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Smallholder Farmer Engagement in School Feeding Program and Learner Participation in Public Primary Schools in MAKUENI, County, KENYA

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Abstract

Smallholder farmers' engagement in the school feeding program was aimed at the regular supply of foodstuffs to schools and enhancing learner participation. Learners from marginalized households are affected by food shortages, poor healthcare, and a lack of nutritious meals. The study aimed to assess the influence of smallholder farmer engagement in school feeding program and learner participation. A sample of 275 was employed from a population of 875. Information was gathered using a questionnaire, and interview guide. Quantitative and qualitative information were analyzed using descriptive, and inferential statistics. Simple linear regression models demonstrated the variables' strength and relationship. Pearson's Product Moment Correlation coefficient(r) was computed. The overall F statistics was 2.795. The outcomes were represented in tables, regressions, mean, standard deviations, frequencies, and percentages. The null hypothesis was tested, thus there is no significant association between small-scale farmer engagement and learner participation (P-value 0.006 <0.05) suggesting a statistically significant correlation between small-scale farmer involvement and learner participation. This implies that learners were not provided with adequate meals resulting in school dropouts, absenteeism, and lack of concentration in class.

Keywords: Stakeholder engagement, learner participation, small-scale farmer, supply of food**,** school feeding project

I. Introduction

The engagement of smallholder farmers ensures consistency and adequate supply of foodstuffs to schools. According to Fair, Hickey, Ville, and Philip, (2023), it is broadly assumed that schools that utilize locally produced foods can bring supplementary safety for the children by providing fresh and local foods to the schools. In Kenya, school feeding programs have played a key role in reducing hunger, undernourishment and increasing domestic food production through local involvement. Despite being the key rural actors, smallholder farmers are more often food insecure, given an array of socio-economic and bio-physical encounters (Kapari & Mpandeli, 2023). Sourcing food locally help to reduce the physical distance, whereby foodstuffs have to reach to the schools from the production site on time (Smith et al., 2020). Harsh climatic condition has severely affected food production in Makueni County, thus the need for subsidy in school feeding program to entice active participation of learners.

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In Kenya, the Home-Grown School Meals Programme (HGSMP) was structured as a security policy to escalate wages, minimize poverty, increase food supply, and boost education. The adapted programme is a government-sponsored scheme, aimed at making school feeding a nationwide initiative rather than focusing on a few schools (Jayne et al., 2017). This may have a positive effect on nutrition and food security at different levels (Thong et al., 2016). However, not all smallholder farmers at making the initiative of food production, hence the need for support policies to differentiate between smallholder development into more productive systems and those exiting from farming.

The involvement of smallholder farmers in market contribution is believed to lead to agricultural growth and development. This results in the anticipated structural transformation of the agricultural sector and a turn towards alleviation of poverty and staggering food insecurity among agricultural households in developing countries (Otekunrin, 2019). Food sovereignty is a development strategy that aims at peasants having an equal say in the creation of regional food networks (Herdiawan and Ahmadi, 2019). Engagement of Small-scale farmers in the program allows access to dependable markets and increasing household food security (Mensah, 2019). There is also a guarantee of a consistent supply of wholesome food for marginalized households (United Nations, 2019). Buying food directly from small-scale producers, on the other hand, is more expensive, despite empowering farmers and the community, resulting in lasting enticements (World Food Program, 2016). Therefore, implementers of school feeding program strategies engaged Small-scale farmers to make food easily available and cheap while avoiding transportation costs and creating value to farmers in economic empowerment. The involvement of smallholder farmers in bridging the gap of food shortages in Makueni is an issue, however, there is little effort that has been achieved. According to the reviewed empirical data, most small-scale farmers sold foodstuffs to schools, which had a positive impact on student participation and community lifestyles within the schools that were the subject of the project interventions necessitating the current study in Makueni County.

Aim and originality of study

Learner participation in schools all over the world, and particularly in developing countries faces challenges such as a lack of inadequate provision of nutritious meals, regular food supply, retention, and nutrition education. These concerns affect the engagement of learners in school activities. The school feeding program was implemented to ensure learners are motivated. The variables under investigation in this study are key in ensuring dynamic learner participation in school. However, learners without the appropriate knowledge of nutritious meals and a good environment do not benefit from the feeding program. School-aged children from disadvantaged families fail to attend school when they have no food at home (O'Connell et al., 2022).

