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Students' Perceptions of Family Roles Influencing their Academic Achievement in Agricultural Sciences: Implications for Career Agriculture in Nigeria

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Abstract

Education is viewed as a tool for change. Globally, efforts are geared toward enhancing the educational process of students' academic achievement in secondary schools. However, there are differences in students' attributes, and the desire for parents to provide better educational opportunities to their children. This study randomly sampled 300 respondents in Katsina State. The data for the study were collected using a structured questionnaire to achieve the purpose of the study and were analyzed using descriptive statistics, ANOVA and t-test. A positive and significant association was observed between age and respondents' academic achievement (0.382, $P \leq 0.36$). Overall, majority of the respondents perceived their families as having high academic aspirations for them. It is recommended that parents should be educated about good parental roles that enhance their children's motivation for improving their academic achievement in schools.

Introduction

Education remains an indisputable means for individuals and national development. It is a vehicle that contributes significantly to all spheres of human endeavour and evidently, it has been used by people to promote their social, economic, and political status (Rahuman and Uddin, 2009). Njuguna (2011) viewed education as a tool for change. Currently, in Nigeria and elsewhere, efforts are geared toward enhancing the educational process to improve the students' academic achievement which is judged through academic examinations. In Nigeria after completion of senior secondary school, students take external examinations conducted by the West African Examination Council (WAEC) or National Examinations Council (NECO), and they are awarded Certificates. Kyalo and Kuthuka (1992) and Nguguna (2011) argue that a certificate must not only certify that a candidate has fulfilled the set requirements but also express that has attained results that are comparable with similar cohorts elsewhere. While standards of attainment in academic subjects have remained a subject of concern, there is a significant gap in the relative levels of attainment between students in different schools. The gap might be associated with differences in age, gender and the school one attends. Similarly, the desire for parents to provide better educational opportunities to their children will depend on their level of influence both at home and in schools. Particularly, children of secondary school age can recognize their parents' efforts and can cite their parental sacrifices as sources of motivation to succeed in their academic pursuits. This study therefore, sets forth to examine students' perceptions of the influence of family roles on their academic achievement in schools.

Objectives of the study

The specific objectives of the study were to:

1. Describe students' academic achievement in agricultural science subjects;
2. Examine the associations of students' academic achievement in relation to age, gender and school factors; and
3. Assess students' perceptions of the influence of family roles on academic achievement.

Hypothesis of the study

There is no significant influence of family roles on students' academic achievement.

Theoretical orientation

The study was grounded on the premise of social cognitive theory which gives insight on how people acquire and maintain certain behavioral patterns with implication for initiating educational intervention strategies (Bandura, 1997). Evaluating behavioral change largely depends on environmental factors, people and behavior. Environment (e.g. school and home) is a factor that can affect a person's behavior (academic achievement). Similarly, environment and situation (family influence) or state of the learner (age, gender) provides a framework for understanding behavior (Parraga, 1990). These situations influence person's perception of the time, physical features and activity more particularly from the person's immediate environment (family) (Glanz *et al.*, 2002). The three factors environment (school), people (family roles, age, and gender) and behavior (academic achievement) are constantly influencing each other (Glanz *et al.*, 2002).

Methodology

This study adopted a cross sectional design and the study population was all secondary school students in Katsina State drawn from Science and Technical Education Board. Six secondary schools were randomly selected across the state comprising of four male secondary schools and two female secondary schools. One class from each of the selected schools was again selected through a random sampling technique. Thus, the sample size for the study constituted a proportionate class size of 50 students from six classes giving a total of 300 respondents.

Data collected comprised of grades of academic achievement of students mainly the continuous assessment of practical work, tests, assignments, and terminal examinations for the past three years. Then these assessments were computed into average academic scores. Data regarding students' age were obtained from the school records, while structured questionnaire was used to collect on students' perceptions of family influence on their academic achievement. The Gathered data were compiled and coded in the Microsoft Excel spreadsheet and analyzed using the Statistical Package for Social Science (SPSS). Descriptive statistics were produced which included chart, frequencies, percentages, means, and standard deviations. Cramer's V score was used to establish associations between students' academic achievement in

relation to school, age and gender factors. A t-test and ANOVA were performed to establish whether there were differences in students' academic achievement between gender and schools respectively. Multiple regression analysis was also performed to establish the influence of family roles on students' academic achievement.

