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INFLUENCE OF PARENTS SCIENCE BACKGROUND ON PUPILS ACADEMIC PERFORMANCE IN BASIC SCIENCE IN ILORIN WEST LOCAL GOVERNMENT AREA OF KWARA STATE

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Abstract

The study examined Influence of parents' science background on the academic performance of pupils in basic science in Ilorin west Kwara State. The research design adopted for the study is descriptive survey design. The researcher selected 20 public and private primary schools. Five pupils and five parents each were selected from the 20 public and private primary schools in Ilorin West Local Government Area Kwara State. Therefore, the sample size consists of 200 parents and 200 primary five pupils. The researcher developed two instruments titled Parent Science Background Questionnaire (PSBQ) and Achievement Test (BSPT). Two instruments were used to elicit data from the respondents. One research question and one hypothesis guided the study. The instrument was given to experts in basic science for validation and the instrument was subjected to reliability using test-retest method. Pearson Product Moment Correlation of Co-efficiency (PPMC) was used to obtain reliability index r=0.79 and 0.80 respectively. Inferential statistics of Linear Regression was used to analyse the hypothesis one at 0.05 level of significance. The result of the study revealed that there was no significant influence of Parents' science background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State. Based on the findings, it was concluded that there was no significant influence of Parents' science background on pupils' academic performance in Basic Science. Based on the conclusion, it was therefore recommended that; the government should ensure sensitize the parents, guidance, and general public to encourage their wards/ children on importance of science.
Keywords: Parents Science Background, Academic Performance and Basic Science

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INTRODUCTION

Technology and globalization have brought about rapid economic growth and a transformation of everyday life in the past few decades. As a result, countries and school systems across the globe have started to emphasize the fundamental role that science education plays in technological development and global economic competition and have called for reforms in science education.

Binwal (2020) examined the problems in studying basic science among adolescent pupils of 9th grade. This study covered 100 students from the different government schools of Almora and nearby places of Almora city in Uttarakhand. The principal reasons why Nigerian Government emphasizes Basic science teaching in Nigerian Schools as stated in the Federal Ministry of Education (2013), is to develop interest in Basic science and Technology, to make students to apply their basic knowledge and skills in basic science and technology to meet the Societal needs, and to make students take advantage of the numerous career opportunities offered by the study of basic science and technology.

The widely-discussed and pressing issues of environmental pollution and climate change are examples of socio-scientific concerns that require an engagement with and understanding of science in order to find solutions (Boon, 2012). As stressed more generally by top United Nations officials at a 2013 United Nation forum, innovations in science and technology would be imperative for overcoming today's global challenges such as poverty alleviation and sustainable development (United Nations, 2013). Adewale (2016) concluded that students' poor performance in Biology in Senior Secondary Certificate Examination is attributed to students' poor knowledge of Basic Science.

It was found that students refused to opt for the science stream due to factors such as lack of budget and technology, lack of guidance from adults who are knowledgeable and involved in the field of science-related careers, psychological restraints whereby students believe that the field of science is difficult (Kier, Blanchard, Osborne, &Albert, 2014; White & Harrison, 2012), To revive pupils interest toward science and to address the negative perception toward science, respective stakeholders need to take necessary actions and play their roles within their authority. Thus, the roles of parents are also deemed crucial to complement the formal efforts of educational institutions. The support of parents in the academic field has the ability to increase the self-efficacy, attitude, and a strong expected outcome toward the science subject and careers in the future (Buday, Stake, & Peterson, 2012; Lent, Brown, & Hackett, 2000; Nugent et al., 2015; Rice, Barth, Guadagno, Smith, & McCallum, 2013). Parents' support influences their children's education development because parents not only have influence in allowing their children to choose science courses in school but also the family history will influence the tendency of the students in choosing certain field or courses (Yahya & Ismail, 2011) Parents who are successful in influencing their children's career choices are those who have sufficient information, share that information with their children, and help their children in the process of making proper career and courses decisions (Lukas, 2015).

