Smallholder Farmers’ Engagement in School Feeding Programme and Learner Participation in Public Primary Schools in Makueni County, Kenya

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Abstract

Primary school students who are eligible for the school’s Food Programme can get nutritious meals, and feeding services. The objective of the paper is to examine how smallholder farmers’ engagement influences learner participation in Public Primary Schools in Makueni. The study was anchored on theory of change. A correlation study and a descriptive research survey design were used. Target population was 875, where a sample of 275 was drawn and computed by Yamane’s formula. Information was gathered using simple random technique, questionnaire, and interview guide. Pilot testing was done to determine the accuracy and dependability of the study instruments in Machakos County, Kenya. Quantitative and qualitative information were analyzed using descriptive and inferential statistics. SPSS software version 25 was employed to analyze data, and outcome was displayed. To demonstrate the strength and association of the variables, linear regression models were used. Pearson’s Product Moment Correlation coefficient (r) was computed. The overall F statistics is 2.795. The findings were represented in tables, regressions, mean, standard deviations, frequencies and percentages. Null hypothesis was tested, resulting to; There is no significant association among smallholder farmers’ engagement and learner participation in Public Primary Schools was rejected (P-value 0.006 < 0.05) suggesting a statistical significant association between smallholder farmers’ engagement and learner participation in public primary schools. This paper recommends that Ministries of Education should provide nutrition meals and dedicate adequate resources. Further, this study on school feeding programme strategies focused on Makueni county public primary schools only. It is necessary to conduct a study with a similar design that targets additional counties.

Keywords: stakeholder engagement, learner participation, smallholder farmers, supply of food, school feeding project

1. Introduction

Performance of program depends solely on participation of stakeholders, essentially based on team, level of participation from stakeholders, and how they engage in project activities. To achieve successful results, this is essential in any organization. It is easier for them to argue that they are the project’s main recipients because all the stakeholders are involved in various levels during the implementation stages. This is not exceptional from school feeding programme in Makueni County where the county government in conjunction with the national government feed public primary school children due to the nature of the environment. In order to supplement the feeding program, they have enlisted the help of a number of people, including the parents and the community, who are able to grow the food that the school will need to feed the lean students. Smallholder market participation is thought to lead to agricultural growth and development. This results in the anticipated structural transformation of the agricultural sector and a turn toward alleviation of poverty and staggering food insecurity among agricultural households in developing countries (Otekunrin, 2019). Food sovereignty is a development strategy that aims at smallholders having an equal say in the creation of regional food networks (Poole, 2013).
Engagement of smallholder farmers in school feeding programme enables them to access to reliable markets thus boosting their income and increasing household’s food security (Mensah, 2019). There is also guarantee of a consistent supply of high-quality food for the children targeted (WFP, 2016). Buying food directly from small-scale producers, on the other hand, is more costly, but it empowers farmers and community groups, resulting in long-term incentives thus contributing to local growth (WFP, 2016). Therefore, implementers of school feeding programme strategies engaged smallholder farmers to make food available, cheap to avoid transportation costs and create value to farmers for economic empowerment. According to the reviewed empirical data, all small-scale farmers sold food to schools, which had a positive impact on both student participation in school and community lifestyles within the schools that were the subject of project interventions necessitating to the current study in Makueni County.

2. Literature Review

Performance of every program needs good planning and ability to succeed which depends on stakeholder dedication, and if there not applicable, the project will fall short. Projects are made up of clearly defined goals that must be met by a certain date. Ika (2012) states that they need to be safe, within budget, and of the highest quality; however, despite these demands, collaboration is frequently done as needed based in many institutions and corporations. Failures in some highly concerning areas have been experienced as a result of many institutions and agencies failing to adhere to this concern of involving all stakeholders.

Smallholder farmer’s engagement ensures the supply of adequate food in the region. According to Gelli et al. (2016), it is broadly assumed that school meals programme 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 programme have played a key role in reducing hunger, undernourishment besides increasing domestic food production through local enforcement. Despite being the key rural actors, smallholder 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 foods have to reach to the schools from the production site on time (Mason & Lang, 2017). Harsh climatic condition has severely affected food production in Makueni County and thus the need for subsidy in school feeding programme to entice active participation of learners.

In Kenya, the Home Grown School Meals Programme (HGSM) 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 to make school feeding a nationwide initiative rather than focusing on a few schools (Jayne, Yeboah, & Henry, 2017). This may have a positive effect on nutrition and food security at different levels (Who, Thong, Behnke, & Lewis, 2016; Zanin, Cunha, Rosso Capriles, & Stedefeldt, 2017). However, not all smallholder farmers have the initiative of food production, therefore, the need for support policies to differentiate between smallholder development into more productive systems and those exiting from farming.

