African Journal of

Education and Practice

(AJEP)

Journal of Education and Practice
ISSN 2520-467X (Online)
Vol.3, Issue No.1, p 1 -14, 2019

www.carijournals.org

PREDICTORS OF AGRICULTURE STUDENT ACADEMIC PERFORMANCE IN SINGLE SEX SCHOOLS IN ESWATINI

[1*]Alfred F. Tsikati
Lecturer: Agricultural Education and Extension
University of Eswatini
*Corresponding Author's E-mail: tsikatiaf@uniswa.sz

[2]Nontobeko Mkhize
Teacher: Agriculture department
Siyendle Secondary School

Abstract

Purpose: Research at international platforms indicates that learners learn better if they are in a single sex school than in a co-education school. However, little information exists in the literature about students' academic affairs in single sex schools in Eswatini. Thus, the study sought to identify predictor variables for agriculture student academic performance of single sex schools in Eswatini.

Methodology: A descriptive-correlational research design was used. Ten Form 4 and Form 5 agriculture student from six single sex schools were randomly sampled for the study. Thus, a total of 120 agriculture student from the six single sex school participated in the study. A self-administered questionnaire was used in data collection. Three educational experts from the department of Agricultural Education and Extension established the face and content validity of the instrument. The instrument was found to be 83% reliable. Descriptive and inferential statistics were used in data analysis. Multiple regression was used to identify the predictors for agriculture student academic performance in single sex schools in Eswatini.

Results: The study revealed that the agriculture student academic performance is predicted by sex.

Recommendations: Therefore, the study recommended that parents should be encouraged to enroll their children in single sex schools especially boys schools so that they can do well in agriculture. A similar study should be conducted to compare the agriculture students' academic performance in single sex schools versus co-educational schools in Eswatini.

Key words: *academic performance, agriculture students, co-educational school, predictor, single sex school.*

1.0 INTRODUCTION

Historically, public education evolved from primary single-sex school education for boys to primary coeducational schools (for both boys and girls) in the 18th century, and then single-sex schools for girls began to emerge in the 19th century (Steptoe & Arbor, 2004). Even today, a number of countries have single-sex schools and co-educational schools across the globe. By 2003, a few countries had about 2% of single-sex schools and it is projected that the number of single-sex schools will soon reach 10% in most countries across the globe (Wiseman, 2008).

Single-sex education is a school setting in which the students are of the same sex, can either be male or female (Mkhize, 2016). On the other hand, co-education (also known as mixed sex education) is a school setting in which the students are of mixed-sex; both male and female learn together (Mkhize, 2016). The concept of grouping learners by sex is also practiced in co-education schools where there are single-sex classrooms (Ogden, 2011). There are pros and cons parents consider before enrolling their children into either single-sex school or co-educational school. However, the focus of this paper was on agriculture students' academic performance in single-sex schools than co-education schools.

Proponents of single-sex schooling believe that learners learn better if they are in a single-sex school than in a co-education school (Bait, 1986). Bait found that girls in single-sex school perform better than as boys in single-sex school, and such performance is significantly better than girls and boys in co-education schools. Battle and Lewis (2002) contends that the separation of pupils by sex in schools was done solely for academic purposes even though in some countries it is for religion and culture. Battle and Lewis further alluded that the pupils are comfortable to participate in class in a single-sex school than in a co-education class. Sneed (2009) asserted that single-sex environments help to reduce gender stereotypes students' encounter in coeducational settings. Hurst and Johansen (2006) pointed out that the arguments for single-sex schools and classrooms are that this arrangement provides for the use of teaching methods that take into account the social or biological differences between boys and girls. Single-sex education can be more effective and the negative impact on learning resulting from social interactions between boys and girls – suppressing themselves intellectually to impress the opposite sex (Hurst & Johansen, 2006). Narad and Abdullah (2016) found that senior secondary school girls studying in co-education schools and girls' school had similar academic performance.

