Self-Esteem As A Predictor Of Science Students' Academic Achievement In Enugu State, Nigeria: Implication For Educational Foundations

Ifeyinwa Miriam Mamah[1] , Ursla Ukamaka Nnadi[2] , Ifesinachi Jude Ezugwu[3] , Florence Obiageli Ezeudu[4] , Jude Uchenna Eze[5*] & Christian Sunday Ugwuanyi[6]

[1,3,4]Department of Science Education, Faculty of Education, University of Nigeria, Nsukka.

[2,5*]Department of Educational Foundations, Faculty of Education, University of Nigeria, Nsukka.

[6]Faculty of Education, University of the Free State, Bloemfontein, South Africa.

Abstract

Due to the growing rate of poor academic accomplishment among secondary school students and the inconsistent results of earlier studies on the influence of self-esteem on academic achievement warranted the study. The study assessed self-esteem as a predictor of students' academic achievement in science. The research was conducted using a correlational survey design. A sample of 385 SS3 students drawn by using multi-stage sampling procedures (simple random and proportionate stratified sampling technique) participated in the study. Self-Esteem Questionnaire (SEQ) adapted from Rosenberg and Science Students' Score Proforma (PSSP) were used for data collection. The instruments were face-validated and a reliability coefficient of 0.78 was obtained by using Cronbach Alpha reliability estimate. Data collected were analyzed using regression analysis and t-test for the significance of two samples correlation coefficients. The results showed that 50% of the variation in students' academic achievement in science is attributed to or predicted by self-esteem. Self-esteem significantly predicted students' academic achievement while gender and location do not moderate the predictive validity of self-esteem on students' academic achievement in science. These findings have implications for educational foundations in the sense that students will have a solid educational foundation when they have high self-esteem for science learning. The study recommended, among others, that students must be made to understand that positive self-evaluation and hard work are the keys to academic success in school.

Keywords: Educational foundations, Self-esteem, secondary school, and students' academic achievement

Introduction

Education is one of the most significant aspects of human resource development across the globe. It is an avenue of training and learning towards improving human knowledge, skills developments, and a distinct way of creative human activities which involves different ways of seeing, exploring, and understanding the realities of life. The main aim of education is to equip students individually in school to excel or outshine in their desired profession or chosen career field and to be able to impact to their environment or society positively (Mekonnen, 2014). Every student should have the opportunity to accomplish his/her academic potential and achieve well academically. Disheartening, the outcomes of the whole education processes have failed tremendously in maintaining a high degree of academic excellence and quality among students in our various institutions of learning especially in sciences at the secondary school as of these days (Akanbi, 2010; Mekonnen, 2014). Students at the secondary school level are exhibiting lessening interest in education, especially in sciences and science in particular since science is seen as a tough subject because of its abstract nature and this has led to an increase in poor academic achievement in the subject (Adeyemo, 2011). According to Gana et al. (2019), the rate of failure at the senior secondary school students' internal and external examination, especially in science is disturbing and the reduction in the number of students offering science over the years call for concern. At the secondary school level, students' academic achievement can be influenced positively or negatively not only by their cognitive or intellectual abilities and content knowledge but also by non-cognitive factors, such as their belief and attitudes towards oneself termed self-esteem (Rosenberg, 1986a).

Self-esteem refers to one's own sense of self-worth (e.g., I am good, I am competent, I am worthy and I am intelligent). It is similar to self-judgments of perceived competence. Self-esteem is the individual measure of his/her values, the worth an individual believes he/she has (Subon et al., 2020). Self-esteem, according to Hewitt (2009), is a person's entire emotional value of his or her worth, self-judgment, and attitude toward self. According to Mohammad (2010), self-esteem is the value people place on their self-assessments, as well as the conviction that one must be capable and deserving enough to achieve something in life. According to Galbraith et al. (2011), self-esteem is a feeling that guides people's behavior, whereas Wiggins (1987) defined it as a person's ability to deal with various challenges in life, the feeling of being worthy to do something extraordinary and to enjoy the right and the capability to do difficult work. In all, it is a construct that does not in actual fact reflect the attributes of an individual, or how he/she is seen by others (Orth et al., 2018). According to Aryana (2010) students with high self-esteem may academically achieve higher or more since they tend to have more self-confident, while students with low self-esteem lack confidence in themselves and may achieve less academically. Students with high self-esteem have more self confidence in their aptitude to be successful academically (Hisken, 2011). They participate actively in class, ask questions, and are not passive during the teaching and learning process while low self-esteem students partake passively in class activities. They are always silent, inactive, and also exhibit a withdrawal or nonchalant attitude towards academic activities. Low self-esteem students according to Aryana (2010) don not involve themselves with anything that may expose their weaknesses or incompetence to others. Because of that and to avoid

being called one thing or the other among their peers in class, they usually do not show or have interest in academic activities.

