

# Beyond The Plate: Exploring the Impact of the National School Nutrition Programme On Educational Access for Grade 3 Learners in King Sabata Dalindyebo Municipality

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## Abstract

*School feeding programmes are globally recognised as critical interventions for addressing childhood hunger and supporting learning outcomes; however, their impact often extends beyond providing meals. This qualitative study examines how the National School Nutrition Programme (NSNP) influences educational access for Grade 3 learners in King Sabata Dalindyebo Municipality, Eastern Cape. The study uses semi-structured interviews with teachers, parents, and school cooks to analyse the social, educational, and institutional dimensions that shape the programme's effectiveness. Guided by Bronfenbrenner's Ecological Systems Theory, the findings demonstrate that at the classroom level, daily meals improve concentration, attentiveness, and participation, while reducing absenteeism. Collaboration between schools, families, and communities further enhances programme delivery, though challenges such as delayed food supply, inadequate infrastructure, and insufficient funding undermine consistency. Despite these barriers, the NSNP is vital in alleviating food insecurity, promoting learner wellbeing, and advancing equitable education in rural communities. By going "beyond the plate," the study underscores the need for stronger policy support and community engagement to sustain the transformative impact of school feeding initiatives.*

**Keywords:** *School feeding programmes; educational access; childhood food insecurity; Bronfenbrenner's Ecological Systems Theory; National School Nutrition Programme; rural education.*

## Introduction

School meal programs are crucial and have garnered enthusiastic support from governments and communities worldwide (Morgan & Sonnino, 2013). It is commendable that nearly every country has implemented a school meal initiative, providing approximately half of all schoolchildren with nutritious meals daily (Cupertino, Ginani, & Botelho, 2022). These efforts represent significant progress toward a healthier future. In 2012, 66 million children still attended school on an empty stomach (World Food Programme, 2012). Nutritional deprivation in childhood can have severe and long-lasting adverse effects on children's physical and intellectual development (Agüero, Carter & Woolard, 2006). Without adequate nutrition from birth to childhood, many children will not fulfil their intellectual, physical, social, and later, employment potential (Graham, Hochfeld, Stuart, & Van Gent, 2015). Globally, high poverty levels, inequality, and discrimination constitute the key barriers to adequate nutrition for many children (Iversen, du Plessis, Marais, Morseth, & Herselman, 2011).

It is well recognised that improved childhood nutrition generates positive effects that extend beyond the individual to benefit society, producing long-term social and economic returns (World Bank, 2006; Agüero et al., 2006; Devereux & Sabates-Wheeler, 2011). School nutrition programmes, in particular, are widely praised as an effective strategy to reduce short-term hunger and invest in children's long-term nutritional health (Gelli, 2010; Adelman, Gilligan & Lehrer, 2008). Beyond nutrition, these programmes have significant educational and developmental benefits, including improved school enrolment and attendance, higher test scores, better attention spans and memory, and enhanced cognitive, psychomotor, and mental

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development (World Food Programme, 2009; Bundy et al., 2009; Briggs, 2008; World Health Organization, 2007; Bennett, 2003; Buhl, undated).

South Africa, despite its middle-income status, faces high levels of poverty and food insecurity due to profound social and economic inequalities (de Beer et al, 2020). National surveys show that over a quarter of the population experiences hunger, with children disproportionately affected (Jackson et al, 2019). Inadequate food access impacts 22.8% of children, while 7.8% suffer severe shortages (Christian, 2010). The Eastern Cape records the highest food insecurity rate at 39.1%, showing only a slight improvement from 47% in 2002.

The South African government has launched several large-scale policy initiatives to address childhood poverty and undernutrition in response to these challenges. These include social grants, the Integrated Food Security and Nutrition Programme, and most notably, the National School Nutrition Programme (NSNP) (Hendricks & Bourne, 2010; StatsSA, 2013b:4). Collectively, these initiatives represent significant state investment and a clear policy commitment to protecting vulnerable children. While progress is visible, for instance, in the reduced rates of children who are underweight or overweight, persistent issues such as high stunting rates highlight that further targeted interventions, especially during early childhood, remain necessary.

