmental behaviors rather than measured developmental gains or causal effects. Missing methodological documentation, ambiguous item wording, and numerical inconsistencies limit interpretation and require resolution before stronger conclusions can be drawn.
Keywords: Differentiated Instruction Grade 1 Learning Domains Early Childhood Education Rank Agreement Nabua East District	

1. Introduction

Differentiated instruction responds to variation in learners' readiness, interests, and support needs by adapting instructional opportunities. In early primary education, this concern extends beyond acquisition of subject knowledge to participation, communication, movement, and social interaction. An assessment of differentiated instruction should therefore distinguish teachers' reported practices from evidence about learners' development. Favorable ratings of an approach may identify valued practices and perceived needs, but cannot by themselves demonstrate that the approach produced developmental change.

The study examined four aspects of differentiated instruction: content, process, product, and learning environment. Content concerns what is taught and how learners access it; process concerns the activities through which learners engage with content; product concerns how learners demonstrate understanding; and learning environment concerns classroom organization and climate. Their interpretation requires attention to learning goals and the evidence used to adjust instruction. The four aspects describe complementary planning concerns rather than four independent interventions whose effects were separately tested.

Evidence on differentiation is sensitive to the educational setting and the form of implementation. Deunk et al. (2018) reviewed differentiation practices in primary education and emphasized that grouping alone does not guarantee differentiated instruction. Smale-Jacobse et al. (2019) examined research in secondary education and identified a limited evidence base for firm conclusions across the range of approaches described as differentiation. These reviews support specifying what teachers do and how outcomes are assessed rather than assuming a uniform benefit from the label.

Philippine evidence also needs to be interpreted according to its participants and methods. Aguhayon et al. (2023) examined differentiated instruction in Grade 10 mathematics using a quasi-experimental comparison. That work is relevant to the broader question of responsive instruction, but it does not establish effectiveness for Grade 1 cognitive, physical, socio-emotional, or language development. The study in Nabua East District instead provides a local perception profile across these domains, using ratings and rank agreement rather than an intervention comparison.

Developmentally appropriate practice offers an additional lens for interpreting early primary instruction. The National Association for the Education of Young Children (NAEYC, 2020) emphasizes children's individual characteristics, developmental commonalities, and social and cultural contexts. Its position also connects teaching with play, assessment, and family partnerships. This perspective makes it useful to examine whether differentiation is accompanied by meaningful access and participation, while avoiding the assumption that a favorable rating establishes age-appropriate performance for every child.

The study addressed five questions: the extent of differentiated-instruction utilization across the four instructional aspects; significant agreement on their indicator rank orders; perceived effectiveness across cognitive, physical, socio-emotional, and language development; significant agreement on those rankings among respondent groups; and policy recommendations based on the findings. The setting was Nabua East District, Division of Camarines Sur, during School Year 2025–2026. The research focus was retained while interpretation was confined to the descriptive and concordance analyses reported.

2. Methods

2.1 Design and setting

The study used descriptive and correlational analyses to examine differentiated instruction and perceived learning-domain development. The detailed research-design specification was not reported. Weighted means and ranks summarized the assessments, while Kendall's coefficient of concordance and chi-square statistics addressed agreement on indicator ordering. No separate participant-level correlation between utilization and developmental-domain scores was presented. The correlational terminology therefore does not establish that the study tested an association between those two constructs.

The study concerned Grade 1 learners in Nabua East District during School Year 2025–2026. Assessments were attributed to teachers and school heads. Tables grouped findings by big school, medium schools, and small schools. The numbers of respondents, schools, and learners, the eligible population, sampling method, recruitment, response rate, and distribution of professional roles were not reported. The classification criteria for school size were also unspecified. A narrative reference to central and non-central schools does not explain its relationship to the three tabulated groups.

2.2 Measures and operational definitions

Utilization was represented by statements about content, process, product, and learning environment. Perceived effectiveness was represented by statements describing cognitive, physical, socio-emotional, and language behaviors. These statements are treated as rated indicators, rather than independently administered developmental tests. The formal data-collection instrument, response anchors, interpretation intervals, administration instructions, validation evidence, and reliability estimates were not specified. No researcher-made questionnaire, standardized scale, or direct learner assessment is assumed.

The reported utilization codes were VMU, Very Much Utilized; MU, Much Utilized; and U, Utilized. Effectiveness codes were VME, Very Much Effective, and ME, Much Effective. Numerical interpretation cutoffs were not reconstructed from the means. Item wording, means, codes, ranks, and blank entries are retained in the tables. One content statement uses the word *undermine* in describing instruction and testing. Its intended wording and any reverse-scoring procedure are unresolved, so the score is not interpreted as support for a harmful instructional practice.

Several indicators combine an instructional action with a learner behavior or refer to learning styles and preferences. Such wording does not establish that the items measure distinct developmental constructs or validated learning-style categories. Likewise, a statement about watching younger siblings is retained as an item rather than treated as an expectation that Grade 1 children should assume adult caregiving responsibility. Interpretation is limited to the reported assessment, with content-validity questions addressed as limitations.

