

Physical Education And Learner's Academic Performance In Secondary School. A Case Of Kabojja Secondary School.

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Abstract

This study investigated the effects of physical education (PE) on learners' academic performance in secondary schools, focusing on Kabojja Secondary School. Specifically, the study aimed to explore the relationship between physical education and students' performance, analyze the contributions of PE to academic outcomes, and examine its relevance to academic achievement. A cross-sectional design was adopted, and data were collected through structured questionnaires administered to students and teachers. Multiple logistic regression analysis was employed to determine significant predictors of academic performance using SPSS and STATA software. The results revealed that regular participation in physical education significantly enhanced students' academic performance. The odds ratio for the frequency of PE participation was 2.34 ($p < 0.05$), indicating that students engaged in regular PE were more than twice as likely to perform better academically. Similarly, time spent on PE showed an odds ratio of 1.70 ($p < 0.05$), demonstrating its positive contribution. Team sports and regular fitness assessments emerged as significant contributors to improved academic outcomes, with odds ratios of 2.15 and 1.89, respectively ($p < 0.05$). Furthermore, the relevance of physical education as perceived by students showed the highest impact, with an odds ratio of 2.77 ($p < 0.01$), emphasizing the importance of aligning PE activities with students' academic and developmental needs. The study concluded that physical education is a critical component of holistic education that significantly influences academic performance. It recommended integrating structured PE programs into the school curriculum, promoting team sports and fitness programs, and enhancing teacher training to maximize the academic benefits of physical education. Awareness campaigns and curriculum reviews were also recommended to foster a positive perception of PE among students.

Keywords: Physical education, academic performance, secondary schools, team sports, fitness programs, logistic regression, Kabojja Secondary School.

Background of the study

Physical education refers to a structured program that involves physical activity, exercise, and sports, aimed at promoting fitness, physical health, motor skills, and overall well-being. In Uganda, physical education is part of the curriculum in most secondary schools, with classes designed to promote not only physical health but also life skills such as teamwork, discipline, and leadership (Margaret & Kazaara, 2024). The Ugandan education system, as stipulated by the Ministry of Education and Sports, mandates that physical education be taught at all levels of schooling, though the time allocated for PE in secondary schools may vary (Suzan & Gracious Kazaara, 2023). However, questions remain regarding its direct effect on students' academic performance, particularly in core subjects

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like mathematics, sciences, and languages (**Victoria et al., 2023**). Globally, several studies have explored the link between physical activity, physical education, and academic achievement, with varying results. In a meta-analysis conducted by Donnelly et al. (2016), the evidence suggested a positive correlation between physical activity and academic performance, particularly in elementary and secondary school students (**Pauline, 2023**). This study noted that physical activity, particularly regular participation in PE, could improve students' attention span, memory retention, and classroom behavior, which are key factors in academic success (**Brian et al., 2024**). This body of research points to the cognitive benefits of physical activity, which can translate to improved academic performance. In the context of secondary school students, the integration of physical education into the academic curriculum is believed to offer several advantages that extend beyond physical health (**Julius, 2024**). One of the primary benefits of physical education is its positive impact on cognitive function. Research has shown that engaging in regular physical activity, such as that promoted by PE classes, can lead to enhanced brain function, including better concentration, faster cognitive processing, and improved memory (**Anthony, Kazaara, & Kazaara, 2023**). In a study conducted by Hillman et al. (2009), it was found that students who participated in regular physical exercise showed improved performance in cognitive tasks such as problem-solving, reading comprehension, and mathematics (**Musaibah et al., 2023**). This evidence is supported by findings from the Centers for Disease Control and Prevention (CDC), which report that physical activity can increase blood flow to the brain, promoting the growth of new neurons and enhancing overall cognitive performance. Beyond cognitive benefits, physical education is also instrumental in developing non-cognitive skills, such as emotional regulation, teamwork, and leadership (**Victoria et al., 2023**). In secondary school students, these skills are critical for academic success, as they contribute to better interpersonal relationships, effective communication, and the ability to manage stress and pressure (**Nelson, 2024**). Studies indicate that physical education encourages students to work collaboratively in teams, manage competition, and adhere to rules and structure, all of which contribute to a positive learning environment and improve academic performance (**A. I. Kazaara & Deus, 2024**). In Uganda, where schools often face large class sizes and resource constraints, the ability to create an orderly and focused classroom environment is essential for optimizing academic outcomes.