The requirements of smallholder agriculturalists who have evolving perceptions devise constantly gained fame, emerging on front of economic, radical, and inquiry schedule various emerging nations (United Nations, 2012), which focuses predominantly on smallholder-sector commercialization on modernization and motivating cost-effective evolution on improving diet safety (Martey et al., 2014). Nevertheless, challenges faced by smallholder farmers during market contribution demolish well predictable (Badiane, 2014), and prices allied to attaining marketplace material, comprising dearth of dependable evidence on markets remain branded impending issues to smallholder farmers’ commercialization (Matous et al., 2015; Milovanovic, 2014).

Smallholder farmers are vulnerable to poverty, and struggle to achieve nutritious diet throughout the year. According to Herforth and Ballard (2016) who postulates that agricultural divergence has a significant impact on nutritional diversity of smallholder farmers. Additionally, in areas where production facilities, storage and market setups are less established often affect diet diversification (Barriet, 2008; Goldsmith, Andrade, Cornelius, Asigbee, Atim, & Tamimie, 2019). Makueni County lies in the semi-arid region and adversely suffers low food production thus affecting learner participation in public primary schools.

2.1 Theory of Change

The phrase “theory of change” was first used by Lewin in 1958 to refer to the procedure of creating changes and improvements so as achieve a goal. Its objective is to address some of the difficulties that evaluators encounter when attempting 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 which is provided by a theory of change using a causal analysis based on currently available information. The theory of change offers a paradigm for learning in monitoring and assessment methods both within and across programming cycles. The causes of a development difficulty are described, and assumptions are made. Assumptions can be strengthened with the help of monitoring and evaluation’s fresh data, which also helps with decision-making regarding how to alter a plan to realize its envisioned goals. Deviations to theory of change ought to be implemented as part of routine monitoring and in response to evolving conditions, particularly during crises and shocks. Planners of the program, participants, contributors, and program staff all have different perspectives and presumptions that come from the process of choosing a theory of change. A ‘theory of change’ describes how activities are interpreted to result in a set of outcomes that all contribute to the desired outcome. Thus, the theory supports the dependent variable of the study, learner participation in school.

In households with insufficient funds to purchase enough food, giving schoolchildren meals or take-home portions that improve their dietary intake and nutritional status is very vital as depicted by (Devereux et al., 2013). The design strategies for the school feeding program are geared toward expanding educational opportunity and enhancing learner engagement. Students’ involvement in this study includes things like enrollment, attendance, retention, completion rate, transition, peer collaboration, and improved health. In order 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 adequate evidence that school attendance rates do improve on provision of food (Chabite, Garrine, Ferrão, & Fernandes, 2018; Ernst Bekkering, 2020; Awojobi, 2019). Providing an incentive in the form of a snack or grain often motivates the girl child to attend school and decreases gender gaps in learning (Gelli, Meir, Espejo, et al., 2016).

Using strategies from the school feeding program, theory of change once more emphasizes reducing poverty. Through nutrition education, more is learned by the learners. By providing food to students during school hours, you can improve their cognitive abilities, health, and attendance rates while also increasing their engagement in the classroom. As a result of the availability of food, more parents will enroll their kids in school. Additionally, involving small-scale farmers in school feeding programs is a game-changing idea because they will supply food to schools, which will again have an effect on the economy by creating jobs. Increased income will change the living standards of the people thus improving health status. 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.

2.2 Conceptual Framework

Figure 1 demonstrates the conceptual framework of the study.
3. Methodology

This survey paper used the pragmatism paradigm, which employs flexible philosophical edifices. Pragmatism favours the use of mixed methods research in respect rather than relying solely on one method of gathering and analysing qualitative or quantitative data (Creswell, 2014). The research modified correlational and descriptive survey research designs. These types of designs are popular because 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 (Fricker, 2016). 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 occurrence as it occurs naturally, in order to reveal the discrepancies.

The continuing and executed school feeding projects are the unit of analysis, while the item of investigation consisted of the Head Teachers, Teachers, Learners, education county officers, and representatives of the BoM. Using the Yamane formula, 275 respondents were chosen as the sample size from the 875 participants in the population of interest. Using a questionnaire and interviewing protocol, the data were gathered. Head Teachers and county officials who are informed about the school feeding program were the target audience for the purposeful sampling.