2.3 Procedures and ethical reporting

Exact data-collection dates, administration and retrieval procedures, missing-response handling, and data-quality checks were not reported. Documentation of consent, confidentiality, administrative access, and ethics review or exemption was not provided. Approval and examination certifications concern academic review and do not establish research ethics approval. No unreported procedure is presumed to have occurred. The study is presented through aggregate values without participant identifiers.

No baseline measurement, matched follow-up, comparison group, random assignment, intervention duration, or independent record of developmental performance was reported. The number of learners observed and the basis on which adults rated individual behaviors were also unspecified. These omissions prevent estimation of developmental gains, attribution of change to differentiated instruction, or conclusions about individual developmental status. The findings concern perceptions of implementation and effectiveness within the stated setting.

2.4 Statistical reporting

The tables report weighted means, interpretation codes, and ranks for three school-size groups and an Average column. Group counts and aggregation weights were not supplied, so the Average column is reproduced without assuming equal or sample-size weighting. Table cells display the mean on the first line and the reported code and rank on the second line, separated by a slash. An em dash marks a blank entry, not a zero or an inferred classification. Summary means are retained without recomputation from rounded item means. The concordance analyses identify three groups and the number of cases within each domain. Cases refer to indicators rather than the participant sample. W, chi-square values, degrees of freedom, critical-value grids, significance entries, and alternative-hypothesis decisions are reproduced. The narrative probability inequalities are reported alongside the relevant tables; significance entries are not converted into exact p values. Ranking matrices, tie corrections, formulas, and software were not reported.

High W describes similar ordering of indicators across groups. It does not establish equality of group means, uniform individual views, a relationship between instructional utilization and developmental outcomes, or causal effectiveness. Several reported W–chi-square–case combinations require verification. Accordingly, the stated significance conclusions are identified as reported results, with unresolved calculations limiting the inferential conclusion. No replacement statistic, corrected rank, or estimated probability has been introduced.

3. Results

Tables 1–4 present utilization indicators, followed by the utilization summary and concordance analysis. Tables 7–10 present the developmental-domain indicators, followed by their summary and concordance analysis. All group and average numerical entries are retained. The tables preserve original item order, codes, and ranks; differences between mean values are descriptive and were not tested as pairwise differences.

3.1 Utilization of differentiated instruction

Table 1. Utilization along content

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Tailor the what of learning to meet diverse learners needs.	3.97 MU/7	3.86 MU/7	3.82 MU/7	3.88 MU/7
Provide activities with varying levels of support, challenge, or complexity to address different readiness level.	4.17 MU/3	4.13 MU/3.5	4.11 MU/4	4.14 MU/3.5
Emphasize significant, developmentally appropriate content and outcomes.	4.17 MU/3	4.15 MU/2	4.14 MU/2	4.15 MU/2
Include curriculum standards that touch on important domains of child learning and development.	4.13 MU/5	4.08 MU/6	4.05 MU/6	4.09 MU/6
Utilize pre-tests to assess where individual learners need to begin study of a given topic or unit.	4.18 MU/1	4.16 MU/1	4.15 MU/1	4.16 MU/1
Encourage thinking at various levels (remembering, understanding, applying, analyzing, evaluating and creating).	3.86 MU/8	3.84 MU/8	3.80 MU/8	3.83 MU/8
Break assignments or lessons into smaller, more manageable parts that include structured directions for each part.	4.12 MU/6	4.10 MU/5	4.08 MU/5	4.10 MU/5
Choose broad instructional concepts and skills that lend themselves to understanding at various levels of complexity.	3.49 U/9	3.48 U/10	3.47 U/9	3.48 U/9
Know how the learners will get access to the information.	3.46 U/10	3.49 U/9	3.45 U/10	3.47 U/10
Use rubrics to enable children contribute during assessment.	3.42 U/11	3.36 U/11	3.39 U/11	3.39 U/11
Adopt appropriate methods of academic instruction and standardized testing that undermine the learning and development of young children.	4.17 MU/3	4.13 MU/3.5	4.12 MU/3	4.14 MU/3.5
Average Weighted Mean	3.92 MU/—	3.89 MU/—	3.87 MU/—	3.89 MU/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported. The undermine wording is retained pending clarification of item meaning and scoring. It is not endorsed as a teaching recommendation.

Table 1 places pre-assessment and developmentally appropriate content above rubric-supported assessment participation and access to information. This suggests that identifying a starting point for teaching is more favorably rated than enabling learners to participate in judging or accessing learning. The distinction matters because assessment for planning and assessment that children can understand are related but separate practices. A comparatively lower rubric item supports reviewing accessible success criteria and demonstrations of quality, without implying that one assessment method is required for all Grade 1 tasks.

The statement containing undermine prevents a straightforward positive interpretation of the domain. Its wording could reflect a transcription issue, a negatively worded item, or a different intended construct; the available evidence does not resolve this. The score and ranks remain unchanged. The content mean is therefore a reported aggregate with a material item-validity qualification. No inference that teachers deliberately undermine development, or that such methods are effective, can be drawn from this entry.

