



Emotional Intelligence and Self-Concept as Predictors of Students' Achievement in Geography in Southern Kaduna

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Abstract

The study examined emotional intelligence and self-concept as predictors of students' achievement in Geography in Southern Kaduna, Kaduna State, Nigeria. Correlational survey research design was adopted in the study. Guided by Three research questions, where three hypotheses were tested, the sample of 408 senior secondary class two (SS2) students were drawn from the population of 35,146 SS2 students offering Geography across the 234 public secondary schools in Southern Kaduna for the 2024/2025 academic session using a multistage sampling procedure. Three instruments were used for data collection: Geography Students' Emotional Intelligence Scale (GSEIS), Geography Students' Self-Concept Scale (GSSCS) and Geography Academic Achievement Proforma (GAAP) developed by the researcher. The instruments were face validated by three experts in the Faculty of Education, University of Nigeria Nsukka. The reliability coefficient for the GSEIS was 0.899, while the GSSCS was 0.871, using the Cronbach Alpha method. The data in the study was analyzed using regression analysis. Coefficient of determination was used to answer the research questions. Hypotheses one and two were tested using regression analysis t-test, while regression analysis F-test was used to test hypothesis three, all at 0.05 level of significance. The findings of this study revealed that emotional intelligence predicts 66%, self-concept predicts 81% of students' academic achievement in Geography. Jointly, they predict 82% of students' academic achievement in Geography. All predictive powers were found to be statistically significant. It was concluded that emotional intelligence strongly accounts for students' academic achievement in Geography, self-concept highly account for students' academic achievement in Geography, while jointly, they highly account for students' academic achievement in Geography. The researcher recommended among others that teachers should facilitate students to develop emotional intelligence, self-concept, task persistence, self-efficacy and locus of control for improved academic achievement in Geography.

Keywords: Emotional intelligence, Self-concept, Geography, Academic Achievement, Predictor

Introduction

Persistent decline in students' academic achievement in Geography continues to raise concerns for educational stakeholders and researchers in Southern Kaduna, Nigeria. The unsatisfactory achievement of students in Geography is quite concerning for educational practitioner and stakeholders. Evidence from examining bodies, like the National Examinations Council (NECO) and the West African Examinations Council (WAEC) chief examiner's report suggest that the persistence of this problem may be due to a neglect of students' noncognitive soft skills, such as emotional intelligence and self-concept, which are crucial in the learning of Geography. A fleet of literature have pointed to these

noncognitive soft skills as a compendium of traits which hold potentials in predicting students' achievement in Geography.

Geography has variously been described as a crucial school subject which essentially fosters the understanding of the Earth and the world. Dakur and Istifanus (2024) defined Geography as the scientific study of the earth's natural and human phenomena using natural and social sciences techniques and methodologies. According to Olayemi and Amosun (2024), Geography covers the study of the real world, constituted by the physical and cultural space of the Earth. This means that besides the physical world, human cultures fall in the conceptual scope of Geography. In this study, Geography is a secondary

school subject which deals with the scientific study of the Earth in terms of human cultures and natural phenomena in the physical world.

The relevance of Geography as a secondary school subject cannot be sidelined. Nigerian Educational Research and Development Council (NERDC, 2004) report that Geography is key to the development of students' understanding of spatial relationships, environmental interactions and problem-solving skills for socio-economic and transcultural progress. The knowledge of geography fosters economic and social developments (Edet & Beyin, 2018) as well as across civilizations (Ibrahim, Saidu & Barau, 2019), preparing learners to survive in the world. The need to understand the space where we live, especially in the multicultural and diverse society we live in, is essential for survival on the Earth. In Nigeria, Olaniyi and Oladokun (2021) argued that the understanding of Geography fosters national unity and integration despite the multilingual composition of the country. Yet, Eze (2021); Olayemi and Amosun (2024); Dakur and Istifanus (2024) decry the underachievement of students in Geography, with high failure rates which is raising global concern for educational stakeholders.