But then, according to Nicole (2011), some students participate actively in class and their self-confidence is relatively high, yet they achieve low academically. Although some maintain that for individual daily operations, high self-esteem is indispensable and makes life meaningful (Pyszczynski et al., 2004), while others state that having a high self-esteem add little or no value to life and maybe a weakness or burden (Baumeister et al., 1996; Baumeister et al., 2003). In a study carried out by Rosli et al. (2011), high self-esteem students achieved better than low self-esteem students academically and concluded that self-esteem is one of the main variables that contribute greatly to students' academic performances in school. Arhad et al. (2015) in their study found a significant and positive relationship between self-esteem and students' academic achievement. Similarly, Mohammad (2010) found that there was a strong positive link between self-esteem and academic achievement among 50 male and 50 female pre-university students, but no significant difference in self-esteem between genders. Self-esteem and academic success were also found to be linked by Subon et al. (2020).

 Self-esteem, on the other hand, shows no substantial relationship with academic achievement, according to studies by Abdullah (2000), Ross and Broh (2000), and Iniama (2004). In a study comparing social skills, self-esteem, and academic success among 261 male and female students, Emamzadeh (2004) found no significant association between self-esteem and academic success. In addition, Rahimi (2016) discovered that self-esteem had no significant link with academic accomplishment among 300 university students when examining the relationship between emotional intelligence, self-esteem, and academic achievement. For Rahimi, self-esteem is not an effective factor in determining academic achievement. This inconsistency of findings among researchers shows that the relationship between this variable and the academic achievement of students is inconclusive, unclear, and needs further investigation.

Also, the assumption that students who possess high self-esteem and participate actively in class are likely to complement their learning and consequently may achieve more or higher academically is still in doubt since students who possess low self-confidence, not active in class, have been found to excel in their academic pursuit and achieve higher academically. More so, since students differ in many ways especially in the area of gender and location, literature is yet to show explicitly how gender and location in relation to self-esteem can account for the variations in students' academic achievement or the variation in academic achievement that is predicted by self-esteem due to gender and location. Hence, there is a need to carry out this study to ascertain the proportion of variation in students' academic achievement in science that can be forecasted by self-esteem and the moderating influence of gender and location in the prediction.

Purpose of the Study

The purpose of the study was to determine the extent to which self-esteem predicts students' academic achievement and the moderating effect of gender and location on the predictive validity of self-esteem and students' academic achievement.

Research Questions

The study was guided by the following research questions

1. What proportion of the variation in students' academic achievement in science can be predicted by self-esteem?
2. What is the predictive validity of self-esteem on students' academic achievement in science based on or due to gender?
3. What is the predictive validity of self-esteem on students' academic achievement in science based on or due to location?

Hypotheses

The research was guided by the following null hypotheses, which were assessed at 0.05 level of significance.

1. Self-esteem does not significantly predict students' achievement in science.
2. There is no significant difference due to gender in the predictive validity of self-esteem on students' academic achievement.
3. There is no significant difference due to location in the predictive validity of self-esteem on students' academic achievement.

Materials and Methods

Study setting and design

A correlational survey research design was adopted for the study. Similarly, Achagh et al. (2020), Eya et al. (2020), Ezema et al. (2019), Gana et al. (2019), Ugwuanyi and Okeke (2020), Ugwuanyi et al. (2020), Ugwuanyi, Okeke and Njeze (2020), Ugwuanyi, Okeke and Ageda (2020), Ugwuanyi, Okeke and Asomugha (2020) have adopted this design in recent studies. The study was conducted in Enugu State, Nigeria. The state has six Education Zones which include: Enugu education zone, Awgu, Nsukka, Obollo-Afor, Udi and Agbani education zones.

Study population and sampling design

The population was all senior secondary school Class III (SSIII) students in all the 290 secondary schools owned by the government in Enugu State. They are 10,560 SSS3 (4865 male and 5695 female) science students for 2020/2021 academic session (Source: Post Primary Management Board Enugu State, 2021). A sample of 385 (177 male and 208 female) SS3 students were used for this study.