In arid and semi-arid areas, food scarcity and healthy food net restrict the amount of food provided to learners and limit the availability of various nutrition that are essential. Owing to a lack of food availability, it is often impossible to have meals served to learners daily. Anderson et al. (2018) discovered that nutritious meals boost learners' cognitive skills. This study sought to establish how engaging smallholder farmers in school feeding program influenced learner participation.

Engaging smallholder farmers in school feeding program facilitates consistency in food supply to schools and access to dependable markets. Additionally, Market participation incorporates farmers' agricultural production, to reduce hunger. However, stumpy market access, uncertainty in indigenous markets, lack of diversification in crop production, and less intake of locally produced food crops jeopardize smallholder farmers' production capacity. In Makueni County, smallholder farmers' market participation is limited to the local area, where transaction of selling prices is low, leading to high risks in capitalizing in the production of diversified food crops. The small-scale farmer gains are negligible translating to most of them abandoning agri-business. This drives the researcher's initiative to assess how best smallholder farmers' rendezvous is set to improve learner participation.

II. Literature Review and Development of Hypotheses

Program performance demands careful planning and success, which is dependent on stakeholder commitment. Projects are made up of clearly defined goals that must be met by a certain date. Due to poor planning, many organizations and agencies have failed to address the issue of enlisting the participation of stakeholders in order to guarantee a sufficient supply of foodstuffs. According to Aurino, Gelli et al. (2023), it is broadly assumed that a school feeding program that utilizes locally produced foods can bring supplementary safety for the children by providing fresh and local foods to the schools. In Kenya, school feeding program have played a key role in reducing hunger, and undernourishment besides increasing domestic food production through local enforcement. Despite being the key rural actors, Small-scale farmers are more often food insecure, given an array of socio-economic and bio-physical encounters. Sourcing food locally would help to reduce the physical distance, whereby

meals have to reach the schools from the production site on time (Mason & Lang, 2017). Harsh climatic conditions have severely affected food production in Makueni County and thus the need for subsidy in school feeding program to entice active participation of learners, mental and physical growth.

In Kenya, the Home-Grown School Meals Program (HGSM) was structured as a security policy to escalate wages, minimize poverty, increase food supply, and boost education. The adapted program is a government-sponsored scheme, aimed at making school feeding a nationwide initiative rather than focusing on a few schools (Jayne et al., 2017). This may have a positive effect on nutrition and food security at different levels (Who et al., 2016; Rosso et al., 2017). However, not all small-scale farmers have the initiative of food production, therefore, the need for support policies to differentiate between peasant development into more productive systems and those exiting from farming.

The requirements of peasant agriculturalists who have evolving perceptions devise constantly gained fame, emerging in front of economic, radical, and inquiry schedule of various emerging nations (United Nations, 2019), which focuses predominantly in smallholder-sector commercialization on modernization and motivating cost-effective evolution on improving diet safety (Giller, 2020). However, the challenges small-scale farmers face when contributing to the market undermine well-predicted outcomes (Badiane, 2014), and prices surged to reach market material. This includes the lack of reliable market data, which is still regarded as a major obstacle to the commercialization of smallholder farmers (Havinal, 2020). Small-scale farmers were able to produce adequate food for the learners and at the same time improve their living standards thus reducing poverty.

Small-scale farmers are vulnerable to poverty, and struggle to achieve nutritious diet throughout the year. According to Gupta, Freedman, (2020), who postulates that agricultural divergence has a significant impact on nutritional diversity of Small-scale farmer. Additionally, in areas where production facilities, storage and market setups are less established often affect diet diversification (Barriet, 2008; Goldsmith et al., 2019). Makueni County lies in the semi-arid region and adversely suffers low food production thus affecting learner participation. However, this is bridged by the local farmers through the high production of foodstuffs sold to schools.

Theory of Change

The phrase "theory of change" was first used by Lewin, (1958) to refer to the procedure of creating changes and improvements to realize a goal. The objective aims to address difficulties that assessors encounter when endeavoring to evaluate the effects of intricate social development programs. A few examples include inadequate accreditation, inadequately stated presumptions, and a lack of disclosure regarding the change guidelines.