Drawing from this context, this study aims to explore the broader impact of the NSNP, not just as a feeding scheme, but as an intervention deeply intertwined with educational access, learner well-being, and holistic development. By critically examining the programme through frameworks like Maslow's Hierarchy of Needs, this research seeks to illuminate both its strengths and ongoing operational challenges. Ultimately, it argues that robust, well-managed nutrition programmes can play a transformative role in breaking the cycle of poverty, helping South Africa move closer to a society where every child can learn, grow, and thrive.

### **School Meal Programs in an Era of Food Systems Transformation**

For the past half-century, food research, policy, programming, and advocacy have focused on producing enough food to meet global demand. When merely increasing production failed to address global hunger and associated health challenges, the emphasis gradually shifted to ensuring food and nutrition security.

This is attained when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life (FAO, 1996).

Over time, those engaged in food research, policy, and advocacy have gained a deeper appreciation for holistically understanding the food system. According to Ingram (2011), A food system encompasses “all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation, and consumption of food, and the output of these activities, including socio-economic and environmental outcomes” (HLPE, 2017). This spans all processes from farm to fork to landfill.

Today, as awareness of environmental and social facets of the food system has grown, the focus of research, policy, and advocacy has further broadened to encompass the pursuit of food systems transformation. Such transformation entails a fundamental shift in the system's structure and orientation to ensure that food

systems provide healthy diets and fair incomes along food value chains and achieve these outcomes in an environmentally sustainable manner (Dengerink et al., 2022).

## Development of Frameworks to Evaluate National Policy Commitment and School Meal Implementation in the Early 2000s

School feeding is a multifaceted activity that intersects various areas. Analysing the design and execution of diverse school feeding programs is a method to identify efficiencies and improvements that can be disseminated among nations (Bundy, 2009). Creating efficient school feeding programs necessitates meticulous management of trade-offs among design objectives, targeting strategies, feeding modalities (such as hot meals, snacks, or take-home rations), and expenses (Drake, Woolnough, Burbano, and Bundy, 2016). Understanding the trade-offs in various school feeding programs is a critical challenge for policymakers in establishing program strategy and design priorities.

Recent studies have aimed to delineate the components of school feeding interventions by employing supply chain methodologies (Gelli et al., 2012). School feeding interventions represent the most comprehensive coverage among social protection strategies utilised by developed nations (United Nations, 2013). They function as a safety net, providing direct income support to low-income families. This is frequently achieved by directing program support towards a specific group of beneficiaries. Due to the constrained budgets faced by numerous countries, targeting is often essential to maximise the benefits of programs for the intended beneficiaries (Bundy et al., 2009). Programs may consist of:

- *Universal coverage*: Providing programs for all children for free throughout the country.
- *Geographic targeting*: Providing programs for free to children in selected schools within selected districts, states, provinces and zones. Areas are generally targeted based on poverty and food insecurity.
- *Individual targeting*: Offering complementary programs to children according to specific indices of individual need, including vulnerability, through means or proxy means testing. Each targeting method involves various trade-offs concerning cost, effectiveness, and equity. In high- and middle-income countries, free school meals are typically incorporated into social protection programs for individual children, utilising vulnerability and means-based indicators. Children not classified as at risk usually must pay for school meals, albeit often at a subsidised rate (Fitzgibbon, 2014). Conversely, most school feeding programs in low-income countries are typically restricted in geographical scope and focus on children residing in vulnerable, food-insecure environments. This may result from budget limitations, the complexity of individual targeting relative to geographic targeting, and the potential stigma associated with individually targeted approaches.

Recent reports by Drake et al. (2016) emphasise the crucial role of well-defined national policies in supporting the transition of school feeding programs from external aid to national ownership. Evidence shows that many countries are actively developing regulatory frameworks, with parliamentary laws and executive policies serving as key drivers in the political process. The formulation of these laws reflects political commitment and stimulates debate, further advancing the development and sustainability of school feeding programs (Morgan and Sonnino, 2013).

The program in South Africa has a distinct history rooted in a post-apartheid context, initiated by the White Paper on Reconstruction and Development (Republic of South Africa, 1994), which emphasised the rectification of historical inequities, as articulated in the National Education Policy Act of 1996 (Republic of South Africa, 1996b). The national Constitution acknowledges the rights to food, nutrition, and education; however, regulations implement a need-based approach to address inequities. The program lacks

universality, with its targeting policy and methodology adhering to the National Norms and Standards for School Funding established in 1998 (Republic of South Africa, 1998). Section 44 of the Norms establishes a key principle regarding resource allocation: “To effect redress and improve equity, public spending on schools must be specifically targeted to the needs of the poorest” (Republic of South Africa, 1998).