Stakeholders have continued to make efforts to mitigate the unsatisfactory achievement of students in Geography, also to uncover the factors that influence students' achievement in Geography. Among the widely examined are teacher factors, such as teaching method, professional development opportunities, insufficient instructional time and inadequate learning resources (Olayemi & Amosun, 2024). However, a growing body of studies have highlighted student-related noncognitive internal factors such as study habits, age, emotional intelligence, sex, personality, interest, and more which may be responsible for students' underachievement in Geography (Guchait, 2021). Specifically, it is unclear how noncognitive factors such as emotional intelligence and self-concept which are widely gaining global traction could predict students' achievement in Geography. Hence, this study was conceived to determine the extent of students' academic achievement in Geography that can be predicted by their emotional intelligence and self-concept.

Emotional intelligence has been conceptualized in various ways by different authors. Nnaji, Eze and Madu (2020) defined emotional intelligence as a cross section of skills and competencies that help students view the content of instruction through an emotional lens to ensure their emotions work in their favour. Wei, Chen and Oiu

(2023) described emotional intelligence as the ability to monitor the feelings and responses of oneself, to discriminate among them and to use this information to guide one's thinking and actions. From the foregoing, emotional intelligence in this study bothers on Geography students' ability to effectively use their feelings and emotional manifestations in ways that advance their academic achievement. In the study, emotional intelligence connotes the theoretical perspective of Mayer, Salovey and Caruso (2002), which is composed of perceiving emotion, managing emotion, understanding emotion and facilitating thought using emotion.

A fleet of studies in the literature divergently suggest that emotional intelligence (EI) has a may influence academic and lifelong success. Emotions can serve as valuable sources of information that can be essential for guiding students' reasoning and maintaining rewarding relationships, and influencing learning motivation (Afshar & Rahimi, 2016; Nnaji, Eze & Madu, 2020; ALmegewly et al., 2022; Chang & Tsai, 2022; Bagum, Akram, Abbas & Hussain, 2023). This suggests the need for more clarity on the predictive role of emotional intelligence on students' achievement in Geography. But, Ubago-Jimenez, Zurita-Ortega, Ortega-Martin and Melguizo-Ibanez (2024) pointed out that emotional intelligence may influence students' academic achievement based on their self-concept. Pointing to the importance of self-concept as an indispensable factor in understanding students' academic achievements.

Self-concept is another important factor which may influence the way students think and behave, their attitudes, responses, motivation and personality. Parveez and Tariq (2016) described self-concept as positive or negative perception about oneself. Perinelli, Pisanu, Checchi, Scalas and Fraccaroli (2022) defined self-concept as a students' positive perception about meeting desired educational outcomes. Steinberg, Kulakow and Raufelder (2024) defined academic self-concept as a student's perception of own school-related abilities and competence in academic settings. Ndungu and Mutweleli (2024) defined academic self-concept as a dynamic set of personal beliefs that a student holds regarding their academic skills or abilities, which are also shaped by experiences. In this study, self-concept refers to Geography students' mental picture, notion and impression about themselves, often based on experiences, identified abilities, characteristics, traits, dispositions, association and environment, which may influence their academic achievement.

Self-concept is core to personality development and a precursor to students' attitude, belief, confidence, idea, conviction and receptibility of the content of Geography instruction. Students' self-concept is the most crucial quality responsible for their academic behavior (Chen, Iqbal, Liu, Zhu & Xie, 2022). Self-concept is made up of self-image, self-esteem and ideal self (Li & Lai, 2021; Ndungu & Mutweleli, 2024). A plethora of scholars have investigated students' self-concept and highlighted its influence on students' academic achievements (Perinelli, Pisanu, Checchi, Scalas & Fraccaroli, 2022; Rani, Anjali, Usha & Sudesh, 2023; Ndungu & Mutweleli, 2024; Arhedo & Agweda, 2024; Steinberg, Kulakow & Raufelder, 2024). Self-concept can improve students' focus and persistence in achieving success (Zhang, Xu, Peng & Guo, 2024; Kumari & Khan, 2025).

