The effect of socio-economic status and environmental factors on the academic performance of students at Asmara College of Education

This study examines whether various environmental factors and the socio-economic status of families influence academic achievement (cumulative grade point average) of students at Asmara College of Education (Asmara, Eritrea). A questionnaire survey was conducted among students to gather information on this subject. Descriptive statistics, crosstabs, Person chi-squared tests were used and analysis of variance was performed by the authors to study data. The results indicate that none of the variables examined, except gender of students and learning resources provided by their families to them, affect cumulative grade point averages. Many students perceive that their academic achievement could be improved instead by building intrinsic motivation, planning, and effective time management. Furthermore, Eritrea provides free education at all levels, including higher institutions, which thereby minimizes socio-economic constraints and provides equal opportunities to all citizens. However, parents should pay attention to their children to improve their academic performance, while colleges should also support students by providing a conducive environment for learning.

KEYWORDS: socio-economic and environmental factors, academic performance, Asmara College of Education
Education is the bedrock of all future development, and this assertion implies that education is a vital tool for ensuring the continued growth of all nations (Osei-Tutu–Yeboah-Appiagyei–Bernard [2014]). It is a tool that enables citizens to make well-rounded contributions to the development process. Furthermore, it is the best legacy a nation can provide to its citizens, especially to students, because the development of any nation or community depends largely on the quality of education it provides (Michibu [2013]). It is through education that children and young people develop their intelligence and knowledge to be active parts of the world they live in.

Academic achievement is primarily important in the context of an education system aimed at the progressive development of students. The education of a man is appraised based on his academic achievement (Hossain–Islam–Biswas [2017]). It is important to have a clear understanding of what encourages or hinders one’s performance (Barry [2005]) because students’ success is a critical issue we are facing today (Mapuranga–Musingafi–Zebron [2015]). Educators, trainers, and researchers have long been interested in exploring variables, within and outside schools, to effectively contribute to academic performance (Michibu [2013]). These variables may be termed learner, socio-economic, peer group, and school factors.

Even at the university level, various (socio-economic, environmental, psychological, etc.) factors can affect the academic performance of students (Zyl-Schalekamp–Mthombeni [2006], Hijazi–Naqvi [2006]). The home environment of a student is influenced by the level of education, occupation, and income of his/her parents, and the facilities provided to him/her, which can be collectively defined by a single term, ‘socio-economic status’ (SES) (Akhtar [2012]). SES is a significant predictor of the academic performance of students and presumably the most widely used contextual variable in educational research (Sirin [2005]). Parents’ education is an important index of academic achievement status, and as noted, it predicts the educational and behavioural concerns of students. Family income, which influences parents’ schooling expectations for their college students, is considered a determinant of pursuing a higher educational degree (Darwish [2016]). Several factors outside the home environment may also affect the academic achievement of students, one of which is the school environment that differs from one school to the other (Osei-Tutu–Yeboah-Appiagyei–Bernard [2014]).

Surveys on education intended to test the academic performance of students, often employ SES and various educational environmental factors for analyses, claiming that they have the biggest impact on academic achievement. Therefore, the determination of such factors and the assessment of their impact are
important to control changes in the academic performance of students (Salameh–Sathakathulla [2018]).

The purpose of the present study is to assess the socio-economic and environmental factors affecting the academic performance of students at the Asmara College of Education (ACE). The study concentrates on the social background, specifically the parents’ level of education, occupation, income, and involvement in students’ academic life. Moreover, it seeks to propose a possibly valuable recommendation that would contribute to the promotion of the academic performance of students at the ACE.

1. Literature review

Education is germane to individual, economic, social, and cultural development. It is a catalyst for positive societal change (Oladipupo–Ehigbochie [2017]) and plays a significant role in national and social development (Inziani [2013]). In educational systems, the teaching and learning environment has both direct and indirect impacts on the academic performance of students, and a satisfactory learning environment undoubtedly ensures higher achievement (Chan [1996]).