**Timeline Table: Key Historical Milestones in School Nutrition Programmes**

Period	Global Milestones	Country/religion focus	South African context
1790s–1800s	First organised school meals in Munich; largely charity-based feeding	Germany; broader Western Europe	Limited, fragmented feeding efforts; mostly church or private charitable initiatives
Mid-1800s–early 1900s	Expansion of school feeding in Europe and the USA, linking nutrition to child welfare and education	UK, France, the USA, and racially divided South Africa	Apartheid policies began formalising unequal welfare services; Black learners were largely excluded
1940s	The National School Lunch Act was passed in the USA (1946), institutionalising state-led school feeding.	USA; South Africa (white-only schools)	State-supported feeding schemes for poor white learners only; racial segregation entrenched
Post-1945	UN and FAO advocate for school feeding in newly independent and developing countries.	Global South; South Africa	Continued racial disparities; few programmes reach Black learners in rural areas
1994	The rights-based approach gains traction internationally, and the WFP increases support.	South Africa (post-apartheid); global policy shift	Launch of Primary School Nutrition Programme (PSNP) under the Reconstruction and Development Programme (RDP)
Early 2000s	Integration of nutrition education, community gardens, and local sourcing globally	Global, South Africa	PSNP transitions into the National School Nutrition Programme (NSNP) and expands coverage
2010s–present	Emphasis on food quality, sustainability, dietary guidelines, and linking smallholder farmers	Global best practices; South African context	NSNP extends to select secondary schools, adopts South African Food-Based Dietary Guidelines, and includes nutrition education

### Understanding Child Poverty

Child poverty extends beyond economic limitations, affecting education, healthcare, and access to nutrition. UNICEF (2023) describes it as deficient in essential resources necessary for survival, worsening malnutrition and limiting educational opportunities. In the King Sabata Dalindyebo Municipality of South Africa, food insecurity necessitates reliance on school feeding programs among numerous children, negatively impacting their academic progress and sustaining cycles of poverty. Malnutrition negatively affects cognitive development and learning engagement (Grantham-McGregor et al., 2007), leading to increased absenteeism and reduced performance. Food insecurity contributes to stunted growth and chronic illnesses, hindering school attendance (World Health Organisation, 2021).

More than 60% of children in South Africa reside below the poverty line, with 30% experiencing stunting (Stats SA, 2022; UNICEF, 2021). The National School Nutrition Programme (NSNP) mitigates food insecurity by supplying meals to more than 9 million learners each day; however, its effectiveness is constrained by inconsistencies and logistical challenges (Department of Basic Education, 2023). Nutrition policies and organised school feeding programs are critical for addressing child poverty. Addressing children's physiological needs is essential for their development and future success. Sustainable

interventions are necessary for improving the quality and reliability of these programs, ensuring that no child is deprived of critical resources for growth and development (Kruk et al, 2018).

### **Nutritional deficits in children**

Africa has 23 million children who experience chronic hunger due to residing in food-insecure households (World Food Programme, 2011). Inadequate nutrition results in both immediate and enduring effects. In the short term, children with insufficient nutritional intake experience diminished energy and concentration, thereby impairing their capacity for play, which is crucial for younger children, and their performance in school. Children with irregular eating patterns struggle to recall new information and demonstrate verbal fluency (Bennett, 2003, in Tomlinson, 2007). Vaisman, Voet, Akivis, and Vakil (1996) indicate that children exhibited enhanced performance on multiple cognitive tasks shortly following a meal. Childhood nutrition is essential for facilitating children's learning. Furthermore, during periods of environmental or socio-economic crisis, children frequently leave school to support household income, while a school meal incentivises these children to remain in school during challenging times (Singh et al., 2013; Tomlinson, 2007).

Inadequate nutrition during childhood hinders the attainment of developmental milestones, resulting in achievements that lag behind those of peers. The long-term consequences of poor childhood nutrition encompass diminished intellectual and physical potential, which subsequently restricts livelihood and educational opportunities. Research indicates that childhood nutrition significantly influences physical and intellectual human capital, which correlates with higher adult earnings, especially in labour-intensive industries (Bellisle, 2004).

