The Influence of School Feeding Programmes on Students' Academic Performance in Shinyanga Municipality-Tanzania

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ABSTRACT

Tanzania made several initiatives to improve school feeding programmes (SFPs) for the quality of education in secondary schools, especially in drought-prone areas. Some anticipated benefits were improved attendance, significantly reduce tardiness and increase student enrolments. However, evidence regarding the influence of school feeding programmes on students' academic performance is yet to be established. Therefore, this study examined the influence of SFPs on students' academic performance. Specifically, the study determined the academic performance of students before and after the introduction of SFPs and assessed the relationship between SFPs and the academic performance of students in Shinyanga Municipality. Methodologically, the study used a mixed approach, simple random and purposive sampling techniques. Data were collected through questionnaires and interviews. Descriptive and inferential statistics through regression analysis were used. The findings revealed that the attendance and participation of students in the class were improved and that examination scores were higher than was the case before the introduction of SFPs. Furthermore, the study revealed a significant positive relationship between SFPs and academic performance at a p-value of 0.000. This suggests a linear relationship between the SFPs and students' academic performance. It can therefore be concluded that SFPs are important for academic performance. Drawing from the findings, it is recommended that SFP should be part and parcel of educational policies that bring on board all stakeholders for improving attendance and activeness in class and eventually improve students' academic performance in drought-stricken areas in Tanzania.

Key Word: School feeding program, Students' Academic Performance, Shinyanga Municipal

Article info

Article history

Received: December 29/10/2022

Accepted: 28/02/ 2023

Published: 30/062023

1.0Introduction

We should perceive children as precious creations of God who should lead a healthy childhood for potential human beings. The best place to start nurturing and developing them into full potential human beings is a school. Children can tap potential from the schools when they are provided with basic needs. One of the basic needs of human beings is food. Food is considered among the important basic needs of every human being for the effective functioning of the body and proper performance of day-to-day activities (The World Food Programme-WFP 2003; The United Nations-UN, 2023). However, lack of or inadequate food for school-age children is one of the leading factors for truancy in developing countries because most parents cannot even afford one meal for their children (UN,2023; Shah,2022). This denies students opportunities of attending school. Those who attend while starving cannot concentrate on reading, writing or doing other educational activities (Shah, 2022; The Global Communities, 2021). The far-reaching impact of truancy is the generation of people who cannot survive in the most challenging world that highly demands sophisticated skills and knowledge acquired in formal education. Additionally, the world cannot realise Agenda 2030 whose aim among others is achieving inclusive, equitable and quality education for all (UN, 2023).

Latin America, the Caribbean, Southern Asia and Sub-Saharan Africa are among the regions that introduced School Feeding Programmes (SFPs) to improve students' academic performance (UN, 2023; World Bank, 2018; Tnagoe, 2018; World Food Programme-WFP, 2018; Uwezo, 2011). The initiatives were supported by international organizations and individual countries to solve student drops out and other challenges related to SFPs. The programmes aim to enable students to get the desired knowledge. The programmes are not just about feeding the students but also motivating students to attend their studies; bringing underprivileged children to schools; bridging the gap of inequalities in schools and improving academic performance (Ester Farm, 2023). Food is essential for the cognitive development and learning capacity of school children (WFP, 2016). Despite the significance of SFPs to students, the status of the 2030 Agenda for sustainable development reveals that equitable and quality education may not be reached due to underinvestment in education (UN, 2023). according to the (UN, 2023) report, by 2030 about 84 million school-age children are expected to be out of school. Additionally, by that time, young children who attended schools will have no capacity to read and write (UN, 2023).