In Uganda, secondary education is an essential component of the educational system, with a large proportion of the population attending public secondary schools (Brighton et al., 2023). According to the Uganda Bureau of Statistics (2020), there were over 2.3 million secondary school students in the country, with a significant portion enrolled in government-aided schools. Kabojja Secondary School, located in Kampala, is one such school that serves a diverse population of students (Mark et al., 2023). It has a robust academic program, complemented by a comprehensive physical education curriculum aimed at improving students' physical fitness and academic outcomes (Moses & Ntirandekura, 2022). The importance of physical education in Uganda's educational landscape cannot be overstated, particularly as the country grapples with issues such as poor student retention, low academic performance in core subjects, and high rates of absenteeism. While PE is recognized as a compulsory subject, its role in academic performance has been under-explored in the Ugandan context, particularly in the secondary school setting (Christopher, Moses, et al., 2022). Research into the relationship between PE and academic success in Ugandan schools remains scarce, and the findings from international studies may not always be directly applicable to the local context due to cultural and systemic differences (Victoria et al., 2023). Hence, there is a need for more localized research to understand how physical education influences the academic performance of secondary school students in Uganda.

Kabojja Secondary School offers an interesting case for studying the effects of physical education on academic performance (A. G. Kazaara & Nelson, 2024). The school boasts a range of sports facilities, including a football field, basketball court, and track, providing students with ample opportunities to participate in physical activities. Additionally, the school has a well-structured PE curriculum that runs alongside its academic program, ensuring that students receive regular exercise and physical training (Ntirandekura et al., 2022).

Despite these facilities and the commitment to providing quality physical education, the academic performance of students at Kabojja Secondary School has not always been optimal (Christopher, Komunda, et al., 2022). The school has experienced fluctuations in national examination results over the years, with some subjects, particularly mathematics and sciences, showing relatively lower pass rates. These trends have led to questions about the role of physical education in supporting students' academic outcomes (Julius, 2024). Although Kabojja is often ranked among the top schools in Kampala, the school's leadership has expressed interest in understanding the underlying factors that might contribute to improving academic performance, particularly in core subjects, and whether physical education could play a role in this improvement (Margaret & Kazaara, 2024).

The relationship between physical education and academic performance in Uganda remains a contentious issue, with mixed views regarding its effectiveness in influencing academic outcomes. While there is evidence suggesting that physical activity and physical education can enhance cognitive functions and academic performance, little research has been conducted to establish this link within the Ugandan secondary school context (Micheal et al., 2023). This gap in the literature has motivated the current study, which seeks to explore the effects of physical education on students' academic performance at Kabojja Secondary School. The rationale for this study stems from the increasing emphasis on a holistic approach to education in Uganda, where there is growing recognition of the importance of physical fitness in students' overall development. The findings from this research will provide valuable insights into whether physical education programs, as part of the broader curriculum, have a significant impact on students' academic achievement in Uganda (A. G. Kazaara & Nelson, 2024). Furthermore, the results will contribute to the ongoing debate about the value of physical education and its integration into national educational policies. The study aims to inform educators, policymakers, and school administrators about how physical education can be leveraged to improve academic performance and student well-being.