Results and discussion

Respondents' academic achievement scores in agricultural science subjects

Less than half, 48.8% of the respondents scored good grades, and 25.5% got fair grades. Further, 13.3% of the respondents scored very good academic achievement grades, while few, 11.4% scored excellent academic grades and only 1% scored failed grades (Table 1).

Table 1: Respondents' academic achievements (N = 300)

Academic grade	Frequency	Percentage	n	Mean	SD	F	Sig.
Excellent (70-100 marks)	23	11.4					
Very good (61-69 marks)	40	13.3					
Good (50-60 marks)	146	48.8					
Fair (40-49 marks)	88	25.5					
Failed (0-39 marks)	3	1.0					
Total	300	100					
School							
A			50	53.36	9.0368		
B			50	54.48	9.9596		
C			50	53.60	7.6185		
D			50	51.18	8.0145		
E			50	53.38	8.5210		
F			50	53.80	6.5560	0.894	0.486 ^{NS}
Gender							
Male			200	53.155	8.7248		
Female			100	53.590	7.5653	4.706	0.031 [*]

The overall mean achievement score of the respondents was 53.30, which showed marginal students' academic achievement. Aremu (2003) stressed that academic achievement of students is a fundamental criterion to measure standards of excellence. It can, therefore, be said that students have potentials and capacity to perform effectively in organized national examinations and can join agricultural science courses in the Nigerian universities and elsewhere. The mean achievement

scores for school B was 54.48 and 53.80 for school F, while the mean scores for school C was 53.60. Further, the mean achievement scores for schools E and A were 53.38 and 53.36, respectively. Yet, the lowest mean achievement scores of 51.18 was obtained by school D. The difference in students' academic scores with schools using ANOVA did not show any statistically significant difference (Table 1).

These mean achievement scores of respondents were however marginal. Social learning theory asserts that variations in academic achievement are dependent on the extent of the support given whether strong or weak (Lave and Wenger, 2005; Wenger, 2007). Katsikas and Panagiotidis (2010) assert that support for students can motivate their learning process and usually comes from parents. Interviews with all the school principals affirmed the claim that variations in students' academic achievement could be due to differential support that parents gave to their children. Further, the study findings by gender revealed that mean achievement scores for both male and female respondents were 53.155 and 53.590, respectively. This suggests that there was little disparity in mean achievement scores of the two groups. The study result of t-test showed statistical significant difference of mean between males and females students at $t=4.706$ at $p \leq 0.31$ (Table 1).

Other studies show that male students achieve better than female students in certain settings, while female students outperform male students in the other settings (Haist *et al.* 2000; Abdullahi, 2011). Deepak *et al.* (2011) and Hedjazi and Omidi (2008) reported that male students' dominance in enrolment proportion could be an added factor. However, Newman-Ford, *et al.* (2009) mentioned that such variation is only minor, suggesting that female students are not intellectually backward. Conclusively, the academic achievement of female students in the study area suggest that knowledge of agricultural science could transform into increased number of female students who seek agricultural education, self confidence in agricultural activities, and improved women economic empowerment through agriculture and related careers.

Association with age, schools, gender and students' academic achievement

Measure of association with the age of respondents, academic achievement, schools and academic achievement, gender, and academic achievement shows positive and significant association using Cramer's V (Table 2). A positive and significant association was observed between age and students' academic achievement (0.382, $P \leq 0.36$). Respondents' academic achievement was however independent of schools and gender as shown by the statistically insignificant relationship ($p \geq 0.185$ and $P \geq 0.202$, respectively) Cramer's V.

Table 2: Cramer's V Measure of Associations between Nominal Variables Involving Age, Schools, and Gender (N=300)

Cross tabulation	Cramer's V	Sign.
Age x Scores	0.382	.036*
Schools x Scores	0.372	.185 ^{NS}
Gender x Scores	0.387	.202 ^{NS}

NS ($P \geq 0.05$) = not significant; * significant at ($P \leq 0.05$)

The age of respondents was observed to be an important factor for their academic achievement. Students do well in examinations when they are appropriately placed in their respective classes or academic level, otherwise they may lack basic skills for effective study or to be impaired by age related deficits (Newman-Ford, *et al.* 2009). The reason for insignificant Cramer's V of schools may be because the students were borders. While, there is no association with gender and students' academic achievement because students' performances did not discriminate gender. According to Newman-Ford, *et al.* (2009) gender had only minor impact on students' academic achievement. It is worth noting that differences exist between male and female students depending on the subject matter (Haist *et al.*, 2000).