The higher education demands of individuals are generally determined by public finance policy, parents’ level of education, profession, and income, number of children in the family, rate of return, employment ratio, and the population of the related age group (Gölpek [2014]). According to Okioga [2013], the socio-economic backgrounds of students considerably influence their academic achievement, and, as low SES children get older, their situation tends to worsen (Caro [2009]).

Academic performance, as an indicator of a student’s extent of learning, is measured by the grades that he/she earns. Therefore, graded assignments are a primary indicator of such learning; higher (lower) grades are correlated with good (poor) performances and competencies (Aguiran–Lazo–Salabat [2014]). Performance is fundamentally the result of mental and economic satisfaction with a particular object, and if an individual is mentally and socially satisfied, positive results will reflect in his/her performance of tasks (Salameh–Sathakathulla [2018]). Poor academic achievement of students at the college level is a result of a series of factors that are complex and interrelated, both within and outside the institution (Bayat–Louw–Rena [2014]). Thus, most researchers and educators seek to ascertain the factors that may facilitate or prevent deep involvement of students in learning (Hanrahan [1998]).
Accounting for differences in academic achievement among individuals and social groups has received considerable global attention from educators, researchers, and policymakers (Carlisle–Murray [2015]). A consistent finding of educational research studies is the effect of students’ family socio-economic background on their learning environment (Schulz [2005]). The socio-economic background may affect learning outcomes in numerous ways; from the outset, parents with higher SES can provide their children with the (often necessary) financial support and home resources for individual learning. They are also more likely to provide a more stimulating home environment to promote cognitive development (Schulz [2005]). However, ‘lower-income families can have children who do not succeed to the levels of the middle-income children, have a greater sense of entitlement, …more argumentative, …or better prepared for adult life’ (Okioga [2013] p. 8).

SES can be defined as an individual’s overall social position to which attainments in both social and economic domains contribute (Considine–Zappala [2002]). The effect of parental SES on the educational outcomes of students may be neutralized, strengthened, or mediated by a range of other contextual, family, and individual characteristics.

SES is a term comprised of two variables – social and economic. Social status refers to the social position of an individual or family with regard to other individuals/families on the basis of income, educational attainment, and occupational status whereas economic status is associated with the money or assets the individual/family owns (Hossain–Islam–Biswas [2017]). To ascertain a family’s SES, the household income is examined in addition to the education and occupation of earning members (Bhat–Joshi–Wani [2016]). SES is measured with the same indicators by sociologists, educationists, and psychologists. Students’ learning outcomes are related to their social class, where both SES and educational attainment play a role (Ariani–Ghafournia [2016]).

Consequently, SES is one of the most researched and debated factors among educational professionals with respect to the academic performance of students (Chen [2009]). The most prevalent argument is that the SES of learners affects the quality of their academic performance (Farooq et al. [2011], Strand [2014]). During their early adolescent years, students meet multiple individuals and experience social-environmental changes that can affect their academic performance (Eamon [2005]). Several studies reveal that SES is important for predicting student achievement levels (Broeck–Damme–Opdenakker [2004]).

As mentioned above, socio-economic factors, such as family income level, parents’ level of education, race and gender of students, all influence the quality and availability of education as well as the ability of education to improve life circumstances. Many studies that have investigated university students’ success have taken the approach of measuring factors that are thought to be related to academic success.
and correlated with the grade point average (GPA\(^1\)) (Mapuranga–Musingafi–Zebron [2015]). Questionnaires are the most widely used instruments of research in this field, and they have been validated by experts in sociology, psychology, and educational departments. Mulusa [1988], as cited in Akhtar [2012], emphasizes that if the return rate of the questionnaire is above 80%, it is considered to have provided a relatively valid and reliable representation of the target population. Figure 1 and Table 1 introduce the factors affecting students’ academic performance and the causal relationships among them. Contingency statistics such as chi-squared and likelihood ratio chi-squared tests can be used to study these relationships. In addition, the basic features of data can be described by descriptive statistics and the associations between students’ academic performance and its determinants can be estimated with regression models.