The data was gathered in qualitative and quantitative formats, verified for accuracy twice, coded, and then thematically 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 Regular Meal Provision during School Days and Learner Participation in Public Primary Schools were clearly demonstrated by both qualitative and quantitative data. For the purpose of conducting actual analysis, data were analyzed using the SPSS program version 25. Following a normality test that involved verifying the data, it was discovered that the tool provides a normal distribution, providing trustworthy and precise relevant data.

The Pearson’s Product Moment correlation coefficient was employed for measuring the degree of correlation amongst the independent predictor variables, and the dependent variable (r). A two-tail test was used, allowing for influence to come from either a positive or negative direction, in order 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 are built on the basis of simple graphic analysis and descriptive statistics. The correlation among the independent and dependent variables is ascertained using a correlation analysis.

4. Results

Finding out how smallholder farmers’ engagement influenced learner participation in public primary schools was the main objective of the study. There were 275 questionnaires which were delivered to the respondents, but only 251 of them were fully completed, signed, and sent back. Representing a return rate of 91%, which was sufficient for analysis and population generalization. According to studies by (Etikan & Bala, 2017), a return rate of 50% is adequate. The results concur with his findings.

4.1 Overall Descriptive Analysis of Learner Participation in Public Primary Schools

Participants randomly selected were given 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, as shown in Table 1.
Table 1. Learner participation in public primary schools

<table>
<thead>
<tr>
<th>Statements</th>
<th>SD F</th>
<th>D F</th>
<th>N F</th>
<th>A F</th>
<th>SA F</th>
<th>Mean</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High enrollment increases learner participation</td>
<td>33</td>
<td>73</td>
<td>41</td>
<td>61</td>
<td>43</td>
<td>3.03</td>
<td>1.32</td>
</tr>
<tr>
<td>2. Regular class attendance improves learner participation in school</td>
<td>30</td>
<td>83</td>
<td>25</td>
<td>60</td>
<td>53</td>
<td>3.09</td>
<td>1.37</td>
</tr>
<tr>
<td>3. Retention of learners enhances participation in school</td>
<td>18</td>
<td>68</td>
<td>50</td>
<td>84</td>
<td>31</td>
<td>3.17</td>
<td>1.16</td>
</tr>
<tr>
<td>4. Transition rate motivates learner participation in school</td>
<td>25</td>
<td>55</td>
<td>50</td>
<td>59</td>
<td>62</td>
<td>3.31</td>
<td>1.32</td>
</tr>
<tr>
<td>5. Completion rate improves learner participation in school</td>
<td>35</td>
<td>88</td>
<td>16</td>
<td>65</td>
<td>47</td>
<td>3.00</td>
<td>1.38</td>
</tr>
<tr>
<td>6. Cognitive skills increases learner participation</td>
<td>23</td>
<td>60</td>
<td>18</td>
<td>68</td>
<td>82</td>
<td>3.50</td>
<td>1.39</td>
</tr>
<tr>
<td>7. Learners health status increases participation in school</td>
<td>20</td>
<td>63</td>
<td>32</td>
<td>71</td>
<td>65</td>
<td>3.39</td>
<td>1.32</td>
</tr>
<tr>
<td>8. Community support promotes learner participation in school</td>
<td>18</td>
<td>49</td>
<td>26</td>
<td>85</td>
<td>73</td>
<td>3.58</td>
<td>1.28</td>
</tr>
<tr>
<td>9. Peer collaboration enhances learner participation in school</td>
<td>20</td>
<td>59</td>
<td>17</td>
<td>76</td>
<td>79</td>
<td>3.54</td>
<td>1.35</td>
</tr>
<tr>
<td>10. Learner participation improves performance in school</td>
<td>21</td>
<td>62</td>
<td>24</td>
<td>77</td>
<td>67</td>
<td>3.43</td>
<td>1.33</td>
</tr>
</tbody>
</table>

Overall composite mean and std Deviation: 3.30 1.29

The outcomes on Table 1, which had ten statements generated enough data on Learner Participation in Public Primary schools. When the means of these statements were added up, 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, obtained for the line item. This suggests the ideas being collected in agreement. Additionally, suggestions of regular meal service during school hours promotes high student attendance and active participation by students in class activities. The intervention of the food programme was vital since it encouraged learner’s participation and reduced inconsistency results.

Schools saw generally high registration, good student engagement, and retention levels as a result of the full meal service provided there. 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, greatly aiding learners’ transition to succeeding level. Certain areas need improvement among them, serving meals to the whole school instead of just some few classes, like classes seven and eight. Most students have significantly improved their intellectual performance as a result of being able to concentrate on their school activities and remaining at school during contracted hours.

