Assessing the Impact of School-based Feeding Program in Enhancing the Academic Performance Among learners at Kasambuhan Village Elementary Schools

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*ABSTRACT***.** Education's efficacy is often undermined by socioeconomic barriers like malnutrition, yet the localized translation of nutritional interventions into measurable cognitive and scholastic achievement remains underexplored in resource-constrained community schools. This study assesses the extent to which the School-Based Feeding Program (SBFP) enhances the academic performance, health, and participation of elementary learners at Kasambuhan Village Elementary School. Employing a descriptive quantitative design, data were collected from 100 purposively selected learner-beneficiaries using a structured, locally adapted questionnaire. Statistical treatments, including weighted means, analysis of variance (ANOVA), and Pearson's correlation, were utilized to evaluate program impacts and demographic variances. Results indicated a high perceived programmatic impact across all domains, with the most profound improvements observed in health and nutritional effects. Developmental disparities were evident, as learners aged nine and below reported significantly greater physiological and academic benefits compared to older peers. Crucially, while a strong positive correlation linked health improvements to academic outcomes, the direct relationship between mere program participation and scholastic achievement was only moderate. These insights reinforce that while feeding initiatives successfully mitigate foundational biological deficits, converting these physiological gains into sustained educational mastery requires deliberate pedagogical scaffolding. Evolving current caloric delivery systems into holistic, instructionally integrated educational frameworks is essential for equitable academic advancement.

KEYWORDS: School-Based Feeding Program, Academic Performance, Nutritional Status, Early Childhood Development, Educational Policy, Pedagogical Scaffolding

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Introduction

Education serves as a fundamental catalyst for intellectual development and national progress, yet its efficacy is frequently compromised by socioeconomic determinants such as poverty, malnutrition, and poor health. Poor nutritional status correlates with diminished attention spans, reduced classroom participation, and sub-optimal academic achievement (Florendo, 2020). Conversely, well-nourished children consistently demonstrate enhanced memory retention, cognitive readiness, and classroom engagement (Ocampo & De Vera, 2021).

Within the Philippine context, malnutrition remains a pervasive barrier to academic success, particularly affecting elementary learners from low-income households (Department of Education [DepEd], 2021). To mitigate this structural deficit, the government institutionalized the School-Based Feeding Program (SBFP), a flagship intervention targeting "wasted" and "severely wasted" learners (DepEd Order No. 39, s. 2017). The SBFP is designed to alleviate short-term hunger, bolster academic performance, curb absenteeism, and promote holistic well-being (DepEd, 2022). Empirical evidence underscores the efficacy of such interventions, indicating that regular school meals improve concentration, test scores, and student retention rates, serving as a vital social safety net in marginalized communities (Gonzales, 2019; World Food Programme, 2020).

Despite the documented benefits of the SBFP at the macro level, significant variations persist regarding its efficacy across heterogeneous communities. Contextual factors—including localized socioeconomic constraints, community participation levels, and specific school management dynamics—can deeply mediate the program's success. Consequently, there is a critical need to evaluate the localized impact of the SBFP in small, resource-constrained community schools, such as Kasambuhan Village Elementary School, where distinct socioeconomic challenges prevail.

Therefore, this study aims to assess the extent to which the School-Based Feeding Program enhances the academic performance of learners at Kasambuhan Village Elementary School. Specifically, the research evaluates the program's impact through the precise metrics of learner participation levels, health and nutritional effects, and subsequent academic outcomes, while examining potential variances across demographic profiles including age, gender, grade level, and nutritional status.

By systematically analyzing these variables, this study provides robust, localized empirical evidence to inform educational policy and refine the SBFP. These findings are anticipated to assist policymakers in optimizing resource allocation and sustaining educational interventions that align directly with the United Nations' Sustainable Development Goals of Zero Hunger (SDG 2) and Quality Education (SDG 4).

Research Questions

1. What is the demographic profile of the learner-respondents in terms of:
   1.1 Age;
   1.2 Gender;
   1.3 Grade level; and
   1.4 Nutritional Status;
2. What is the extent of the impact of School-Based Feeding Program in enhancing the academic performance of learners at Kasambuhan Village Elementary School in terms of:
   2.1. Level of Participation in School-Based Feeding Program.;
   2.2. Health and Nutritional Effect; and
   2.3. Academic Outcomes?
3. Is there a significant difference in the impact of School-Based Feeding Program in enhancing the academic performance of learners at Kasambuhan Village Elementary School when data are categorized according to their demographic profile in terms of:
   3.1Age;
   3.2Gender;
   3.3 Grade level; and
   3.4Nutritional Status?