In Eswatini single-sex schools (N=6) are found in the Manzini region. There are two boys' schools and four girl's schools. A majority of schools in the country are co-educational. Several research related to academic performance has been done in co-educational schools. No study has been conducted on the academic performance of single-sex schools in Eswatini. Therefore, this study sought to identify the predictors for agriculture students' academic performance in single-sex schools in Eswatini.

The purpose of the study is to identify predictor variables for agriculture students' academic performance in single-sex schools in Eswatini. The objectives of the study were:

1. Describe academic performance of students in single-sex schools
2. Describe respondents by their demographic characteristics and background information in single-sex schools
3. Compare academic performance of single-sex schools by selected demographic characteristics and background information in single-sex schools
4. Identify predictor and explanatory variables for academic performance in single-sex schools.

2.0 LITERATURE REVIEW

Literature reveals several variables that can predict academic performance in a single-sex school. These variables include socioeconomic status, family structure, type of school, parental involvement, resource materials, class sizes, and school location (Mkhize, 2016). Academic performance in school is associated with parental involvement (Narad & Abdullah, 2016); school environment (Narad & Abdullah, 2016); peer influence (Hanushek, Kain, Markman & Rivkin, 2002), learning facilities (Singh, Malik, & Singh, 2016); socio economic background, such as school location; good physical facilities such as classrooms, libraries, and workshops (Kanana, 2015; Kibaara & Ndirangu, 2014).

Raychaudhuri, Debnath, Sen and Majumder (2010) found that academic performance of students rely on various socioeconomic variables like students' participation in the class, family pay, and teacher-student ratio, presence of qualified teachers in school and gender of the student. Similarly, Ceylan and Akerson (2014); and Papanastasiou (2008) found that students' socioeconomic status and educational background of their families were factors for school academic performance. Studies on children's educational achievements over time have demonstrated that social background remains one of the major sources of educational inequality (Graetz, 1995). In other words, educational success depends very strongly on the socio-economic status of ones' parents (Graetz, 1995).

Higher degree of peer pressure and peer conformity increase likelihood of risk taking behavior such as substance and sexual abuse which indirectly negatively affects learner's academic performance (Santor, 2000).

Parental involvement could be key to the academic success of students. Parental involvement may increase course credits earned, class attendance, school readiness, and behaviour (Simon, 2001). Students with involved parents, regardless of background, are more likely to score higher grades and score high in tests, take advanced courses, be promoted, have better attendance rates, be better behaved, graduate and go on to college (Brown & Fiester, 2003). Narad and Abdullah (2016) found that senior secondary school girls studying in girls' schools had higher parental encouragement as compared to their counterparts in co-education schools. Narad and Abdullah further observed that senior secondary school girls studying in co-education schools had higher permissiveness as compared to those studying in girls' school, while those in girls' school had higher control as compared to their counterparts in co-education schools.

Buckingham (2000) found that school-related factors were linked to academic performance. There is an indirect link to socio-economic status, as single-sex schools are more likely to have a greater number of students from high socio-economic status families. Also, single-sex schools are likely to select students with stronger academic abilities and have greater financial resources. Marks (2000) found that students attending private non-Catholic schools were more likely to stay on at school than those attending State schools. Similarly, students from independent private schools were also more likely to achieve higher end of school scores (Buckingham, 2000).

The availability of facilities, equipment and teaching material affect academic performance. Kibaara and Ndirangu (2014) concluded that good physical facilities such as classrooms, libraries and workshops were contributing to the academic performance in a school. Similarly, Brown and Fiester (2000) found that making textbooks available to pupils, appropriate reading materials, library, and laboratory facilities were affecting the pupils' academic performance. Pupils can fall behind in the school work or fail where large classes do not permit the teacher to give personalized or individual attention to the pupils (Battle & Lewis, 2002).

