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The Cognitive Activities in Enhancing the Thinking Skills of the Kindergarten Learners in Caramoan East District, Division of Camarines Sur

May Hernandez Basiño[1`]

[1]School of Graduate Studies, University of Northeastern Philippines [2]Department of

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ABSTRACT

This study examined the extent to which cognitive activities are utilized by kindergarten teachers and how these activities enhance the thinking skills of kindergarten learners in the Caramoan East District, Division of Camarines Sur, Philippines, during School Year 2024–2025. Employing a descriptive-evaluative-correlational research design, the study involved thirty (30) kindergarten teachers drawn from big, medium, and small public elementary schools in the district. Data were gathered using a researcher-developed questionnaire and analyzed through weighted mean, frequency count, percentage, and rank, while Kendall's Coefficient of Concordance (W) and the chi-square test were used to determine the level of agreement in rank orders, with the level of significance set at 0.05. Findings revealed that all cognitive activities—listening to music, counting specific letters, drawing, reading books, growing vocabulary, and completing quizzes and puzzles—were very much utilized, with listening to music and letter-based counting activities obtaining the highest mean ratings. Moreover, the utilization of these cognitive activities was found to be very much evident in enhancing learners' thinking skills across critical, convergent, divergent, creative, analytical, and reflective domains. Tests of significant agreement indicated strong and statistically significant concordance among respondents regarding the rank order of both the extent of activity utilization and their contribution to learners' thinking skills, leading to the rejection of the null hypotheses. The study underscores the instructional value of developmentally appropriate cognitive activities in early childhood education and highlights the need for systematic integration of cognitive skill development into kindergarten instruction. Policy and practice implications emphasize strengthening professional development, instructional alignment, and monitoring mechanisms to support sustained cognitive growth among early learners and advance quality education outcomes.

1. Introduction

Education in the twenty-first century extends beyond the mere acquisition of factual knowledge; it emphasizes the development of learners' thinking skills necessary to navigate the complexities of an increasingly dynamic and knowledge-driven world. As famously articulated by Albert Einstein, education is fundamentally concerned with training the mind to think rather than memorizing facts. This perspective underscores the growing global shift in educational practice toward cultivating higher-order thinking skills such as critical thinking, problem-solving, creativity, and analytical reasoning—competencies that are essential for lifelong learning and meaningful participation in society.

In the Philippine context, this educational philosophy is firmly anchored in national and international policy frameworks. The 1987 Philippine Constitution mandates the State to protect and promote the right of all citizens to quality education at all levels, highlighting the responsibility of educational institutions to foster intellectual growth and holistic development among learners. Complementing this mandate, Republic Act No. 10533, otherwise known as the Enhanced Basic Education Act of 2013, reformed the country's basic education system through the K–12 curriculum, aiming to equip learners with essential competencies, skills, and values necessary for lifelong learning and employment. These policy directions emphasize not only access to education but also the quality and relevance of learning experiences, particularly during the foundational years of schooling.

Early childhood education plays a pivotal role in this endeavor, as cognitive development during the kindergarten stage lays the groundwork for future academic success and intellectual growth. Cognitive activities—such as puzzles, vocabulary-building exercises, drawing, reading, music engagement, and structured problem-solving tasks—serve as essential pedagogical tools that support young learners' ability to think critically, reason analytically, and express ideas creatively. These activities promote active engagement, deeper understanding, and the gradual development of both divergent and convergent thinking skills, which are critical during early learning stages.

Globally, the emphasis on cognitive skill development aligns with the United Nations' Sustainable Development Goals (SDGs), particularly SDG 4, which advocates inclusive and equitable quality education and lifelong learning opportunities for all. Enhancing thinking skills through developmentally appropriate cognitive activities directly contributes to this goal by

strengthening learners' capacity to solve problems, adapt to change, and engage meaningfully with their learning environments. Nationally, the Department of Education's MATATAG Agenda further reinforces this focus by prioritizing curriculum relevance, learner well-being, and teacher support to address persistent challenges in basic education.

Despite these policy commitments and theoretical foundations, variations persist in how cognitive activities are implemented and utilized across kindergarten classrooms, particularly in diverse school contexts such as big, medium, and small public schools. Moreover, while numerous studies highlight the benefits of cognitive-based instructional strategies, empirical evidence examining the extent of their utilization and their perceived impact on specific thinking skill domains at the kindergarten level—especially within localized district settings—remains limited.

In response to this gap, the present study investigates the cognitive activities utilized by kindergarten teachers in the Caramoan East District, Division of Camarines Sur, and examines the extent to which these activities enhance learners' thinking skills across critical, analytical, creative, reflective, divergent, and convergent dimensions. It further determines the level of agreement among teachers regarding the rank order of cognitive activity utilization and their perceived effectiveness. By generating empirical evidence from a district-level context, the study aims to inform instructional practices, support policy formulation, and contribute to ongoing efforts to strengthen early childhood education and promote quality learning outcomes.