Theoretically, the study was anchored on the Counterfactual Theory of Causation, as articulated by Lewis (1973), which holds that until the priori conditions are met, the expected outcome may not be met, especially in a possible world; and the Regularity Theory of Causation by Hume (1739), which holds that the understanding of a causation is a product of empirical inquiry, perceived as an observable regular sequence of events in the natural world. While Counterfactual Theory of Causation suggests that students' academic achievement in Geography is likely a function of their emotional intelligence and self-concept, the Regularity Theory of Causation suggest that students' academic achievement in Geography results from the habitual connection of ones' feelings and believe in the self. The findings of this study clarified the theories by revealing the predictive role of emotional intelligence and self-concept, especially, how they contribute to improve students' academic achievement in Geography.

Despite the importance of Geography and the growing body of knowledge in the literature on emotional intelligence and self-concept, empirical evidence on these student-related soft skills is still grossly lacking in the about their predictive roles in Geography. The paucity of those studies in Geography is more glaring in Southern Kaduna. This makes the present investigation expedient in view of the importance of Geography in the multicultural context of Southern Kaduna which is adorned with many natural features. Especially, with the unsatisfactory trend of students' achievement in Geography in the area, it suggests the need to emphasize the understanding of the role of these soft skills in maximizing students' learning kinetics in Geography. Therefore, it became pertinent to

investigate the predictive power of emotional intelligence and self-concept on students' achievement in Geography in Southern Kaduna. The focus of the study was to determine: (i) What is the predictive power of emotional intelligence on students' achievement in Geography? (ii) What is the predictive power of self-concept on students' achievement in Geography? (iii) What is the joint predictive power of emotional intelligence and self-concept on students' achievement in Geography?

Hypotheses

- H0₁:** The predictive power of emotional intelligence on students' achievement in Geography is not significant.
- H0₂:** The predictive power of self-concept on students' achievement in Geography is not significant.
- H0₃:** The joint predictive power of emotional intelligence and self-concept on students' achievement in Geography is not significant.

Materials and Methods

The study adopted the correlational research design. A correlational research design seeks to establish the strength and direction of the relationship between predictor and criterion variables (Nworgu, 2015). It investigates the amount of variance in the criterion variable that can be attributed to the variance in the predictor variable(s), which makes it suitable for this study. The population of the study was 35,146 senior secondary school two (SS2) students offering Geography, enrolled in the 2024/2025 academic session in the 12 local government areas (LGAs) in Southern Kaduna, Kaduna State. The sample for the study was 408 SS2 Geography students in 12 schools, the minimum estimated was 395 using the Taro Yamane formula. The sample was drawn using the multistage sampling procedure. In the first stage, a simple random sampling technique, by balloting with replacement was used to draw six LGAs from the 12 LGAs which make up Southern Kaduna. This is to give each LGA an equal opportunity to be sampled. From each of the six LGAs, simple random sampling technique by the flip of a coin method was used to draw two senior secondary schools making a sample of 12 schools, from where the participants were sampled. This is to give each secondary school in each of the sampled LGA an equal opportunity to participate in the study. In each of the 12 schools to be sampled, simple random sampling technique, by dip of luck was used to sample students who participated in the study. To arrive at the sample, 34 students were randomly sampled from each of the 12

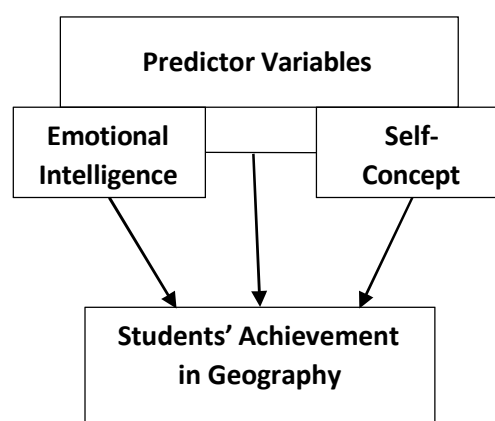
sampled school to participate in the study. This arrives at a total sample size of 408 students.