Students from rural areas are more likely to have lower academic performance than students from urban areas (Cheers, 1990). Issues affecting access to education in rural areas include costs, the availability of transport, and levels of family income support. Furthermore, students may also have limited recreational and educational facilities within their school in rural areas (Van Wyk, 2003).

The head teacher and teachers also play a vital role in the academic performance of students in schools. The head teachers and teachers as main stakeholders should play an integral role in making sure that learners receive quality education by employing different strategies to control disruptive behaviors in the classroom (Chukwuere, Mavetera & Mnkandla, 2016; Dibapile, 2012; Isaiah & Nenty, 2012). The headteachers and the teachers should develop a school climate that is conducive for teaching and learning in order to enhance academic performance (Cheruto & Kipkoech, 2011). The head teacher should share the goals among the teachers and the learners (Sapungan & Mondragon, 2014). Furthermore, Chukwuere, Mavetera and Mnkandla (2016) believe that teachers or educators provide a suitable learning environment for all learners.

3.0 METHODOLOGY

This was a descriptive correlational study targeting Form 4 and Form 5 agriculture students from the six single-sex schools in Eswatini: two boys' and four girls' schools. A total of 120 students were randomly sampled: 10 students from Form 4 and 10 students from Form 5 in each school. A self-administered questionnaire was used in data collection. The questionnaire having a Likert-type scale was used to measure factors for academic performance in single-sex schools. The Likert-type scale had the following ranges: 1= strongly disagree; 2=slightly disagree; 3=disagree; 4=agree; 5=slightly agree; 6=strongly agree. The questionnaire was validated by three experts from the Department of Agricultural Education and Extension at University of Eswatini. Thirty agriculture teachers not involved in the study were used in pilot testing to establish inter-item reliability using Cronbach's Alpha. The Cronbach's Alpha revealed that the reliability coefficient was .83, which means the instrument was 83% reliable.

The researchers collected data in February 2016. The agriculture students were put in one class and then the questionnaire was administered. Prior to data collection, letters seeking permission to conduct the study were written to the school principals and the respondents, and permission was granted. To ensure confidentiality and anonymity, the questionnaire was formulated in a way that respondents' names were not revealed. Also, the data were only accessible to the researchers. Descriptive statistics and inferential statistics in the Statistical Package for Social Sciences (SPSS) version 20 were used for analysing the data. Multiple regression was used to identify predatory and explanatory variables for academic performance in a single-sex school.

The predictor variables used in the multiple regression were demographic characteristics and background information variables, socio-economic variables, teacher-related variables, learner-related variables, parent-related variables, infrastructure-related variables and school-related variables. The alpha level was set *a priori* at $p \leq 0.05$.

4.0 FINDINGS AND DISCUSSION FOR THE STUDY

4.1 Academic Performance of Students in Single-Sex Schools

Table 1 reveals that the performance of the agriculture students in the six single-sex schools in Eswatini was average. In each school two tests were averaged for the sampled agriculture students to produce one grade for each class. The grades for Form 4 and Form 5 for each school are as presented in the table.

Table 1: Academic performance of students in a single-sex school (n= 120)

School	Form 4	Form 5	Average
A	62.13%	64.39%	63.26%
B	68.68%	66.69%	65.19%
C	60.70%	58.15%	59.43%
D	63.78%	62.13%	62.96%
E	74.83%	61.59%	68.21%
F	66.41%	62.62%	64.52%
Overall	66.09%	62.60%	63.93%

Since the average performance of each school was in the range between 60% and 70% and the overall average of the schools was 66.09%; the single-sex schools were considered to be performing above average in agriculture. Any grade between 60% and 70% is categorized as a "C" symbol in the country by the Examination Council of Eswatini. Also, Form 4 agriculture students performed better than the Form 5 agriculture students probably because the teachers in Form 5 are strict as they prepare the students to write their external examination at the end of the year. Generally, as alluded already, the performance of single-sex schools in agriculture was above average as the passing mark set by the Ministry of Education in Eswatini is 50%. The findings are consistent with the existing literature. Existing literature indicates that students in a single-sex school are doing well. Bait (1986) argued that learners in single-sex schooling perform better than in a co-education school. Hence, Battle and Lewis (2002) stated that the separation of pupils by sex in schools was done solely for academic purposes.