This study adopted a multi-stage sampling procedure. In the first phase, a simple random sampling technique by balloting with replacement was used to sample three education zones (Enugu, Obollo-Afor, and Nsukka). In the second phase, a simple random sampling technique with replacement was also used to draw six local government areas (Isi-Uzo, Enugu North, Nsukka, Igbo-Etiti, Igbo-Eze South, and Udenu) from the selected three education zones. In the third stage, a proportionate stratified sampling technique was used to sample fifteen (15) secondary schools from the six selected local government areas (i.e., two (2) secondary schools from Isi-Uzo local government area; one (1) from Enugu North; three (3) from Udenu; two (2) from Igbo-Eze South; five (5) and two (2) schools were selected from Nsukka and Igbo-Etiti local government areas respectively). In the third stage, proportionate stratified was also used to sample 43 students from Isi-Uzo local government area; 59 from Enugu North; 67 from Udenu; 57 from Igbo-Eze South; 102 and 57 students were selected from Nsukka and Igbo-Etiti local government areas (LGAs) respectively. In the fourth stage, proportionate stratified sampling technique was also used to sample 177 male students (i.e., 20 male students from Isi-Uzo local government area; 27 from Enugu North; 31 from Udenu; 26 from Igbo-Eze South; 47 and 26 male students were selected from Nsukka and Igbo-Etiti local government areas respectively) and 208 female students (i.e., 23 female students from Isi-Uzo local government area; 32 from Enugu North; 36 from Udenu; 31 from Igbo-Eze South; 55 and 31 female students were selected from Nsukka and Igbo-Etiti LGAs respectively). Proportionate stratified sampling technique was used in the third and fourth stages because the number of schools, male and female students in the six local government areas are not equal.

Data collection tools and procedures

Two instruments (questionnaire and Science Students' Score Proforma) were used for data collection. The questionnaire titled "Self-Esteem questionnaire" consists of ten items relating to self-esteem and was adapted from Rosenberg (1965). The questionnaire was modeled on a four point rating scale with the response options which ranged from Strongly Agree to Strongly Disagree Science Students Score Proforma (PSSP) designed by the researcher was used to collect the existing three consecutive ends of term examination results of the sampled students.

The instruments [Self-Esteem Questionnaire (SEQ) and Science Students' Score Proforma (PSSP)] were face-validated by three authorities; one in Measurement and Evaluation from the Department of Science Education and two in Education Psychology from the Department of Educational Foundations, all from University of Nigeria, Nsukka. They were asked to evaluate the instrument in terms of item clarity, language simplicity, and item relevance to the study. Based on their observations, the instruments were modified appropriately. The questionnaire was trial tested on 20 SS3 students in 4 secondary schools in Enugu East in Enugu Education Zone which was not part of the sampled Local Government Areas. The internal consistency of the items was determined using the Cronbach Alpha reliability estimate, which yielded a reliability coefficient of 0.78.

Data Analysis

Pearson's Product Moment Correlation Coefficient, as well as coefficient of determination (r^2), was used to answer research question 1, while research questions 2 and 3 were answered by comparing the correlation coefficients (r) obtained for male and female and for urban and rural. A correlation coefficient value between 0.30 and above is considered as 'low coefficients', above 0.30 to below 0.80 'moderate' coefficients while from 0.80 and above are considered as 'high coefficients' (Nworgu, 2015). Regression analysis was used to test hypothesis 1. While hypotheses 2 and 3 were tested using t-test for the significance of two samples correlation coefficients at 0.05 level of significance.

Results

Table 1 Pearson's Product Moment Correlation Analysis of the proportion of variation in students' academic achievement in science that can be predicted by self-esteem

Variable	$\overline{X}$	SD	N	r	r^2
Self-esteem	62.44	9.11	385	0.71	0.50
Students' Achievement	68.87	10.12			

$\alpha = 0.05$, r = correlation coefficient, r^2 = coefficient of determination

The correlation coefficient (r) obtained between self-esteem and students' academic achievement was 0.71, as shown in Table 1. This implies that a positive and moderate relationship exists between self-esteem and academic achievement of secondary school students in science. Table 1 also shows that the r^2 associated with r of 0.71 was 0.50. This r^2 of 0.050 indicates that 50% of the variation in students' academic achievement in science is attributed to or predicted by self-esteem.