*Figure 1. A causal model of the academic performance of students*

\[\text{GPA is derived from either letter grades or percentages that students obtained from their subjects in a completed semester.}\]
Table 1

Factors affecting the academic performance of students

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Dimension</th>
<th>Factor</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Person</td>
<td>Language, motivation, efforts, age, gender, and skills</td>
<td>Bosworth [1994]</td>
</tr>
<tr>
<td></td>
<td>and family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>College</td>
<td>College infrastructure and teachers</td>
<td>Rivkin–Hanushek–Kain [2005]</td>
</tr>
</tbody>
</table>

2. Research methodology

Herein, we report the findings of a quantitative and qualitative study conducted to test the association between certain independent variables and the academic achievement of students attending the ACE. To collect data, a questionnaire was distributed to them during instructional time. It consisted of 45 questions designed to determine how socio-economic, educational, and environmental factors (independent variables) influence the cumulative grade point average (CGPA) of students (dependent variable). The CGPA was defined in two categories (2.00–2.74 and 2.75–4.00).

This section focuses on the procedures that were performed during the study. The research design, target population, sample and sampling procedures, research instruments, data collection, and data analysis techniques are subsequently presented.

2.1. Methods and research instruments

A descriptive survey design was used to assess the influence of various socio-economic and environmental factors on the academic performance of ACE students.

Both qualitative and quantitative approaches were applied in the present study. First a questionnaire was developed to collect data. (See the Appendix.) It consists of

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2 A CGPA shows academic performance from 0.00–4.00, calculated as an average of students’ grade point average from all completed terms/semesters.
both closed- and open-ended questions on the respondents’ SES, educational environment, demographic data, and academic performance (CGPA), parents’ demographic data and involvement in students’ academic life, and leaning resources provided by the families to the students. After its validation by experts in sociology, psychology, and educational administration, the questionnaire was delivered to the respondents during class hours. Students were given clear information about the purpose of research before they began to respond to the questions, and the importance of the survey and the necessity to provide genuine and honest contributions were explained to them.

After data collection, a quantitative approach was adopted to analyse the numeric responses and a qualitative approach was employed to use the non-numeric responses given to open-ended interview questions for describing and comparing survey respondents’ opinions and reviews.

2.2. Sample

The target population included freshman, second year, junior, and senior ACE students specialised in educational psychology and administration. A random sampling technique was employed to select a sample from this population ($N = 150$). A total of 55 students completed the questionnaire.

2.3. Data analysis

The responses were coded and analysed using the Statistical Package for Social Sciences (SPSS; version 25). Descriptive statistics (frequencies and percentages) from the findings were presented in pie charts, tables, and bar graphs which were used for interpretation. Analysis of variance (ANOVA) was performed and a chi-squared test was run to identify associations between the independent and dependent variables. Furthermore, a linear regression model was prepared to predict the effect of SES and other environmental factors on the academic achievement of students. Since there was no association between a majority of the independent and dependent variables, as will be subsequently explained, the linear regression model below was not used. Fathers’ highest educational attainment ($FE$), mothers’ highest educational attainment ($ME$), parents’ average monthly income ($IN$), environmental factors ($EF$), parental involvement in students’ academic life ($PI$), and learning resources provided by the families to the students ($LR$) were taken as exogenous (independent) variables and the academic achievement ($CGPA$) of students was taken as the endogenous (dependent) variable.
The CGPA was modelled as:

$$CGPA = a + b_1 \text{FE} + b_2 \text{ME} + b_3 \text{IN} + b_4 \text{EF} + b_5 \text{PI} + b_6 \text{LR}.$$ 

The qualitative data were organised into themes and patterns based on the analysis of their meanings and implications emanating from the respondents’ information on academic performance.