In Tanzania, several efforts have been made in ensuring improvement in the academic performance of students. One such effort includes SFPs. SFPsis an intervention meant to deal with challenges that affect the performance of students in schools in areas with drought (Ramadhani, 2014; Missan, 2005). To ensure that the SFP is effectively implemented the Ministry of Education Science and Technology in collaboration with other ministries have been advocating the implementation of SFPs in areas prone to droughts such as Arusha, Dodoma, Manyara, Singida, Shnyanga and Navuri (The United Republic of Tanzania-URT (GAIN, 2021). In 2021, the government launched the first national school feeding programme guideline. The guideline provides a framework for managing SFP, responsibilities of the stakeholders, ownership of the SPP, locally mobilized resources and management of data. All this would result in a significant reduction in tardiness and absenteeism resulting from starvation (Ester Farm, 2023). Despite the efforts made, implementing SFP to ensure improvements in students' performance in schools in areas prone to drought was not impressive (Ramadhani, 2014; Twaweza, 2017). In addition, extant empirical studies did not adequately focus on the improvement in academic performance resulting from the introduction of SFPs in drought-prone areas. Thus, this study assessed the influence of the school feeding program on students' academic performance in Shinyanga Municipal Council. Specifically, the study compared the academic performance of students before and after the introduction of the SFP to determine the relationship between the school feeding programme and the academic performance of students

2. Theoretical premises

Learning can take place when students have attained basic needs (Shah,2022; Randegunda *et al*., 2021). One of such basic needs is food (UN,2023). This is in line with Abraham Maslow's perspective on the motivation of human beings to perform. Abraham (1943)'s theory provides that human needs form a five-level hierarchy, which consists of psychological needs, safety needs, belongingness, self-esteem and self-actualization. Physiological needs are biological requirements for the survival of an individual. These include but are not limited to food, shelter, clothing, sex, and sleep. Safety needs are those needs, which ensure the security and safety of individuals (McLeod, 2007). The theory is relevant to the study because it provides a set of human needs, which are supposed to be attained by individuals. One of the basic needs is physiological needs including food. This implies that food is an important human need that is

supposed to be obtained by individuals including students. The provision of food as among physiological needs leads to increased human motivation and satisfaction.

Drawing from the theory, Kapoor (2022) argues that food leads to improvement in academic performance because of increased satisfaction in the body. A satisfied body and mind make students have better concentration and self-actualization, which leads to improvement in academic performance (McLeod, 2007). Also, the provision of food improves mental learning performance and finally contributes to improvement in academic performance (Kaminske, 2022). Furthermore, Kapoor (2022) argues that the provision of food as among basic needs as suggested by Maslow builds immunity and prevents illness, which leads to increased concentration on studies and finally improvement in academic performance. Therefore, all stakeholders including parents, schools (teachers); community members and, the government should create a conducive learning environment for students. While they deal with the physiological needs of their students such as the quality of the school (i.e., water, ventilation, lighting, toilets, playing grounds, stationaries etc.) food is also a paramount ingredient (Shah, 2022). Hungry students are unable to concentrate in class and can even disrupt others from learning effectively (Lleogo, 2022). Teachers cannot expect students who cannot think due to starvation to achieve good grades such as As and Bs on their tests. A few students going hungry can negatively affect others in the class (Shah, 2022). This implies that the effective teaching-learning process depends on the attainment of the basic needs of all students such as food. In this study, we assume that other basic needs such as shelter, water, clothing, and sleep were available are held constant. Therefore, SFPs were expected to have effects on the students' performance in secondary school in Shinyanga Municipality, which is one of the drought-prone areas in Tanzania. In this study, motivation refers to psychological needs attained via food provisions to students. Despite its powerful explanations, the theory assumes that students come from similar cultures and socio-economic backgrounds. To resolve this, the study focused on individuals coming from the same cultural background. This helped to determine the impact of food on students' performance from selected secondary schools in the Shinyanga District in Tanzania.

3. Empirical Literature Review

According to Wall et al., (2022), the provision of meals to students in schools is important in enhancing students' academic performance. Maijo (2019) observes further that school feeding programs are crucial in increasing students' school attendance. In addition, school feeding programs are important as they contribute to a conducive learning environment for students to concentrate. All these, in turn, contribute to improving students' performance in examinations. Furthermore, as Hamad (2018) observes, providing students with food such as rice and beans leads to improved students' academic performance. Likewise, Chima (2020) shows that SFP improves performance in enrolment, attendance and pupils' pass rate of. The study results showed that all variables (enrolment, attendance and pass rate) were positively influenced by the presence of SFP. The study concludes that the provision of food to students increases student retention, reduces absenteeism among students and eventually improves the health of students who then attain better performance

Maijo (2019) conducted a study on school feeding programmes and the academic performance of students. The study findings revealed that the implementation of SFP led to an increase in students' academic performance. The scores of students were low before the implementation of the programme compared to the scores during and after the implementation of the programme. The study did not reveal the situation of class activeness before and after eating, class attendance before and after eating as well as class participation before and after SFPs. Similarly, Taylor *et al.* (2016) studied the effects of the school feeding programme on enrolment and performance of public elementary schools in Osun state, Nigeria. The results showed that SFP was implemented by schools through cost-sharing between the state and local governments. In addition, the programme seemed to enhance the performance of pupils, their enrolment, and retention, as well as regular school attendance and punctuality. Maijo (2019) and Taylor *et al.,* (2016) did not reveal what students' academic performance was before and after the implementation of SFP.