An explanation of how a specific intervention, or group of therapeutic interventions, is likely to result in a personalized learning change is provided by this theory using causal investigation grounded on currently available evidence. The ‘Theory of Change’ offers a knowledge model. The 'theory of change' defines how events are construed to give conclusions that all contribute to the desired outcome. Thus, the theory supports the dependent variable of the study, learner participation in school.

The strategies for the school feeding program are geared toward expanding educational opportunities and enhancing learner engagement. To increase students' ability to concentrate, food is provided during school hours. Excelling and moving on to the next level are examples of indicators of educational outcomes. "Learning and retention in school are impacted by a hungry student's mindset, which is not focused on performing well on exams." There is sufficient indication that school attendance rates improve due to the provision of meals Chabite, Garrine, Ferrão & Fernandes, 2018; Ernst Bekkering, 2020; Awojobi, 2019). Providing an incentive in the form of a snack or grain often prompts the girl child to attend school and decreases gender gaps in learning (Gelli, Meir & Espejo, 2016).

Using strategies from the school feeding program, the theory of change emphasizes poverty reduction. Through nutrition education, learners become knowledgeable. By providing food to students during school hours, cognitive abilities, health, and attendance rates are enhanced. The availability of food will encourage more parents to send their children to school. Engaging small-scale farmers is also a revolutionary idea which generates more income to the people while raising standards of living. The combined effect of short-term increases in learner food security, medium-term increases in learner enrollment and participation and long-term increases in learner participation amounts to an investment in human capital that is anticipated to stop the intergenerational transmission of poverty. This is so that they can easily be trained to become competitive labor providers in the market as they grow up and acquire knowledge. As a result, the theory of change becomes apparent at this point as learners develop and adopt the new changes for prosperity. The theory backs up the study's dependent variable.

Conceptual Framework: Smallholder Farmer Engagement and Learner Participation

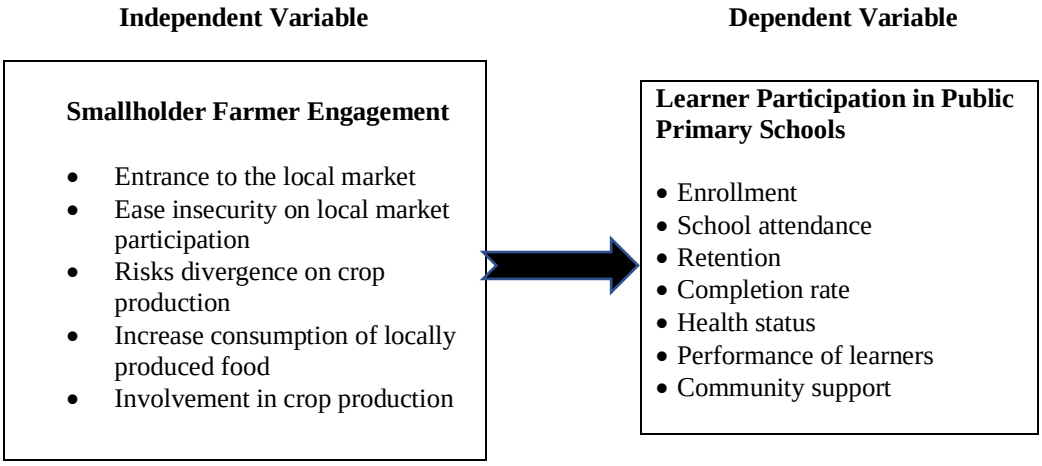

Figure 1: Displays a Conceptual Framework for Smallholder Farmer Engagement and Learner participation in Public primary Schools

III. Methodology

This survey paper used pragmatism paradigm, which employs flexible philosophical edifices. Pragmatism favours the use of mixed methods research rather than relying solely on one method of gathering and analysing qualitative and quantitative data (Creswell, 2018). The research modified correlational and descriptive survey research designs. The designs are popular as they can be used with both descriptive and inferential methods. In order to determine the number of individuals under inquiry, a descriptive survey was used (Fadi, 2020). According to Blaikie, (2018), a descriptive survey design is used in explaining features of population being measured as well as the incidence frequency of the incidence as it occurs certainly to reveal discrepancies.