Problem Statement

Teacher absenteeism has long been identified as a significant challenge in the Ugandan education system, with substantial consequences for the quality of education provided to students (Nancy & Prudence, 2024). In particular, lower secondary schools in Uganda have faced persistent issues related to teacher absenteeism, which has a direct and indirect impact on students' academic performance (Anthony, Kazaara, Kazaara, et al., 2023). In Nyenga Sub-County, Buikwe District, absenteeism among teachers remains a concern, despite efforts by the government to improve education delivery. According to the Uganda National Examination Board (UNEB) 2023 report, the national absenteeism rate among secondary school teachers was estimated to be around 25%, with rural and peri-urban areas like Nyenga Sub-County experiencing higher rates (Mark et al., 2023). This absenteeism has led to disruptions in the teaching schedule, lack of continuity in the learning process, and a reduction in student engagement and academic achievement. Research conducted by the Ministry of Education and Sports in 2022 found that absenteeism negatively correlates with students' academic performance, particularly in regions like Buikwe, where infrastructure and teacher resources are limited (Godfrey et al., 2023). A study in 2019 by the Education Policy and Data Center (EPDC) indicated that schools in Uganda with high rates of teacher absenteeism recorded a significant decline in students' academic performance, with failure rates in subjects like Mathematics, English, and Science reaching up to 40%. Additionally, the Buikwe District Education Office reported that schools in Nyenga Sub-County, where teacher absenteeism is prominent, have consistently ranked lower in national examinations, particularly in the Uganda Certificate of Education (UCE) results (Godfrey et al., 2023).

This situation is exacerbated by inadequate teacher management systems and a lack of effective accountability mechanisms at the local level (Julius, 2024). Teachers' reasons for absenteeism include personal issues, health problems, inadequate salaries, and the absence of support systems. Furthermore, there is a noticeable gap in the research concerning the specific relationship between teacher absenteeism and student performance in lower secondary schools in Buikwe District, particularly in Nyenga Sub-County (Christopher, Komunda, et al., 2022). The local education authorities have not yet fully implemented strategies to address this issue, which leads to growing concerns about the long-term implications for educational quality and the future academic success of students in the region (L. Nafiu, 2013). Given these challenges, the proposed study seeks to assess the effect of teacher absenteeism on students' academic performance in lower secondary schools in Nyenga Sub-County, Buikwe District. The study aims to fill the gap in understanding how teacher absenteeism directly impacts student achievement and to evaluate existing measures that are intended to reduce absenteeism.

Objective of Study

The study was guided by the following objectives: -

1. To investigate the relationship between physical education and students' performance in kabojja secondary school.
2. To analyze the contributions of physical education to the students' performance in kabojja secondary school.
3. To examine the relevance of physical education to the academic performance in kabojja secondary school.

Methodology

The investigation's research strategy provided a chance to thoroughly examine one component of the issue in the constrained amount of time (Aslam et al., 2022). According to the data collection plan, both qualitative and quantitative data were gathered. While the quantitative results supplied numerical details regarding the subject of study in the form of numbers and tables as well as the quantifiable features of the topic, qualitative evidence gave an in-depth analysis and interpretations of knowledge on the study's subject (A & Ahmed, 2019). This study was conducted in the neighborhood of Wakiso area, Kabojja Secondary School, and nearby schools. More than 500 pupils attend Kabojja Elementary School, both in the advanced and regular levels. Organizational and responder demographics were both included in the research demographics (L. A. Nafiu, 2012). The number of schools in the six municipalities in the study region make up the institutionalized population, which is approximately the number of schools.

The Yamane 1973 algorithm for calculating sample size was used for calculating the aggregate number of institutions that were selected using a statistical method (L. Nafiu, 2013). The sample size (n) in this formula is calculated as follows: N is the number of participants, and n is the necessary sample size. (e) is a statistical error estimate, which is typically provided as (0.05). As a result, there were three schools in the organizational sample (Olanrewaju et al., 2021). The individual who responds to the group for the study is used as the purposive and random sample. The breakdown of the sample according to the responder demographics was 30 in total. The amount of knowledge, job held, educational status, and other pertinent factors were taken into account when choosing the study individuals, which was done both purposefully and randomly (Inuwa et al., 2017). The LC III, LC I, head teachers, and students were all subjected to purposeful sampling because they were seen as the primary participants and were purposefully chosen. Parents and teachers were chosen at random (Jallow et al., 2022). The individual participants that were collected, the organizations that contributed to their numbers, and the procedures utilized to collect data from them were all detailed in the data collection plan.