Table 2 Pearson's product-moment correlation analysis on moderating influence of gender in the predictive validity of self-esteem and students' academic achievement

Variable (Gender)	N	r	r^2
Male	177	0.57	0.35
Female	208	0.61	0.37

$\alpha = 0.05$, r = correlation coefficient, r^2 = coefficient of determination

Results in Table 2 show the mean scores from the responses of male and female students on the moderating influence of gender in the predictive validity of self-esteem and students' academic achievement. The result shows that the r of 0.57 and 0.61 with associated r^2 of 0.35 and 0.37 were

obtained for male and female students, respectively. The findings demonstrate that there is a positive and moderate association between self-esteem and academic achievement for both male and female students, with female students having a little advantage. The difference in self-esteem and academic achievement between males and girls is 0.04 in favor of females. The result also shows that the coefficient of determination r^2 indicates that 35% of the variation in the male students' academic achievement can be attributed to self-esteem while 37% of the variation in the female students' academic achievement can be attributed to self-esteem. The difference in the variation of male and female students' academic achievement as predicted by self-esteem is 2% in favour of females. Therefore, gender moderated 2% of the variation in students' academic achievement in favour of the female than their male counterparts.

Table 3 Pearson's product-moment correlation analysis on the moderating influence of location on the predictive validity of self-esteem on students' academic achievement

Variable (Location)	N	r	r^2
Urban	205	0.63	0.40
Rural	180	0.58	0.34

$\alpha = 0.05$, r^2 = coefficient of determination

Results in Table 3 show the mean scores from the responses of urban and rural respondents (students) on moderating influence of location in the predictive validity of self-esteem and students' academic achievement. The result shows that the correlation coefficient (r) of 0.63 and 0.58 with associated coefficients of determination (r^2) of 0.40 and 0.34 were obtained for students in urban and rural areas, respectively. This means that there was a positive and moderate relationship between self-esteem and academic achievement of students in urban and rural areas in favour of students in urban areas. The difference in the relationship between self-esteem and students' academic achievement is 0.05 in favour of the urban students. The coefficients of determination r^2 indicate that 40% of the variation in the academic achievement of students in the urban areas can be attributed to self-esteem while 34% variation in the academic achievement of students in rural areas can be attributed to self-esteem. The difference in the variation of urban and rural students' academic achievement as predicted by self-esteem is 6% in favour of urban students. Hence, location moderated 6% of the variation in students' academic achievement in favour of students in urban areas than their rural counterparts.

Table 4 Regression Analysis of self-esteem and Students' Academic Achievement

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	45152.608	1	44152.608	361.652	.000
Residual	73584.020	498	224.560		
Total	118736.628	499			

$\alpha = 0.05$

Table 4 reveals that an F-ratio of 224.560 was found, with an associated exact probability value of 0.00. For testing the hypothesis, this probability value (p) of 0.00 was compared to 0.05 as the level of significance. Since p = 0.00 is less than 0.05, it means that the result is significant. Therefore, the null hypothesis which stated that; self-esteem does not significantly predict students' academic achievement in science was not accepted. The conclusion drawn was that self-esteem significantly predicts academic achievement of secondary school students in science. In other words, self-esteem is a good predictor of students' academic achievement in science.

Table 5 t-test analysis of the significant difference between the correlation coefficients (r) of male and female in the predictive validity of self-esteem on students' academic achievement

Variable (Gender)	N	R	d_f	S.E	t-cal	t-crit	Dec
Male	177	0.59	379	0.10	-0.22	1.97	NS
Female	208	0.61					

Key: r = correlation coefficient, N = Number of respondents (students), d_f = Degree of freedom, S.E = Standard Error, t-cal = t-test value calculated, t-crit = t-test critical or table value, Dec = Decision, Ns = Not Significant.

Table 5 shows the t-test analysis of the significant difference due to gender in the predictive validity of self-esteem on student' academic achievement in science. The results indicates that a t-cal of -0.22 was obtained, while the t-crit at 0.05 level of significance and 494 degree of freedom was 1.97. The decision rule is to reject the null hypothesis if the t-cal > t-crit, otherwise do not reject. Thus, since t-cal (-0.22) < t-crit (1.97), the null hypothesis which stated that there is no significant relationship in the predictive validity of self-esteem on students' academic achievement in science due to gender or based on gender is not rejected. In other words, there is no significant relationship between the correlation coefficient of male and female students in the predictive validity of self-esteem on students' academic achievement. The inference drawn is that gender does not significantly moderate the predictive validity of self-esteem on students' academic achievement**.**