Public primary schools is the unit of analysis, while the item of under observation is the Head Teachers, Teachers, Learners, and chairpersons of Board of Management. Using Yamane formula (1967) 275 sample size was achieved from the study population of 875. Using a questionnaire and interviewing protocol, data was gathered. Qualitative and quantitative data was collected, validated for accuracy, coded and then analyzed. Quantitative data was analyzed with descriptive and inferential statistics, and the outcome was presented in tables using the frequency and percentage, algebraic means, and standard deviation. The F-test was applied to test hypotheses, and obtain inferential analysis using Pearson's Product Moment Correlation.

The effects of meal provision in schools and learner participation were demonstrated in qualitative and quantitative data. To conduct actual analysis, data were analyzed using the Statistical Package for Social Sciences (SPSS) program version 25. Following a normality test that involved verifying the data, it was discovered that the tool provided a normal distribution, providing trustworthy and precise relevant data.

Pearson's product-moment correlation coefficient was used to measure the degree of correlation between the independent predictor variables and the dependent variable (r). A two-tail test was applied, allowing influence to show from a positive or negative course, to test at a 95% confidence level and a level of significance at 0.05. The linear association in the hypothesis was examined with the help of the simple regression method, and the results were interpreted using Pearson's Product Moment Correlation. Almost all quantitative analyses of data were generated based on simple graphic analysis and descriptive statistics. The correlation between the independent and dependent variables is ascertained using a correlation analysis.

IV. Data Analysis

Finding out how Peasant engagement influenced learner participation was the main objective of the study. The questionnaire were distributed to the 275 respondents out of which 251 were returned duly completed reflecting 91% response rate which was sufficient for analysis and generalization of the population. According to (Etikan & Bala, 2017), a return rate of 50% is adequate. The results concur with his findings.

Overall Descriptive Analysis of Learner Participation

Participants randomly selected were given a variety of statements regarding learner participation in the public primary school food program, with options being: strongly disagree (SD) = 1, disagree (D) = 2, disagree (N) = 3, strongly agree (SA)=4, agree (a)=5, Table 1 displays the outcome.

Table 1: Learner Participation

Statements	SD F %	D F %	N F %	A F %	SA F %	Mean	Std deviation
1. High enrollment increases learner participation	33 (13.1%)	73 (29.1%)	41 (16.3%)	61 (24.3%)	43 (17.2%)	3.03	1.32
2. Regular class attendance improves learner participation in school	30 (13.0%)	83 (31.1%)	25 (11.0%)	60 (23.9%)	53 (21.0%)	3.09	1.37
3. Retention of learners enhances participation in school	18 (7.2%)	68 (27.1%)	50 (19.9%)	84 (33.5%)	31 (12.3%)	3.17	1.16
4. Transition rate motivates learner participation in school	25 (10.0%)	55 (21.9%)	50 (19.9%)	59 (23.5%)	62 (24.7%)	3.31	1.32
5. Completion rate improves learner participation in school	35 (13.9%)	88 (35.1%)	16 (6.4%)	65 (25.9%)	47 (18.7%)	3.00	1.38
6.Cognitive skills increases learner participation	23 (9.2%)	60 (23.9%)	18 (7.2)	68 (27.1%)	82 (32.7%)	3.50	1.39
7.Learner's health status increases participation in school	20 (8.0%)	63 (25.1%)	32 (12.7%)	71 (28.3%)	65 (25.9%)	3.39	1.32
8.Community support promotes learner participation in school	18 (2.4%)	49 (19.5%)	26 (10.4%)	85 (33.9%)	73 (29.1%)	3.58	1.28
9.Peer collaboration enhances learner participation in school	20 (8.0%)	59 (23.5%)	17 (6.8%)	76 (30.3%)	79 (31.5%)	3.54	1.35
10.Learner participation improves performance in school	21 (8.4%)	62 (24.7%)	24 (9.6%)	77 (30.7%)	67 (26.7%)	3.43	1.33
Overall composite mean and std Deviation						3.30	1.29

Source: Researcher's data

The outcomes in Table 1, generated enough statistics on Learner Participation. When the means of these accounts were added, the composite mean and standard deviations were calculated. The results were 3.03 and a standard deviation of 1.32, were slightly below 3.30 compound mean, 1.29 standard deviation, achieved for the line item, suggesting the ideas collected were in agreement. Additionally, suggestions of regular meal service during school hours promotes high student attendance and active participation by students in class. The intercession of the feeding program was necessary as it promoted learners' participation.

