



Extra-Curricular Activities as Correlates of Academic Achievement in Biology among Senior Secondary School Students in Benue State

UTSA, Erdo Grace, OKWARA, O. Kalu, ATSUWE, B. A.

Department of Science Education,
Joseph Sarwuan Tarkaa University Makurdi

ABSTRACT

This study investigated the relationship between extra-curricular activities and academic achievement in Biology of senior secondary school students in the Educational Area of Zone B in Benue State, Nigeria. The study was guided by three research questions and three hypotheses were formulated and tested at a 0.05 level of significance. The study adopted a correlational design. The study's population consist of 3796 Senior Secondary two (2) students in 89 government-owned Secondary Schools, out of which 368 students in seven secondary schools were sampled. The study used two instruments for data collection; the Extra-Curricular Activities Questionnaire (ECAQ) and Biology Achievement Test (BAT). Data collected was analyzed using correlational coefficient to answer the research questions and Pearson Product Moment Correlation (r) was adopted as a statistical tool to test the hypotheses at a 0.05 level of significance. The findings revealed that: there was a strong negative relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary School students. The finding also revealed that there was a strong positive relationship between involvement in science club activities and academic achievement in Biology of Senior Secondary School students. It was also found that there was a weak positive relationship between involvement in religious activities and students' academic achievement in Biology of Senior Secondary Schools. The study recommended that Students' involvement in sports activities should be checked by teachers and game masters in conjunction with parents to understand areas that result in students' failure in academic achievement to marry sport and students' learning for better academic achievement since fitness determines students' level of all-round development. Teachers should encourage students to join clubs that will boost their morale for academic demands which stimulate and sustains their desire for knowledge leading to better academic achievement.

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INTRODUCTION

Biology as a subject is the science of life and deals with the study of living things. The knowledge of Biology prepares students to apply basic scientific concepts in dealing with numerous issues encountered on daily basis and comprehend the natural world. There are three main divisions of Biology – ecology, morphology (organism structural aspects) and physiology (organism functional aspects). A lot of factors seems to interplay many students' academic achievement in Biology and education in general as identified by Tom,

Coetzee and Heyns (2014) to include: biological science contents, characteristics of educators, educational strategies, resources and biological science assessment, the low interest of students in biology, inadequate motivation from teachers, poor incentives to biology teachers, lack of adequate supply of instructional materials and use of the teacher-centred instructional method. Similarly, Meadows (2019) avers that there is a strong association between student involvement in extra-curricular activities and improved attendance, behaviour, and academic



achievement. The author further explained that all students who participate in some type of extra-curricular activities performed better than students who were not involved. This involvement includes participation in sports, clubs, dance, excursions, religious activities and other school-sponsored activities.

Students need to focus on academics, but also take time out to enjoy and do activities that serve their interests. There is a common saying that "All work without play makes Jack a dull boy". The world at large, and people from all walks of life seems to have a keen interest in sporting activities, this shows in the turn-up of people in watching sports especially football (Adeyemo, 2010). This simply implies that extra-curricular activities are not just aimed at stopping at the school level, but it is supposed to be a part and parcel of our everyday life event.

Academic achievement refers to the students' success in measuring short or long term goals in education. York, Gibson and Rankin (2015) looked at academic achievement as the attainment of learning objectives, acquisition of designed skills and competence, as well as post-college performance. This implies that student's academic achievement is the ability of students to meet performance criteria or set goals, as a result, grades are used to measure learning or knowledge which captures attainment of learning objectives and acquisition of skills and competencies. Therefore, students that earn good grades or awards in science are said to have achieved in the academic field of science of which Biology is among.

Extra-curricular activities are activities that fall outside the realm of the normal cognitive activities of the school. These are enrichment programs that are offered by educational facilities to help promote skills and a high level of thinking for students (Adeyemo 2010). Extra-curricular activities such as sport, drama, music, dance, various clubs as well as religious activities are an important part of the educational experiences of many students. Adeyemo (2010) reported that children who participate in extra-curricular activities are more successful academically than those who do not. It is not clear whether this is because the brighter more energetic students are also the ones who participate more in extra-curricular activities or whether the activities

themselves boost students' academic achievement. Therefore, the involvement of Secondary School Biology students in school extra-curricular activities is an important learning experience that may boost their achievement academically.