Boon (2012) examined the effect of these parents' attitudes on parental support of science study for their children. However, her study did not address whether parental attitudes could affect their children's science achievement. DeWitt et al. (2013) found that students who reported to have parents with more positive attitudes towards science tended to have higher educational and occupational science aspirations.

Basic science allowed children to gather essential knowledge in science for the understanding of more complex and abstract concepts in life. It is necessary to lay a solid foundation in basic science to form ideas based on scientific reasoning. Basic science serves as a foundation that lay scientific knowledge to students which will be used in their later lives and the experience gained in basic science will guide them to become scientifically literate, (Na'Allah, 2016). Singh and Mahajan (2021) said a family is a unit of society that defines the future and personality of a child. It also provides a solid foundation to make them productive members of society. Parental involvement and support in children's learning will encourage the student to build self-confidence, active and remain focused on their education. Yunus and Hamza (2016) explained that parents are expected to encourage and guide their children to become well-accomplished people. Ugunlade (2007) research aimed to explore the disparities in academic performance among secondary school students coming from environments with varying literacy levels. The findings indicated that students hailing from homes where literacy was present performed better academically compared to their counterparts from homes lacking literacy.

Ahmad (2013) suggested that children from families where parents have less education tends to perform systematically worse in school than pupils whose parents have more education. To him, educated parents provide intellectual, economical, psychological and emotional support to their children who in turn make them to be more comfortable and adjusted to their learning development, and this result in high academic performance. Ahmad et al. (2013), stated that a parent with an educational background would be in good position to be second teachers to their children. Guiding and counseling the child on the most effective methods to excel in education, as well as providing the necessary materials required by the child, are essential steps.

Ahmad and Naeema (2013) suggested that children from families where parents have less education tends to perform systematically worse in school than students whose parents have more education. To him, educated parents provide intellectual, economical, psychological and emotional support to their children who in turn make them to be more comfortable and adjusted to their learning development, and this result in high academic performance. The role that

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parents play in the upbringing of a child is very important. Children look up-to their parents for guidance, protection and motivation to live a great life. One of the best ways to achieve wholesome qualities of education is the partnership of parents and teachers in injecting valuable skills, conduct, and knowledge to the students (John, 2014). According to Bell (2002), parents devote a lot of resources to their children education because they believe that good academic performance will provide a stable future for them. Also, Wilkins (2001) opined that many educational authorities have sought to find out reasons for the downward trend in the academic performance of secondary school students. One of the variables that can influence the outcome of the results is parents' gender

Other causes of poor performance in science related subject among schools pupils include misconception of the subjects (mathematics) as difficult one, fear and anxiety. Attwood, (2014) attributed poor performance in mathematics to parental attitude, interrupted teaching, poor teaching and dyscalculia. Karue and Amukowa, (2013) pointed out that lack of meaningful library and laboratory, qualified teachers, home environmental factors and family backgrounds as well as little participation of parents in the education of their children as the main causes of poor performance in mathematics in Kenya certificate of secondary examination in Embu Distriuct in Kenya. Literature as shown that parent factor may be responsible for children performance in basic science, in this research, the researcher is interested in parent science background.

Parents' science background" refers to the educational and professional experiences within the realm of science that parents possess. It encompasses their academic qualifications, such as obtaining bachelor's, master's, or doctoral degrees in scientific fields like physics, chemistry, biology, engineering, or related disciplines. Additionally, it considers any professional experience or employment in scientific roles or industries (Smith & Johnson, 2022). This background significantly influences parents' knowledge, skills, and perspectives in scientific subjects, encompassing their understanding of scientific principles, proficiency in engaging with scientific concepts, and awareness of current developments in scientific fields (Jones et al., 2023)

Researchers often examine the impact of parents' science background on various aspects of parenting, education, and children's development. For instance, studies explore how parents' scientific knowledge and involvement in science-related activities at home contribute to their children's interest and success in science subjects at school.In academic discussions, the term "parents' science background" is employed to denote a comprehensive understanding of the educational and professional experiences of parents in scientific disciplines. This understanding plays a pivotal role in investigating the influence of parental science background on children's academic achievement in science-related subjects (Miller& Smith, 2020).