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 on a regular basis during the school day. Due to their attendances, 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 any 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.

4.2 Overall Descriptive Analysis of Smallholder Farmers Engagement and Learner Participation in Public Primary Schools

Every child needs to eat well in order to have proper growth and mental development, so it is extremely important that meals are regularly provided during school hours. This food can only be provided on daily basis if there is proper planning and also good supplier of the products. It is in this line then that the government had to involve the community in proving the commodity to their neighboring schools. Table 2 displays the outcome.
The outcome on Table 2, have eighteen statements generated enough data on Smallholder Farmers Engagement and learner participation in Public Primary schools. The means of the statements summed up were which were computed thus the composite mean and standard deviations that resulted to 3.67 and a standard deviation of 1.15, which were both marginally lower than the composite mean of 3.75 and standard deviation of 1.26, obtained for this line item. This suggests that the opinions being gathered were convergent. It also implies that Engagement of Smallholder Farmers in school days increases high enrollment and learner participation in classroom participation. The intervention of the food programme was vital since it encouraged learner’s participation in class and transition of the next level.

Statement (2) that Youth are engaged in farming activities scored a mean of 3.66 and standard deviation of 1.23 compared to 3.67 overall composite mean, and a standard deviation of 1.15. The statement mean was lower than the composite mean. The implication of these results to the study is youth are engaged in farming activities thus positively influencing Learner Participation in Public primary schools 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 standard deviation of 1.23 compared to the overall 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 in the schools hence positively influencing Learner Participation in Public Primary Schools food programme.

Statement (4) that there are adequate farming resources obtained a mean of 3.67 and standard deviation of 1.18 compared to the overall composite mean of 3.67 and a standard deviation of 1.15. The statement mean was at per with composite mean. The implication of these results to the study is when farmers have adequate resources in their farms much produce is acquired thus positively influencing Learner Participation in Public Primary Schools meaning these results were diverging.

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 overall composite mean of 3.67 and a standard deviation of 1.15. The line means lower than the composite mean. The implication of these results to the study is if there is high level of participation in marketing for produced foodstuffs automatically the inputs are high hence positively influencing Learner Participation in Public Primary Schools meaning these results were diverging.

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 overall composite 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 overall composite mean of 3.67 and a standard deviation of 1.15. The line mean was more than the composite 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 overall composite mean of 3.67 and a standard deviation of 1.15. The statement mean was lower than the composite mean. The implication of these results to the study is local farmers are subscribed to online marketing channels meaning they are able to sell their produce comfortably even in schools which 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 overall 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 are able to 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 standard deviation of 1.00 compared to 3.67 overall composite mean and a standard deviation of 1.15. The statement mean was higher than the composite mean. The implication of these results is 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 are trade barriers on produced foodstuffs 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 per with the overall composite mean. The implication of these results to the study is there are trade barriers on produced foodstuffs hence negative influence on learner participation in schools thus converging findings.

Statement (12) that there is access to produced foodstuffs obtained a mean of 3.80 and standard deviation of 1.13 compared to the overall composite mean of 3.67 and a standard deviation of 1.15. Mean was higher than the composite mean. Implication of results to the study is barriers in food production could lead to low supply of food to schools hence negative influence on learner participation in schools.

Statement (13) that there are 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 per with the overall composite mean. The implication of these results to the study is there are trade barriers on produced foodstuffs hence negative influence on learner participation in schools thus converging findings.

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 overall 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 years 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 overall 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 learners is able to have good health thus positive improvement in cognitive learning skills.

Statement (16) that there is constant supply of produced foodstuffs recorded a mean of 3.66 and standard deviation of 1.08 compared to the overall 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 constant supply of produced foodstuffs meaning every learners is able to have good health after eating well balanced diet from enough supply of food thus positive improvement in psychology learning skills.

Statement (17) that there is increased income generation from produced foods obtained a mean of 3.48 and standard deviation of 1.24 compared to the overall composite 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 positive improvement intervention in the programme

Statement (18) that there is improved lifestyle due to the increased sales from produced foods obtained a mean of 3.48 and standard deviation of 1.24 compared to the overall composite 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 improved lifestyle due to the increased sales from produced foods meaning people have improved in their way of living due to this intervention programme which has brought market at their doors steps hence has a positive influence on learning process.