Sport is a physical activity in which participation by children and adolescence links to better physical and mental health. Studies have shown that youth participation in sports activities has decreased over time, Schools are considered to be one of the preferred intervention environments for increasing daily participation in sports activities (Cardon 2012). Several sports activities are found in a secondary school setting within the country. The most common ones are; football, volleyball, basketball, badminton, long jump, 100 metres, 200 metres, 400 metres. Secondary School Biology students need to be physically and mentally sound, to cope with their academic challenges, seeing that one of the ways to achieve this is by being involved in sports activities.

The involvement of students in clubs may help to enhance their intellectual development. Clubs may develop talents and leadership qualities in students, and as well may help the students to work in teams and enhance national integration, promote worthy use of leisure, ethical character and the corporate life of the boarding system, (Asaba 2015). Clubs may boost students' learning in specialized or specific areas, it offers the benefit for a longer time, and it also provides the opportunity to explore in detail something educational in addition to the regular contents (Egena 2016). Since club activities take place at leisure time, and more of an informal setting, secondary school Biology students may feel more relaxed and relieved from tension in a class setting, thereby effectively assimilating knowledge that tends to stick more, and as well imbibe positive behaviours. There are many clubs in secondary schools; however, students are expected to belong to either one or two of these clubs at most. The most common include Science Club, Press Club, Junior Engineers, Technicians and Scientist (JETS) club, Drama/Debate, Boys scouts, Mathematics, and Young Farmer's clubs.

A lot of studies have been conducted concerning the relationship between extra-curricular activities and academic



achievement. Sarita (2016) studied the impact of sports participation on the academic achievement of African American girls in Georgia. A causal-comparative research design was used for this study. Results indicate that there is no statistically significant difference in the grade point averages and graduation rate of student-athletes and non-athletes. They also indicate that there is no statistically significant difference in the grade point averages and graduation rate of student-athletes who participate in a single sport and those that participate in multiple sports. Findings suggest that participation in athletics should continue to be an area of focus for educational stakeholders as it relates to academic achievement. Recommendations for future research are provided. Billonid, Cabailo, Dagle, Godilano, Kibanoff and Tasic (2020) studied the effects of sports participation on the academic performance of grade 12 students after the k-12 implementation. The study compared the academic performance of athletes and non-athletes in Grade 12 Senior High School students. The study adopted a causal-comparative research design. A total of 60 students were the participants of this study and selected using convenience sampling. These 60 students were purposively selected and categorized by researchers to have 30 athletes and 30 non-athletes. The results showed that there was no significant difference in the midterm scores between non-athlete and athletes. Haroona Qurban, Hassan Siddique, Jin Wang and Tony Morris (2018) studied the relationship between sports participation and academic achievement: the mediating role of parental support and self-esteem. The study found no direct relationship between sports participation and academic achievement. The study found parental support and self-esteem as mediators in the relationship between sports participation and academic achievement. The mediational models suggested a focus on the vital role of parental support and self-esteem to have better academic performance.

Nwankwo and Okoye (2015) studied the influence of College Clubs in Increasing Students' Interest and Achievement in Nigerian Post-Primary Schools as Perceived by Science Students in Anambra State. The population of the study comprised all senior secondary school science students in Anambra State totalling 9322 as of 2007. From this population,

a sample of 140 senior secondary two (SS-II) science students were purposively drawn from those that participated at the Anambra State branch of Science Teachers Association of Nigeria (STAN) 2007 science quiz and exhibition competition. The result of the study revealed that senior secondary students in Anambra State testified that science clubs exist and is functional in most secondary schools in the state and has a positive influence in increasing students' interest and achievement in science subjects as well as science and technology-related careers. Esokomi, Indoshi and Odour (2016) studied the influence of Science Club Activities (SCA) on secondary school students' interest and achievement in Physics in Vihiga County of Kenya. The study applied a descriptive survey and correlational design. The target population was 1500 Form Four Physics students and 80 teachers of Physics. The sample size was 217 students and 60 Physics teachers from 114 schools. Results showed that the general performance of participants in science club activities (SCA) was better than for the non-participants. Further, the study revealed that SCA contributed to student learning and achievement in Physics at secondary school.