Schools saw generally high registration, good student engagement, and improved retention. Intervention strategies in the food program have had a significant positive impact on family members and learners around the world who cultivate on a small scale. The results of the study show that healthy foods were served during the school day which significantly improved, learners' transition. Certain areas need improvement among them; serving food to all learners. Most students have significantly improved their intellectual performance as a result of being able to remain at school revising.

According to the results of the interview session, there were differing reports of whether or not some learners who could not attend consistent classes were given meals regularly during the school day. Due to their attendance, some students had lower educational progress, which affected their performance on assigned tasks and in big examinations.

The observation also disclosed that some pupils did not receive meals from their households, which had an impact on how frequently and on time they could get to school. However, the interference of the school-based feeding program reduced it. Small-scale farmers can engage in food production and supply adequate foodstuffs to government-owned schools in Makueni County hence improving learner participation.

Overall Descriptive Analysis of Smallholder Framer Engagement and Learner Participation

Children need to eat nutritious meals for mental development and growth. Meals can only be provided on daily basis if there is proper planning and also a good supplier of the farm produce. It is in this line that the government had to involve the community in providing the commodity to their neighboring schools. Table 2 displays the outcome.

Table 2: Smallholder Farmer Engagement

Statements	SD F %	D F %	N F %	A F %	SA F %	Mean	Std deviation
1. Farming is a common economic activity in the region	16 (6.4%)	43 (17.1%)	15 (6.0%)	92 (36.7%)	85 (33.9%)	3.75	1.26
2. Youth are engaged in farming activities	10 (4.0%)	51 (20.3%)	35 (13.9%)	73 (29.1%)	82 (32.7%)	3.66	1.23
3 The community around the school is engaged in farming	12 (4.8%)	39 (15.9%)	21 (8.4%)	79 (31.5%)	100 (39.8%)	3.86	1.23
4. There are adequate farming resources	8 (3.2%)	46 (18.3%)	44 (17.5%)	75 (29.9%)	78 (31.1%)	3.67	1.18
5. There is high level of participation in marketing for produced foodstuffs	15 (6.0%)	70 (27.9%)	31 (12.4%)	80 (31.9%)	55 (21.9%)	3.36	1.26
6. Local farmers are assisted to market their produced foodstuffs	13 (5.2%)	51 (20.3%)	27 (10.8)	90 (35.9%)	70 (27.9%)	3.61	1.23
7.There is availability of local markets for produced foods	9 (3.6%)	32 (12.7%)	27 (10.8%)	99 (39.4%)	84 (33.5%)	3.86	1.12
8 Local farmers are subscribed to online marketing channels	8 (3.2%)	74 (29.5%)	34 (13.5%)	71 (28.3%)	64 (25.5%)	3.43	1.24
9Locally produced foods are affordable	7 (2.8%)	28 (11.2%)	40 (15.9%)	96 (3821%)	80 (31.9%)	3.85	1.07
10. There is high production cost for stable foodstuffs	4 (1.6%)	28 (12.1%)	32 (12.7%)	111 (44.2%)	76 (30.3%)	3.90	1.00

11. There are trade barriers on produced foods	5 (2.0%)	42 (16.7%)	34 (13.5%)	87 (34.7%)	83 (33.1%)	3.80	1.13
12. There is stability of produced foods	4 (1.6%)	51 (20.3%)	45 (17.9%)	76 (30.3%)	75 (29.9%)	3.67	1.15
13. There is access to produced food stuffs	5 (2.0%)	35 (13.9%)	31 (13.9%)	90 (35.9%)	90 (35.9%)	3.90	1.10
14.There is sufficient production of nutritious foods all year round	6 (2.4%)	47 (18.7%)	39 (15.5%)	86 (34.3%)	73 (29.1%)	3.69	1.14
15.There is increased use of locally produced foods	16 (6.4%)	50 (19.9%)	31 (12.4%)	90 (35.9%)	64 (25.5%)	3.54	1.24
16. There is constant supply of produced foodstuffs	2 (0.8%)	50 (19.9%)	42 (16.7%)	94 (37.5%)	63 (25.1%)	3.66	1.08
17.There is increased income generation from produced foods	9 (3.6%)	66 (26.3%)	40 (15.9%)	67 (26.7%)	69 (27.7%)	3.48	1.24
18.There is improved lifestyle due to the increased sales from produced foods	11 (4.4%)	61 (24.3%)	27 (10.8%)	86 (34.3%)	66 (26.3%)	3.54	1.24
Overall composite mean and Std Deviation						3.67	1.15