4. Is there a significant correlation among the subcategories subsumed under the school-based feeding program in enhancing the academic performance of the learners?

Literature

Nutrition and Cognitive Development

The interplay between nutritional adequacy and educational attainment is anchored in foundational psychological and developmental frameworks. At the most fundamental level, physiological requirements—specifically the alleviation of hunger—serve as a strict prerequisite for learners to engage in higher-order cognitive tasks (Maslow, 1943). Securing this biological baseline enables children to actively construct knowledge, demonstrating enhanced memory retention, information processing, and overall brain function (Piaget, 1952; Ocampo & De Vera, 2021). Expanding beyond individual cognition, nutritional interventions operate within a wider socio-environmental context. School feeding initiatives function as vital institutional support mechanisms within a child's microsystem and exosystem, fostering essential collaborations among schools, families, and local governments to optimize the learning environment (Bronfenbrenner, 1979; World Food Programme, 2020). Collectively, these perspectives establish that fulfilling physiological needs through structural community support is inextricably linked to cultivating the cognitive readiness, engagement, and motivation necessary for academic achievement.

Global Perspectives on School Participation and Academic Heterogeneity

International evaluations of school-based feeding programs (SBFPs) consistently report robust improvements in educational participation metrics across diverse socioeconomic settings. By alleviating immediate hunger and reducing the opportunity costs associated with schooling, the provision of regular school meals reliably elevates enrollment, retention, and daily attendance, particularly in contexts characterized by food insecurity (Cohen et al., 2021; Bundy et al., 2024; WFP, 2022). Increased classroom presence serves as the primary mechanism for downstream learning gains, affording children greater instructional exposure and improved on-task attention (Wang et al., 2020; Education Commission, 2023).

While consensus exists regarding attendance, empirical evidence linking feeding initiatives to direct academic or cognitive outcomes remains decidedly heterogeneous. Randomized trials and longitudinal assessments indicate that sustained exposure to nutritionally adequate meals can enhance reading proficiency, mathematical reasoning, and memory retention (Gelli et al., 2019; Mostert et al., 2021; Kristjánsson et al., 2022). Conversely, widespread meta-analyses reveal that corresponding effect sizes for standardized test scores are often negligible or highly variable (Wang et al., 2020; Cohen et al., 2021). This outcome variance is heavily moderated by implementation fidelity; translating acute nutritional benefits into measurable academic achievement demands consistent delivery, strict adherence to caloric guidelines, and reliable logistical execution (Education Commission, 2023; Mostert et al., 2021; WFP, 2022). Weak infrastructural delivery systems frequently blunt these anticipated educational returns.

Local Implementation Dynamics and the Research Gap

Within the Philippine educational framework, the School-Based Feeding Program (SBFP) consistently demonstrates efficacy in ameliorating undernutrition and bolstering classroom attendance among public elementary learners (Tabunda, Albert, & Angeles-Agdeppa, 2016; Lu & Dacal, 2020). Consistent participation yields measurable physiological gains, particularly in body mass index, which subsequently enhances attention spans and engagement (Tabunda, Albert, &

Angeles-Agdeppa, 2016; Lu & Dacal, 2020). Yet, the translation of these physiological benefits into sustained academic achievement is frequently disrupted by systemic operational barriers. Evaluations identify pervasive logistical constraints, including delayed food delivery, abbreviated implementation periods, inadequate facilities, and inconsistent monitoring, particularly within geographically isolated or rural sectors (Tabunda, Albert, & Angeles-Agdeppa, 2016; Lu & Dacal, 2020; PIDS, 2021). The pivotal role of teacher engagement and rigorous program management is frequently cited as a critical determinant of program fidelity; schools exhibiting active teacher coordination record substantially higher pupil participation and performance (Solania & Cubillas, 2020; Claros, Cruz, & Bacang, 2024).