Nowadays, academics seem to relegate the extra-curricular activities in schools. The students are mostly involved in cognitive development at the expense of psychomotor and affective domains. The students get involved in the classrooms where reading and writing take place. Again immediately after official closing class time, the students stay back in schools and are involved in extra lessons which is still the cognitive aspect of learning with less consideration to the psychomotor domain. There is a greater need to truly understand the correlation that participation in extra-curricular activities has on students' academic achievement in Biology in our immediate context as our locality.

Purpose of the study

The purpose of this study was to investigate the relationship between extra-curricular activities and academic achievement of senior secondary Biology students in the educational area of zone B. Specifically, it aimed at to:

1. Find the relationship between involvement in sports activities and



- academic achievement in Biology of Senior Secondary School students.
2. Ascertain the relationship between involvement in science club activities and academic achievement in Biology of Senior Secondary School students.

Research Questions

The following research questions were raised to guide the study: -

1. What is the relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary School students?
2. What is the relationship between involvement in club activities and academic achievement in Biology of Senior Secondary School Students?

Hypotheses

1. There is no significant relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary School students.
2. There is no significant relationship between involvement in religious activities and academic achievement in Biology of Senior Secondary School Students.

METHODOLOGY

The area of this study is Benue North Senatorial District. It is located at Benue State West axis, which comprises seven local government areas. These include Gboko, Tarka, Guma, Buruku, Makurdi, Gwer East and Gwer West Local Government Areas, Benue State of Nigeria.

The study adopted a correlational research design. A correlational study is a quantitative method of research where there are two or more quantitative variables from the same group of participants, and the researcher tries to determine if there is a relationship (or co-variation) between the two variables.

The population for this study comprises the Senior Secondary 2 Biology students in the eighty-nine (89) government-owned Secondary Schools in the Educational Area of Zone B, with a total of 3,796 Senior Secondary two (2) students

The sample size of this study is 368 respondents determined using Taro Yamen's formula. A multi-stage sampling procedure was employed since different sampling techniques were used at different stages of the research. This multi-stage occurs when stratification is done along with more than one variable at a time.

The instruments used for data collection are the Extra-Curricular Activities Questionnaire (ECAQ) and Biology Achievement Test (BAT). The Extra-Curricular Activities Questionnaire was sub-divided into two sections in line with the extra-curricular activities to be measured in this study: sport and clubs activities respectively.

To determine the reliability of the instrument for the study, the researcher administered the questionnaire to thirty (30) respondents from one of the schools which did not eventually participate in the main study. Cronbach Alpha Coefficient test yielded a reliability coefficient of .78 for the Extra-Curricular Activities Questionnaire (ECAQ). On the other hand, the reliability coefficient of the Biology Achievement Test was calculated using Kuder Richardson K-R=20 Formula (KR-20). The test yielded a reliability coefficient of 0.98

Data collected were analyzed using a correlation coefficient to answer the research questions. The Pearson Product Moment Correlation statistical tool was used to test the hypotheses at a 0.05 level of significance.

RESULT

Research Question 1: What is the relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary Schools students?

Table 1: Correlation Coefficient Scores on the Relationship between Sports Activities and Students' Academic Achievement

Variable	n	df	r
Academic achievement	368	366	-0.056
Sport activities	368		



Table 1 shows that there is a correlation coefficient of -0.056 of the relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary School students. Since the coefficient is close to -1, the result implies that there was a strong negative relationship between involvement in sports activities and academic achievement in Biology of Senior

Secondary School students. This result means that a high level of students' involvement in sports activities is associated with a low level of students' academic achievement in Biology.

Research Question 2: What is the relationship between involvement in club activities and academic achievement in Biology of Senior Secondary School Students?

Table 2: Correlation Coefficient Scores on the Relationship between Involvement in Clubs and Students' Academic Achievement

Variable	n	df	r
Academic achievement	368	366	.952
Club activities	368		

Table 2 shows that there is a correlation coefficient of .952 of the relationship between involvement in club activities and academic achievement in Biology of Senior Secondary School students. Since the coefficient is close to 1, the result implies that there was a strong positive relationship between involvement in club activities and academic achievement in Biology of Senior Secondary School students. This result means

that a high level of students' involvement in club activities is associated with a high level of students' academic achievement in Biology.

Test of Hypotheses

Hypothesis 1: There is no significant relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary School students.