Research on the influence of parents' science background on pupils' academic performance in basic science has identified several gaps. These include a need for more longitudinal studies, exploration of specific science disciplines' impacts, consideration of contextual factors, understanding parental involvement mechanisms, addressing the needs of diverse learners, examining interrelation and incorporating digital and technological influences. Additionally, there is a gap in investigating the role of teacher-parent partnerships in enhancing the positive impact of parents' science background on pupils' academic success. Closing these gaps could lead to a more comprehensive understanding and improved educational strategies.

Statement of the Problem

The challenge of academic underachievement among young school graduates is a pressing concern acknowledged by both the government and stakeholders. A consensus exists regarding the deteriorating standard of education, posing a significant obstacle to Nigeria's future in terms of quality manpower resources. Factors contributing to pupils' reluctance to pursue science-related courses include financial constraints, lack of technological resources, insufficient guidance from knowledgeable adults in the field, and psychological barriers stemming from the perception of science as a difficult field.

The role of parental involvement in pupils' school adjustment and academic performance cannot be overstated. Children with loving and supportive parents tend to excel not only in school but also in various aspects of life. Contrary to common belief, the most accurate predictor of a pupil's academic success is not income or social status, but rather the ability of their family to cultivate a home environment conducive to learning, express high expectations for their children's future, and actively engage in their education both at home and in schools.

While numerous studies have explored aspects of parents' science background, there remains a noticeable gap in research attention dedicated to understanding the influence of parents' science background on pupils' academic performance in basic science specifically in Ilorin West, Kwara State. Addressing this gap is crucial for developing targeted strategies that can positively impact pupils' educational outcomes in the field of basic science.

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Research Question

1. What is the level of parents' science background in in Ilorin West Local Government Area of Kwara State?

Hypothesis

$H0_1$: There is no significant influence of Parents' science background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State.

Methodology

The research design adopted for the study is descriptive survey design. This design was used to examine the influence of parents' science background on the academic performance of pupils in basic science in Ilorin west Kwara State. The researcher selected 200 parents and pupils from 20 public and private primary schools in Ilorin West Local Government Area Kwara State. Therefore, the sample size was200 parents and 200 primary five pupils' respondents, as it was not possible for the researcher to involve all parents and pupils in Ilorin Local West Government Area of Kwara State.

The researcher developed two instruments titled Parent Science Background Questionnaire (PSBQ) and Achievement Test (BSPT), the two instruments were used to elicit data from the sampled respondents. The instruments were given to basic science expert validation, and the instruments were also subjected to reliability test using test-retest reliability method within an interval of two weeks to the same set of respondents. Pearson Product Moment Correlation of Co-efficiency (PPMC) was used to obtain reliability index r=0.79 and 0.80 respectively. The data collected were analyzed using descriptive statistics of mean, and standard deviation to answer the research question while inferential statistics of Linear Regression was used to analysis the hypothesis at 0.05 level of significance.

Results

Research question: what is the level of parents' science background in in Ilorin West Local Government Area of Kwara State?