While national assessments and policy directives reinforce the program's dual mandate of nutritional rehabilitation and educational enhancement (DepEd, 2020), a pronounced empirical deficit persists. The prevailing local literature disproportionately measures program success through proximate indicators—namely, attendance rates and immediate nutritional recovery—while largely marginalizing direct, quantitative evaluations of cognitive or scholastic achievement (Lu & Dacal, 2020; Corpuz, 2023). Consequently, the precise correlation between localized feeding interventions and measurable academic outcomes remains underexplored, especially within resource-constrained, small community schools. By strictly evaluating the academic impact of the SBFP alongside health and participation metrics, the current study directly addresses this gap, providing localized empirical evidence essential for calibrating implementation fidelity and ensuring long-term educational sustainability.

Methodology

1. Research Design

This study employed a descriptive quantitative research design to systematically assess the impact of the School-Based Feeding Program (SBFP) on learners' academic performance. This approach facilitated the collection of measurable, objective data through standardized instruments to identify patterns and correlations between program participation and educational outcomes, providing an empirical basis for policy evaluation and programmatic improvement.

2. Participants and Sampling

The research was conducted at Kasambuhan Village Elementary School in the Indanan South District, Division of Sulu, Philippines. A purposive sampling technique was utilized to select a cohort of 100 learner-respondents. Strict inclusion criteria required participants to be official SBFP beneficiaries for the School Year 2025–2026 and explicitly classified as "wasted" or "severely wasted" according to Department of Education health records. Ethical protocols were rigorously maintained; procedures included securing informed consent from guardians, ensuring voluntary participation without coercion, and guaranteeing the strict confidentiality and anonymity of all student data in compliance with Republic Act 11037. Table 1 shows the distribution of the respondents.

Table 1. Respondent Distribution

KASAMBUHAN VILLAGE ELEMENTARY SCHOOL GRADE LEVEL	NUMBER OF LEARNERS RESPONDENT
1. GRADE 4	30
2. GRADE 5	27
3. GRADE 6	43

	TOTAL:	**100**

3. Instruments

Data were gathered using a structured, two-part questionnaire adapted from Lagang and Dioso (2024), which integrated programmatic frameworks from the Department of Education, the World Food Programme, and UNICEF. Part I recorded the respondents' demographic profiles, specifically age, gender, grade level, and nutritional status. Part II measured the perceived impact of the SBFP across three critical domains: Level of Participation, Health and Nutritional Effect, and Academic Outcomes, utilizing a standard 5-point Likert scale. Content validity was established via expert evaluation by two graduate school specialists in educational research, who verified the instrument's clarity, item consistency, and construct suitability.

4. Data Collection Procedure

Following the acquisition of necessary institutional approvals, the researcher personally coordinated with the school's SBFP coordinator to identify the beneficiary list and schedule the instrument administration. Questionnaires were distributed and retrieved directly by the researcher to ensure the completeness and accuracy of the dataset. Throughout the collection phase, observational assessments of the feeding activities were conducted with strict adherence to food safety and hygiene standards, ensuring that the welfare and physical safety of the minor participants were continuously prioritized.

5. Data Analysis

Quantitative data were processed to directly address the study's specific objectives. Frequency distributions and percentages were utilized to summarize the demographic characteristics of the learner-respondents. Weighted means were calculated to quantify the extent of the SBFP's impact on participation levels, health effects, and academic outcomes. To analyze significant differences in the program's perceived impact across demographic groups, independent T-tests were applied for binary variables, while One-way Analysis of Variance (ANOVA) was executed for variables with three or more distinct groups. Finally, Pearson’s Product-Moment Correlation Coefficient (r) was deployed to test for significant correlational relationships among the program subcategories and the resulting academic outcomes.

Results

1. Demographic Characteristics

The study sample comprised 100 learner-beneficiaries of the School-Based Feeding Program. A descriptive summary of the cohort indicates that the majority of respondents were male (58%), fell within the 10–11 years old age bracket (45%) , and were currently enrolled in Grade 5 (42%). Regarding baseline nutritional status, 75% of the participants were classified as having a normal status, while 25% were categorized as wasted. Table 2 shows the demographic characteristics of the respondents.

Table 2: Demographic Characteristics of the Respondents

Demographic Variable	**Frequency (n)**	**Percentage (%)**
	Age	
9 years old and below	31	31%
10–11 years old	45	45%
12 years old and above	24	24%
	Gender	
Male	58	58%
Female	42	42%

Grade Level		
Grade 4	31	31%
Grade 5	42	42%
Grade 6	27	27%
Nutritional Status		
Normal	75	75%
Wasted	25	25%
Severely Wasted	0	0%
Overweight/Obese	0	0%

2. Extent of Impact of the School-Based Feeding Program

Analysis of the program's perceived impact across three primary domains revealed consistently positive participant assessments. As presented in Table 3, the Health and Nutritional Effect domain generated the highest overall rating, yielding a composite mean of 3.938 (*SD* = 0.471). Within this specific category, respondents most strongly affirmed feeling healthier since joining the intervention (*M* = 4.30, *SD* = 0.810).