Table 6 t-test analysis of the significant difference between the correlation coefficients (r) of Urban and rural in the predictive validity of self-esteem on students' academic achievement

Variable (Location)	N	R	d_f	S.E	t-cal	t-crit	Dec
Urban	205	0.58	379	0.10	-0.55	1.97	NS
Rural	180	0.63					

Key: R = correlation coefficient, N = Number of respondents (students), d_f = Degree of freedom, S.E = Standard Error, t-cal = t-test value calculated, t-crit = t-test critical or table value, Dec = Decision, Ns = Not Significant.

Table 6 shows the t-test analysis of the significant difference due to location in the predictive validity of self-esteem on students' academic achievement in science. The result indicates that t-cal of -0.55 with the t-crit of 1.97 at 0.05 level of significance and 494 degree of freedom was obtained respectively. The decision rule is to reject the null hypothesis if the t-cal > t-crit, otherwise do not reject. Since the t-cal of (-0.55) < t-crit of (1.97), the null hypothesis which stated that there is no significant relationship in the predictive validity of self-esteem on students' academic achievement due to location is not rejected. In other words, there is no significant relationship between the correlation coefficient of students in urban and rural areas in the predictive validity of self-esteem on students' academic achievement. The inference drawn is that location does not significantly moderate the predictive validity of self-esteem on students' academic achievement.

Discussion
According to the findings, there is a moderate and positive relationship between self-esteem and academic achievement among secondary school students. Also, 50% of the variation in students' academic achievement in science is predicted by self-esteem. The corresponding hypotheses showed that self-esteem significantly predicted students' academic achievement in science. Also, gender and location do not significantly moderate the predictive validity of self-esteem on students' academic achievement. These findings are in accordance with the findings of Booth and Gerard (2011), Arshad et al. (2015), Subon et al. (2020), and Rosli et al. (2011). While Booth and Gerard (2011) in their analysis found that self-esteem has a direct causal link with students' academic achievement - which means that positive self-image is associated with high performance. Arshad et al. (2015), found that self-esteem is significantly related to student's academic achievement. Subon et al. (2020) also discovered a significant link between self-esteem and academic achievement. Rosli et al. (2011) found that students with higher self-esteem outperformed those with low self-esteem in the classroom. This means that the higher the level of self-esteem the student possesses irrespective of gender that is whether male or female and the student's location, the higher their academic achievement in school. However, the results of this study are in sharp contrast with the findings of Iniama (2004), Ross and Broh (2000) and Rahimi (2016). While Iniama (2004) found that there is no significant correlation between high school grade point and self-esteem index score. Ross and Broh (2000) found that self-esteem has no

significant relationship with students' academic achievement. Rahimi (2016) opined that self-esteem is not a significant factor in predicting students' academic success

Conclusion

Self-esteem significantly predicted secondary school students' academic achievement in science. Also, gender and location do not moderate the predictive validity of self-esteem on students' academic achievement. This study, therefore, provides information required by teachers and other stakeholders in understanding the influence of this variable on secondary school students' achievement in school thereby providing real opportunity for the use of this information in predicting students' achievement. It gives stakeholders the opportunity to understand and to be in a position to help improve students' academic achievement in our secondary schools irrespective of their location and gender.

Recommendations

Since self-esteem significantly predicted academic achievement and that gender and location do not moderate its predictive validity on students' academic achievement in science, students regardless of their location, whether male or female must be made to realize that value placed on one's self or one sense of self-worth has a lot of influence on their academic achievement at all levels of education not only in secondary school. Students must also be made to realize that positive evaluation of oneself and hard work leads to success not only in academics but also in all spheres of life endeavors. Self-esteem enhancement programs should be organized in schools by the school administrators and by so doing, students would become more positive about themselves and work towards strengthening their self-esteem. Meanwhile, parents should help guide their children properly and provide the love and support they deserve so as to boost their self-esteem and by so doing, their performance in school will improve. Also, the government should recruit in our secondary schools more professionals in guidance and counseling so that the students will be guided properly towards improving their personality traits positively.

Correspondence: All correspondence for this article should be addressed to: Eze Jude Uchenna, Department of Educational Foundations, University of Nigeria, Nsukka.

References

Abdullah, O. E. (2000). Relationship among achievement motivation, self-esteem, locus of control and academic performance in Nigerian. The Nigerian Journal of Guidance and Counselling, 7(1), 130-141.