Victora et al (2008) state that Insufficient nutrition in childhood impedes the achievement of developmental milestones, leading to delays compared to peers. The long-term effects of inadequate childhood nutrition include reduced intellectual and physical capabilities, limiting economic and educational prospects. Studies demonstrate that childhood nutrition plays a crucial role in shaping physical and cognitive human capital, which is associated with increased adult earnings, particularly in labour-intensive sectors.

In South Africa. As shown in other parts of the world with both undernutrition and overweight problems, this combination creates, on top of conditions of undernutrition such as kwashiorkor and rickets, a second layer of diseases that until quite recently was mainly confined to the developed world: diabetes, hypertension, and cardio-vascular problems such as strokes being the most common (Haddad, Cameron, & Barnett, 2014). South Africa is already feeling the costs of this double burden.

As “nutrition is foundational to both individual and national development”, under- and over-nutrition in children causes poor child development, which ultimately affects the globe's human capital formation (MCNSG, 2013: 2, Broca & Stamoulis, 2003; Jomaa *et al.*, 2011). Globally, obesity amongst children and adolescents is increasing alarmingly, and data suggest this trajectory is set to continue in the medium-term (Ng et al, 2014) with the concomitant growth in health risks for individuals and public health costs for states. Therefore, poor nutrition leads to poorer social development outcomes for individuals, their families, and their communities.

## Determining Poor Nutrition

As discussed above, poor nutrition does not simply result from insufficient food. Still, it is also related to the intake of poor-quality foods that are nutritionally deficient. For this reason, a range of indicators should be used to assess poor nutrition. Definitions of key indicators of poor nutrition are provided below.

**Nutrition:** They have insufficient weight for their age and height (Wolde et al., 2015). Children classified as underweight and those who are severely underweight face the highest risk of mortality. Weight-for-ages serve as a metric for evaluating underweight status in children. Children who fall two to three standard deviations below the median weight-for-age are underweight. In comparison, those exceeding three standard deviations below the median are classified as severely malnourished. Weight-for-age applies solely to children under 10, as puberty subsequently distorts weight-for-age outcomes (Akombi et al, 2017).

**Wasting** is a manifestation of acute under-nutrition in children. Wasting may occur in a child due to inadequate nutrient consumption or illness, such as diarrhoea. Famine or other food security crises are common (Verma and Prasad, 2021). Impaired immune system function is a prevalent symptom of wasting, resulting in heightened susceptibility to illness, infectious diseases, and an increased risk of mortality (Mak and Tan, 2012). Children in South Africa are typically not at risk for wasting, except in instances of severe illness. Wasting is assessed using the BMI-for-age metric. Children with a BMI two to three standard deviations below the median for their age are classified as wasted, while those with a BMI three or more standard deviations below are categorised as severely wasted (WHO, 2007).

**Stunting** occurs as a consequence of prolonged dietary insufficiency in children. Stunting typically arises in contexts of economic deprivation, leading to increased susceptibility of children to recurrent infections, illnesses, and mortality. Furthermore, children experiencing stunting frequently exhibit delayed cognitive development, subpar academic performance, and diminished intellectual capacity (Dassie et al, 2024). Stunting is evaluated through the height-for-age metric. Children who fall two to three standard deviations below the median height for their age are categorised as stunted. Those three or more standard deviations below are classified as severely stunted (WHO, 2007). A child is classified as overweight or obese if their weight exceeds the appropriate range for their age and height. Overweight or obesity is assessed using the Body Mass Index (BMI).

**Body Mass Index (BMI) for age.** Children with a BMI-for-age between one and two standard deviations above the median are categorised as overweight. In comparison, those with a BMI-for-age of two or more standard deviations above the median are classified as obese (WHO, 2007). BMI-for-age has faced criticism for its inadequacy as a measure of obesity, particularly in children who have entered puberty, as it does not consider other anthropometric factors such as musculoskeletal composition. BMI-for-age measurements can be supplemented with body fat percentage indices and the maturity index. Bradshaw et al. (2006 in Vorster, 2010: 2) state that South Africa exhibits a significant prevalence of infectious diseases associated with under-nutrition and non-communicable diseases (NCDs) linked to obesity and over-nutrition.