Chaula (2015) assessed the influence of school feeding programs on the pupil's enrolment, attendance and academic performance in primary schools in Njombe District, Tanzania. The study found that SFP had increased the enrolment of pupils, attendance and their academic performance. However, the study did not reveal the examination scores of students before and after the implementation of SFP, the extent of class activeness among students before and after eating as well as the extent of class participation among students before and after eating.

In another study, Ramadhani (2014) examined the effectiveness of SFP on school enrolment, attendance and academic performance in primary schools in Singida District, Tanzania. Likewise, Shafi (2021) examined the roles of parents in school-based feeding programmes in secondary schools in Namtumbo District in Tanzania. The findings show that parents were motivated to be part of the programme because they wanted their children to improve academically through improving attendance. The findings of these studies (i.e. Chima, Ramdathani (2014; Shafi, 2021) indicated that the SFP contributed to school enrolment and attendance.

Drawing from the above, studies were conducted within and outside Tanzania and such as Shafi (2021) Chaula (2015, Maijo (2019) and Ramadhani (2014) indicated that the implementation of SFP has contributed to increased students attendance, performance and enrolment rate, reduced dropouts and absenteeism, retained students to school as well as improving the health of students. However, these studies did not incorporate drought-prone areas. Therefore, the current study extends the previous studies by assessing SFPs in public secondary schools in drought-prone areas of Shinyanga Municipal Council.

4. Methodology

The study was carried out in the Shinyanga Municipal Council, which is located in the Shinyanga Region of Tanzania. Shinyanga Municipal Council was selected as the study area because it is among the regions in Tanzania which implement school feeding programmes. Five secondary schools located in Shinyanga Municipal Council were selected, namely, Ibinzamata, Ndala, Kolandoto, Uhuru, and Mwasele. These schools were selected because they were close to each other, something which simplified data collection. This study used mixed research approaches during the collection of information, which were the qualitative approach and the quantitative approach. A mixed approach was used to ensure that data are collected using a variety of data collection tools. The mixed approach was further preferred because it increases the validity of the results.

The research design used in the study was a concurrent/convergent research design. This was used by employing a quantitative data collection method (interview) and a quantitative data collection method (questionnaire) at the same time. The design was used in the study to balance

qualitative and quantitative data. Another reason is that the design increased the accuracy of the operationalization and measurement of variables as well as the capacity of generating detailed information from the respondents. The study population comprised teachers and headmasters of selected secondary schools, Education Officers and students of the selected secondary schools.

Simple random and purposive sampling techniques were used in selecting the respondents. A simple random sampling technique was used in selecting 234 students from selected secondary schools. The technique involved assigning papers to students containing numbers. The researcher gave all students with even numbers the questionnaire papers. This was meant to ensure equity in participation and reduction of bias during the selection of respondents. A purposive sampling technique was used in selecting 10 teachers and 6 Education Officers. The technique was used by visiting participants in their offices. The technique was used because it led to the selection of participants who assisted in meeting the objectives of the study. The sample size of this study was 250 respondents. Data were collected through questionnaires and interviews. Questionnaires were distributed to 240 from four students from selected secondary schools. However, only 234 were processed and six (6) questionnaires were not processed as they were not filled in correctly. Interviews were conducted with one (1) Municipal Secondary Education Officer (P1) and five (5) Ward Secondary Education Officers (P2-P6) and ten (10) teachers (P7-P16).

Descriptive analysis was used in analysing the demographic characteristics of respondents as well as responses on the academic performance of students before and after the introduction of SFP. Inferential statistics were used in showing the relationship between the independent variable (school feeding programme) over the dependent variable (students' performance). Qualitative analysis was carried out with a word-based technique. Quoted sentences were used in presenting data from interviews. The validity of the study was ensured through the application of the triangulation method while reliability was ensured through pre-testing of data collection tools. Ethical issues which were adhered to in this study included informed consent, confidentiality and privacy of information.