2.4. Ethics

The survey was based on the free-will principle and – as it was mentioned – was conducted in the classrooms at a convenient time during class hours.

3. Results

A total of 56 questionnaires were distributed, of which 55 were completed (the response rate is 98.2%), implying a relatively valid and reliable representation of the target population.

3.1. Demographic characteristics

Hereafter, we present the following: personal characteristics of the respondents with respect to gender, age, educational status, and CGPA (demographic data of students); parents’ highest educational attainment, employment status, and average monthly income (parents’ demographic data); parental involvement in students’ academic activities; who defrays students’ college expenses, and with whom they live mostly.

Students’ gender, age, educational status, and CGPA

Students were asked to indicate their gender and age on the questionnaire, with the results presented in Table 2. The participants comprise 32 (58.2%) female and 23 male students aged 18 to 28 years (except for one student who was 37 years old). The majority are aged 21 (20 respondents, 36.4% of the participants) and 20 (14 respondents, 25.5%).
Table 2

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Relative frequency distribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>23</td>
<td>41.8</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>58.2</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The educational status of the sample ranges from freshmen to senior wherein 7 (12.7%) are freshmen, 2 (3.6%) are sophomores, 20 (36.4%) are juniors, and 26 (47.3%) are seniors. The majority of the sample comprised seniors for two reasons: senior students are at the end of their college years, thus they 1. can give answers that correspond to reality and 2. have more experience in the subject than others have. Therefore, they can provide more information about the effects of the environmental factors and SES on their academic performance.

Figure 2 presents the CGPA of the respondents. The mean CGPA is 2.85 with a standard deviation of 0.48. The minimum CGPA is 2.00, while the maximum is 3.96.
Parents’ highest educational attainment, employment status, and average monthly income

The students were also asked to indicate their parents’ highest educational attainment, employment status, and average monthly income on the questionnaire. This information is shown in Tables 3–5.

Table 3

Parents’ highest educational attainment

<table>
<thead>
<tr>
<th>Highest educational attainment</th>
<th>Father</th>
<th></th>
<th></th>
<th>Mother</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Relative frequency distribution (%)</td>
<td></td>
<td>Frequency</td>
<td>Relative frequency distribution (%)</td>
<td></td>
</tr>
<tr>
<td>Did not attend school</td>
<td>2</td>
<td>3.6</td>
<td></td>
<td>7</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Attended</td>
<td>55</td>
<td>100.0</td>
<td></td>
<td>55</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>primary school</td>
<td>10</td>
<td>18.2</td>
<td></td>
<td>20</td>
<td>36.4</td>
<td></td>
</tr>
<tr>
<td>secondary school</td>
<td>30</td>
<td>54.5</td>
<td></td>
<td>18</td>
<td>32.7</td>
<td></td>
</tr>
<tr>
<td>vocational and technical institute</td>
<td>4</td>
<td>7.3</td>
<td></td>
<td>4</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>university</td>
<td>9</td>
<td>16.4</td>
<td></td>
<td>6</td>
<td>10.9</td>
<td></td>
</tr>
</tbody>
</table>

Table 4

Parents’ employment status

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Father</th>
<th></th>
<th></th>
<th>Mother</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Relative frequency distribution (%)</td>
<td></td>
<td>Frequency</td>
<td>Relative frequency distribution (%)</td>
<td></td>
</tr>
<tr>
<td>Employed in the public sector</td>
<td>21</td>
<td>38.2</td>
<td></td>
<td>12</td>
<td>21.8</td>
<td></td>
</tr>
<tr>
<td>Employed in the private sector</td>
<td>29</td>
<td>52.7</td>
<td></td>
<td>6</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>5</td>
<td>9.1</td>
<td></td>
<td>37</td>
<td>67.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100.0</td>
<td></td>
<td>55</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 5