The Level of Participation domain followed closely with a composite mean of 3.922 (*SD* = 0.544), driven largely by participants noting the punctual serving of meals (*M* = 4.33, *SD* = 1.045). Similarly, the evaluation of Academic Outcomes resulted in a composite mean of 3.916 (*SD* = 0.540). The most prominent academic indicators reported were improved class attendance (*M* = 4.16, *SD* = 0.775) and better comprehension of lessons following school meals (*M* = 4.16, *SD* = 0.677). Across all measured domains, the overarching extent of impact was categorized as "Agree."

Table 3. Extent of Impact of the School-Based Feeding Program

Indicators	Mean (M)	Standard Deviation (SD)	Qualitative Description
Level of Participation	**3.922**	**.54431**	**Agree**
1. I received the feeding program meals regularly.	3.92	.90654	Agree
2. The meals are served on time.	4.33	1.04500	Agree
3. The food served is nutritious.	4.14	1.00524	Agree
4. The meals are enough to satisfy my hunger.	3.80	.93203	Agree
5. I enjoy the taste of the food provided.	3.93	1.01757	Agree
6. The feeding program motivates me to come to school.	3.65	1.15798	Agree
7. The food served helps me focus in class.	3.93	.99752	Agree
8. I feel more energetic after joining the feeding program.	3.74	1.05044	Agree
9. The meals served have a good variety from day to day.	3.86	1.00524	Agree
10. The food is always prepared and served in a clean manner	3.92	1.07947	Agree

Health and Nutritional Effect	**3.938**	**.47136**	**Agree**
1. I feel healthier since joining the program.	4.30	.81029	Agree
2. I get sick less often than before.	3.56	1.16619	Agree
3. I feel stronger when doing physical activities.	4.10	.75879	Agree
4. I no longer feel hungry during class.	4.00	.93203	Agree
5. I gained healthy weight since joining the feeding program.	3.88	1.13956	Agree
6. My parents/guardians notice improvements in my health.	3.87	.92829	Agree
7. I am more active in school activities.	4.05	.91425	Agree
8. I feel less tired during the day.	3.98	1.18048	Agree
9. I can concentrate longer during the lessons.	3.69	1.11641	Agree
10. The feeding program helps me maintain good health.	3.95	1.00880	Agree
Academic Outcomes	**3.916**	**.54043**	**Agree**
1. I attend my classes more regularly after joining the feeding program.	4.16	.77486	Agree
2. I participate more actively in class discussions.	4.13	.73382	Agree
3. I submit assignments on time more often.	3.94	.77616	Agree
4. My test/quiz scores improved after the program.	3.68	1.17103	Agree
5. My overall grades improved after the program.	3.53	1.14992	Agree
6. I am less sleepy in class since I joined the program.	3.80	.98473	Agree
7. I feel more confident in answering teacher's questions.	3.92	1.04137	Agree
8. I am more motivated to study because of the feeding program.	3.92	.93937	Agree
9. I understand lessons better after eating at school.	4.16	.67749	Agree
10. I can finish classroom activities faster and more accurately.	3.92	1.18646	Agree

3. Differences in Program Impact Based on Demographic Profiles

Analysis of variance (ANOVA) and independent t-tests were conducted to determine if the perceived impact of the School-Based Feeding Program varied according to learners' demographic characteristics. As detailed in Table 4, age significantly influenced participant assessments regarding Health and Nutritional Effects (F = 3.430, p = 0.036) and Academic Outcomes (F = 4.467, p = 0.014). Post-hoc analysis utilizing the Tukey HSD test specified that learners aged 9 years and below reported significantly higher impacts in both of these domains compared to their older peers aged 12 and above (Health mean difference = -0.313, p = 0.037; Academic mean difference = -0.417, p = 0.012).

Regarding gender, data indicated a significant difference strictly within the Level of Participation domain (t = -2.718, p = 0.008). Female learners demonstrated a higher mean participation score (M = 4.090, SD = 0.569) than their male counterparts (M = 3.800, SD = 0.496).