Table 2. Utilization along process

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Provide access to a variety of materials which target different learning preferences and reading abilities.	4.13 MU/7	4.12 MU/6	4.08 MU/8	4.11 MU/7
Adapt their teaching to meet different learners' needs.	4.14 MU/6	4.10 MU/8	4.09 MU/7	4.11 MU/7
Involve varying the activities learners use to make sense of the content and ultimately master the learning objectives.	4.19 MU/5	4.16 MU/5	4.14 MU/5	4.16 MU/5
Develop activities that target auditory, visual, and kinesthetic learners.	4.53 VMU/3.5	4.52 VMU/3.5	4.51 VMU/3	4.52 VMU/3.5
Establish stations for inquiry-based, independent learning activities.	4.10 MU/9	4.08 MU/9	4.05 MU/9	4.08 MU/9
Create activities that vary in level of complexity and degree of abstract thinking required.	3.98 MU/10	3.97 MU/10	3.95 MU/10	3.97 MU/10
Use flexible grouping to group and regroup learners based on factors including content, ability, and assessment results.	4.55 VMU/2	4.53 VMU/2	4.51 VMU/3	4.53 VMU/2
Use flexible grouping during lessons to ensure participation of all children.	4.53 VMU/3.5	4.52 VMU/3.5	4.51 VMU/3	4.52 VMU/3.5
Use implementation and assessment strategies that are ethical and appropriate for young children.	4.12 MU/8	4.11 MU/7	4.10 MU/6	4.11 MU/7

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Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Take responsibility for stimulating, directing, and supporting children's development and learning by providing the experiences that each child needs.	4.59 VMU/1	4.57 VMU/1	4.55 VMU/1	4.57 VMU/1
Average Weighted Mean	4.29 MU/—	4.29 MU/—	4.25 MU/—	4.28 MU/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported. The school-size groups reproduce the tables; the central/non-central wording in the narrative remains unresolved.

Table 2 shows stronger ratings for responsibility for children's learning and flexible grouping than for varying complexity or establishing inquiry stations. The profile suggests that participation and general support are more favorably perceived than some specific methods of adjusting learning demands. It does not demonstrate the frequency of regrouping, the quality of tasks, or whether different groups received equivalent opportunities. Deunk et al. (2018) provide relevant context by distinguishing grouping from the broader instructional adaptations needed for differentiation.

The auditory, visual, and kinesthetic statement is retained as rated practice. It should not be interpreted as evidence that matching instruction to fixed learning-style categories improved learning. Pashler et al. (2008) found insufficient evidence to justify educational prescriptions based on such matching. The study did not test that hypothesis. The defensible implication is to review how varied experiences respond to goals and assessed needs, while preserving access to multiple forms of participation.

Table 3. Utilization along product

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Offer various options for learners to showcase their understanding, aligning with their learning styles and needs.	4.10 MU/2	4.08 MU/2	4.07 MU/2	4.08 MU/2
Allow learners to express what they have learned in a way that suits them best.	4.14 MU/1	4.13 MU/1	4.11 MU/1	4.13 MU/1
Provide choices and opportunities for learners to demonstrate mastery in ways that resonate with their strengths and learning preferences.	4.05 MU/3	4.02 MU/3.5	4.00 MU/3.5	4.02 MU/3.5
Balance teacher-assigned and student-selected projects.	4.03 MU/4	4.02 MU/3.5	4.00 MU/3.5	4.02 MU/3.5
Offer learners a choice of projects that reflect a variety of learning styles and interests.	3.87 MU/9	3.83 MU/10	3.81 MU/10	3.84 MU/10
Use a variety of assessment strategies, including performance-based and open-ended assessment.	3.84 MU/11	3.82 MU/11	3.80 MU/11	3.82 MU/11
Make assessment an ongoing, interactive process.	3.94 MU/7	3.92 MU/7	3.91 MU/6	3.92 MU/7
Alter the implementation and design of learning activities to meet all children's needs.	3.91 MU/8	3.88 MU/8	3.85 MU/8	3.88 MU/8
Allow learners their preferred source(s) based on interest and learning styles.	3.79 MU/12	3.74 MU/12	3.71 MU/12	3.75 MU/12
Engage continually in assessment for the purpose of improving teaching and learning.	4.02 MU/5	3.96 MU/5	3.93 MU/5	3.97 MU/5
Ensure that each product option is equally challenging and aligns with the learning objectives.	3.95 MU/6	3.93 MU/6	3.90 MU/7	3.93 MU/6
Offer support and resources to help learners create their chosen product, ensuring accessibility for all.	3.87 MU/10	3.85 MU/9	3.82 MU/9	3.85 MU/9
Design product activities that reflect real-world scenarios and applications of the learned material, making the learning experience more meaningful.	3.72 MU/13	3.68 MU/13	3.66 MU/13	3.69 MU/13
Average Weighted Mean	3.94 MU/—	3.91 MU/—	3.89 MU/—	3.91 MU/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported.

Table 3 assigns relatively stronger ratings to allowing learners to express understanding and offering demonstration options than to meaningful real-world product activities. This suggests that choice of response may be more established than the design of tasks that connect learning with recognizable situations. The distinction is relevant for Grade 1 because an option can be available without being equally accessible or aligned with the learning objective. The findings support reviewing the purpose and support requirements of product options rather than treating the number of options as evidence of effective differentiation.