Table 3: Pearson Moment Correlation Scores on the Relationship between Sports Activities and Students' Academic Achievement

Variable	n	df	r	p	Remark
Academic achievement	368	362	-.056	.284	Not Significant
Sport activities	368				

Table 3 shows a correlation coefficient of -.056 at p.284. Since p .284 is greater than the alpha value of .05 the null hypothesis which states that there is no significant relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary School Students is not rejected. This implies that there is a negative relationship between involvement in sports activities and academic achievement in

Biology of Senior Secondary School Students. This result implies that a high level of students' involvement in sports activities is associated with a low level of students' academic achievement in Biology.

Hypothesis 2: There is no significant relationship between involvement in clubs activities and academic achievement in Biology of Senior Secondary School students.

Table 4: Pearson Moment Correlation Scores on the Relationship between Involvement in Clubs and Students' Academic Achievement

Variable	n	df	r	p	Remark
Academic achievement	368	362	.952**	.000	Significant
Club activities	368				



Table 4 shows a correlation coefficient of .952 at $p < .000$. Since $p < .000$ is less than the alpha value of .05 the null hypothesis which states that there is no significant relationship between involvement in club activities and academic achievement in Biology of Senior Secondary School students is rejected. This implies that there is a significant positive relationship between involvement in the club and academic achievement in Biology of Senior Secondary School Students. This result implies that a high level of students' involvement in club activities leads to a high level of students' academic achievement in Biology.

DISCUSSION OF FINDINGS

The first finding revealed that there was a strong negative relationship between involvement in sports activities and academic achievement in Biology of Senior Secondary Schools Students. This finding means that an increase in students' involvement in sport activates leads to a decrease in their academic achievement in Biology; implying that students' involvement in sports activities negatively affects their academic achievement in Biology of secondary schools. This finding is in line with Sarita (2016) whose results indicated that there is no statistically significant difference in the grade point averages and graduation rate of student-athletes and non-athletes. Furthermore, it also indicates that there is no statistically significant difference in the grade point averages and graduation rate of student-athletes who participate in a single sport and those that participate in multiple sports. Similarly, Billonid, Cabailo, Dagle, Godilano, Kibanoff and Tasic (2020) also found that there is no significant difference in the midterm scores between non-athlete and athletes which showed that athletes have the same academic activities and performance as non-athletes. More so, Haroona Qurban, Hassan Siddique, Jin Wang & Tony Morris (2018) also found no direct relationship between sports participation and academic achievement. However, in contrast to the above findings, Shogo (2013) found that there is a significant relationship between sport participation and school activity level; there is a significant relationship between sport participation and students' attitude; it was also found that there is a significant relationship between sport participation and

students' academic performance. In addition, Khan, Jamil, Umar, and Uzmar (2012) findings revealed that sports activities are very useful and helpful for enhancing the academic achievement of students. The study concentrated on sport and its effect on academic achievement.

The second finding revealed that there was a strong significant positive relationship between involvement in science club activities and academic achievement in Biology of Senior Secondary School Students. This finding depicts that an increase in students' involvement in club activities leads to an increase in their academic achievement in Biology. That is, the more students have been involved in science club activities the higher their performances in Biology. This finding is consistent with the work of Nwankwo and Okoye (2015) whose result of the study revealed that senior secondary students in Anambra State testified that science clubs exist and is functional in most secondary schools in the state and has a positive influence in increasing students' interest and achievement in science subjects as well as science and technology-related careers. In the same vein, Esokomi, Indoshi and Odour (2016) results showed that the performance of participants of science club activities (SCA) was better than that for the non-participants. Further, the study revealed that SCA contributed to student learning and achievement in Physics at secondary school. In addition, Afiong (2016) study also revealed that science-oriented clubs influence integrated science students' academic achievement in secondary schools.

CONCLUSION

Based on the result of the study, it was concluded that not all extra-curricular activities positively correlate with students' academic achievement as students' involvement in the club have a positive relationship with students' academic achievement unlike students' involvement in sports.

RECOMMENDATIONS

The following recommendations are made based on the findings of the study:

- i. Students' involvement in sports activities should be checked by



teachers and game masters in conjunction with parents to understand areas that result in students' failure in academic achievement to marry sport and students learning for better academic achievement since fitness determines students level of all-around development.

- ii. Teachers should encourage students to join the club and boost their morale for academic demands which stimulate and sustains their desire for knowledge leading to better academic achievement.

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