Conversely, the data revealed no significant statistical variances based on grade level or baseline nutritional status across any of the evaluated domains. Assessments of the program's impact remained consistent regardless of whether the learner was in Grade 4, 5, or 6 (all $p > 0.05$), and whether their baseline nutritional status was classified as normal or wasted (all $p > 0.05$).

Table 4. Differences in the Impact of the School-Based Feeding Program by Demographic Profile

Demographic Grouping	Program Domain	Test Statistic (t / F)	p-value (Sig.)
Age (ANOVA)			
Level of Participation	F = 1.634	.200	Not Significant
Health and Nutritional Effect	F = 3.430	.036	Significant
Academic Outcomes	F = 4.467	.014	Significant
Gender (t-test)			
Level of Participation	t = -2.718	.008	Significant
Health and Nutritional Effect	t = -1.340	.183	Not Significant
Academic Outcomes	t = -.272	.786	Not Significant
Grade Level (ANOVA)			
Level of Participation	F = .646	.526	Not Significant
Health and Nutritional Effect	F = .953	.389	Not Significant
Academic Outcomes	F = .717	.491	Not Significant
Nutritional Status (t-test)			
Level of Participation	t = -.274	.784	Not Significant
Health and Nutritional Effect	t = .415	.679	Not Significant
Academic Outcomes	t = -1.112	.269	Not Significant

**Note: Significance is evaluated at the 0.05 alpha level. Post-hoc analysis using the Tukey HSD test revealed that the significant differences in Age were driven by the "12 years old and above" group scoring significantly lower than the "9 years old and below" group in both Health and Nutritional Effect (Mean Difference = -.31277, p = .037) and Academic Outcomes (Mean Difference = -.41680, p = .012).*

4. Correlation Among Program Sub-categories

A Pearson Product-Moment Correlation analysis was conducted to quantify the relationships among the three evaluated domains of the School-Based Feeding Program. As detailed in Table 5, all assessed sub-categories exhibited statistically significant positive

relationships. The most robust association emerged between the Health and Nutritional Effect and Academic Outcomes, demonstrating a high positive correlation ($r = 0.615$, $p < 0.001$). A comparably high positive correlation was observed between the learners' Level of Participation and the Health and Nutritional Effect ($r = 0.582$, $p < 0.001$). Furthermore, the data indicated a moderate, yet statistically significant, positive correlation directly linking the Level of Participation with Academic Outcomes ($r = 0.374$, $p < 0.001$).

Table 5.

Variables	Pearson *r*	Sig.	N	Description
Level of Participation in School-Based Feeding Program				
Health and Nutritional Effect	.582**	.000	100	High Correlation
Academic Outcomes	.374**	.000	100	Moderate Correlation
Health and Nutritional Effect				
Academic Outcomes	.615**	.000	100	High Correlation

** *Correlation Coefficient is significant at alpha .01 level*

Discussion

The evaluation of the School-Based Feeding Program reveals a consistently high perceived impact across all measured domains, with health and nutritional benefits emerging as the most pronounced outcome. This suggests that the immediate provision of school meals effectively mitigates basic dietary deficits, translating directly into observable improvements in student vitality, physical endurance, and the alleviation of short-term hunger during instruction. The highly positive reception of the program, driven largely by the punctuality of meal distribution and the palatable quality of the food, underscores the critical role of logistical fidelity in securing student buy-in. These outcomes strongly align with existing scholarship indicating that consistent participation in nutritional interventions yields tangible physiological gains that subsequently foster enhanced classroom engagement and school attendance (Lu & Dacal, 2020; Solania & Cubillas, 2020). Notably, the robust and active participation observed among the current cohort directly contradicts earlier localized reports wherein beneficiaries exhibited programmatic reluctance, lack of enthusiasm, or stigma associated with the feeding program due to vegetable-heavy meal compositions (Solania & Cubillas, 2020). This heightened acceptability implies that maintaining high meal quality and operational efficiency is paramount not merely for ensuring nutritional uptake, but for establishing the foundational physiological readiness required for sustained academic focus.