2. Methodology

This study employed a descriptive–evaluative–correlational research design to determine the extent of utilization of selected cognitive activities by kindergarten teachers and to assess the degree to which these activities enhance the thinking skills of kindergarten learners. The descriptive–evaluative component focused on identifying the level of implementation of cognitive activities, namely completing quizzes and puzzles, growing vocabulary, counting specific letters, drawing, reading books, and listening to music. The correlational component was utilized to determine the level of agreement in the rank orders of these cognitive activities and their perceived influence on the enhancement of learners' thinking skills across different groups of respondents. This design was deemed appropriate as it allowed for systematic description, evaluation, and analysis of relationships among variables without manipulation.

The study was conducted in selected public elementary schools in the Caramoan East District, Division of Camarines Sur, Philippines, during School Year 2024–2025. The locale includes schools classified as big, medium, and small based on enrollment and staffing patterns, providing a representative setting for examining kindergarten instructional practices in both central and geographically remote contexts.

The respondents of the study were thirty (30) kindergarten teachers assigned across public elementary schools in the Caramoan East District. The respondents were evenly distributed across three school-size categories—big, medium, and small schools—with ten (10) teachers representing each category. This balanced distribution ensured adequate representation of diverse teaching environments and instructional conditions.

Purposive sampling was employed in selecting the participating public elementary schools to ensure the inclusion of schools offering kindergarten programs. Total enumeration was used in selecting the kindergarten teacher respondents since the population size was manageable and full participation was necessary to obtain comprehensive and representative data.

A researcher-made questionnaire served as the primary data-gathering instrument. The instrument consisted of two major parts: Part I measured the extent of utilization of cognitive activities, while Part II assessed the extent to which these activities enhanced learners' thinking skills in terms of critical, analytical, creative, reflective, divergent, and convergent thinking. The instrument utilized a five-point Likert scale with corresponding verbal interpretations to ensure consistency in responses and clarity in data analysis.

To establish content validity, the questionnaire underwent expert validation by a panel composed of graduate school professors, the research adviser, and the dean. The validators examined the instrument for clarity, relevance, and alignment with the study objectives, and their comments and recommendations were incorporated prior to final administration. The reliability of the instrument was determined using the Kuder–Richardson Formula, which yielded a reliability coefficient of 0.73, indicating satisfactory internal consistency. Further inferential testing revealed a statistically significant result at $p < 0.001$, affirming the robustness and dependability of the instrument.

Following the approval of the research proposal and the revision of Chapters 1 to 3, permission to conduct the study was secured from the appropriate educational authorities. The validated questionnaires were then reproduced and administered personally by the researcher to the respondents. A dry run was conducted prior to the actual data collection to ensure clarity and feasibility of the instrument. Completed questionnaires were retrieved, checked, and organized for analysis. Ethical considerations such as voluntary participation, confidentiality of responses, and responsible use of data were strictly observed throughout the research process.

The data gathered were analyzed using appropriate descriptive and inferential statistical tools. Frequency counts, percentages, and weighted means were employed to determine the extent of cognitive activity utilization and the level of thinking skills enhancement. Rank-order analysis and correlational techniques were used to examine the significance of agreement among the respondents' rankings. All results were interpreted using predefined scale intervals and verbal descriptors to ensure accuracy and consistency in analysis.

3. Results and Discussions

3.1 Extent of the Cognitive Activities Utilized by Kindergarten Teachers

The results revealed that all identified cognitive activities were very much utilized by kindergarten teachers in the Caramoan East District, indicating a strong instructional emphasis on cognitive development in early childhood education. These activities

included completing quizzes and puzzles, growing vocabulary, counting specific letters, drawing, reading books, and listening to music. The consistently high weighted mean scores across all indicators suggest that teachers systematically integrate cognitive activities into daily classroom routines, aligning instruction with developmentally appropriate practices and the Most Essential Learning Competencies (MELCs).

Completing quizzes and puzzles emerged as a highly utilized cognitive activity, with teachers actively monitoring learners' responses to identify strengths and areas for improvement, designing differentiated tasks to address varying levels of cognitive readiness, and providing immediate feedback to reinforce correct reasoning. The integration of visual and tactile puzzle materials further supported multisensory learning experiences, which are critical in strengthening logical reasoning, pattern recognition, and problem-solving skills among young learners. These findings indicate that assessment-driven and interactive cognitive tasks are embedded not merely as evaluative tools but as instructional strategies that promote higher-order thinking even at the kindergarten level.