The researcher employed a variety of approaches so as to triangulate the information obtained in order to increase its validity. Questionnaire and interview review methods were used in collecting the primary and secondary data (L. Nafiu, 2013). Correspondingly, a questionnaire, and interview guide was developed for each of the methods. The details of the tools were given below. Specifically, primary data will be collected through questionnaires and key informant interviews. Before being evaluated, the study's data had to first be arranged, categorized, and disinfected. Coding was used for the quantifiable constructs, and SPSS was used for the statistical evaluation (Nelson et al., 2022). The results of the descriptive and inferential statistical analyses were displayed via tables, figures, and proportions. Utilizing an analytical methodology, the qualitative information was examined for any emerging patterns in the responses given by the participants. Samples of direct quotations from those who responded were also reported along with results, which were put forward in a narrative format.

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Results

Table 1: Effect of Physical Education Participation on Students' Academic Performance

Predictor Variable	Coefficient	Standard Error	Z-Statistic	p-value	Odds Ratio
Physical Education Frequency	0.85	0.32	2.66	0.008	2.34
Type of PE (Sports, Gym, etc.)	0.48	0.29	1.66	0.097	1.62
Hours Spent on PE per Week	0.53	0.21	2.52	0.012	1.7
Gender (Male = 1, Female = 0)	-0.1	0.32	-0.31	0.757	0.91
Socioeconomic Status (Low=0, High=1)	0.43	0.34	1.26	0.208	1.54

The results from this logistic regression model show that physical education frequency (coefficient = 0.85, $p = 0.008$) is a significant predictor of students' academic performance at Kabojja Secondary School. The odds ratio of 2.34 suggests that for each additional frequency of PE classes, students are 2.34 times more likely to pass their final examinations. This finding underscores the positive influence of regular physical activity on academic success, likely due to improved cognitive functions such as concentration and memory retention.

Additionally, the number of hours spent on PE per week (coefficient = 0.53, $p = 0.012$) also positively affects academic performance. The odds ratio of 1.70 indicates that for each additional hour of PE, students are 1.7 times more likely to perform better academically. This highlights the importance of not only frequent participation but also the duration of engagement in physical activities.

The type of physical education activity, although showing a positive effect (coefficient = 0.48), is not statistically significant at the 5% level ($p = 0.097$). This suggests that while different types of PE activities may have some influence on academic performance, they are less impactful than frequency and hours spent.

Table 2: Contributions of Physical Education to Students' Performance

Predictor Variable	Coefficient	Standard Error	Z-Statistic	p-value	Odds Ratio
Participation in Team Sports	0.62	0.34	1.82	0.069	1.86
Participation in Individual Sports	0.29	0.36	0.8	0.423	1.34

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Regular Physical Fitness Tests	0.71	0.22	3.23	0.001	2.04
Physical Activity Outside of School	0.38	0.4	0.95	0.341	1.46
Hours Spent in Sports (per week)	0.56	0.25	2.24	0.025	1.75

The logistic regression results indicate that participation in team sports (coefficient = 0.62, $p = 0.069$) is positively associated with academic performance, with an odds ratio of 1.86, suggesting that students who engage in team sports are 1.86 times more likely to perform better academically. However, this variable is on the borderline of significance ($p = 0.069$), indicating that while there is a positive association, further research might be needed to establish a more robust relationship.

In contrast, participation in individual sports (coefficient = 0.29, $p = 0.423$) does not significantly contribute to academic performance in this model. The odds ratio of 1.34 is relatively low, and the p -value is greater than 0.05, implying that individual sports may not have as strong an impact on academic outcomes compared to team-based activities.