The data for the study was collected using three instruments. The instruments include: Geography Students' Emotional Intelligence Scale (GSEIS), Geography Students' Self-Concept Scale (GSSCS), and the Geography Academic Achievement Proforma (GAAP). The adaptations in the instruments were focused on refining them to be suitable for the present study. The Geography Students' Emotional Intelligence Scale (GSEIS) was adapted from Schutte et al. (1998). The Geography Students' Self-Concept Scale (GSSCS) was adapted from Dolejš, Dostál, Oberiegnerů, Orel and Kňázek (2022). The instruments composed of two sections. While Section A captures demographic data of the respondents (such as identification number and gender) while Section B captures information on emotional intelligence, self-concept, respectively. The Geography Academic Achievement Proforma (GAAP) was used to collect students' academic achievements from the schools.

The instruments for the study (GSEIS, GSSCS and GSAP) were face-validated by three experts; one each from Measurement and Evaluation Unit, Department of Science Education; Geography Education Unit, Department of Social Science Education; and Psychology Education Unit, Department of Education Foundations, all from the University of Nigeria, Nsukka. The suggestions of the validators were considered in line with the purpose of the study to produce the final copy of the instruments used for the study. The reliability of the instruments (GSEIS, GSSCS and GSLCS) was determined after administering the instruments to 30 SS2 Geography students in a school in Plateau State which shares similar characteristics with, but not a part of the area of the study. Cronbach's Alpha measures of internal consistency was used to establish the reliability of GSEIS and GSSCS. The Cronbach's Alpha was considered more appropriate for the instruments since their scoring was polytomous. The internal consistency of the instruments was determined as 0.899 and 0.871, respectively. The reliability values obtained for the instruments show that the instruments are dependable for data collection in the study (Ursachi, Horodnic & Zait, 2015).

The data for the study was collected using the direct delivery and retrieval method using 12

research assistants (who are SS2 Geography teachers, one from each sampled school), after obtaining the permission and ethical clearance for the study from the principals of the sampled schools. The research assistants were briefed on the purpose, modalities and procedures of data collection, timing, addressing any issues in the course of the study, administering, retrieval and parcelling of the completed instruments, as well as guided the students on how to respond to the instrument to prevent error in ticking on the questionnaires. Data collected in the study was analysed using regression analysis. Simple linear regression was used to answer research questions one and two, while multiple linear regression was used to answer research question three. Precisely, the coefficient of determination (r^2) was used to determine the predictive power of the predictor variables on the criterion variable. Hypotheses one and two were tested using regression t-test, while regression F-test was used to test hypothesis three. All hypotheses were tested at 0.05 level of significance. The data was analysed with the aid of Statistical Package for the Social Sciences (SPSS) version 27. Absolute values of correlation coefficient $|r|$ values < 0.1 = negligible, $0.1 \leq |r| \leq 0.39$ = weak, $0.40 \leq |r| \leq 0.69$ = moderate, $0.70 \leq |r| \leq 0.89$ = strong, while $0.90 \leq |r| \leq 1.00$ = high relationships (Schober & Boer, 2018). Also, reject null hypothesis if p-values ≤ 0.05 .



Results

Table 1

Regression analysis of the predictive power of emotional intelligence on students' achievement in Geography
n = 408

Variable	R	R ²	t	Sig.
Emotional Intelligence Geography Achievement	0.81	0.66	28.00	0.00

Key: n = Number of respondents, R = Correlation coefficient, R² = Coefficient of determination

Table 1 shows the predictive power of emotional intelligence on students' achievement in Geography. The result shows a correlation coefficient of 0.81, indicating a strong positive relationship between emotional intelligence and students' academic achievement in Geography. With a coefficient of determination of 0.66, the result shows that students' emotional intelligence predicts 66% of their academic achievement in Geography.

The result in Table 1 shows a t-value of 28.00 with an exact probability value of 0.00 for the predictive power of emotional intelligence on students' academic achievement in Geography.

Compared with the a priori 0.05 significance level, the exact probability value of 0.00 is less than 0.05, indicating significance of the predictive power of emotional intelligence on students' academic achievement in Geography. Therefore, the null hypothesis one (H₀₁), which states that the predictive power of emotional intelligence on students' academic achievement in Geography is not significant, was rejected. Hence, the inference drawn is that there is a significant predictive power of emotional intelligence on students' academic achievement in Geography.