5. Results

5.1 Response rate

The response rate of the study was 72.2 per cent for Form Four students who were provided with questionnaires. This is because out of 234 students provided with questionnaires, only 169 students submitted the duly filled-in questionnaires. As Gibson (2018) observes, any rate of 50 per cent and above is sufficient and good to conclude the study. Therefore, the 72.2 per cent response rate for this study was excellent for the provision of reliable information. The response rate for other participants of the study was 100 per cent.

Table 1: Response Rate

	Responses rates		Non-response rates	
	Frequency	Percentage	Frequency	Percentage
Students	234	72.2%	65%	27.8%
Teachers	10	100%	0	0
WEDO	5	100%	0	0
MSEO	1	100%	0	0

Source: Field data

5.2 Academic performance before and After SPF

5.2.1 Class attendance before and after eating lunch

Respondents were required to comment on their levels of attendance in class before and after eating. The findings in Table 2 show that before eating lunch, some of the respondents (46%) selected low while after eating lunch, the majority (58%) of the respondents selected low. The findings show that class attendance among students was low before but higher after eating lunch.

5.2.2 Activeness in class before and after eating lunch

Respondents were required to comment on their activeness in class before and after eating. The findings in Table 3 show that before eating lunch, the majority (47%) of the respondents reported being less active, while after eating lunch the majority (59%) of the respondents reported being actively engaged.

Table 2 Class attendance before and after eating lunch

Attendance Before eating			Attendance After eating		
	Frequency	Percentage		Frequency	Percentage
Very high	19	11	Very high	45	27

High	42	25	High	99	58
Moderate	20	12	Moderate	15	9
Low	78	46	Low	8	5
Very low	10	6	Very low	2	1
Total	**169**	**100**	**Total**	**169**	**100**

Source: Field data, 2022

The findings show that the activeness of students before eating lunch was low as compared to after eating lunch. This implies that the performance of students before SFP was low as compared to after eating lunch.

Table 3 Activeness in class before and after eating lunch

Activeness Before eating			Activeness After eating		
	Frequency	Percentage		Frequency	Percentage
Very Active	15	9	Very Active	50	29
Active	37	22	Active	100	59
Moderate	25	15	Moderate	4	2
Low Active	80	47	Less Active	10	6
Very less Active	12	7	Very less active	5	3
Total	**169**	**100**	**Total**	**169**	**100**

Source: Field data, 2022

5.2.3 Participation in class before and after eating lunch

Respondents were required to comment on their levels of class participation before and after eating. The findings in Table 4 show that before eating lunch, the majority (51%) of the respondents reported having a low level of participation while after eating lunch, the majority (61%) of the respondents reported having a high level of participation. The findings show that the participation of students in class before eating lunch was low before SFP as compared to after SFP. This implies that the academic performance of students before SFP is likely to be low as compared to after SFP due to increased participation of students in class.

Table 4: Participation in class before and after eating lunch

Participation Before eating			Participation After eating		
	Frequency	Percentage		Frequency	Percentage

Very high	12	7	Very high	46	27
High	41	24	High	103	61
Moderate	16	9	Moderate	10	9
Low	87	51	Low	8	5
Very low	13	8	Very low	2	1
Total	**169**	**100**	**Total**	**169**	**100**

Source: Field data, 2022

5.2.4 Scores in end-of-term examination

Respondents were required to comment on their average scores in end-of-term examinations. The findings show that 22 (13%) students scored an A, 69 (41%) students scored a B, 64 (38%) students scored a C, 9 (5%) students scored a D and 8(4%) students scored an F. The findings show that the average scores of students in end-of-term examinations were higher as most of them scored a B and a C after the introduction of SFPs.