4.3 Correlation Between Smallholder Farmers Engagement and Learner Participation in Public Primary Schools

A correlation analysis was carried out to determine the direction and the extent of association amongst Smallholder Farmers Engagement and Learner Participation in Public Primary Schools. Table 3 represents the correlations outcomes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statistics</th>
<th>Learner Participation in Public Primary Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallholder Farmers Engagement</td>
<td>Pearson Correlation 0.105**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig.(2-tailed) 0.006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N 251</td>
<td></td>
</tr>
</tbody>
</table>

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

This section sought to obtain information on Smallholder Farmers Engagement and Learner Participation in Public Primary Schools. The relationship between Smallholder Farmers Engagement and Learner Participation in Public Primary Schools was computed through Pearson’s correlational analysis method. The study found a weak positive overall correlation 0.210** which was statistically significant where (P-Value = 0.001 < 0.05); implying a significant relationship amongst Smallholder Farmers Engagement and Learner Participation in Public Primary Schools, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis hence the research results conclude that there is significant relationship between Smallholder Farmers Engagement and Learner Participation in Public Primary Schools.

The model sought to determine how Smallholder Farmers Engagement and Learner Participation in Public Primary Schools. Simple linear regression was adapted to investigate how Smallholder Farmers Engagement and Learner Participation in Public Primary Schools. Regression analysis was computed Smallholder Farmers Engagement and Learner Participation in Public Primary Schools.

Table 4. Regression model summary of smallholder farmers engagement and learner participation in public
primary schools

Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.105a</td>
<td>0.110</td>
<td>0.007</td>
<td>0.44484</td>
</tr>
</tbody>
</table>

Note. a. Predictor: (Constant), Smallholder Farmers Engagement

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>0.553</td>
<td>1</td>
<td>0.553</td>
<td>2.795</td>
<td>0.096b</td>
</tr>
<tr>
<td>Residual</td>
<td>49.272</td>
<td>249</td>
<td>0.198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>49.825</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. a Smallholder Farmers Engagement and Learner Participation in Public Primary Schools.
b. Predictors: (Constant), Smallholder Farmers Engagement.

coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>4.110</td>
<td>0.483</td>
<td>8.513</td>
</tr>
<tr>
<td></td>
<td>Smallholder Farmers Engagement</td>
<td>0.219</td>
<td>0.131</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Note. Model: β = 4.110, t = 8.513, p = 0.096 < 0.05.
b. Learner Participation in Public Primary Schools.

The Model summary Table 4. Suggest that there is a positive correlation (R² = 0.011) between Smallholder Farmers Engagement and Learner Participation in Public Primary School and those predicted by the regression model. The ANOVA data shows that F = 2.795, Smallholder Farmers Engagement was significant in estimating Learner Participation in Public Primary Schools since p = 0.096 < 0.05. Thus, the model was fit in predicting dependent variable.

4.4 Inferential Analysis of Smallholder Farmers Engagement and Learner Participation in Public Primary Schools

To achieve the goal, the following hypotheses were tested using a linear simple regression model.

i) H₀: Smallholder Farmers Engagement has no significant relationship between Learner Participation in Public Primary Schools in Makueni County, Kenya.

ii) H₀: Smallholder Farmers Engagement has significant relationship between Learner Participation in Public Primary Schools in Makueni County, Kenya.

The linear regression model as modified exhibited on table 4 served as the mathematical model for testing the null hypothesis. The substituted model is:

Model: Y = 4.110 + 0.219X₁ + ε where,

Y = Learner Participation in Public Primary Schools

X₁ = Smallholder Farmers Engagement

ε = Error term.

Learners require a variety of food selection for the body to function properly, growth, psychological fitness, protection, and energy (Ngussa, 2016). The provision of free or subsidized school meals is therefore one of the policy initiatives taken by governments in both developing and developed countries to improve learner performance (Mensah, 2019). A study by Baluka et al. (2015) in Uganda found that higher learning levels had a greater understanding and different attitudes towards food availability and the provision of meals in specific regions. A study by Who, Thong, Behnke and Lewis (2016), Zanin, Cunha, Rosso Capriles and Stedefeldt (2017) who found that the impact of school feeding programme is negatively impacted by lack of adequate provision of quality meals. The study resolute Smallholder Farmers Commitment had significant influence on Learner Participation in Public Primary Schools. Additionally, the study outcome revealed the presence of a strong positive linear association amongst Smallholder Farmers Engagement and Learner Participation in Public
Primary Schools. The implication of the outcome evidently signposts that providing regular meals to the learners improved their cognitive skills, psychological perspective and active participation in classroom activities. Despite the fact that no comparable studies have been carried out in Kenya’s Makueni County, this study provided empirical indication in line with its prior outcomes in relation to the aforementioned related research.

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References


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