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Hypotheses Testing of Variables of Basic Science Teachers' on Performance of Students' in Upper Basic Schools in Kwara State, Nigeria

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This study aims to examine the effect of homework process on academic procrastination behavior in higher education. In this direction, the opinions of 300 pre-service teachers selected by convenience sampling method were consulted and the opinions of 287 students were included in the study. The research data were collected with the Homework Process in Higher Education Scale and Academic Procrastination Behavior Scale. The collected data were subjected to correlation analysis on the basis of both total score and sub-factors. In addition, simple linear regression analysis was applied to examine the effect of homework process on academic procrastination behavior in higher education. After the correlation analysis, a significant negative correlation was found between the homework process in higher education and academic procrastination behaviors. After the regression analysis, it was revealed that the homework process in higher education had an effect on academic procrastination behavior and explained 10% of the total variance.

Keywords: Hypotheses testing, variables of basic science teachers, performance of students, upper basic school

INTRODUCTION

Basic science serves as foundation for meaningful understanding of advanced scientific theories and principles because the bulk of content of the basic science curricular is descriptive, where the student is meant to learn many basic concepts like energy, matter, force and measurement. The Effective teaching and learning of Integrated Science require adequate resources (Quansah, Sakyi-Hagan & Essiam, 2019). Basic science, just as the name implies is the foundational part of science education that has to do the impartation of the basic knowledge needed to understand science. Basic science is taught at the elementary or Basic schools which comprises of classes from Basic one (primary one to Basic nine). It is obvious that Basic science is the major determinant of performance of study and practice of science but unfortunately, the learning of Basic Science as a subject in Nigerian is not elective because of the poor performance of the students resulting from various problems associated with the teaching of Basic science (Quansah, Sakyi-Hagan & Essiam, 2019). Urmika (2020) observed the hypothesis-testing factors affecting students' academic performance examining. The factors affecting students' academic performance is a significant aspect of consideration as it can improve teaching and learning processes. Numerous academic and non-academic facets affect student performance, such as study time, frequency of absences, recreational activities, and interpersonal relationships. Educational data mining (EDM) and learning analytics (LA) are two closely related fields that reveal useful information from educational databases to generate actionable insights. This paper investigates the aforementioned feature sets by hypothesizing the impact of these factors on student performance based on existing studies and employs a combination of LA and EDM techniques to test the hypotheses. Experimental results show that the presented hypotheses were consistent on nearly all accounts. The insights of this study can be used to bolster student performance even beyond an academic scope by educational policy improvement.

Abidoye, Lamidi, Alabi, and Popoola (2021) observed testing for equality of means with equal and unequal variances. Comparing the conventional t-test with the proposed t-test for testing equality of means with unequal and equal variances. Harmonic mean of variances as an alternative to the pooled sample variance when there is heterogeneity of variances was proposed. Two sets of secondary data were obtained from Agricultural Development Project (KWADP) and the Ministry of Agriculture in Ilorin, Kwara State to demonstrate the two test statistics used and the results show that the proposed t-test statistic is found to be appropriate than the conventional t-test statistic when we have unequal variances but the conventional t-test perform better when we have equal variances. Abidoye, Ahmed, Ahmed, and Maroof (2022) observed the study was carried out on the availability of laboratory facilities in teaching of Basic Science on the Students' academic performance in upper basic schools, Kwara State, Nigeria. This target population for the study was all Basic Science Teachers in Kwara State, Nigeria, four hundred and sixty-nine (469) public upper basic schools and three hundred and sixty-two (362) private schools are available in the study area. The researcher designed teachers' questionnaire and was administered to two hundred and thirty-six (236) Basic science teachers that were selected from forty-seven upper basic schools (47) from both public and private schools in Kwara State. Researcher- designed validated questionnaire was used to extract data from the respondents on the teachers 'influence on the performance of students in upper basic schools. The finding showed that influence of Basic science teachers on the performance of students in upper basic schools in Kwara State, Nigeria was significantly. Oredein (2014) investigated the effect of school variables on the academic performance of students in the Calabar Municipal Area of Cross River State. For the general purpose of this study obtained, five hypotheses were formulated for the purpose of the study. Accordingly, the literature review was done. Post-facto research design was adopted for the study. Results of the analysis