Table 2

Regression analysis of the predictive power of self-concept on students' achievement in Geography
n = 408

Variable	R	R ²	t	Sig.
Self-concept Geography Achievement	0.90	0.81	42.29	0.00

Key: n = Number of respondents, R = Correlation coefficient, R² = Coefficient of determination

Table 2 shows the predictive power of self-concept on students' achievement in Geography. The result shows a correlation coefficient of 0.81, indicating a high positive relationship between self-concept and students' academic achievement in Geography. With a coefficient of determination of 0.81, the result shows that students' self-concept predicts 81% of their academic achievement in Geography.

The result in Table 2 shows a t-value of 42.29 with an exact probability value of 0.00 for the predictive power of self-concept on students'

academic achievement in Geography. Compared with the a priori 0.05 significance level, the exact probability value of 0.00 is less than 0.05, indicating significance of the predictive power of self-concept on students' academic achievement in Geography. Therefore, the null hypothesis two (H₀₂), which states that the predictive power of self-concept on students' academic achievement in Geography is not significant, was rejected. Hence, the inference drawn is that there is a significant predictive power of self-concept on students' academic achievement in Geography.

Table 3

Regression analysis of the joint predictive power of emotional intelligence and self-concept on students' achievement in Geography
n = 408

Variable	R	R ²
Joint emotional intelligence and self-concept Geography Achievement	0.91	0.82

Key: n = Number of respondents, R = Correlation coefficient, R² = Coefficient of determination

Table 3 shows the joint predictive power of emotional intelligence and self-concept on students' academic achievement in Geography. The result shows a correlation coefficient of 0.91, indicating a high positive relationship between the joint of emotional intelligence and self-concept on students'

academic achievement in Geography. With a coefficient of determination of 0.82, the result shows that students' emotional intelligence and self-concept jointly predict 82% of their academic achievement in Geography.

Table 4

Regression ANOVA of the joint predictive power of emotional intelligence and self-concept on students' achievement in Geography

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3833.98	2	1916.99	922.50	0.00 ^b
	Residual	841.61	405	2.08		
	Total	4675.59	407			

a. Dependent Variable: Geography Achievement

b. Predictors: (Constant), Self Concept, Emotional Intelligence

The result in Table 4 shows a F-value of 922.50 with an exact probability value of 0.00 for the joint predictive power of emotional intelligence and self-concept on students' academic achievement in Geography. Compared with the a priori 0.05 significance level, the exact probability value of 0.00 is less than 0.05, indicating significance of the joint predictive power of emotional intelligence and self-concept on students' academic achievement in Geography. Therefore, the null hypothesis three (H₀₃), which states that the joint predictive power of emotional intelligence and self-concept on students' academic achievement in Geography is not significant, was rejected. Hence, the inference drawn is that there is a significant joint predictive power of emotional intelligence and self-concept on students' academic achievement in Geography.

Discussion of the Findings

The finding of the study showed that there is a strong positive relationship between emotional intelligence and students' academic achievement in Geography. The study found that emotional intelligence strongly predicts students' academic achievement in Geography. From the findings, it follows that a unit increase in emotional intelligence can lead to a direct increase in students' academic achievement in Geography. This indicates a strong

linear dependence between emotional intelligence and students' academic achievement in Geography. Also, this strong predictive power of emotional intelligence on students' academic achievement in Geography was found to be significant. This result could be because emotionally intelligent students can tap on such emotional information to get a better understanding of geographical contents which could foster improved academic achievement in Geography.

The significantly strong predictive power of emotional intelligence on students' academic achievement in Geography may have turned out so due to the rich cultural diversity and environmental uniqueness of Southern Kaduna. These characteristics of the area may have allowed the students to effectively connect their emotional information with their learning of geographical concepts. This may have resulted to students' effective use of the connections they share with their environments as an emotional advantage in facilitating improved Geography achievements based on their level of emotional intelligence. This highlights the possibility that students in the area relied on their emotional information as a guide for their learning of Geography, as argued by Nnaji, Eze and Madu (2020). These hypothetical explanations support the views of Chang and Tsai (2022); Aleksic

and Dionysios (2023) who already pointed out that emotional intelligence can help students improve their academic achievement.