Respondents' perceptions of family influence on students' academic achievement

The study findings show more than half of the respondents, 58.6% perceived their families as having high expectations on them which influenced their achievement. Yet, 32.3% perceived that their families had moderate expectations, while only 9.1% indicated low perceptions of their families (Table 3). High achieving children tend to come from families which have high expectations for them without distinct differences of the socio-economic backgrounds (Trusty 2002; Casanova *et al.*, 2005). Therefore, it can be concluded that, the desire for parents to provide better educational opportunities which might influence their children's academic achievement will depend on the expectations they have for their children.

Table 3: Respondents' perceptions of family influence on students' academic achievement (N=300)

Variable	Frequency	Percentage
Parental expectations		
High	176	58.6
Moderate	97	32.3
Low	27	9.1
Parental aspirations		
High	190	63.2
Moderate	85	28.5
Low	25	8.3
Family obligations		
High	171	57.1
Moderate	115	38.4
Low	14	4.5
Family pleasing		
High	178	59.3
Moderate	111	37.1
Low	11	3.6
Aversive influence		
High	8	2.8
Moderate	70	23.3
Low	222	73.9

The study results further show that, 63.2% of the respondents perceived their families as having high academic aspirations for them. Yet, 28.5% of them perceived their families having moderate academic aspirations, while few, 8.3% reported having low perceptions. Dieneye (2006) Urdan and Schoenfelder (2007) assert that, parents who hold high academic aspirations for their children have an important influence on their academic motivation and achievement. Hence, this implies that students' academic motives and achievement can be enhanced by parents' academic aspirations for their children.

Of the 300 respondents, 57.1% reported that their families had high obligations for them, while 38.4% indicated having moderate family obligations. Yet, few, 4.5% indicated low obligations for them. Study by urdan and Schoenfelder

(2007) show that children whose parents were more nurturing showed eagerness of children success in examinations. This implies that children can be directed by their parents' efforts and sacrifices to succeed academically in schools.

Table 3 shows that, 59.3% of the 300 respondents indicated that they had enjoyed high family pleasing, while 37.1% mentioned moderate, few, 3.6% indicated low family pleasing. The study findings by Rubie-Davies (2007) indicate that parents' pleasing both at home and schools can influence students' behaviour, motivation to learn and academic achievement. Therefore, it can be concluded that, when students perceive that parents show care, their behaviour and academic scores will be enhanced.

Furthermore, 73.9% of the respondents reported that they had low aversive experiences from their families. Again, 23.8% stated experiencing moderate, while only 2.3% indicated to have been experiencing high aversive experience. Aversive family influence has negative consequences on children's behaviour and schooling process (Urdu and Schoenfelder, 2007). This implies that students who come from families with low aversive influence had better home motivation and academic achievement in schools.

Regression analysis on students' perceptions of family roles influencing their academic achievement

To capture the direct influence of students' perceptions of family roles on their academic achievement, the students' academic scores were regressed with; parental expectations, parental aspirations, family obligations, family pleasing and aversive influence. The study results of the multiple regression show that the R calculated was 0.860 and the R^2 was 0.0873 having a model constant produced at 8.844 indicating that about 90% of the variance in students' academic achievement was explained by the model. The model is statistically significant at $p \leq 0.001$ with a fitted $F = 3.024$. The standard error estimates were presented to explain the measure of accuracy of predictions for each of the independent variable. All the independent variables regressed were statistically significant and influenced students' academic achievement (Table 4).

The study findings show that parental expectation was positively related to students' academic achievement (.906 at $p \leq 0.022$). This implies that parental expectations positively influenced students' academic achievement by .906. Therefore, parents who were having high educational expectations for their children had provide proper attention and were more involved in the education of their children. Hence, it is expected that students from these families with high expectations had better educational opportunities which motivate them to learn both at homes and in schools. This study finding corroborates with study finding by

Galindo and Sheldon (2012) who found a positive relationship between parental educational expectations and students' achievement. Zhan (2006) on the other hand indicates that Parents with higher expectations for their children are more likely to set higher standards for their children's schooling and social functioning than parents with lower expectations this motivate them to study hard. Lippman *et al.* (2008) mentioned that most of these parents were mostly in the high income class.