Table 5: Scores in end-of-term examination

Scores		
Category	Frequency	Percentage
A	22	13
B	69	41
C	64	38
D	9	5
F	8	4
Total	**169**	**100**

Source: Field data, 2022

A similar observation was noted by the other participants. During interviews with academic masters, Participant 8 had this to say,

> Comparing the performance in examinations for both Form Two and Form Four students for the two periods, there is a difference. The performance before implementing the school feeding programme was low as compared to after the programme. Before introducing the program, it was difficult to find students attending evening classes as part of preparations for mock examinations. However, after starting eating at school, they were able to increase concentration, and seriousness and attended much in evening classes of preparations, something which led to improvement in their performance. (P8, 9th June 2022).

The above quotation shows that the performances of students before the implementation of the school feeding programme were lower than was the case after the implementation of the school feeding programme. This implies that the implementation of the programme contributed to the improvement in the performance of students. Also, during interviews with Headmasters of the selected secondary schools, participant 10 had this to say,

> Our school has succeeded in pushing forward the performance in examinations after introducing the school feeding programme. Even though the program is associated with some challenges, it has made a difference as compared to the previous years as our students were not performing well in examinations. (P1, 8th June 2022).

Based on these explanations, it can be concluded that the performance of students before the implementation of SFP was low as compared to after the implementation of the program.

5.3 The relationship between school feeding programme and academic performance

Correlation and regression were performed to examine the existing relationship between the variables of the relationship study.

Table 6: Correlation between school feeding programme and academic performance

Variable		School feeding programme	Academic performance
School feeding programme	Pearson Correlation	1	
	Sig. (2-tailed)		
Academic performance	Pearson Correlation	.478	1
	Sig. (2-tailed)	.000	

Correlation is significant at the 0.05 level (2-tailed)

The following null hypothesis was tested;

Ho1: There is no significant positive relationship between school feeding programmes and academic performance

The model summary in Table 7 shows that the school feeding programme had significant explanatory power on students' academic performance since it accounted for 37.4 per cent with

the coefficient of determination R^2 = .374 and R = 612 at a significant level of 0.05. The results imply that 37.4 per cent of academic performance is contributed by the school feeding programme while 62.6 per cent of academic performance is contributed by other factors which were not considered in this study.

Table 7: Model Summary for SFP and Students' academic performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.612[a]	.374	.364	.81672

a. Predictors: (Constant), School feeding programme

The goodness of fit test in Table 8 shows that the model was a good predictor of students' academic performance, F (1, 112.342) =114.869, p=.000

Table 8: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	112.342	1	112.342	114.869	.000[b]
	Residual	164.335	168	.978		
	Total	276.677	169			

a. Dependent Variable: students' academic performance
b. Predictors: (Constant), School feeding programme

The aggregate mean scores of schools' feeding programs (independent variable) were regressed on the aggregate mean score of students' academic performance (dependent variable) and the findings are presented in Table 9. To establish the influence of SFP on students' academic performance the study had the following null hypothesis;

> Ho1: There is no significant positive relationship between SFP and students' academic performance.

The test of the beta coefficient shows a statistically significant positive linear relationship between the school feeding programme and students' academic performance ($\beta = 0.623$, P-value = 0.000) as shown in Table 9. Hence, *Ho1* is rejected since there is a significant positive linear relationship between school feeding programmes and students' academic performance since $\beta \neq 0$ and P-value < 0.05.

Table 9: Coefficients for SFP and students' academic performance.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.113	.231		.490	.625
	School feeding programme	.623	.071	.634	12.412	.000

a. Dependent Variable: students' academic performance

6. Discussion

6.1 Academic performance before and After SFP

The findings have revealed that the academic performance of students after the introduction of SFPs was higher than was the case before the introduction of SFPs. This is because class attendance among students was low before eating lunch but it was higher after eating lunch. The SFP program increased class attendance among students which implies increased performance of students considering that they (students) learned more and obtained enough materials for their examinations. Literature provides that an effective teaching-learning process depends on the availability of basic needs for students (Llego, 2022; Shah, 2022: Maslow, 1943). Food is one of the fundamental basic needs for students (Llego, 2022; Keminske, 2022). Accordingly, most SFPs aim at providing food to students to motivate students to attend classes and increase enrolment rates which eventually positively affect their academic performance (Shah, 2022; Breath of the Spirit Ministries, 2022).