The low relative rating for authentic applications does not demonstrate poor achievement or identify why such tasks are less favored. Time, materials, task design, and assessment expectations were not separately measured. Likewise, the domain does not establish that preference-based choices improved mastery. Teachers and school heads could use the profile to examine examples of learner work, clarify common objectives across different products, and plan scaffolds. Such actions are implications of the ratings, not interventions evaluated by the study.

Table 4. Utilization along learning environment

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Group learners based on readiness, interests, or learning profiles, allowing for both collaborative and independent work.	4.14 MU/7.5	4.11 MU/9	4.10 MU/7	4.12 MU/8
Modify the classroom layout to accommodate different learning styles, providing quiet corners for focused work and open spaces for group activities.	4.17 MU/4.5	4.16 MU/3.5	4.15 MU/3	4.16 MU/3.5
Ensure access to a variety of learning materials at different levels of complexity to support diverse learners.	4.12 MU/9.5	4.09 MU/10	4.06 MU/10	4.09 MU/10
Provide personalized learning experiences, offer varied instructional approaches, and facilitate learners' collaboration.	4.17 MU/4.5	4.13 MU/7	4.09 MU/9	4.13 MU/6.5
Adjust the time allocated to different activities based on learners' needs and learning pace.	4.15 MU/6	4.14 MU/5.5	4.12 MU/5	4.14 MU/5
Provide a supportive classroom climate that encourages children to develop inquiry skills, solve problems and make decisions as part of their daily activities both indoors and outdoors.	4.14 MU/7.5	4.14 MU/5.5	4.11 MU/6	4.13 MU/6.5
Establish an atmosphere of warmth, comfort, stability, dependability and enthusiasm in the school environment.	4.54 VMU/1	4.51 VMU/2	4.50 VMU/1.5	4.53 VMU/1
Structure physical experiences to provide opportunities for all children to participate according to their level of ability.	4.12 MU/9.5	4.12 MU/8	4.09 MU/8	4.11 MU/9
Provide learning environment where children can use their senses to play, experiment, and learn.	4.53 VMU/2	4.52 VMU/1	4.50 VMU/1.5	4.52 VMU/2
Encourage learners' connections with each other, and reinforce the unique culture of the learning environment.	4.18 MU/3	4.16 MU/3.5	4.14 MU/4	4.16 MU/3.5
Average Weighted Mean	4.23 MU/—	4.21 MU/—	4.19 MU/—	4.21 MU/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported.

Table 4 shows stronger ratings for warmth, stability, and sensory play than for access to materials at different levels of complexity. The pattern distinguishes a supportive classroom climate from the provision of differentiated resources. Both are relevant to participation, but the rating of one does not establish the adequacy of the other. The findings suggest maintaining the positively assessed environment while examining whether materials and physical experiences are accessible to learners with different readiness levels. School-size means are descriptively similar, but no formal comparison of their mean differences was reported. The tables cannot establish that every classroom offered the same opportunities or that school size explains the ratings. The more substantive issue is how classroom organization, time, materials, and relationships support a specific learning goal. These elements should be considered together when interpreting the environment domain rather than using warmth or availability of play alone as a complete measure of differentiation.

Table 5. Summary of differentiated-instruction utilization

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Content	3.92 MU/4	3.89 MU/4	3.87 MU/4	3.89 MU/4
Process	4.29 MU/1	4.29 MU/1	4.25 MU/1	4.28 MU/1
Product	3.94 MU/3	3.91 MU/3	3.89 MU/3	3.91 MU/3
Learning environment	4.23 MU/2	4.21 MU/2	4.19 MU/2	4.21 MU/2
Average Weighted Mean	4.10 MU/—	4.08 —/—	4.05 —/—	4.08 —/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported. Blank interpretation codes in the overall row remain blank. The overall Average mean is 4.08; no new overall code is assigned.

Table 5 identifies process as the highest-rated utilization domain and content as the lowest, with product also comparatively lower than learning environment. All four named domains are classified Much Utilized in the Average column. This ordering suggests attention to what learners study and how they demonstrate understanding alongside the organization of activities and classroom climate. The reported overall mean is retained without assuming the aggregation procedure or filling the blank interpretation cells. The summary should not be interpreted as a hierarchy of instructional importance. Its domains contain different statements and different numbers of indicators, and no statistical test compared their means. Nor do the close school-size averages establish equivalent implementation. The practical contribution is a profile of perceived priorities: preserve flexible participation and a supportive environment while strengthening content access, assessment participation, and meaningful product design. The questionable content wording remains relevant to interpreting the aggregate.

Table 6. Reported agreement on utilization rank orders

Reported statistic	Content	Process	Product	Learning environment
Sum of squares of the difference	900.5	712.5	1,626	675.5
Number of cases	11	10	13	10
Number of groups of respondents	3	3	3	3
Coefficient of Concordance	0.98	0.96	0.99	0.91
Computed X ² value	32.34	25.92	35.64	24.57
Degree of Freedom	10	9	12	9
Tabular X ² Value 0.05 0.025 0.01 0.005 0.001	18.31	13.92	21.03	13.92
	21.16	19.68	24.05	19.68
	23.21	21.67	26.22	21.67
	25.19	23.58	28.30	23.58
	29.59	27.88	32.91	27.88
Decision on Alternative Hypothesis (H1)	Accepted	Accepted	Accepted	Accepted
Significance of Agreement	0.001	0.005	0.001	0.005

Note. The narrative reports Content $p < 0.001$; Process $p < 0.005$; Product $p < 0.001$; and Learning environment $p < 0.005$. Critical values and decisions remain as printed. The content $W-\chi^2$ -case combination and portions of the critical-value grid require verification.