Source: Author's own work

The outcome on Table 2, discuss the eighteen statements that generated enough data on smallholder farmer engagement and learner participation. The means of the accounts were added and computed thus the compound mean of 3.67 and standard deviation of 1.15, was slightly less compared to the composite mean of 3.75 and standard deviation of 1.26, obtained for this line item. This shows the opinion being assembled agreed. Implying the engagement of small-scale farmers in the feeding program promotes enrollment and learner participation. The provision of the meal program was important because it encouraged learners' participation in class and transition to the next level.

Statement (2) that Youth are engaged in farming activities scored a mean of 3.66, and a standard deviation of 1.23 compared to a 3.67 compound mean, and 1.15 standard deviation. The statement mean was less than the composite mean. The suggestion of these outcomes to the study is youth are engaged in farming activities thus absolutely influencing learner participation since most of them have enough food to eat.

Statement (3) that the community around the school is engaged in farming attained a mean of 3.86, and a standard deviation of 1.23, compared to the compound mean of 3.67, and a standard deviation of 1.15. The statement mean was greatly higher than the composite mean. The implication of these results to the study is when the community was engaged in farming brought enough food to schools showing a positive influence on learner participation.

Statement (4) that there is adequate farming resources obtained a mean of 3.67, and a standard deviation of 1.18, compared to the compound mean of 3.67, and a standard deviation of 1.15. The statement mean was equal to the compound mean. The implication of the outcome indicates when farmers have adequate resources in their farms much produce is acquired and hence thus effectively influencing learner participation.

Statement (5) that there is high level of participation in marketing for produced foodstuffs obtained a mean of 3.36, and standard deviation of 1.26, compared to the composite mean of 3.67 and a standard deviation of 1.15. The line mean was below the composite mean. The suggestion of the outcome when there is high level of participation in marketing for produced foodstuffs automatically inputs are high thus effectively influencing learner participation.

Statement (6) that local farmers are assisted to market their produced foodstuffs scored a mean of 3.61 and standard deviation of 1.23 compared to the compound mean of 3.67, and a standard deviation of 1.15. The item mean was lower than the composite mean. The implication of these results reveals that if Local farmers are assisted to market their produced foodstuffs, then there would be better yields hence positively improving the community standards and also retention of learners in schools.

Statement (7) that local farmers are assisted to market their produced foodstuffs obtained a mean of 3.86 and standard deviation of 1.12 compared to the composite mean of 3.67 and a standard deviation of 1.15. The line mean was higher than the compound mean. The implication of these results reveals farmers were assisted to market their produced foodstuffs so that they can assist in supplementing learners' food hence positively improving learners' concentration skills since they are feed well.

Statement (8) that Local farmers are subscribed to online marketing channels scored a mean of 3.43, and standard deviation of 1.24 compared to the composite mean of 3.67, and a standard deviation of 1.15. The statement mean was less than the composite mean. Therefore, suggesting local farmers were subscribed to online marketing channels meaning they are able to sell their produce comfortably even in schools that are not in their neighborhood hence positively improving communities' lives.

Statement (9) that locally produced foods are affordable obtained a mean of 3.85, and standard deviation of 1.07 compared to the composite mean of 3.67, and a standard deviation of 1.15. The item mean was more than the composite mean. The implication of these results reveals that local farmers produce affordable foods meaning they can sell their produce at cheaper prices and still get profits thus positively influencing the project intervention outcomes.

Statement (10) that there is high production cost for stable foodstuffs obtained a mean of 3.90 and a standard deviation of 1.00, compared to 3.67 composite mean and a standard deviation of 1.15. The statement mean was higher than the composite mean. These results imply that there is high production cost for stable foodstuffs meaning many schools will not afford the food hence negative influence on learner participation in schools.

Statement (11) that there is trade barriers on produced foods obtained a mean of 3.80, and standard deviation of 1.13 compared to the composite mean of 3.67 and a standard deviation of 1.15, suggesting the mean was above the compound mean. The indication to the study shows barriers in crop production could lead to low supply of food to schools hence negative influence on learner participation in schools.