Building upon these programmatic outcomes, the data indicate that the efficacy of the feeding intervention is not uniformly experienced across all demographic cohorts. Specifically, younger learners—those aged nine and below—reported substantially greater health and academic benefits from the meals compared to their older peers. This developmental disparity suggests that the early elementary stage represents a critical, highly sensitive window where nutritional interventions exert a more profound and immediate influence on physiological recovery and cognitive readiness. Furthermore, while health and academic outcomes did not diverge by gender, female learners exhibited significantly higher engagement and participation levels in the feeding program than males, potentially reflecting differing socialization patterns or a greater responsiveness to structured, school-based health routines. Conversely, the program's perceived

impact remained uniformly stable regardless of the learners' specific grade level or baseline nutritional status, indicating a broad-based foundational benefit. These demographic nuances validate foundational developmental theories, reinforcing the premise that fulfilling basic physiological needs is most visibly transformative during the earliest, most formative stages of cognitive maturation (Maslow, 1943; Piaget, 1952). Consequently, while standardized feeding initiatives provide an indispensable safety net, future educational policy frameworks may need to consider age-differentiated programmatic designs or supplementary psychosocial scaffolding for older elementary learners to ensure the intervention's optimal and equitable impact across all age brackets.

The interplay among these programmatic variables further elucidates the mechanisms through which nutritional interventions drive educational success. The data reveal a strong, positive relationship between health and nutritional effects and academic outcomes, alongside a robust link between program participation and physiological health. However, the direct correlation between mere participation in the feeding program and academic outcomes was demonstrably lower, registering as only moderate. This triadic relationship indicates that feeding programs do not automatically or directly generate academic excellence simply by virtue of student attendance. Rather, health and nutritional improvement serves as the essential mediating variable; active participation improves biological well-being, which in turn equips the learner with the cognitive focus, memory retention, and physical stamina necessary to perform academically.

This sequential mechanism empirically validates foundational psychological frameworks, specifically confirming that basic physiological requirements must be satisfied before learners can engage in higher-order cognitive functions and self-actualization (Maslow, 1943). Furthermore, treating the feeding program as a vital institutional support aligns with Ecological Systems Theory, demonstrating how optimizing the child's immediate microsystem supports comprehensive biological and developmental well-being (Bronfenbrenner, 1979). The necessity of physical health as a prerequisite for classroom engagement also reflects Cognitive Development Theory, establishing that physiological readiness is foundational for the active assimilation and accommodation of complex knowledge (Piaget, 1952).

The moderate direct link between program participation and academic performance exposes a critical operational gap: while physiological and safety needs are being successfully addressed, academic mastery requires deliberate instructional bridging to fully translate nutritional gains into cognitive achievement. Therefore, educational institutions and national policymakers must move beyond evaluating feeding programs solely as caloric delivery systems. Administrators and educators should institutionalize a holistic framework—an integrated approach that pairs nutritional support with targeted pedagogical scaffolding. By deliberately leveraging students' enhanced energy levels and improved nutritional status as strategic entry points for rigorous instruction, schools can ensure that the biological benefits secured through feeding initiatives are systematically converted into sustained, equitable academic success.

Conclusion

The convergence of findings underlines the foundational role of school-based nutritional interventions in fostering cognitive readiness and academic engagement. Fulfilling immediate physiological needs significantly mitigates barriers to learning, particularly among younger elementary cohorts where developmental sensitivity to such interventions appears highest. However, the data clarify that while nutritional rehabilitation secures biological well-being,

translating these foundational health gains into measurable scholastic achievement requires deliberate instructional mediation rather than mere program participation.

These insights reinforce the necessity of evolving current feeding initiatives from isolated caloric delivery systems into integrated educational frameworks. Policy architects and the Department of Education should consider institutionalizing holistic support structures, akin to an "SBFP Plus" model, that systematically pair nutritional provisioning with targeted pedagogical scaffolding. Furthermore, academic leaders and classroom educators must actively collaborate to leverage students' improved vitality as a strategic entry point for rigorous cognitive tasks, ensuring equitable academic advancement across all demographic subsets.

While the findings offer valuable preliminary insight, the scope was inherently constrained by a localized focus on a single community school and a restricted sample of intermediate-grade beneficiaries. Additionally, the reliance on proximate academic indicators and immediate nutritional outcomes limits the capacity to evaluate longitudinal cognitive or psychological developmental trajectories resulting from the program.

Addressing these parameters, future scholarly inquiry should employ qualitative phenomenological approaches to explore the lived experiences of distinct learner subgroups, thereby unpacking the subjective barriers that hinder the translation of nutritional health into academic mastery. Expanding subsequent evaluations to include diverse geographical settings and longitudinal performance metrics will further substantiate the mechanisms driving sustainable and equitable educational interventions.

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