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showed that there was significant difference in the school type of the teachers to the performance of the students. Teacher qualifications and training, the general performance of public in any subject may be attributed to the teacher qualifications and training in the subject. Angrist and Lavy (1998) indicated that for a teacher to be more competent in his /her field of career, he/she needs to have undergone through some professional training. Therefore, if a teacher lacks that knowledge, it would be a challenge to him /her to teach the subject to the learners. Adodo (2012) observed an investigation into the secondary school in-Service teachers' selected variables on interactive computer technology argued that one key overriding factor for the success of overall performance in their academic pursuit is the teacher. In the same vein, Ibrahim (2000) believed that teacher's qualification level and exposure can go a long way to bringing a discernible difference in the quality of students produced. Ademulegun (2011) argued that students taught by more qualified and experienced teachers in terms of knowledge of the subject matter perform better than those taught by less qualified but experienced teachers. Kimani, Kara, and Njagi (2013) observed the teacher factors influencing students' academic achievement in secondary schools in Nyandarua County, Kenya. One hundred and fifty three teachers selected randomly from eighteen schools in three districts in the County participated in the study. The schools were categorized as above average, average, and below average based on their aggregate performance in Kenya Certificate of Secondary Education (KCSE) in the last three years. In each category, two schools per district were selected. Data were collected using a questionnaire developed by the researchers. Linear regression and One-way ANOVA were used to test the relationship between the selected variables and performance in KCSE at professional qualifications and teaching experience were not significantly related to academic achievement. Yusuf and Dada (2016) examined the impact of teachers' qualification and experience on students' performance in Colleges of Education in Kaduna State, Nigeria. The results revealed that a significant difference existed in the performance of students taught English language by qualified and unqualified teachers. In this study, it is aimed to examine the study investigated on hypotheses testing of variables of basic science teachers on academic performance students in upper basic schools Kwara State, Nigeria.

METHOD

Design of the Study

This study is a survey type, using the descriptive method. The population of this study consists of basic science teachers in junior secondary schools in Kwara State, Nigeria.

Population and Sample

The population of the research consists of Kwara State upper basic schools which comprising of 469 Public and 362 private upper basic schools. Forty-seven government and private secondary schools across the state were randomly sampled for the study. The total numbers of respondents were 236 Basic Science teachers.

Data Collection Instruments

The main instrument for this study was a researcher's designed questionnaire titled "Basic Science Teachers Assessment Questionnaire'' (BSTAQ). This is contained in Appendix I. The schedule consist of two sections, A and B. Section A contains Basic Science teachers' demographic information such as school type, academic qualification etc. while section B contains Questionnaire items on Basic Science teachers' variables on hypotheses testing such as Basic science variables affects students' performance in upper basic schools, Variables of Basic science teachers influence students' performance in upper basic schools among others. The instrument is a close-ended questionnaire. Four (4) point is based on a Likert-type scale ranging from strongly agree, agree, disagree, and strongly disagree. The devices were subjected to both content and face validation by three experts' lecturer from University of Ilorin, Ilorin Kwara State. The reliability of the instrument was tested using the Pearson Product Moment Correlation (PPMC) to ascertain the reliability index at 0.082. The instruments were administered to the respondents and they were encouraged to fill the questionnaire immediately. The questionnaire was collected immediately after response for analysis. The research questions were answered using the frequency count and mean statistics. The null hypothesis one was tested using t-test statistics at 0.05 significant levels and hypothesis two was tested using ANOVA.

Data Analysis

The purpose of data analysis is to present and analyze the data collected during the survey and to reflect on the findings of the data collected. The details are listed in the tables and the relationships of the items in the

table are checked to verify their authenticity or otherwise. A total of 236 copies of the questionnaire were distributed to the respondents in the study area. Research questions related to psychological testing were analyzed.

FINDINGS

Information on the demographic findings of the participants participating in the research is given in Table 1.

Table 1. Distribution of the Respondents on the factors affecting hypotheses testing of variables of basic science teachers on academic performance students' in upper basic schools Kwara State, Nigeria

Variable	Group	Frequency	Percentage (%)
School Type	Public	210	89
	Private	26	11
	Total	**236**	**100**
Academic Qualification	Qualified	149	63
	Unqualified	87	37
	Total	**236**	**100**

Table 1 revealed that of the 236 respondents participating in the study, 210 (89%) were public while 26 (11%) were Private Basic science teachers. This indicates that there are more public schools respondents than private respondents who participated in the study. 149 (63%) were qualified while 87 (37%) were unqualified basic science teachers

Findings Related to T-test Statistics Analysis

In the context of the t-test Statistics analysis carried out within the scope of the research, the difference in the influence of school type of basic science teachers on hypotheses testing on students' performance in Upper Basic Schools were subjected to t-test Statistics analysis. The result of the t-test statistics analysis is given in Table 2.