Parents’ average monthly income

<table>
<thead>
<tr>
<th>Average monthly income</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2,000 Nakfa</td>
<td>28</td>
<td>50.9</td>
</tr>
<tr>
<td>2,000–4,000 Nakfa</td>
<td>22</td>
<td>40.0</td>
</tr>
<tr>
<td>4,001–6,000 Nakfa</td>
<td>3</td>
<td>5.5</td>
</tr>
<tr>
<td>More than 6,000 Nakfa</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Other demographic characteristics

Most of the respondents (58.2%) live with both their mother and father, 30.9% live only with their mother, 9.1% only with their father, and 1.8% with their guardian. Additionally, 65.5% of the respondents’ college expenses are borne by their father, 21.8% by their mother, 1.8% by their other relatives, and 1.8% by their guardian.

Questions were also raised on parental involvement in students’ academic life through motivating follow-up, monitoring progress, and inquiry, and on the provision of learning resources (textbooks, stationery, etc.) or extra personal materials by the families to the students.

3.2. Crosstabs, chi-squared tests, and ANOVA

Chi-squared tests were used to examine the associations between the CGPA (dependent variable) and the independent variables, based on the levels of measurement (nominal and ordinal). As noted, CGPA was defined in terms of two categories (2.00–2.74 and 2.75–4.00). Fathers’ and mothers’ highest educational attainment, parents’ monthly income and involvement in students’ academic life, the gender of students, environmental factors, learning resources provided by the family to the students, and the academic achievement goal of students (development of personal abilities and skills, financial or social motives, etc.) were among the independent variables tested.

With the exception of the gender of students and provision of learning resources by the families, which have a weak effect on the CGPA, none of the independent variables are associated with the dependent variable. Therefore, only the father’s highest educational attainment is taken next as an example to test for the relationships between the CGPA and independent variables, and the results of ANOVA for the gender of students and provision of learning resources are presented.

Testing for the association between fathers’ highest educational attainment and students’ CGPA

Students were asked to indicate their fathers’ highest educational attainment on the questionnaire, by choosing from the following options: university, vocational and technical institute, secondary school, primary school, did not attend school, do not know, other. (See the Appendix.) The answers were classified into two categories (variables): less educated (if the respondent did not know his/her parent’s highest educational attainment or the father did not attend school, or only attended primary school) and educated (if the father has a secondary diploma, vocational and technical
qualifications, or a tertiary degree). (See Table 6.) For both variables, the level of measurement was ordinal; hence, the chi-squared test was chosen to study their relationship with the CGPA of students. (See Table 7.) The chi-square calculated value is 0.024, the asymptotic \( p \)-value is 0.876, and the association is not significant at the usual significance levels. The \( p \)-value is lower than 3.84 (the critical value with one degree of freedom), which indicates that fathers’ highest educational attainment does not influence the academic achievement of students. The same procedure was used to test for associations between the other independent variables and the CGPA but most of the results are the same, indicating no relationship between the variables. (See Table 8.)

Table 6

<table>
<thead>
<tr>
<th>CGPA category</th>
<th>Father’s highest educational attainment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less-educated</td>
<td>Educated</td>
</tr>
<tr>
<td>2.00–2.74</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>2.75–4.00</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>43</strong></td>
</tr>
</tbody>
</table>

Table 7

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic significance (two-sided)</th>
<th>Exact significance (two-sided)</th>
<th>Exact significance (one-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-squared test</td>
<td>0.024*</td>
<td>1</td>
<td>0.876</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity correction**</td>
<td>0.000</td>
<td>1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood ratio test</td>
<td>0.024</td>
<td>1</td>
<td>0.876</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher’s exact test</td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
<td>0.057</td>
</tr>
<tr>
<td>Linear by linear association</td>
<td>0.024</td>
<td>1</td>
<td>0.877</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of valid cases</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 0 cell (0.0%) has an expected count less than 5. The minimum expected count is 5.24.