Growing vocabulary was likewise rated as very much utilized, reflecting teachers' strong emphasis on language development as a foundation for thinking skills. Teachers employed explicit instruction on word meanings, affixes, synonyms, and antonyms, while also integrating vocabulary lessons into reading and writing tasks to promote authentic language use. Interactive strategies such as word mapping, semantic clustering, and concept association were commonly practiced, enabling learners to deepen their understanding of word relationships and meanings. The use of visual aids, multimedia tools, and contextualized examples further enhanced vocabulary acquisition, suggesting that teachers recognize the central role of language in cognitive processing and comprehension.

Counting specific letters obtained some of the highest weighted mean scores among all cognitive activities, underscoring its importance in developing phonemic awareness and early literacy skills. Teachers consistently integrated letter-counting tasks into vocabulary instruction and literacy routines, enabling learners to identify, tally, and analyze specific letters within words. These activities were reinforced through formative assessments, vocabulary journals, and performance-based tasks, allowing learners to apply letter-counting strategies in decoding unfamiliar words. The alignment of these activities with MELCs highlights teachers' adherence to curriculum standards while addressing individual differences in reading levels and language proficiency.

Drawing was also found to be very much utilized as a cognitive activity, serving both instructional and assessment purposes. Teachers provided constructive feedback on learner drawings, modeled techniques that support narrative construction, and encouraged collaborative drawing projects to foster shared meaning-making. Drawing activities were integrated into reading, writing, and speaking tasks, enabling learners to visually represent ideas, concepts, and stories. The use of drawing as a formative assessment tool allowed teachers to track learners' comprehension, creativity, and mastery of learning competencies, demonstrating the instructional value of visual expression in early cognition.

Reading books remained a core cognitive activity in kindergarten classrooms, with teachers facilitating guided reading sessions that promote inferential thinking, comprehension, and contextual analysis. Teachers encouraged reflective journaling after reading, scaffolded reading tasks to accommodate varying proficiency levels, and documented learners' progress through portfolios and rubrics. The integration of metacognitive strategies such as predicting, questioning, and summarizing further enhanced learners' ability to monitor their understanding while reading. These practices reflect a learner-centered approach that emphasizes comprehension, critical thinking, and meaning-making rather than rote reading.

Listening to music emerged as one of the most highly utilized cognitive activities, with several indicators obtaining the maximum weighted mean. Teachers used guided music listening sessions to prompt learners to analyze lyrics, identify themes, interpret emotions, and evaluate artistic choices. Music was also integrated across subject areas, reinforcing concepts in values education, social studies, and language. Reflective journaling and discussion following music activities enabled learners to articulate interpretations, connect themes to personal experiences, and develop emotional literacy. The strong emphasis on music-based instruction suggests that teachers recognize its cognitive, emotional, and cultural value in early learning.

Table 1. Summary of the Extent of Cognitive Activities Utilized

Cognitive Activity	Overall Verbal Interpretation
Completing Quizzes and Puzzles	Very Much Utilized
Growing Vocabulary	Very Much Utilized
Counting Specific Letters	Very Much Utilized
Drawing	Very Much Utilized
Reading Books	Very Much Utilized
Listening to Music	Very Much Utilized

3.2 Test of Significant Agreement on the Rank Order of Cognitive Activities

The results of Kendall's Coefficient of Concordance (W) and the chi-square test revealed statistically significant agreement among the respondents regarding the rank order of the extent of utilization of cognitive activities. All computed values yielded p-values lower than the 0.05 level of significance, indicating strong consensus among kindergarten teachers across school categories. This finding led to the rejection of the null hypothesis and suggests that teachers, regardless of school size, share similar perceptions and instructional practices concerning cognitive activity implementation. The high concordance values further reflect institutional coherence in early childhood instructional approaches within the district.

3.3 Extent to Which Cognitive Activities Enhanced Learners' Thinking Skills

The findings further revealed that the cognitive activities implemented by teachers were very much evident in enhancing learners' thinking skills across critical, analytical, creative, reflective, divergent, and convergent domains. In terms of critical thinking,

learners demonstrated the ability to reflect on their actions, ask questions, test ideas through trial and error, and explain their reasoning during problem-solving tasks. These behaviors indicate early development of evaluative and decision-making skills essential for lifelong learning.

Analytical thinking skills were also very much evident, as learners were observed to identify patterns, compare similarities and differences, predict outcomes, and justify decisions using observable evidence. The consistent engagement in structured cognitive activities enabled learners to process information logically and make sense of their experiences systematically.

Creative thinking was highly manifested through learners' willingness to explore new ways of doing tasks, use imagination in storytelling and drawing, and combine ideas in novel ways. Learners also demonstrated enjoyment in making choices and expressing preferences, reflecting a classroom environment that supports risk-taking and originality.