Statement (12) that there is trade barriers on produced foods scored a mean of 3.67 and standard deviation of 1.15 compared to the overall composite mean of 3.67 and a standard deviation of 1.15. The statement mean was at par with the composite mean. The implication of the study outcome is there were trade barriers on harvested foodstuffs hence a negative influence on learner participation in schools thus converging findings.

Statement (13) that there is access to produced foodstuffs obtained a mean of 3.90, and a standard deviation of 1.10, compared to the composite mean of 3.67 and a standard deviation of 1.15. The item mean was above the compound mean. The suggestion of the outcome reveals that if there is proper access of agricultural products which are produced locally would enhance learners' participation in schools thus positive improvement in learning outcomes.

Statement (14) that there is sufficient production of nutritious foods all year round obtained a mean of 3.69, and standard deviation of 1.14 compared to the composite mean of 3.67 and a standard deviation of 1.15. The line mean was higher than the composite mean. The implication of these results reveals that there is sufficient production of nutritious foods all year-round meaning learners will have good growth and better health thus positive improvement in learning outcomes.

Statement (15) that there is increased use of locally produced foods recorded a mean of 3.54, and standard deviation of 1.24, compared to the composite mean of 3.67 and a standard deviation of 1.15. The item mean was more compared to the compound mean. The implication of these results reveals there is increased use of locally produced foods meaning every learner is able to have good health thus positive improvement in cognitive learning skills.

Statement (16) that there is a constant supply of produced foodstuffs recorded a mean of 3.66, and a standard deviation of 1.08 compared to the composite mean of 3.67 and a standard deviation of 1.15. The statement mean was more than the composite mean. The implication of these results reveals there is a constant supply of produced

foodstuffs meaning every learner can have good health after eating well well-balanced diet from enough supply of food thus improving psychology learning skills.

Statement (17) that there is increased income generation from produced foods obtained a mean of 3.48, and a standard deviation of 1.24 compared to the compound mean of 3.67 and a standard deviation of 1.15. The statement mean was higher than the composite mean. The implication of these results reveals there is increased income generation from produced foods meaning enough supply of food thus improvement intervention in the program.

Statement (18) that there is an improved lifestyle due to the increased sales from produced foodstuffs obtained a mean of 3.48 and a standard deviation of 1.24 compared to the compound mean of 3.67 and a standard deviation of 1.15. The statement mean was higher than the composite mean. The implication of these results reveals there is an improved lifestyle due to the increased sales of produced foods meaning people have improved in their way of living due to this intervention program which has brought the market to their doorstep and hence has a positive influence on the learning process.

Correlation between Smallholder Farmer Engagement and Learner Participation

A correlation investigation was carried out to determine the outcome and the extent of association between small-scale farmer engagement and learner participation. Table 3 represents the outcome.

Table 3. Correlation between Smallholder Farmer Engagement and Learner Participation

Variable	Statistics	Learner Participation
Small-scale farmer Engagement	Pearson Correlation	0.105**
	Sig.(2-tailed)	0.006
	N	251

(n=251); **Correlation is significant at 0.05 level (2-tailed)

This section sought to obtain information on smallholder farmer engagement and learner participation. The relationship between small-scale farmer engagement and learner participation was computed through Pearson`s correlational analysis. The study found a frail positive overall relationship of 0.210** which was statistically significant where (*P*-Value = 0.001 < 0.05); indicating a significant association amongst small-scale farmers engagement and learner participation, resulting to a rejection of the null hypothesis and acceptance of the alternative hypothesis thus the study outcomes determine that there is significant association between small-scale farmers' engagement and learner participation.

The model investigated how smallholder farmers' engagement influenced learner participation. A simple linear regression was adapted to determine how small-scale farmer engagement influenced learner participation. Regression analysis was computed to determine the influence of small-scale farmers' engagement and learner participation.