** Computed only for a 2 × 2 table.
Table 8

Chi-square values for the independent variables and the related asymptotic significance (two-sided)

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Chi-square value</th>
<th>Asymptotic significance (two-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father’s highest educational attainment</td>
<td>0.024</td>
<td>0.876</td>
</tr>
<tr>
<td>Mother’s highest educational attainment</td>
<td>0.439</td>
<td>0.508</td>
</tr>
<tr>
<td>Parents’ average monthly income</td>
<td>0.181</td>
<td>0.671</td>
</tr>
<tr>
<td>Learning resources provided by the family to the student</td>
<td>2.082</td>
<td>0.149</td>
</tr>
<tr>
<td>Parental involvement in the student’s academic life</td>
<td>0.008</td>
<td>0.927</td>
</tr>
<tr>
<td>Gender of the student</td>
<td>2.801</td>
<td>0.094</td>
</tr>
<tr>
<td>Academic achievement goal of the student</td>
<td>0.030</td>
<td>0.863</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>0.601</td>
<td>0.740</td>
</tr>
</tbody>
</table>

Results of ANOVA for the gender of students
and provision of learning resources

ANOVA was conducted for the gender of students and the learning resources provided to them by their families as only these variables have an (albeit weak) effect on the dependent variable. The results are shown in Tables 9 and 10, respectively. According to Table 9, there is a significant difference between male and female students in terms of CGPA. There is also a weak impact of the resources provided to students on the independent variable.

Table 9

Results of the one-way ANOVA for gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Standard error</th>
<th>95% confidence interval for the mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower bound</td>
<td>Upper bound</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>23</td>
<td>3.031</td>
<td>0.509</td>
<td>0.106</td>
<td>2.811</td>
<td>3.252</td>
<td>2.15</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>2.722</td>
<td>0.409</td>
<td>0.072</td>
<td>2.575</td>
<td>2.870</td>
<td>2.00</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>2.852</td>
<td>0.475</td>
<td>0.064</td>
<td>2.723</td>
<td>2.980</td>
<td>2.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of variation</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>1.279</td>
<td>1</td>
<td>1.279</td>
<td>6.217</td>
<td>0.016</td>
</tr>
<tr>
<td>Within groups</td>
<td>10.901</td>
<td>53</td>
<td>0.206</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12.179</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Here and in Table 10, deviations from the total sum of squares result from rounding.
Table 10

Results of the one-way ANOVA for learning resources provided to students

<table>
<thead>
<tr>
<th>Were resources provided?</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Standard error</th>
<th>95% confidence interval for the mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower bound</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper bound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>22</td>
<td>2.995</td>
<td>0.503</td>
<td>0.107</td>
<td>2.772</td>
<td>3.218</td>
<td>2.06</td>
</tr>
<tr>
<td>No</td>
<td>33</td>
<td>2.756</td>
<td>0.437</td>
<td>0.076</td>
<td>2.601</td>
<td>2.911</td>
<td>2.00</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>2.852</td>
<td>0.475</td>
<td>0.064</td>
<td>2.723</td>
<td>2.980</td>
<td>2.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of variation</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>0.756</td>
<td>1</td>
<td>0.756</td>
<td>3.505</td>
<td>0.067</td>
</tr>
<tr>
<td>Within groups</td>
<td>11.424</td>
<td>53</td>
<td>0.216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12.179</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3. Responses to the open-ended questions (qualitative data)

The answers to the open-ended questions (qualitative data) were organised into themes and patterns based on their meanings and implications regarding academic performance. (For the possible answers to these questions, see the Appendix.) Students gave ‘Yes’ and ‘No’ responses, and these were further grouped into themes based on the similarities of the answers. To the question ‘Does the work given at home by your parents interfere with your performance?’, most of the students in the sample responded with ‘No’ and answered that they were not provided with any additional tasks by their family. However, some of them did not get sufficient time to study owing to work given at home and were tired due to this work. Consequently, their academic achievement was unsatisfactory.