In South Africa, the onset of obesity-related diseases occurred before the eradication of diseases linked to under-nutrition. The phenomenon is partially attributed to "foetal malnutrition and low quality of staple-food diets (sufficient energy but not enough micronutrients) in poor households" (Vorster, 2018). Micronutrient deficiency is prevalent in economically disadvantaged households in South Africa. African households experience a transition from traditional diets, which are abundant in whole grains, to more Westernised diets characterised by increased starch and refined sugars (Iverson et al., 2011).

## Overview of the National School Nutrition Programme (NSNP)

The National School Nutrition Programme (NSNP), initiated by the South African Department of Basic Education (DBE), seeks to mitigate food insecurity and enhance educational outcomes for school-aged children. The program delivers nutritious meals to students in quintile 1, 2, and 3 schools, focusing on low-income households (Department of Basic Education, 2023). The program aims to address short-term hunger, improve concentration, and enhance overall school attendance and academic performance.

Implementing the NSNP requires collaboration among government authorities, educational institutions, and local food suppliers. Schools prepare and distribute meals by nutritional guidelines established by the DBE and the Department of Health, which prioritise balanced nutrition, encompassing protein, carbohydrates, and essential micronutrients (DBE, 2023). The program promotes the establishment of school food gardens to enhance food security and impart agricultural skills.

NSNP seeks to deliver meals high in energy, rich in protein, and fortified with micronutrients to address malnutrition and iron-deficiency anaemia, prevalent among underprivileged children (UNICEF, 2021). A typical meal comprises staple foods such as maize or rice, protein sources, and vegetables; however, menu variations and food supply inconsistencies may impede the achievement of nutritional standards. The NSNP incorporates nutrition education to promote healthy eating habits and overall well-being. Educational institutions are urged to instruct students on balanced nutrition, hygiene, and food safety, aligning with Maslow's Hierarchy of Needs by fulfilling the fundamental physiological requirement for sustenance.

The NSNP, while successful, encounters operational challenges including funding limitations and logistical inefficiencies, which lead to delays in food delivery and inconsistencies in quality among schools (Alderman & Bundy, 2012). Addressing these challenges through policy enhancements, augmented funding, and community engagement is crucial to guarantee that all learners obtain consistent, high-quality nutrition to support their educational requirements.

## Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory, introduced in the 1970s, provides a comprehensive framework for understanding how various environmental systems influence human development (Bronfenbrenner, 2013). Shelto (2018) states that the theory delineates five interrelated systems: the microsystem, encompassing immediate environments such as family and school; the mesosystem, reflecting interactions between these immediate settings; the exosystem, involving broader influences like community resources and educational policies; the macrosystem, representing overarching cultural values and societal norms; and the chronosystem, accounting for temporal changes and transitions over time.

In South Africa's National School Nutrition Programme (NSNP) context, Bronfenbrenner's framework offers valuable insights into how the programme operates across these ecological layers. The NSNP directly impacts learners at the microsystem level by providing nutritious meals that enhance concentration and participation in school activities. The mesosystem is evident in the collaboration between schools and families, where communication and support can amplify the programme's effectiveness. The exosystem encompasses local government policies, funding allocations, and community infrastructure that indirectly affect the programme's implementation (Darling, 2007). The macrosystem reflects national policies and societal values prioritising child welfare and education, influencing the programme's objectives and scope.

Lastly, the chronosystem considers the impact of temporal factors, such as economic shifts or the COVID-19 pandemic, which can alter the programme's delivery and outcomes.

Over time, Bronfenbrenner expanded upon his initial model, introducing the bioecological model in the 1990s. This evolution emphasised the role of individual characteristics and the dynamic interactions between the person and their environment in shaping development (Tong and An, 2024). While the original ecological systems theory laid the groundwork, the bioecological model provides a more nuanced understanding, particularly relevant in examining how individual and systemic factors converge to affect educational access and outcomes.

In this study, Bronfenbrenner's Ecological Systems Theory serves as a foundational lens to analyse the multifaceted impacts of the NSNP on Grade 3 learners in the King Sabata Dalindyebo Municipality. By examining the interplay between individual, familial, institutional, and policy-level factors, the study aims to uncover how these layers collectively influence learners' access to education and opportunities to break the cycle of poverty.