Table 6 reports high concordance across the three groups and acceptance of the alternative hypothesis for all utilization domains. Product has the highest reported W , while learning environment has the lowest. These values concern agreement on the ordering of statements. They do not indicate which aspect has the greatest effect on learning, and they do not demonstrate that the groups assigned equal ratings. A group can order statements similarly to another group while giving systematically different mean values. The content statistics do not align with the ordinary relationship between W , the number of raters, the number of ranked indicators, and the chi-square approximation. The critical-value entries also warrant review. These are material reporting issues rather than grounds for guessing a corrected number. The study's conclusion of significant agreement is retained as a reported conclusion, with the unresolved statistical record limiting independent confirmation. The original ranking matrices are necessary before stronger inferential use of these results.

3.2 Perceived effectiveness across learning domains

Table 7. Perceived effectiveness in cognitive development

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Able to plan and organize a simple, familiar activity.	4.04 ME/6	4.03 ME/6	4.01 ME/6	4.03 ME/6
Able to shift to more adaptive cognitive processing strategies in order to effectively deal with new and unexpected conditions in his/her environment, including problem situations.	3.97 ME/8	3.95 ME/8	3.93 ME/8	3.95 ME/8
Able to recall people he has met, events, and places he has been to.	3.98 ME/7	3.97 ME/7	3.96 ME/7	3.97 ME/7
Able to store verbal information in short and long-term memory.	3.63 ME/9	3.60 ME/9	3.56 ME/10	3.60 ME/10
Able to sustain attention and modulate his activity at age-expected levels.	4.12 ME/5	4.09 ME/5	4.05 ME/5	4.09 ME/5
Able to copy letters and numbers.	4.14 ME/3	4.13 ME/3	4.11 ME/3	4.13 ME/3
Can match objects, match according to 2-3 colors, and match pictures.	4.16 ME/2	4.14 ME/2	4.12 ME/1.5	4.14 ME/2
Can compare what are similar and different in pictures shown.	4.13 ME/4	4.12 ME/4	4.10 ME/4	4.12 ME/4
Identify letters by singing along to the "Alphabet Song."	4.18 ME/1	4.15 ME/1	4.12 ME/1.5	4.15 ME/1
Able to follow the logic of events and draw accurate conclusion by evaluating the facts presented to him.	3.71 ME/10	3.68 ME/10	3.65 ME/9	3.68 ME/9
Average Weighted Mean	4.01 ME/—	3.99 ME/—	3.96 ME/—	3.99 ME/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported.

Table 7 shows relatively stronger ratings for familiar letter identification and matching than for verbal memory and drawing conclusions from events. The pattern distinguishes recognition and routine tasks from more demanding processing statements. It does not establish that learners gained one skill more rapidly than another because there is no baseline, individual assessment protocol, or follow-up. The statements also vary in specificity and context, so their mean differences cannot be interpreted as a common scale of cognitive development.

The comparatively lower memory and reasoning items support reviewing the opportunities offered for explanation, sequencing, recall, and problem solving. They do not diagnose a cognitive difficulty or establish a developmental delay. Instructional responses

should remain connected to actual classroom evidence. A useful next step would be to examine how specific learning tasks invite children to show their thinking, while recognizing that this proposed review was not part of a documented outcome evaluation.

Table 8. Perceived effectiveness in physical development

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Show control and coordination of body movements involving large muscle groups.	4.54 VME/3	4.52 VME/2	4.51 VME/2	4.52 VME/2.5
Can control and coordinate hand and finger movements.	4.55 VME/2	4.53 VME/1	4.51 VME/2	4.53 VME/1
Participate in basic personal care routines.	4.20 ME/10	4.19 ME/10	4.15 ME/10.5	4.18 ME/10
Has the ability to react to and time movements.	4.27 ME/9	4.24 ME/9	4.22 ME/9	4.24 ME/9
Move confidently in and around the environment.	4.35 ME/6	4.34 ME/6	4.31 ME/6	4.33 ME/6
Move rhythmically and expressively to music.	4.56 VME/2	4.51 VME/3	4.50 VME/4	4.52 VME/2.5
Express thoughts and feelings in pictures, paintings and models.	4.18 ME/11.5	4.16 ME/12	4.14 ME/12	4.16 ME/12
Listen and respond to sounds, rhythms, songs and a variety of music.	4.42 ME/5	4.41 ME/5	4.40 ME/5	4.41 ME/5
Make music by singing, clapping and playing percussion instruments.	4.32 ME/7	4.29 ME/7	4.26 ME/7	4.29 ME/7
Use instruments by themselves and groups to invent music that expresses their thoughts and feelings.	4.18 ME/11.5	4.17 ME/11	4.15 ME/10.5	4.17 ME/11
Use a variety of media and art and craft techniques.	4.28 ME/8	4.25 ME/8	4.23 ME/8	4.25 ME/8
Participate in simple dance and singing games.	4.52 VME/4	4.50 VME/4	4.51 VME/2	4.51 VME/4
Average Weighted Mean	4.36 ME/—	4.34 ME/—	4.32 ME/—	4.34 ME/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported. Ranks are retained, including the reported big-school ties that do not follow the displayed means.