In response to the request, ‘Suggest ways of improving your academic performance (in relation to your parental support)’, 87.27% of students indicated that their academic performance could be improved through intrinsic motivation, encouragement, planning, and effective time management. This may support the results that there is no definite association between the CGPA and SES or environmental factors.

To the question ‘Do you think school-home distance and nature of transportation is a great factor in the instructional process?’, approximately 62.5% of students answered that the distance of their home from school and the nature of transportation significantly influence their instructional process. Some of them miss classes, which worsens their academic performance and decreases their CGPA.
There were different responses to the question ‘Are you satisfied with the performance of the educational institution?’ The majority (44.64%) of respondents found that there is a fair teaching and learning process at the ACE, but noted the limited human and material resources; 17.85% of students are not fully satisfied with the teaching and learning process, which is one of the factors that lowers their academic performance.

4. Discussion

The objective of this study was to examine and evaluate the relationship between ACE students’ performance (CGPA) and various socio-economic and environmental factors.

The findings of the chi-squared test performed show that there is no association between the dependent variable and most of the independent variables, except for a weak impact by the gender of students and the learning resources provided to them. A number of studies reveal that educated parents would perceive the need for students’ education in a more favourable manner than those who are not educated. Moreover, parental involvement might facilitate students’ learning at home, encourage continuous follow-up, and motivate them to achieve better academic results. Several research posits that the mother’s educational level affects the students’ academic achievement. Therefore, it is assumed in the literature that the relationship between the dependent and independent variables, including the mother’s level of education, monthly income of the parents, and various environmental factors, are positively related. The present study’s findings, however, do not indicate any association between mothers’ educational level and the CGPA of students. The majority of the participants in our survey suggested that their academic performance could be improved through motivation, encouragement, planning, and effective time management. Furthermore, Eritrea provides free education to its citizens at all levels, including higher institutions, which thereby minimizes socio-economic constraints and provides equal opportunity to all students. Thus, this may support the unassociated results of SES and environmental factors with the CGPA.
5. Conclusion

This study has aimed to establish the socio-economic and environmental factors influencing students’ academic performance in general, assess factors affecting the academic achievement of ACE students, and suggest possible solutions that may lead to better outcomes for them. A descriptive survey was employed as the research design and a questionnaire was used to collect information from the students.

We have endeavoured to identify and analyse various socio-economic and environmental factors, such as gender of students, parents’ educational level and average monthly income, learning resources provided by the families, parental involvement in the academic activities of students, and environmental factors that may affect the survey respondents’ academic achievement (dependent variable). These factors were tested for their associations with the CGPA, using Person’s chi-squared test. The findings indicate that there is no significant association between the socio-economic/environmental factors, academic achievement goal of students and the CGPA, except for a weak impact by the gender of respondents and resources provided to them by their families. The authors recommend parents to pay attention to their children and motivate them to improve their academic performance, while colleges should also support students by providing a conducive environment for learning.
Appendix

Asmara College of Education
Post Graduate Diploma, Asmara, Eritrea
Questionnaire for college students

Dear student, this questionnaire is intended to gather information on how the socio-economic and environmental factors affect your college learning. We would like to assure you that the collected data will not be used for any other purpose except for this research. Thus, please answer the following items honestly, since your response is significant for the reliability of our research.

Instructions

*Fill this questionnaire to your most ability*
*Please tick where appropriate or fill in the required information on the spaces provided*

### Part A: General student demographic data

1. Gender: 
   - Male
   - Female
2. Age: ______
3. Cumulative Grade Point Average (CGPA): ______
4. What is your marital status? 
   - Single
   - Separated
   - Divorced
   - Married
5. Academic stage: 
   - Freshman
   - Sophomore
   - Junior
   - Senior

### Part B: General parent demographic data

1. Parent’s level of education
   - Father: 
     - University
     - Vocational and technical institute
     - Secondary school
     - Primary school
   - Mother: 
     - University
     - Vocational and technical institute
     - Secondary school
     - Primary school