Table 4: Multiple regression analysis on respondents' perceptions of family roles influencing their academic achievement

Variables	Coefficients	SE	T	Sign.
Parental expectations	.906	.519	2.439	.022**
Parental aspirations	.983	.576	1.781	.013**
Family obligations	1.204	.452	2.744	.011*
Family pleasing	1.126	.515	2.512	.014*
Aversive influence	-1.917	.562	-1.723	.016**

Level of significance * = $p \leq .005$, ** $p \leq .001$

Constant = 8.844

R = 0.860

R² = 0.873

F-value = 3.024

Parental aspiration (.983) was also positively related to students' academic achievement at $p \leq 0.013$. The positive coefficient implies that students who came from families with high academic aspirations were more conscious and motivated to study hard in order to meet with their family wishes or aspirations.

The study finding shows that family obligation (1.204) has positive influence on students' academic achievement and statistically significant at $p \leq 0.011$. This implies that parents with positive and high educational obligations create academic disparities because of their moral commitment to their children's education. Dubow *et al.* (2009) have reported that the nature and extent of parent's obligations in their children's education and learning is an important factor in explaining the differential patterns of students' achievement.

Family pleasing (1.126) in Table 4 shows positive influence on students' academic achievement at $p \leq 0.014$. This implies that for every one point higher on family pleasing, students' academic achievement scores increase by 1.126. Rubie-

Davies (2007) mentioned that parents who pleased their children both at home and schools increase their academic achievement.

The study result further shows that aversive influence (-1.917) has negative influence on students' academic achievement and statistically significant at $p \leq 0.016$. This implies that being under aversive influence has a notable negative influence on students' academic achievement by -1.917. If parents put their children under high aversive treatment or maltreatment, their academic achievement decreases by -1.917. Study result by Todd and Wolpin (2003) affirm that students who are under aversive influence or maltreatment score lower ratings in examinations.

Therefore, understanding family influence will help in improving students' academic achievement particularly those students living in less advantaged circumstances. Hence, to harvest human motivation such as creativity, human potentials and positive academic achievement, Clay (2002) stressed that a hierarchy of individual's needs; human choices, capacity for self-direction, individual's feelings and understanding of his or her own development should be targeted. This can be achieved through effective family roles which motivate children's educational and achievement motives.

Hypothesis testing

Multiple regression analysis in Table 4 show the regression model significant at $p \leq 0.001$ and all the variables entered into the model are also statistically significant. Therefore, the study null hypothesis which states that there is no significant influence of family roles on students' academic achievement is rejected.

Conclusion

The overall students' academic achievement was generally average. The findings of this study showed that secondary school students in Katsina State have the potentials and capabilities to perform better in organized national examinations. These candidates can join into agriculture and related courses in the Nigerian universities and elsewhere. However, there were noted marginal gaps in students' academic achievement between schools implying an alarm to agricultural science instructors/teachers. Though variations in mean academic scores were small, they pose challenges not only for instructors but particularly for male students who are the majority.

The age of students was an important factor for their academic achievement, and that students did well in examinations when they were appropriately placed in their respective classes. Similarly, the desire for parents to provide better educational opportunities to their children depends on their level of influence both at home and in schools. It can be concluded that children of secondary school age recognize their

parents' efforts and can cite their parental sacrifices as sources of motivation to succeed in their academic pursuits.

Recommendations

This study gives the following recommendations:

1. Urgent reactivation and upgrading of the Katsina State agricultural and vocational training colleges to run Diploma courses be done to provide opportunities for secondary school graduates who wish to study agricultural courses. This measure will go along way for providing middle level manpower for both the government and private agriculture sectors.
2. The Katsina State government should establish more female science secondary schools to harness the potentials of female students who later could join the field of agriculture and related careers.
3. Secondary schools in Katsina state should start counseling services to encourage and enlist the interest of students who want to join agriculture and related careers.
4. Both parents and school administrators should ensure that their children are enlisted and appropriately placed in the right class or academic level in order to promote academic excellence.
5. Parents should be educated about good parental roles that enhance their children's motivation for improving their academic achievement.

Suggestion for further research

1. The study did not establish the influence of parents on career aspirations of students in career agriculture. Therefore more research to explicitly establish the influence of home on career choice of students is advocated.

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