Table 1: Table showing level of parents' science background in in Ilorin West Local Government Area of Kwara State

S/N	Items	Mean	Decision
1	I do perform better in science related subjects	2.50	Agreed
2	Science related subjects are my hubby area of interest	2.34	Disagreed
3	I spend most of my time in science subjects such as chemistry and physics.	2.62	Agreed
4	I do have better results in science related subjects than any other area such as art and commercial	2.91	Agreed
5	I do have fair results in Mathematics subject only	2.43	Disagreed
6	If I am chance to further my education, science related subjects will be my choice again.	2.78	Agreed
7	Qualified science teachers were the reasons I developed interest in science subjects	2.04	Disagreed
8	My science background knowledge influence my children positively in schools	2.28	Disagreed
9	Science related courses are widely appreciated	2.43	Disagreed
10	Science subjects required commitment and practicality	2.50	Agreed
	Weighted Average	**2,48**	

Decision: **Low: 1.00 – 2.49** **High: 2.50 – 4.00**

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Table 1 shows the responses in the level of parents' science background in in Ilorin West Local Government Area of Kwara State**.** It was indicated that the following items were agreed: I do perform better in science related subjects (Mean=2.50), I spend most of my time in science subjects such as chemistry and physics (Mean=2.62), I do have better results in science related subjects than any other area such as art and commercial (Mean=2.91), If I am chance to further my education, science related subjects will be my choice again. (Mean=2.78), Science subjects required commitment and practicality (Mean=2.50).While the following items were disagreed. Science related subjects are my hubby area of interest (Mean=2.34), I do have fair results in Mathematics subject only (Mean=2.34), Qualified science teachers were the reasons I developed interest in science subjects. (Mean=2.04), My science background knowledge influence my children positively in schools (Mean=2.28) and Science related courses are widely appreciated (Mean=2.43). The weighted average (**2.48**) which is a numeric indicator that the level of parents' science background in Ilorin West Local Government Area of Kwara State was low

H0[1]: There is no significant influence of Parents' science background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State.

Table 2: Showing the summary of Linear Regression Analysis on significant influence of Parents' science background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State

Variable	Mean	SD	N	R	R Square	Adjusted Square	R	F	Sig.
Parents' Science Background	46.02	10.734	200	.139	.019	.013		2.901	.091
Academic Performance	24.06	3.885							

Table 2 shows the regression Analysis on significant influence of Parents' science background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State. (R = .139) while the R-Square is .019 which means that the independent variable (Parents' Science Background) explained 19% variation of the dependent variable (Academic Performance). This indicates a good fit of the regression equation. Thus, this is a reflection that there was significant influence of Parents' Science Background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State. ($F_{(1,150)} = 2.901$, $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05. This implies that there is no significant influence of Parents' science background on pupils' academic performance in Basic Science in Ilorin West Local Government Area of Kwara State.

Discussion of the findings

The investigation unveiled that Parents' science background did not exert a significant influence on pupils' academic performance in Basic Science within Ilorin West Local Government Area of Kwara State. This is probably because pupils are taught by certified and professional teachers. This finding contrasts with the perspective of Yahya (2007), who asserted that positive parental perceptions towards science play a role in encouraging children to pursue science-related fields. In Contrary to the present study's outcome, Oloyede's (2015) study in Ilorin South Local Government Area revealed a noteworthy relationship between home background and students' academic performance in chemistry. In contrast, Oba's (2016) assessment in Ilorin Metropolis indicated that parent educational background significantly influences students' academic performance. Notably, the current study focused on Ilorin West Local Government Area, distinct from the locales of the aforementioned studies.

The research aligns with Ahmad and Naeema's (2013) proposition that children with less educated parents tend to exhibit systematically lower academic performance. Educated parents, according to Ahmad and Naeema, provide intellectual, economic, psychological, and emotional support, fostering a conducive environment for their children's learning development and resulting in higher academic achievements. Ahmad and Naeeemafound no substantial influence of Parents' science background on pupils' academic performance in Basic Science within Ilorin West Local Government Area of Kwara State. Additionally, gender did not exhibit a significant difference in the impact of parents' science background on pupils' academic performance in Basic Science in the same region.

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Recommendations

Based on the finding of this study, it was recommended that;

1. The government should sensitize the parents, guidance and general public to encourage their wards/ children on importance of science.

2. Regular workshops, seminars, education summit and conferences on Basic science education and its importance should be organized by government and professional bodies for parents.

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