   Didn’t attend school
   - Do not know
   - Other (specify) ______

2. Parent’s employment status?
   - Father: 
     - Employed in public sector
     - Employed in private sector
     - Retired
   - Mother: 
     - Employed in public sector
     - Employed in private sector
     - Retired

   Didn’t attend school
   - Do not know
   - Other (specify) ______

3. Parent’s average monthly income: 
   - Less than 2000 Nkf
   - 2000-4000 Nkf
   - 4000-6000 Nkf
   - More than 6000 Nkf

4. Whom do you live with most of the time? 
   - Both mother and father
   - Mother
   - Father
   - Guardian
   - with relatives
   - Other

5. Who pays your college expenses? 
   - Father
   - Mother
   - Guardian
   - Relative
   - Other (specify) ______
Part C: Factors that influence students’ performance.

1. Resources:
   i. Do you have all the necessary stationery for learning? Yes ☐ No ☐
   ii. Do you have a personal laptop? Yes ☐ No ☐
   iii. Do you have personal mobile? Yes ☐ No ☐
   iv. Do you have a comfortable chair for study at home? Yes ☐ No ☐
   v. Do you have a separate room for study at home? Yes ☐ No ☐

2. Parent’s involvement:
   i. Do your parents ensure that you do your homework? Yes ☐ No ☐
   ii. Do your parents ask you about college work? Yes ☐ No ☐
      If yes, how often? Daily ☐ Weekly ☐ Monthly ☐ once per semester ☐
   iii. Does the work given at home by your parents interfere with your performance?
       Yes ☐ No ☐
       Briefly explain how:

iv. To what extent your parents visit your college to inquire about your progress?
   Always ☐ Sometimes ☐ Never ☐

v. To what extent your parents provide you with all learning resources that you require?
   Always ☐ Sometimes ☐ Never ☐

vi. Do your parents praise you when you do well in college? Yes ☐ No ☐

vii. Do your parents encourage you to work hard in college? Yes ☐ No ☐

viii. Do your parents buy you extra personal material required at college? Yes ☐ No ☐

ix. Do your parents give you money to attend college organized tours? Yes ☐ No ☐

x. How do you rate the coaching at home in your family? Very low ☐ Low ☐ Moderate ☐ High ☐ Very high ☐

Suggest ways of improving your academic performance (in relation to your parental support):

Part D: Environmental factors

1. How do you rate the learning resource at your college? Very low ☐ Low ☐ Moderate ☐ High ☐ Very high ☐

2. How media affect you on your educational performance? Very low ☐ Low ☐ Moderate ☐ High ☐ Very high ☐

3. How do you rate the facilities in your college (electricity, water, toilet, transportation, infrastructure, and dormitory)? Very low ☐ Low ☐ Moderate ☐ High ☐ Very high ☐
4. How do you rate the teaching and learning process in your college (teachers, assessment, learning-workload, program goal/objectives)? Very low □ Low □ Moderate □ High □ Very high □

5. How do you rate the learning community in your college (students, peer interaction, and the teacher)? Very low □ Low □ Moderate □ High □ Very high □

6. How the cultural and social values affect your educational performance? Very low □ Low □ Moderate □ High □ Very high □

7. Do you think school-home distance and nature of transportation is a great factor in the instructional process? Yes □ No □

how:

Part E: Student achievement.

1. Goal of academic achievement: Development of personal abilities and skills □
   Financial motives □ Social motives □ Other motives (specify):

2. How would you classify the motives in the environment surrounding you that constitute a driving force behind developing your academic level? Social □ Economic □ Both □

3. Are you satisfied in the performance of educational institution? Yes □ No □
   Why:

   ______________________________________________________________
   ______________________________________________________________
   ______________________________________________________________
   ______________________________________________________________

4. How do you perform in academics? Excellent □ Above average □ Below average □

5. Any other points you want to raise:
   ______________________________________________________________
   ______________________________________________________________

Thank you for your valuable cooperation!!
References