Achagh, W.I., Ezema, Victor S., Ogundele, B.B., Ekele, C.B., Badamasi, A.E., Ashefor, H.A., Okondugba, A.C., Okenyi, E.C., Ibiam, J.U., Otta, F.E., Ifelunni, C.O., Ugwu, G.C., Orji, J.C. & Ugwuanyi, C.S. (2020). Parental Demographic Variables as Determinants of

Knowledge of Nutritional Needs of Preschoolers in North Central Zone, Nigeria. Global Journal of Health Science; 12(5).

Adeyemo, D. A. (2011). Teachers job satisfaction, job involvement, career and organizational commitments as correlates of student academic performance. Nigeria Journal of Applied Psychology, 6(2), 126-135.

Akanbi, A.O. (2010) Students and Teachers' Perception of the Causes of Poor Academic Performance in Ogun State Secondary Schools [Nigeria]: Implications for Couselling for National Development. European Journal of Social Sciences, 13, 229

Arshad, M., Zaidi, S. M. I. H., & Mahmood, K. (2015). Self-Esteem and academic performance among university students. Journal of Education and Practice, 6(1). www.iiste.org

Aryana, M. (2010). Relationship between self-esteem and academic achievement amongst pre-university students. Journal of Applied Sciences, 10 (20), 2474-2477.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? Psychological Science in the Public Interest, 4(1), 1-44. doi: 10.1111/1529-1006.01431

Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. Psychological Review, 103, 5-33.

Emamzadeh, Z. M. (2004). To compare the social skills and self-esteem and academic achievement among students in Ormieyeh city. University Tarbiat Moallem, Tehran, Iran

Eya, M.N., Attah, F.O., Nwoji, I.H., Ugwuanyi, C.S., Okeke, C.I.O. & Ekwueme, U.H. (2020). Socio-Psychological Factors as Correlates of Students' Performance in Chemistry: Implication for Science and Engineering Education. International Journal of Mechanical and Production Engineering Research and Development (IJMPERD), 10(4), 239–248. https://doi.org/10.24247/ijmperdaug202021

Ezema, V.S., Ejiofor, J.N., Orji. J.C., Okenyi, E.C., Achagh, W.I., Ibiam, J.I, Ugwuanyi, C.S., llechukwu, L.C., & Nnadi, E.M. (2019). Estimation of the predictive powers of teachers' pedagogical skills on pupils' academic achievement in Christian Religious Studies in South-East, Nigeria. Global Journal of Health Science, 11(14), 30-36.

Gana, C.S.; Ugwuanyi, C.S, & Ageda, T.A (2019). Students' psychological predictors of academic achievement in physics. International Journal of Research and Innovation in Social Science (IJRISS), III (IX), 23-28. https://www.rsisinternational.org/journals/ijriss/Digital-Library/volume-3-issue-9/23-28.pdf

Federal Republic of Nigeria (2013). National policy on education (Revised). Yaba Lagos: NERC.

Galbraith, J. K., Alison, F. H., & Alexander, J. (2011). Literacy, self-esteem and locus of control. Support for Learning. Journal of science, 10(3), 20-41.

Hewitt, J. P. (2009). Oxford handbook of positive psychology. (pp. 217–224) Oxford University Press. ISBN 978-0-19-518724-3.

Hisken, L. J. (2011). The correlation between self-esteem and student reading ability, reading Level, and academic achievement. (Online M.ED. Project). University of Central Missouri.

Iniama, E. (2004).The relationship between self-esteem and academic performance of freshman at the University of the Virgin Islands. A Research Paper presented at the annual conference of the Caribbean Studies Association, Marriott Hotel, St. Kitts.

Mekonnen, S. (2014) Problems challenging the academic performance of physics students in higher governmental institutions in the case of Arbaminch, Wolayita Sodo, Hawassa and Dilla Universities. Natural Science, 6, 362-375. http://dx.doi.org/10.4236/ns.2014.65037

Mohammad, A. (2010). Relationship between self-esteem and academic achievement amongst pre-university students. Journal of Applied Sciences, 12. https://doi.org/10.3923/jas.2010.2474.2477

Nicole, B. (2011). The influence of education and home environment on the cognitive outcomes of preschool children in Germany. Child Development Research 201, 110 -119.