However, Narad and Abdullah (2016) reported that senior secondary school girls studying in co- education schools and girls' schools had similar academic performance.

4.2 Demographic Characteristics and Background Information of Respondents

Table 2 indicate that most of the respondents in this study were female students (n=80, 66.7%), since most learners were sampled from girls' schools. Interestingly, most of the students were over-aged as they were above 17 years old (n=76, 29.2%), yet, by the time the learners are in Form 5 should be 17 years, since they start Grade 1 when they are six years old. The education system in Eswatini is such that learners take 12 years before enrolling in tertiary institutions: seven years at primary school and five years at secondary school. Most of the students were coming from urban areas (n=85, 70.8%) since the schools were located in two towns in the Manzini region. Sixty-five percent of the agriculture students were staying with a single parent (n=78, 65%). Fifty-five percent of the parents had formal employment even though a sizeable number was not employed (n=37, 30.8%). Finally, parents were the main source of funds for school fees (n=61, 50.8%). Buckingham (2000) found that school-related factors were linked to academic performance. There is an indirect link to socio-economic status, as single-sex schools are more likely to have a greater number of students from high socio-economic status families. Also, the single-sex schools are likely to select students with stronger academic abilities and have greater financial resources. Students from rural areas are more likely to have lower academic performance than students from urban areas (Cheers, 1990).

Table 2: Demographic characteristics and background information of respondents (n= 120)

Demographic variables	f	%
Sex		
Male	40	33.3
Female	80	66.7
Age		
17 years and below	44	36.7
Above 17 years	74	63.3
Residence location		
Rural	35	29.2
Urban	85	70.8
Staying with parent		
Both parents	42	35.0
Single parent	78	65.0
Parents employment status		
Unemployed	66	55.0
Employed	37	30.8
Self-employed	17	14.2
Source of fund for paying school fees		
Parents	61	50.8
Guardian	7	5.8
Government	36	30.0
Private sponsor	16	13.3

4.3 Comparison of Academic Performance of Single-Sex School by Selected Demographic Characteristics and Background Information

Independent t-test and one way analysis of variance (ANOVA) were used to find out if there was any significant difference between selected demographic characteristics and background information on the academic performance of single-sex schools in Eswatini. The independent - test indicated that a significant difference existed between academic performance and the following variables: respondents' sex (t=5.92, p=.00) and parent staying with student (t=-1.08, p=.04) (see Table 3). The ANOVA indicated that a significant difference existed between academic performance and the source of fund to pay school fees (F=2.74, p=.05). However, post-hoc analysis could not tell exactly where the differences are within the groups.

Differences in academic performance were reported by Bait (1986). Bait found that girls in a single-sex school perform well as boys in single-sex school.

Table 3: Comparison of academic performance in relation to selected demographic characteristics and background information (n= 120).

Demographic / background variables	n	M	SD	F-value / t-value	p
Sex					
Male	40	65.42	2.83	t=5.92	.00
Female	80	62.71	2.09		
Age					
17 years and below	44	63.58	2.64	t=-1.1	.73
Above 17 years	76	63.63	2.72		
Residence location					
Rural	35	63.18	2.45	t=1.13	.14
Urban	85	63.78	2.76		
Staying with parent					
Both parents	42	63.25	2.37	t=-1.08	.04
Single parent	78	63.81	2.82		
Class					
Form 4	60	63.16	2.69	t=0.00	1.00
Form 5	60	63.61	2.69		
Parents employment status					
Unemployed	37	63.92	2.76		
Employed	66	63.61	2.63	F=0.38	.68
Self-employed	17	63.33	2.78		
Source of fund for paying school fees					
Parents	61	63.13	2.54		
Guardian	7	64.95	2.33	F=2.74	.05
Government	36	63.55	2.25		
Private sponsor	16	64.98	3.63		

