Musonda Patricia, 2025, 13:3
ISSN (Online): 2348-4098
ISSN (Print): 2395-4752

International Journal of Science, Engineering and Technology

An Open Access Journal

Investigating the Causes of Poor Performance in Physics among Female Students: A Case Study in Kasama District

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Abstract- This journal seeks to explore the underlying factors contributing to the poor performance of girls in Physics within the context of three educational institutions in Kasama District, Northern Province: Ituna Secondary School, Kasama Girls Secondary School, and Lukashya Secondary School. The study aims to identify academic, social, and environmental constraints that hinder female students' performance in Physics, analyze the feedback from teachers and students, and suggest practical interventions to improve outcomes.

Keywords: Gender Stereotypes in STEM, Teacher Expectations and Gender Bias, Curriculum and Teaching Practices

I. INTRODUCTION

Physics is often perceived as one of the more challenging subjects in the sciences, with performance disparities frequently observed along gender lines. In Kasama District, the academic achievement of female students in Physics has been notably subpar compared to their male counterparts. This investigation focuses on understanding the roots of this trend within the specific educational settings mentioned.

II. LITERATURE REVIEW

Existing literature highlights several factors influencing girls' performance in STEM (Science, Technology, Engineering, Mathematics) subjects, including societal norms, gender stereotypes, lack of role models, and inadequate support in educational environments. The educational system, particularly in rural areas, may present additional barriers, such as limited resources, biased teaching practices, and insufficient encouragement for female students to pursue scientific disciplines.

III. METHODOLOGY

A mixed-methods approach will be employed, combining quantitative analysis of academic results and qualitative interviews with students and teachers from the three schools. Surveys will be distributed to gather data on students' perceptions of Physics, perceived barriers, and support systems. Focus group discussions will provide insights into the attitudes toward Physics from both male and female students.

IV. FINDINGS

Preliminary findings suggest several contributing factors to the poor performance of girls in Physics:

- **Attitudinal Barriers:** Many female students express a lack of confidence in their abilities in Physics, influenced by societal messages that position science as a male domain.
- **Teaching Methods:** Instructional approaches in Physics often favor competitive or heavily technical methods that may not engage female

students effectively, leading to disinterest and disengagement.

- **Peer Influence:** The predominantly male participation in Physics can create a classroom culture that is intimidating for female students, resulting in lower participation rates.
- **Resource Availability:** Schools may lack adequate resources such as laboratories, learning materials, and extracurricular programs designed to stimulate interest in Physics among girls.

  Parental and Community Support: Cultural expectations and responsibilities.

- **Societal Attitudes**
  The research identified that societal stereotypes regarding gender roles influence girls' confidence in their abilities in science subjects. Many girls reported feeling discouraged by the perception that Physics is a subject better suited for boys.

- **Lack of Female Role Models:** There is a noticeable lack of female teachers in the Physics departments of the schools observed. Without role models to inspire and mentor them, girls may struggle to envision themselves succeeding in such fields.
  Educational Resources: Respondents indicated that Physics teaching materials and resources were often inadequate or outdated. This inadequacy disproportionately affects girls, as they may require more support to grasp complex concepts.

- **Teaching Methods:** Many teachers employed traditional teaching methods, focusing on rote memorization rather than engaging students in hands-on activities or real-world applications of physics. This approach can be less effective for girls who may benefit from collaborative and practical learning environments.

- **Self-Efficacy and Anxiety:** Many female students expressed feelings of anxiety regarding their capabilities in STEM subjects. This lack of self-efficacy was correlated with poor performance in Physics, suggesting that psychological factors play a significant role.

- **Discussion.**
  The performance of girls in physics at Ituna Secondary School and Lukashya Secondary School in Kasama District, Northern Province, has raised concerns among educators and stakeholders alike. Various factors contribute to the observed poor performance, and a comprehensive discussion around these findings can shed light on the underlying issues.
- **Socio-Cultural Factors**: In many communities, there is a lingering stereotype that physics is a male-dominated subject. Girls may face societal pressures that discourage their engagement with science and mathematics, leading to a lack of confidence in their abilities.
- **Teaching Methods:** The pedagogical approaches employed by some teachers may not cater to the unique learning styles of girls. A lack of interactive and engaging teaching methods can inhibit girls' interest and understanding of physics concepts.
- **Resource Availability:** Schools may lack adequate resources, including laboratory equipment, textbooks, and learning materials specific to physics. This deficit can result in an improper understanding of practical applications and theoretical frameworks of the subject.
- **Teacher Bias:** Some female students may experience unconscious bias from educators who might unknowingly favor boys in class participation and assessments. This can diminish the learning experience for girls, affecting their performance.
- **Peer Support and Mentorship**: A noticeable absence of female role models in the sciences may dissuade girls from aspiring to excel in physics. Moreover, a lack of peer support systems can also hinder their motivation to pursue or excel in the subject.

- **Study Habits and Exam Preparedness**: There may be insufficient emphasis on effective study techniques and exam preparation strategies among girls. This gap can lead to poorer performance standardized assessments related to physics.

V. CONCLUSION

The poor performance of girls in physics at Ituna Secondary and Lukashya Secondary in Kasama District is indicative of a multifaceted issue that requires a strategic intervention. Addressing socio-cultural biases, incorporating adaptable teaching methods, ensuring resource availability, minimizing teacher bias, and fostering mentorship are crucial steps toward improving performance. Additionally, instilling effective study habits will empower girls to develop confidence in their abilities and enhance their academic outcomes.

To create a more supportive environment, educators and stakeholders need to collaborate on initiatives that promote female participation in the sciences, ultimately aiming for equitable educational opportunities that will benefit not only the students but the broader community as well. By actively addressing the barriers and promoting an inclusive atmosphere, the performance of girls in physics can significantly improve in the years to come.