Table 8 places movement coordination, rhythmic movement, and participation in dance or singing games above some creative-expression and self-care statements. The pattern suggests that visible motor participation is more favorably rated than certain activities combining physical skills with expression or independent routines. The domain includes several kinds of behavior and should not be treated as a single motor-development test. No performance scoring or child-level developmental comparison was reported.

The findings support maintaining opportunities for movement while considering how materials, time, and support enable creative and practical activity. They do not establish that differentiated instruction caused physical improvement. NAEYC's (2020) emphasis on engaged, play-based learning provides a relevant practice context, but it does not validate the study's measurement or establish age norms for its indicators. Differences in the reported ranks, including the big-school ordering, require clarification before precise ranking claims are made.

Table 9. Perceived effectiveness in socio-emotional development

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Laugh or squeal when at play.	4.55 VME/1	4.53 VME/1	4.52 VME/1	4.53 VME/1
Comfort playmates/classmates in distress.	4.18 ME/5.5	4.13 ME/6	4.07 ME/8	4.13 ME/6
Identify facial expressions and possible causes for these expressions.	4.08 ME/14	4.06 ME/13	4.04 ME/11	4.05 ME/13
Use of I-messages to express themselves without placing blame.	4.15 ME/7	4.08 ME/11	4.00 ME/14	4.08 ME/11
Use positive self-talk to direct their thoughts and behavior.	4.11 ME/11.5	4.07 ME/12	4.03 ME/12	4.07 ME/12
Deal with anger in peaceful, verbal, and nonphysical ways.	4.18 ME/5.5	4.15 ME/5	4.12 ME/5	4.15 ME/5
Remain calm under stress and controlling impulsive behavior.	4.12 ME/9.5	4.11 ME/8	4.09 ME/6.5	4.11 ME/8
Express different basic emotions.	4.53 VME/2	4.52 VME/2	4.50 VME/2.5	4.52 VME/2

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Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Play and show positive interactions with other children.	4.52 VME/3	4.51 VME/3	4.50 VME/2.5	4.51 VME/3
Play organized group games fairly (e.g., does not cheat in order to win).	4.33 ME/4	4.30 ME/4	4.29 ME/4	4.31 ME/4
Can talk about difficult/negative feelings (e.g., anger, sadness, worry) he experiences.	4.14 ME/8	4.12 ME/7	4.09 ME/6.5	4.12 ME/7
Honor a simple bargain with caregiver (e.g., can play outside only after cleaning/finishing his room).	4.11 ME/11.5	4.09 ME/10	4.06 ME/9	4.09 ME/9.5
Watch responsibly over younger siblings/family members.	4.09 ME/13	4.04 ME/14	4.01 ME/13	4.06 ME/14
Cooperate with adults and peers in group situations to minimize quarrels and conflicts.	4.12 ME/9.5	4.10 ME/9	4.05 ME/10	4.09 ME/9.5
Average Weighted Mean	4.23 ME/—	4.20 ME/—	4.17 ME/—	4.20 ME/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported. The table assigns facial-expression identification 4.05 and responsible watching over younger siblings/family members 4.06. One narrative list reverses these values; the tabulated entries are retained.

Table 9 rates enjoyment during play, expression of basic emotions, and positive peer interaction more favorably than facial-expression interpretation and the family-responsibility statement. This suggests a distinction between visible emotional participation and more context-dependent interpretations or responsibilities. The ratings do not demonstrate emotional well-being for individual learners or explain the reasons for a lower item mean. They identify areas for closer observation and discussion rather than grounds for developmental diagnosis.

The family-responsibility item raises an additional content-validity question. Opportunities to watch younger relatives may vary with household arrangements and should not be equated automatically with socio-emotional maturity. Its comparatively low rating does not imply that children should assume adult caregiving roles. The policy implication is to support age-appropriate cooperation, communication, and emotional understanding, while confirming the intended meaning and suitability of the item. The reversed narrative values are documented without replacing either table entry.