Similar findings are reported in a study by Maijo (2019) who revealed that students' scores before the implementation of SFP were low as compared to scores after the implementation of SFP. Also, the activeness of students before eating lunch was low as compared to the same after eating lunch. Increased activeness of students after SFP compared to before SFP in classes is likely to lead to improvement in students' performance. These findings are in line with Maslow's Theory of Hierarchy of needs. One of the needs is physiological needs which include food. Hence, providing students with food leads to satisfaction among students and thus increased activeness in classes.

Furthermore, the participation of students in the class was higher after eating compared to before eating. This implies that the introduction of SFP made students participate more in a class by answering questions, performing class exercises, and other related issues which are likely to improve students' performance. These findings relate to the findings in a study by Maijo (2019)

who revealed that scores of students before the implementation of SFP were lower was the case after the implementation of SFP. Furthermore, the average scores of students in the end-of-term examinations were higher as most of the students began scoring grades A, B, and C while the number of students who scored grades D and F declined. Therefore, the academic performance of students was influenced by SFP. According to Maslow (1943)'s theory of the hierarchy of needs, there could be no attainment of As and Bs and Cs grades before the launching of SFPs which was the basic students' need that subsequently influenced their performances. Students cannot achieve higher scores while starving during class sessions (Shah,2022).

6.2 The relationship between school feeding programme and academic performance

The study findings revealed that there is a positive relationship between the school feeding programme and students' academic performance in the selected secondary schools. These findings imply that the implementation of the school feeding program has contributed to improvement in the performance of students. These findings are similar to those in a study by Chaula (2015) who revealed that school feeding programmes were associated with the improvement in students' performance. similar findings are also reported in studies by Chima (2020); Maijo (2018); Oganga (2011) on the effects of school SFP on students' enrolment, attendance, and pass rate. The findings showed that all variables (enrolment, attendance, and pass rate) were positively influenced by the availability of SFP. Therefore, the provision of food to students in schools motivated them to perform. The findings of previous studies support the findings of the current study. For example, findings in studies by Taylor et al. (2016) and Onifade (2016) revealed that the introduction of a school feeding programme in the Osun state of Nigeria led to the enhancement of the performance of students. elsewhere, Shafi (2021) confirms that the involvement of parents in SFPs improved performance in secondary schools in Namtumbo District in Tanzania. Shafi's findings reveal that feeding children is the primary role of parents. Therefore, the success of SFPs still depends on parents' cooperation in SFP. The findings of the current study and those of previous studies are in agreement in that after the launching of SFPs students' academic performance was better than was the case before. Findings are also consistent with Maslow's theory of the hierarchy of needs. Students can perform better once their basic needs such as food are met. Effective studying is a cognitive function of a healthy body. In contrast, a starving body is also a starving mind that can hardly learn.

7. Conclusion

The study examined the influence of school feeding programmes and students' academic performance. Specifically, the study determined the academic performance of the students before and after the introduction of SFP and assessed the relationship between the school feeding programme and the academic performance of students. The student's academic performance was higher after the introduction of the school feeding programme (SFP) than was the case before the introduction of SFP. This is because the student's school attendance improved, the level of students' activeness increased after eating and class participation was higher than was the case before eating lunch. This implies that the implementation of school feeding programs has contributed to the improvement in students' academic performance.

8. Recommendations

The findings have revealed that the student's academic performance was higher after the introduction of SFP. This implies that SFP has contributed to the improvement in the student's academic performance. Therefore, there is a need for increasing awareness among parents on the importance of participating in the implementation of SFP and the role they have to play in the overall education matters of their children. Parents' participation will lead to the effective implementation of SFP and finally contribute to the increased students' academic performance in drought-prone areas.

In addition, there is a positive relationship between school feeding programs and the student's academic performance. This implies that effective implementation of SFP may contribute to increasing the academic performance. Therefore, there is a need for increased government support through providing subsidies to families with no ability to contribute to the programme due to climatic hardships. It will lead to the participation of families in implementing school feeding programmes and finally increase the students' academic performance.

9. Limitation and Area for Further Studies

The study was limited to a single area that is, Shinyanga Municipal Council. However, there are many other municipal and district councils in Tanzania which have implemented SFP in public secondary schools. Therefore, there is a need to conduct studies in other municipal and Districts

Councils to determine the influence of SFP on students' academic performance. Since the study was limited to assessing the influence of SFP on students' academic performance, other studies may focus on the effectiveness of SFP in enhancing the academic performance of students.

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