Table 4. Regression Model Summary of Smallholder Farmer Engagement and Learner Participation in Public Primary Schools

Model summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0. 105[a]	0.110	0.007	0.44484

a. Predicator: (Constant), Smallholder Farmer Engagement

ANOVA						
Model		Sum of Squares	Df	Mean Squares	F	Sig.
1	Regression	0.553	1	0.553	2.795	0.096[b]
	Residual	49.272	249	0.198		
	Total	49.825	250			

a. Smallholder Farmer Engagement and Learner Participation

b. Predictors: (Constant), Smallholder Farmer Engagement

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig (p-value)
		B	Std. Error	Beta		
1	(Constant)	4.110	0.483		8.513	0.000
	Smallholder Farmer Engagement	0.219	0.131	0.105	-1.672	0.096

Model :(β= 4.110, t = 8.513, p=0.096<0.05)

c. Independent Variable: Smallholder Farmer Engagement
d. Learner Participation

The Model Summary in Table 4 suggests that there is a positive correlation (R^2=0.011) between smallholder farmer engagement and learner participation. The ANOVA computation indicates that F=2.795, smallholder farmer engagement was significant in assessing learner participation since *p*=0.096<0.05. Thus, the model was fit in forecasting the dependent variable.

Inferential Analysis of Smallholder Farmer Engagement and Learner Participation

To achieve the goal, the following hypotheses were examined using a linear simple regression model.
i) $H_{O:}$ Smallholder farmers' engagement has no significant relationship with learner participation
i) $H_{O:}$ Smallholder farmers' engagement has significant relationship with learner participation

The linear regression model as modified exhibited on table 4 served as the statistical model for investigating the null hypothesis. The substituted model is stated;

Model: $Y= 4.110+0.219X_1+\varepsilon$ where,
Y = Learner Participation
X_1 = Smallholder Farmer Engagement
ε = Error term.

Students need a range of foods selections for the body to function properly, growth, psychological fitness, protection, and energy (Faizan & Rouster, 2023). Therefore, one of the policy measures implemented by governments in both developed and developing nations to enhance student performance is the offering of free or subsidized school meals (Mensah, 2019). A report by Who, Thong, Behnke & Lewis, (2016); Zanin, (2017), Cunha (2017), Rosso Capriles & Stedefeldt, (2017) discovered that inadequate supply of high-quality meals has a detrimental effect on the school feeding program. The study resolute peasant commitment had significant influence on learner participation. Additionally, the study outcome revealed the presence of a strong positive linear association between smallholder farmer engagement and learner participation.

V. Conclusion

Smallholder farmers' engagement in school feeding program significantly influences learner participation in public primary schools in Makueni. However, the intervention of engaging smallholder farmers in school feeding program has not been achieved to fully bridge the gap of adequate food production in the region hence learners continue to suffer from food shortages resulting to low participation in schools. The participation of parents and county government administration have not been fully involved in motivating the learners at different levels as required by the national government.

Research Implications

The study provides researchers with a depository of knowledge. This study is fundamental to policy formulation makers in the discipline of nutrition and policy implementers, teachers, and managers in the school feeding program. The report analyses standardized practices of policy implementation in Kenya and worldwide in the agricultural sector with a focus on engaging smallholder farmers to improve farming, promote learner participation, and enhance the country's economy.

The implication of the outcome indicates that engaging smallholder farmers in the school feeding program will improve learners' psychological skills, mental perspectives, and active involvement as well grow the country's economy. While many studies have been conducted on learner participation, few studies have been devoted to

smallholder farmers' engagement in school feeding program and Learner participation. Even though no comparable studies have been carried out in Kenya's Makueni County, this study provided empirical indication in line with its prior outcomes to the aforementioned related research.

Limitations and Calls for Future research

Data collecting involved sampled respondents, any other person with knowledge of smallholder farmers' engagement and learner participation was not investigated. The information was sensitive and respondents were scared of giving full information. This was solved by assuring the respondents that the information would not be released to any person, that the study was meant for academic purposes, and names of respondents would not be mentioned. Further research is encouraged to investigate the influence of learner participation in schools such as teaching methodologies, and teacher qualifications. This analysis can help in the restructuring of the learners in the classroom for the teachers to pay more attention to the weak apprentices.

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Author (s) Contribution Statement

The authors revised the manuscript, read and approved the final document for submission. The correspondent author, Mary Mbithe Mwanthi developed and edited the manuscript according to the recommended guidelines. Doctor Charles Misiko Wafula, reviewed and approved the manuscript for submission. Doctor John Mwaura Mbugua participated in reviewing and approving the manuscript for submission.

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