Table 10. Perceived effectiveness in language development

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Read books with a simple plot and talking with the children about the story line.	4.11 ME/6	4.05 ME/6	4.03 ME/6	4.06 ME/6
Name objects in pictures.	4.53 VME/2	4.51 ME/2	4.50 VME/2	4.51 VME/2
Look through photos and name family members.	4.56 VME/1	4.54 ME/1	4.52 VME/1	4.54 VME/1
Able to understand both verbal and non-verbal forms of communication.	3.80 ME/9	3.77 ME/8	3.75 ME/11	3.77 ME/8
Able to recite the alphabet and numbers in sequence.	4.18 ME/5	4.13 ME/5	4.11 ME/5	4.14 ME/5
Ask for information and clarify their thinking and understanding.	3.72 ME/12	3.65 ME/12.5	3.63 ME/12.5	3.67 ME/12
Able to use words and gestures to express his thoughts and feelings.	3.82 ME/8	3.71 ME/11	3.70 ME/10	3.74 ME/9.5
Share ideas and experiences.	3.75 ME/11	3.73 ME/9.5	3.72 ME/8	3.73 ME/11
Ask and answer questions.	3.85 ME/7	3.84 ME/7	3.81 ME/7	3.83 ME/7
Speak in grammatically correct 2-3 word sentences.	3.67 ME/13	3.65 ME/12.5	3.63 ME/12.5	3.65 ME/13
Asks "what" questions.	4.31 ME/3	4.28 ME/3	4.25 ME/3	4.28 ME/3
Asks "who" and "why" questions.	4.29 ME/4	4.27 ME/4	4.24 ME/4	4.27 ME/4
Gives account of recent experiences (with prompting) in order of occurrence using past tense.	3.77 ME/10	3.73 ME/9.5	3.71 ME/9	3.74 ME/9.5
Average Weighted Mean	4.03 ME/—	3.98 ME/—	3.97 ME/—	3.99 ME/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported. Medium-school codes ME at 4.51 and 4.54 are retained despite VME codes for the corresponding average values.

Table 10 gives stronger ratings to naming familiar people and objects than to asking for clarification, sharing experiences, or forming short grammatical sentences. The profile distinguishes familiar labeling from expressive and explanatory communication. These tasks differ in purpose and complexity, so the ratings cannot establish a uniform language level or a measured rate of development. The statements include adult-supported reading as well as learner behavior, which further limits interpretation as a pure measure of learner competence.

The findings support providing opportunities for conversation, questions, narration, and supported explanation alongside picture naming. They do not identify shyness, anxiety, lack of practice, or classroom conditions as verified causes of the lower ratings. Those explanations would require additional evidence. Likewise, the age and language context of the short-sentence item are unspecified. Its score is retained without assuming a developmental norm or interpreting bilingual or multilingual experience as a deficit.

Table 11. Summary of perceived effectiveness across learning domains

Indicator	Big School Wx; I / R	Medium Schools Wx; I / R	Small Schools Wx; I / R	Average Wx; I / R
Cognitive	4.01 ME/4	3.99 ME/3	3.96 ME/4	3.99 ME/3.5
Physical	4.36 ME/1	4.34 ME/1	4.32 ME/1	4.34 ME/1
Socio-emotional	4.23 ME/2	4.20 ME/2	4.17 ME/2	4.20 ME/2
Language development	4.03 ME/3	3.98 ME/4	3.97 ME/3	3.99 ME/3.5
Average Weighted Mean	4.16 ME/—	4.13 ME/—	4.11 ME/—	4.13 ME/—

Note. Wx = weighted mean; I = interpretation; R = rank. Each numerical entry, code, and rank is retained as reported.

Table 11 identifies physical development as the highest-rated domain, followed by socio-emotional development, with cognitive and language development tied in the Average column. All domains and the overall mean are classified Much Effective. The pattern supports considering holistic participation while giving additional attention to language and cognitive opportunities. It does not establish that physical development benefited most from differentiated instruction, since no change scores or comparative effects were estimated. The close domain means and favorable classifications should be considered alongside their differing indicator content. A shared interpretation label can cover varied activities and does not imply that the same instructional approach is suitable for every behavior. The overall mean provides a descriptive summary of perceived effectiveness. It cannot demonstrate that all Grade 1 learners reached developmental expectations or that the same pattern would occur beyond the participating schools.

Table 12. Reported agreement on perceived-effectiveness rank orders

Reported statistic	Cognitive	Physical	Socio-Emotional	Language development
Sum of squares of the difference	735	1,253.5	1,909.5	1,589.5
Number of cases	10	12	14	13
Number of groups of respondents	3	3	3	3
Coefficient of Concordance	0.98	0.97	0.93	0.97
Computed X2 value	32.34	32.01	30.69	24.92
Degree of Freedom	9	11	13	12
Tabular X2 Value 0.05 0.025 0.01 0.005 0.001	16.92	19.68	22.36	21.03
	19.68	22.62	24.74	24.05
	21.67	24.72	27.69	26.22
	23.59	26.76	29.81	28.30
	27.88	31.26	34.53	32.91
Decision on Alternative Hypothesis (H1)	Accepted	Accepted	Accepted	Accepted
Significance of Agreement	0.001	0.001	0.005	0.025

Note. The narrative reports Cognitive $p < 0.001$; Physical $p < 0.001$; Socio-Emotional $p < 0.005$; and Language Development $p < 0.025$. Reported $W\text{-}\chi^2$ -case combinations for cognitive, socio-emotional, and language development require verification. All decisions concern the alternative hypothesis.

Table 12 reports high concordance for all developmental domains and acceptance of each alternative hypothesis. This indicates the stated consistency of indicator ordering, subject to verification of the calculations. It does not establish a shared causal judgment about the instructional approach or show that all respondents observed the same behaviors. Similar ranks are compatible with differences in absolute ratings and within-group variation that the aggregate tables do not display.