## Methodology

This study employed a qualitative case study design to examine how the National School Nutrition Programme (NSNP) influences child poverty and learner development through the lens of Bronfenbrenner's Ecological Systems Theory. The study focused on selected primary schools, targeting parents/guardians, teachers, school principals, and school cooks directly involved in the programme. Purposive sampling was used to select participants with direct experience and knowledge of the NSNP. Data was collected through semi-structured interviews with teachers, principals, parents/guardians, focus group discussions with school cooks, and age-appropriate interviews with learners to capture perspectives across multiple ecological levels. Observations of meal preparation and distribution, and document review of NSNP records, provided contextual insights and verified practices. Data was analysed using thematic analysis, guided by Bronfenbrenner's framework, to explore how different environmental systems, from microsystem interactions at home and school to broader exosystem and macrosystem influences, affect the programme's impact on learners. Ethical considerations included obtaining informed consent, ensuring confidentiality, and maintaining voluntary participation, while triangulation and member checking enhanced the trustworthiness and credibility of the findings.

## Findings

This section presents the findings of the study based on insights from Grade 3 teachers, parents, school cooks, and the school principal. The themes that emerged are interpreted using Bronfenbrenner's Ecological Systems Theory, highlighting how various systems interact to influence learners' access to education through the National School Nutrition Programme (NSNP).

### Improved Learner Attendance and Punctuality (Microsystem & Mesosystem)

Participants consistently noted that the National School Nutrition Programme (NSNP) has significantly improved school attendance and punctuality among Grade 3 learners. Both teachers and the principal observed that learners from food-insecure households were more motivated to attend school when meals were provided. One teacher shared, *"Children look forward to coming to school because they know they will eat."* Another added, *"Before the feeding programme, some learners would arrive late or stay home, especially when there was no food. Now, even those learners are the first to arrive."* School cooks also confirmed these trends, explaining that they often see learners gathering near the kitchen area before the school day officially starts. One cook

remarked, *“We see children waiting eagerly by the door in the morning. They even help us carry the pots. They’re excited because they know food is coming.”* These observations reflect Bronfenbrenner’s microsystem, where the immediate school environment, including classroom interactions and food provision, directly influences learners’ development. Furthermore, the link between home conditions and school attendance demonstrates interaction within the mesosystem, where supportive connections between the home and school environments reinforce regular school participation and learner engagement.

### **Enhanced Concentration and Classroom Engagement (Microsystem)**

Teachers reported that well-fed learners were more focused, alert, and engaged in class activities. One teacher remarked, *“You can see the difference when they’ve eaten, they concentrate better and finish their tasks on time.”* Another teacher noted, *“Morning lessons go smoothly when breakfast is served early; the learners are less restless and more responsive.”* Parents confirmed these observations, with one parent stating, *“My child comes home happy and talks about what they learned. Before the feeding programme, he was always tired after school.”* Another parent added, *“She now enjoys reading and doing homework, and I’ve noticed she’s more talkative about her day.”* This outcome illustrates the influence of the microsystem, where direct interactions in the classroom and the nutritional support provided by the school contribute positively to learners’ cognitive and emotional development. These findings also underscore the mesosystem interactions between parents and teachers, reinforcing the child’s growth through shared observations and mutual support.

### **Addressing Short-Term Hunger and Supporting Basic Needs (Microsystem & Exosystem)**

Parents and the principal noted that school meals are, for many learners, their only consistent source of nutrition. One parent shared, *“Sometimes at home, there is nothing. When my child eats at school, I know it helps us survive.”* Another echoed this: *“The school meal is often the only thing my child eats all day.”* The principal emphasised the socio-economic realities of the community, saying, *“We serve over 300 learners daily, and for most of them, this is the only assured meal they receive.”* This scenario reflects the microsystem, where the immediate school environment, particularly the provision of daily meals, directly influences the child’s physical well-being. It also extends to the exosystem, as decisions made by external structures, such as the Department of Basic Education, funding policies, and food supply chains, indirectly shape the child’s experiences by determining the reliability and quality of meals provided. This layered impact reveals how interconnected systems collectively support or hinder a child’s development.