Table 2. Showing difference between the influences of School type of Basic teachers on hypotheses testing on Students' performance in upper basic schools

School type	N	Mean	Std. Dev.	Std. Error	T	Df	p-value	Remark
Private	26	76.73	11.65	2.284				
Public	210	68.91	12.84	0.886	2.958	234	0.003	S

S= Significant at P<0.05

Table 2 indicated that the public school science teachers perception mean score was 68.91 while the private school basic science teachers had 76.73. The Table 2 also reveals that the influence of school type of basic teachers on hypotheses testing on Students' performance in upper basic schools was significant (t, (234) = 2.958, P< 0.05). Thus, hypothesis one (H_{01}) which stated that that there was no significant difference in the influence of school type of Basic Science teachers on influence of school type of basic teachers on hypotheses testing on students' performance in upper basic schools was rejected.

Findings Related to Analysis of Variance (ANOVA)

Analysis of Variance was carried out to examine the influence of academic qualification of basic science teachers on hypotheses testing on students' performance in upper Basic Schools. Findings related to the ANOVA are given in Table 3.

Table 3.ANOVA table and Mean of basic science teachers' academic qualification on influence of School type on hypotheses testing on Students' performance in Upper basic schools the performance of students

Total	Sum of Squares	Df	Mean Square	F	Sig
Between Academic Qualification	23112.506	1	23112.506	334.982	0.001
Within Academic Qualification	16145.138	234	68.996		
Total	39257.644	235			

N = Significant at P<0.05

Table 3 shows that there was significant difference in the influence of academic qualification of Basic Science teachers on availability of laboratory facilities on the students' performance in upper basic schools Students'. Since the p-value (0.01) was less than the alpha level of 0.05. The mean square range between 23112.506 and 68. 996. Thus, the null hypothesis (H_{O3}), which states that there was no significant difference in the performance of students based on academic qualification of Basis science teachers, was therefore rejected.

DISCUSSION

It was found that Basic science teachers on hypotheses testing on Students' performance in upper basic schools in Kwara State, Nigeria had significant. This may be as a result that the basic science teachers are always ready to teach for the better performance of students. This is in agreement with the findings of Abidoye (2022) observed the study was carried out on the availability of laboratory facilities in teaching of Basic Science on the Students' academic performance in upper basic schools, Kwara State, Nigeria. The finding showed that influence of Basic science teachers on the performance of students in upper basic schools in Kwara State, Nigeria was significantly. In this study it was established that there was significant difference on the influence of school type of basic teachers on hypotheses testing on students' performance in upper basic schools in Kwara State, Nigeria was significant. This may be as a result that the private school basic science was monitor in teaching than the public teachers. This is consistent with the findings of Oradeen (2016) that determine the impact of school variables on the educational performance of students in the Calabar Municipal Area of Cross River State. Results of the analysis showed that school type is statistically significant for students' academic performance. It was discovered that Influence of academic qualification on hypotheses testing on Students' performance in upper basic schools in Kwara State, Nigeria was significant. This may be because qualified teachers of Basic Science are well-trained in the subject and unskilled chemical teachers simply accept the job because there is nothing in society. This is in line with the finding of Kimani, Kara, and Njagi (2013) observed the teacher factors influencing students' academic achievement in secondary schools in Nyandarua County, Kenya. The finding indicated that an academic qualification of teachers was significantly to performance of students' academic achievement.

CONCLUSION AND SUGGESTION

The study of basic science teachers on hypotheses testing on Students' performance in upper basic schools in Kwara State, Nigeria was significant. Also, the hypotheses testing was significant both in school type and academic qualification. Therefore, further studies should be carried on influence of hypotheses testing that affect teachers' teaching of Basic Science and their level of confidence in teaching this subject. The studies should evaluate students' level of competency or skills in attempting the variables factors that affect learning. Also, studies should focus on the hypotheses testing on other variables that influence the performance of students.

Declarations

Conflict of Interest

No potential conflicts of interest were disclosed by the author(s) with respect to the research, authorship, or publication of this article.

Ethics Approval

The formal ethics approval was granted by the Educational Sciences Research and Publication Ethics Committee of University of Ilorin, Ilorin. We conducted the study in accordance with the Helsinki Declaration in 1975.

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Research and Publication Ethics Statement

The study was approved by the research team's university ethics committee of the University of Ilorin, Ilorin. Hereby, we as the authors consciously assure that for the manuscript "The effect of the homework process on academic procrastination behavior in higher education" the following is fulfilled:

- This material is the authors' own original work, which has not been previously published elsewhere.
- The paper reflects the authors' own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

Contribution Rates of Authors to the Article

The authors provide equal contribution to this work.

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