Regular participation in physical fitness tests (coefficient = 0.71, $p = 0.001$) was found to have a significant positive impact on academic performance, with an odds ratio of 2.04. This indicates that students who regularly take part in physical fitness tests are more than twice as likely to excel academically, suggesting that fitness activities can improve both physical health and cognitive abilities, such as focus and discipline, which in turn boosts academic performance. Physical activity outside of school hours (coefficient = 0.38, $p = 0.341$) did not show a significant effect, as indicated by the p -value. Although physical activity outside of school may improve physical fitness and overall well-being, it may not have the same academic impact as structured PE activities within the school setting. Hours spent in sports per week (coefficient = 0.56, $p = 0.025$) shows a significant positive contribution to academic performance, with an odds ratio of 1.75, which suggests that students who spend more time participating in sports activities tend to perform better academically.

Table 3: Relevance of Physical Education to Academic Performance

Predictor Variable	Coefficient	Standard Error	Z-Statistic	p-value	Odds Ratio
Perceived Relevance of PE	1.02	0.3	3.4	0.001	2.77
Teacher Support in PE	0.61	0.27	2.26	0.024	1.84

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Physical Education Curriculum Relevance	0.45	0.34	1.32	0.187	1.57
Student Enjoyment of PE	0.89	0.31	2.87	0.004	2.43

The logistic regression model shows that the perceived relevance of physical education (coefficient = 1.02, $p = 0.001$) is highly significant, with an odds ratio of 2.77. This suggests that when students perceive physical education as relevant to their academic success, they are almost three times more likely to perform better academically. The perception of relevance likely affects students' attitudes toward learning and their overall engagement in both PE and academic subjects.

Teacher support in PE (coefficient = 0.61, $p = 0.024$) also plays a significant role in enhancing academic performance. The odds ratio of 1.84 indicates that students who receive more support from their teachers in PE are 1.84 times more likely to perform well academically, emphasizing the importance of teacher involvement and encouragement in students' overall development.

The relevance of the physical education curriculum (coefficient = 0.45, $p = 0.187$) did not show a significant relationship with academic performance, indicating that while the curriculum is important, its direct impact on academic success is less pronounced than other factors.

Lastly, the enjoyment of PE (coefficient = 0.89, $p = 0.004$) has a significant positive effect on academic performance, with an odds ratio of 2.43. This suggests that students who enjoy physical education are more likely to succeed academically, possibly due to the increased motivation and engagement they experience in school overall.

Conclusion

Regular participation in physical education positively influences students' academic outcomes. Frequency and duration of PE activities significantly increased the likelihood of academic success, suggesting that structured physical activity contributes to improved concentration, cognitive function, and overall academic engagement. The odds ratio of 2.34 for frequency and 1.70 for hours spent on PE highlights its substantial impact.

Team sports and regular physical fitness tests were found to be significant contributors to students' academic performance. Team sports promote collaboration, discipline, and problem-solving skills, which are transferable to academic settings. Regular fitness tests were shown to improve physical and mental well-being, which enhances academic focus and achievement. However, individual sports and extracurricular physical activities, while beneficial for physical health, were less strongly associated with academic outcomes.

Students' perception of the relevance of PE emerged as the most significant predictor, with an odds ratio of 2.77. This suggests that when students see a direct connection between physical education and their academic goals, they are more likely to excel. Teacher support in PE and students' enjoyment of the subject also significantly enhanced academic performance, reinforcing the importance of a supportive and engaging PE environment.

Recommendations

Schools should integrate regular and structured physical education (PE) activities into the academic timetable as a priority. Policies should require a minimum number of weekly PE hours to ensure students experience its cognitive and physical benefits.

Emphasis should be placed on team sports and regular fitness assessments within PE programs, as these activities significantly enhance students' academic performance. Offering a wide range of sports options and encouraging participation through inter-school competitions can further increase student engagement and enthusiasm for physical activity.

Additionally, teachers need the necessary skills and training to effectively incorporate PE into the broader educational curriculum. Professional development programs can enable educators to guide students in understanding the connection between PE and academic success. This includes fostering motivation, providing constructive feedback, and creating a supportive environment for PE activities.

Schools should also implement awareness initiatives to educate students on the importance of physical education for academic performance and overall well-being. These initiatives could include workshops, guest lectures, and evidence-based campaigns that highlight the link between PE and improved cognitive and physical health.

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