The cognitive, socio-emotional, and language entries require checking against the stated numbers of cases and groups. The language chi-square entry also warrants review alongside the listed critical values and narrative probability threshold. None has been replaced by a calculated alternative. Until the statistical record is reconciled, the reported significance conclusion should be treated as qualified. Descriptive findings can identify local priorities, but unresolved agreement statistics cannot strengthen a claim of measured developmental effectiveness.

4. Discussion

4.1 Interpreting the instructional profile

The study presents differentiated instruction as favorably utilized across content, process, product, and learning environment.

Process and environment were rated more strongly than content and product. Taken together, the indicator profiles suggest that support for participation and classroom climate should be accompanied by attention to access, clear learning goals, assessment participation, and meaningful ways to show understanding. This interpretation connects the domain summaries without assuming that a small difference in mean establishes an educationally significant difference.

The distinction between grouping and broader adaptation is consistent with Deunk et al. (2018), whose primary-education review considered different forms of differentiation and their implementation context. The local process rating cannot establish that grouping was responsive to assessment or that it improved achievement. Its practical value is to identify flexible grouping as a favorably perceived activity while directing attention to the tasks, materials, and feedback accompanying it. The reported content and product concerns remain relevant even when participation is rated favorably.

Smale-Jacobse et al. (2019) likewise caution against treating differentiation as a uniform intervention with an established effect across settings. Their review concerns secondary education, so its findings cannot be transferred directly to Grade 1 developmental domains. It nevertheless reinforces the need to describe the implemented practice and the outcome evidence. The study's adult ratings provide one perspective on practice; they do not substitute for observations, learner work, or documented assessment of change.

4.2 Perceived developmental effectiveness

The effectiveness profile shows stronger physical and socio-emotional ratings than cognitive and language ratings. This suggests that visible participation in movement and play may be more favorably perceived than some memory, reasoning, and explanatory-language behaviors. The difference does not identify an instructional mechanism. Item specificity, opportunities for observation, and the mix of behaviors within domains could contribute to ratings, but the study did not measure these explanations separately.

Aguhayon et al. (2023) provide a relevant contrast in evidence by examining mathematics performance and confidence through a Grade 10 quasi-experimental design. Their findings concern a different age group, subject, and assessment method. The study in Nabua East District should therefore not be represented as confirming the same effect. Its contribution is descriptive: it identifies reported strengths and concerns in early primary practices and perceived learning behaviors, while a causal evaluation would require an appropriate comparison and outcome measures.

The language and socio-emotional items show why measurement content matters. Naming familiar people, interpreting expressions, discussing feelings, and taking responsibility within a family are not equivalent tasks. Their ratings depend on what was observed and under what conditions. A lower mean should prompt inquiry into opportunities and supports rather than assumptions about an individual child's capacity. The study does not establish developmental norms or validate the suitability of every indicator for Grade 1 learners.

4.3 Professional learning and policy implications

The policy direction is to strengthen teachers' differentiated-instruction practice through workshops, resources, responsive guidelines, school-head feedback, and opportunities to refine classroom decisions. The study also recommends aligning experiences with goals and assessment, supporting play and co-curricular activity, and developing family partnerships, including a parent buddy system. These are proposed actions based on the findings; their implementation, cost, and effectiveness were not evaluated. No new program or training outcome has been introduced.

Dack and Tomlinson (2025) examined early career teachers' differentiation trajectories across varying school contexts. Their qualitative findings support attention to sustained professional support and enactment of practice rather than assuming that a workshop alone changes teaching. The lower-rated content and product activities offer possible topics for observation and feedback. However, the study does not determine the duration, format, or resource level required for an effective professional-learning program in Nabua East District. Recommendations should also distinguish responsive instruction from fixed learning-style prescriptions. Pashler et al. (2008) found insufficient evidence for educational use of learning-style matching. The study retains preference-related statements as reported practices but does not test or validate that model. Teachers can examine learners' current understanding, goals, and access needs without interpreting auditory, visual, or kinesthetic labels as established explanations of how individual children learn best.

NAEYC (2020) provides a relevant framework for connecting teaching, assessment, play, and reciprocal family relationships in early childhood education. Within this study, those principles support a cautious emphasis on meaningful and accessible experiences. They do not verify the reported item classifications or explain observed differences. The strongest implication is to connect favorable perceptions with documented classroom practice and age-appropriate opportunities, while resolving ambiguous measurement before using the results for consequential decisions.

5. Conclusion

The study reported Much Utilized ratings across the four differentiated-instruction domains, with an overall weighted mean of 4.08. Process and learning environment were rated more strongly than product and content. Perceived developmental effectiveness was Much Effective overall (4.13), with physical development highest and cognitive and language development tied at the lower end of the domain profile. The findings support professional learning, resources, school-head guidance, meaningful assessment and product tasks, play, and family partnerships. High rank agreement was reported, but unresolved statistical and measurement inconsistencies limit independent confirmation. The study describes perceptions rather than demonstrated developmental gains or causal effects. Completion of the missing methodological record and reconciliation of the numerical results are necessary before journal submission.

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