Nworgu, B. G. (2015). Educational research: Basic issues and methodology (3rd ed.). Nsukka: University Trust Publishers

Okenyi, E. C., Ngwoke, A. N., Ugwu, G. C., Aneke, A. O., Ifelunni, C. O., Ebizie, E. N., Orji, J. C., Ejiofor, J. N., Njoku, O.C., Ezema, V. S., Achagh, W. I., Ibiam, J. U. & Ugwuanyi, C. S. (2019). Estimate of the predictive power of parental support and domestic violence on child abuse among primary school pupils in South-East, Nigeria. Global Journal of Health Science 11(14), 23-28.

Orth, U., Erol, R. Y., & Luciano, E. C. (2018). Development of self-esteem from age 4 to 94 years: A meta-analysis of longitudinal studies. Psychological Bulletin, 144(10), 1045- 1080. http://dx.doi.org/10.1037/bul0000161

Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. Psychological Bulletin, 130, 435-468.

Rahimi, M. (2016). The relationship between emotional intelligence, self-esteem, gender, and educational success. Management Science Letters, 6, 481–486. https://doi.org/10.5267/j.msl.2016.5.005

Rosenberg, M. (1965a). Rosenberg self-esteem scale (RSE): Acceptance and commitment therapy. Measur. Pack 61:52.

Rosenberg, M. (1986a). Society and adolescent self-image. Princeton, NJ: Princeton University Press.

Rosli, Y., Othman, H., Ishak, I., Lubis, S. H., Saat, N. Z. M., & Omar, B. (2011). Self-esteem and academic performance relationship amongst the second year undergraduate students of Universiti Kebangsaan Malaysia, Kuala Lumpur Campus. Universiti Kebangsaan Malaysia Teaching and Learning Congress, 2(3).

Ross, C. E., & Broh, B. A. (2000). The roles of self-esteem and the sense of personal control in the academic achievement process. Sociology of Education, 73, 270–284. https://doi.org/10.2307/2673234

Subon, F., Unin, N., & Sulaiman, N. H. B. (2020). Self-Esteem and academic achievement: the relationship and gender differences of Malaysian University Undergraduates. IAFOR Journal of Psychology & the Behavioral Sciences, 6(1). https://doi.org/10.22492/ijpbs.6.1.03

Ugwuanyi, C.S. & Okeke, C.I.O. (2020). Determinants of University students' interest in Science, Technology, Engineering and Mathematics Education in Nigeria: A case of a structural equation modelling. International Journal of Mechanical and Production Engineering Research and Development, 10(3): 6209–6218. http://dx.doi.org/10.24247/ijmperdjun2020590

Ugwuanyi, C. S., Okeke C. O., & Ageda T. A., (2020). Psychological predictors of physics learners' achievement: The moderating influence of gender. Cypriot Journal of Educational Science. 15(4), 834-842. DOI: 10.18844/cjes.v%vi%i.4635. URL: file:///C:/Users/2019875836/Downloads/4635-Article%20Text-21136-3-10-20200831.pdf

Ugwuanyi, C.S., Okeke, C.I.O. & Njeze, K.C. (2020). Parenting Style and Parental Support on Learners' Academic Achievement. Journal of Sociology and Social Anthropology, 11(3-4): 198-205. https://doi.org/10.31901/24566764.2020/11.3-4.352 URL: http://krepublishers.com/02-Journals/JSSA/JSSA-11-0-000-20-Web/JSSA-11-0-000-20-Contents/JSSA-11-0-000-20-Contents.htm

Ugwuanyi, C.S., Okeke, C. I.O., & Ageda, T.A. (2020). Motivation and Self-efficacy as Predictors of Learners' Academic Achievement. Journal of Sociology and Social Anthropology, 11(3-4): 215-222. https://doi.org/10.31901/24566764.2020/11.3-4.351 URL: http://krepublishers.com/02-Journals/JSSA/JSSA-11-0-000-20-Web/JSSA-11-0-000-20-Contents/JSSA-11-0-000-20-Contents.htm

Ugwuanyi, C. S., Okeke, C.I.O. & Asomugha, C.G., (2020). Prediction of learners' mathematics performance by their emotional intelligence, self-esteem, and self-efficacy. Cypriot Journal of Educational Sciences. 15(3), 492- 501. https://doi.org/10.18844/cjes.v%vi%i.4916

Wiggins, J. D. (1987). Self-esteem, earned grades and television viewing habits of students. The School Counselor, 35(2), 120-140.