Reflective thinking was evident in learners' ability to evaluate their approaches, describe emotional responses, seek clarification, and set personal goals based on feedback. These behaviors suggest that cognitive activities encouraged metacognitive awareness even at an early age.

Divergent thinking skills were enhanced as learners generated multiple ideas, offered original responses, asked "what if" questions, and adapted known strategies to solve problems creatively. Meanwhile, convergent thinking skills were manifested through learners' ability to organize information, follow multi-step processes, eliminate incorrect options, and arrive at appropriate solutions using logical analysis.

3.3 Analytical Synthesis

Taken together, the results affirm that the systematic and consistent utilization of cognitive activities significantly enhances multiple dimensions of thinking skills among kindergarten learners. The integration of language, literacy, numeracy, visual expression, and music-based activities creates a rich learning environment that supports holistic cognitive development. The strong agreement among teachers further suggests that these practices are well-established and aligned with curriculum standards and instructional expectations. Overall, the findings highlight the critical role of developmentally appropriate cognitive activities in strengthening early thinking skills and advancing quality kindergarten education.

4. Conclusions and Implications

4.1 Conclusions

This study concludes that kindergarten teachers in the Caramoan East District consistently and extensively utilize a wide range of cognitive activities, including completing quizzes and puzzles, growing vocabulary, counting specific letters, drawing, reading books, and listening to music. All identified activities were rated as very much utilized, indicating that cognitive development is a central and deliberate focus of kindergarten instruction across public elementary schools, regardless of school size. These findings demonstrate a strong alignment between classroom practices and developmentally appropriate instructional approaches as prescribed by the K–12 curriculum and the Most Essential Learning Competencies (MELCs).

The study further concludes that there is a statistically significant agreement among teachers regarding the rank order of the extent to which these cognitive activities are utilized. The significant Kendall's Coefficient of Concordance and chi-square test results led to the rejection of the null hypotheses, confirming a shared instructional perspective among teachers. This consensus suggests a coherent and district-wide implementation of cognitive-focused teaching strategies, reflecting both professional alignment and adherence to curricular standards.

Moreover, the study establishes that the cognitive activities implemented by teachers are very much evident in enhancing learners' thinking skills across critical, analytical, creative, reflective, divergent, and convergent domains. Kindergarten learners demonstrated the ability to reflect on their learning processes, analyze patterns and relationships, generate original ideas, evaluate outcomes, explore multiple solutions, and arrive at logical conclusions. These outcomes affirm that thoughtfully designed and systematically implemented cognitive activities effectively foster higher-order thinking skills even at the early childhood level.

Overall, the findings confirm that cognitive activities are not merely supplementary classroom tasks but function as essential instructional mechanisms that significantly contribute to the holistic cognitive development of kindergarten learners. Early exposure to varied and meaningful cognitive experiences lays a strong foundation for later academic success, problem-solving ability, and lifelong learning.

4.2 Implications

The findings of this study carry important implications for educational practice, school administration, policy formulation, and future research. From an instructional perspective, the consistently high utilization and effectiveness of cognitive activities underscore the need for kindergarten teachers to sustain and further strengthen learner-centered, cognitively rich classroom practices. Teachers are encouraged to continue integrating diverse cognitive activities across subject areas, ensuring that instruction remains developmentally appropriate, inclusive, and responsive to learners' varying abilities and learning styles.

From an administrative standpoint, school leaders and instructional supervisors should support these practices through continuous professional development programs that focus on cognitive skill development, assessment literacy, and differentiated instruction in early childhood education. Providing adequate instructional resources, learning materials, and monitoring mechanisms will help sustain effective classroom practices and ensure consistent implementation across schools.

In terms of policy implications, the results support existing curriculum frameworks that emphasize cognitive development as a core goal of early childhood education. Educational planners and policymakers may use the findings as empirical evidence to reinforce policies that prioritize thinking skills development in kindergarten programs. Strengthening teacher training, curriculum alignment, and instructional supervision can further enhance the quality and impact of early learning initiatives.

Finally, the study offers directions for future research. Subsequent studies may explore the longitudinal effects of cognitive activity utilization on learners' academic performance in later grade levels or examine the relationship between specific cognitive activities and particular thinking skill domains. Comparative studies involving other districts or regions may also provide broader insights into best practices in early childhood cognitive instruction.

In conclusion, this study affirms that the intentional and consistent use of cognitive activities plays a vital role in enhancing kindergarten learners' thinking skills. Sustained institutional support, informed instructional practice, and evidence-based policy implementation are essential to maximizing the benefits of cognitive-focused education and ensuring quality learning outcomes in the foundational years of schooling.

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