### **Emotional Well-being and Peer Inclusion (Microsystem & Mesosystem)**

Teachers and parents highlighted how shared mealtimes enhanced learners’ sense of belonging and inclusion within the school environment. A teacher remarked, *“You can see the difference during break time; children sit together, share jokes, and no one is left out anymore because they do not have food.”* A parent also observed, *“My child used to feel embarrassed when others had food and he didn’t. Now he eats with his friends and comes home happy.”* This shift illustrates the emotional and social support within the microsystem, as school-based interactions directly influence children’s sense of identity and self-worth. Furthermore, the collaboration between school and home teachers, reinforcing inclusive practices and parents acknowledging the positive emotional impact, demonstrates the mesosystem, where interactions between the family and school environments create a more nurturing and inclusive atmosphere for learners.

### **Operational Challenges in Implementation (Exosystem)**

Despite the programme’s benefits, participants identified several systemic barriers hindering its implementation. School cooks and the principal highlighted issues such as delayed food deliveries, irregular

supplier payments, and inadequate kitchen infrastructure. Although these challenges occur outside the learners' immediate environment, they directly impact meal delivery and classroom functioning. This aligns with the exosystem in Bronfenbrenner's Ecological Systems Theory, where administrative inefficiencies and decisions made by external stakeholders such as government departments or service providers affect the quality of services experienced by learners in their daily school environment.

### **Role of Community and Care in Programme Delivery (Microsystem & Macrosystem)**

School cooks described their work as a "labour of love," underscoring their emotional investment in learners' well-being despite facing challenges such as limited training, poor working conditions, and inadequate remuneration. One cook shared, *"We may not earn much, but we feed them with care because we know they rely on us."* Their dedication reveals the critical role of human relationships in sustaining the programme beyond policy and logistics. The principal advocated for greater community involvement and called for formal recognition and support for cooks, noting their essential contribution to learner development. This dynamic reflects the microsystem, where cooks engage directly with learners, providing daily care and interaction, and the macrosystem, where broader societal values such as the dignity of labour, cultural respect for caregiving roles, and community responsibility in education shape how such contributions are perceived and supported.

### **Evolving Nature of Programme Implementation (Chronosystem)**

Participants noted that the school nutrition programme has evolved significantly since its initial rollout. Parents and teachers recalled that earlier programme versions were less structured, with limited meal options and inconsistent service. Over time, however, improvements in meal planning, delivery systems, and menu variety were observed. Despite this progress, participants emphasised the need for consistent monitoring, stable funding, and supportive policy implementation to sustain and enhance its impact. This progression reflects the chronosystem in Bronfenbrenner's Ecological Systems Theory, highlighting how changes in programme design, policy priorities, and societal commitment influence learner outcomes across generations and shape long-term educational equity.

### **Conclusion**

This study explored the impact of the National School Nutrition Programme (NSNP) on Grade 3 learners through the voices of key stakeholders: teachers, parents, school cooks, and the school principal. Findings revealed that the NSNP is pivotal in improving school attendance, concentration, and learner engagement, especially among children from food-insecure households.

By applying Bronfenbrenner's Ecological Systems Theory, the study highlighted how various environmental systems intersect to support or hinder the programme's effectiveness. The microsystem was evident in the direct interactions between learners, teachers, and school cooks, where the provision of meals fostered emotional, cognitive, and social well-being. The mesosystem emerged through the strong linkages between home and school, reinforcing learner participation and a sense of belonging. The exosystem reflected the influence of government departments and food suppliers, whose actions, such as delayed deliveries or insufficient infrastructure, indirectly shaped learners' daily experiences. The macrosystem brought attention to societal values and perceptions of caregiving, labour dignity, and education, particularly through the underappreciated role of school cooks. Finally, the chronosystem captured the programme's evolution, acknowledging improvements while calling for sustained policy commitment and adaptive strategies.

## Recommendations

Based on the findings of this study, it is recommended that the National School Nutrition Programme (NSNP) strengthen collaboration between schools and parents to enhance learners' nutritional and educational outcomes, reflecting the mesosystem level of Bronfenbrenner's framework. Adequate infrastructure and resources, including safe food storage and kitchen facilities, should be provided to ensure food quality and safety at the microsystem level. Consistent support, timely funding, and effective programme oversight by local and national authorities are critical to address exosystem and macrosystem influences. Regular monitoring and evaluation should also be implemented to adapt the programme to changing circumstances, including disruptions captured within the chronosystem. Capacity-building initiatives for school staff and active community and stakeholder engagement can improve programme implementation and sustainability. Finally, continued research using ecological frameworks is encouraged to inform policies that holistically address child poverty and promote access to education.

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