4.4 Identify Predictor and Explanatory Variables for Academic Performance in a Single-Sex School

Multiple regression was used to identify predator and explanatory variables for academic performance in single-sex schools. Table 4 indicates that only sex (t=-5.92, p=0.00) explained agriculture student academic performance in the single-sex schools. Sex explained 2% of the variance on agriculture student academic performance in the single-sex schools. Bait (1986) found that girls in a single-sex school perform as well as boys in a single-sex school and such performance is significantly better than boys and girls in co-education schools.

Table 4: Explanatory and predictor variables for academic performance in a single-sex school (n= 120).

	R	R^2	R^2 change	B	Beta	t	p
Sex	.47	.23	.23	-2.71	-0.48	-5.92	.00

5.0 CONCLUSION

Sex is the only predictor for academic performance of agriculture students in single-sex schools in Eswatini. The academic performance of agriculture students in single-sex schools in Eswatini is average. Male agriculture students performed better than female agriculture students. Finally, agriculture students staying with single parents performed better than those staying with both parents.

6.0 RECOMMENDATIONS

1. Parents are encouraged to enroll their children in single-sex schools; especially boys' schools so that they can do well in agriculture.
2. Students should be separated according to their sex even in co-educational schools when teaching agriculture and also when they are doing their experiments.
3. Private sponsors should be encouraged in single-sex schools as they positively contribute to academic performance, probably because they pay timeously.
4. Since this study only focused on single-sex schools, then a similar study should be conducted to compare the single-sex schools with the co-educational schools on agriculture student academic performance in Eswatini.

REFERENCES

Anamuah-Mensah, J. (1995). The race against underdevelopment: A mirage or reality. *Journal of Science and Mathematics Education.* Vol. 1 Issue (1). pp 6-23.

Bait, M. K. (1986). *The Relationship of Teacher Behavior to Student Achievement in High and Low Achievement High Schools in Nairobi, Kenya*. Unpublished doctoral dissertation, University of Oregon, Eugene, Kenya.

Battle, J. & Lewis, M (2002). The increasing significance of class: The relative effects of race and socioeconomic status on academic achievement. *Journal of Poverty.* Vol. 6. Issue (2). pp 21-35.

Brown, P., & Fiester, L. (2003). *New song academy: Linking education and community development to build stronger families and neighborhoods.* Retrieved 05/09/2015 from http://www.worldbank.org/education/est/resources/topic%papers/partnership.doc

Buckingham, J. (2000). Boy .roubles: Understanding rising suicide, rising crime and educational failure. Monographs of CIS Policy, Centre for Independent Studies, Sydney, 46.

Ceylan, E & Akerson, V. (2014). Comparing the low- and high-performing schools Based on the TIMSS in the United States. *Education and Science.* Vol. 39. Issue. (173). pp 299–309.

Cheers, B. (1990). Rural disadvantage in Australia Australian Social Work, *Economic Journal 43 (1), 5-13*.

Cheruto, L. & Kipkoech, C. S. (2011). The levels of teachers' involvement in managerial decision making in schools in Kenya. *Problems of Education in the 21st Century Journal.* Vol. 34, pp 79-87.

Chukwuere, J.E., Mavetera, N., & Mnkandla, E. (2016). An empirical study on the Success factors to consider in developing e-Learning Systems: A Learner-Oriented System. *Asian Journal of Information Technology*. Vol. 15. Issue (16). pp 3087-3102.

Dibapile, W.T. (2012). A review of literature on teacher efficacy and classroom management. *Educational Psychology Counseling Publications and Other Works,* Vol. 9. Issue (2). pp 79 – 90.

Graetz, B. (1995), Socio-economic status in education research and policy in John Ainley. Socio-economic Status and School Education DEET/ACER Canberra.

Hanushek, E. A., Kain, J. F., Markman, J. M., & Rivkin, S. G. (2003). Does peer ability affect student achievement? *Journal of applied econometrics*. Vol. 18. Issue (5). pp 527-544.

Hurst, J., & Johansen, I. (2006). The changing landscape of single-sex education. *School Law Bulletin.* Vol. 45, Issue (1). pp 23.

Isaiah M. N. & Nenty H. J. (2012). Predicting job dissatisfaction among community Junior secondary school teachers in Botswana. *Organisational/Journal/ Psychology.* Vol. 3. Issue (3). pp 277-283.

Kibaara, T. M. & Ndirangu, L. M. (2014). Parental involvement in their children's academic achievement in public secondary schools: A Case of Kieni-West Sub-County, Nyeri County- Kenya. *International Journal of Education and Research,* Vol. 2. Issue (11), pp. 411-422.

Kanana, M. R. E. (2015). *Influence of stakeholders participation in primary school management on academic performance: the case of Uringu Division, Meru County, Kenya.* (unpublished masters thesis). University of Nairobi. Kenya.

Marks, G. (2000). *Patterns of Participation in Year 12 and Higher Education in Australia: Trends and Issues, LSAY Research Report No.17.* Australian Council for Educational Research Camberwell, Victoria.

Mkhize, N. P. (2016). *Factors that contribute to students' academic performance of single Sex school in X country.* Unpublished bachelor's thesis, University of Eswatini, Luyengo, X country.

Narad, A & Abdullah, B. (2016). Academic performance of senior secondary school students: Influence of parental encouragement and school environment. *Rupkatha Journal on Interdisciplinary Studies in Humanities Special Issue*. Vol. 3. Issue (2). pp 12-19. Retrieved from http://rupkatha.com/

Ogden, C. E. (2011). A Comparison of student performance in single-sex education and coeducational settings in urban middle schools. Statesboro, Georgia *Georgia Southern University. Unpublished PhD Thesis.* https://digitalcommons.georgiasouthern.edu/etd/361

Papanastasiou, C. (2008). A residual analysis of effective schools and effective teaching in Mathematics. *Studies in Educational Evaluation.* Vol. 34. pp 24-30.

Raychaudhuri, A., Debnath, M., Sen, S., & Majumder, B. G. (2010). Factors affecting students' academic performance: A case study in Agartala Municipal Council Area. *Bangladesh. e-Journal of Sociology*. Vol. 7. Issue (2). pp 34-41

Santor, C. E. (2000). Gender stereotyping, boys' achievement and adjustment during Junior high school. *American Journal of Orthopsychiatry*, Vol. 83, pp 252–26.

Simon, B. S. (2001). Family involvement in high school: Predictors and effects. *Journal National Association of Secondary School Principals, NASSP Bulletin.* Vol. 85 Issue (627). pp 8-19.

Singh, S.P. Malik, S. & Singh, P. (2016). Factors Affecting Academic Performance of Students. *Paripex - Indian Journal of Research.* Vol. 5. Issue (4) pp 176-178.

Sapungan, G. M. & Mondragon, R. S. (2014). Parental involvement in child's education: importance, barriers and benefits. *Asian Journal of Management Sciences & Education*, Vol. 3. Issue (2). pp 23-43.

Sneed, M. (2009). Complying with single-sex education regulations. *School Administrator.* Vol. 66. Issue (8). p 30.

Steptoe, S., & Arbor, A. (2004, November 29). Closing the gap. *Time Magazine.* Vol. 93. Issue (4). pp 16–19.

Van Wyk, L. (2003). *A review of the South African construction industry: Part 1 - Economic, regulatory and public sector capacity influences on the construction industry.* CSIR.

Wiseman, A.W (2008). Gender, Equality and Education from international and comparative perspective. *Journal for International Perspectives on Education and Society. Vol. 10. Issue(2). pp 23-25*.