The findings of this study have shown consistency with existing literature in some ways. The findings of this study agree with those of Karimi, Kwen and Anika (2020); Nnaji, Eze and Madu (2020); Almegewly et al. (2022); Quílez-Robres, Usan, Lozano-Blasco and Salavera (2023); Bagum, Akram, Abbas and Hussain (2023); Shengyao et al. (2024); Tafa and Tefera (2024) to the extent they showed that students' emotional intelligence has a positive statistically significant relationship with their academic achievements. However, the findings of this study disagree with the findings of Chiakwelu and Bakke (2022), who found that a low positive predictive relationship exists between students' emotional intelligence and their academic achievement. It greatly differed from the findings of Seng, Hanafi, Taslikhan and Raman (2016); Chang and Tsai (2022); Nieto-Carracedo, Gómez-Iñiguez, Tamayo and Igartua (2024) who showed that students' emotional intelligence has no direct relationship with students' academic achievement. Hence, the findings of this study add to the body of empirical reports by highlighting that emotional intelligence is a strong predictor of senior secondary school students' academic achievement in Geography.

The finding of the study showed that there is a high positive relationship between self-concept and students' academic achievement in Geography. The study found that self-concept highly predicts students' academic achievement in Geography. From the findings, a unit increase in self-concept can lead to a direct increase in students' academic achievement in Geography. This indicates a high linear dependence between self-concept and students' academic achievement in Geography. Also, this high predictive power of self-concept on students' academic achievement in Geography was found to be significant. The result could be because students' self-schemas can enable them hold and synthesize past and presently acquired geographical information for future use, which can foster improved academic achievement in Geography.

The significantly high predictive power of self-concept on students' academic achievement in Geography may have emerged so due to the students' familiarity with geographical concepts, such as the landforms and climatic contents of the subject which are assessable to the students in the area. This may have been a source of students' motivation, based on their level of self-concept to increase their learning kinetics for improved

academic achievement in Geography. More so, the students may have improved in their critical thinking demands due to their level of persistence on tasks, leading to resilience and improved academic outcomes in Geography. Also, when students relate their knowledge of readily available objects in their localities, it breeds a sense of curiosity which engender further extended learning. And, by connecting theory with reality they foster better understanding of geographical concepts. More so, students in the area may have developed a strong motivation, which gives them a positive perception of their ability and ignites a high chance of meeting desired success in Geography. These hypothetical explanations support the views of Cheema and Bhardwaj (2021) who assert that students who view themselves as intelligent and capable are more likely to learn with confidence, set higher goals and push through challenges.

The findings of this study have shown consistency with existing literature in some ways. The findings of this study agree with those of Herrera, Al-Lal and Mohamed (2020); Chen, Iqbal, Liu, Zhu and Xie (2022); Perinelli, Pisanu, Checchi, Scalas and Fraccaroli (2022); Rani, Anjali, Usha and Sudesh (2023); Raeisoon, Moghadam and Sharifzadeh (2024); Ndungu and Mutweleli (2024); Arhedo and Agweda (2024); Steinberg, Kulakow and Raufelder (2024) to the extent they showed that students' self-concept has a positive statistically significant relationship and greater predictive power on students' academic achievement. The findings also agree to an extent with Ugwuanyi, Nnolum, Nwachukwu and Inweregbuh (2019) in their findings that students' self-concept has a statistically significant influence on their academic achievement. Hence, the findings of this study add to the body of empirical reports that highlight self-concept is a high predictor of students' academic achievement in Geography.

Conclusion

Based on the findings of this study, the researcher concluded that emotional intelligence and self-concept, account for students' academic achievement in Geography. While emotional intelligence account strongly, self-concept account highly for students' academic achievement in Geography; jointly, they highly account for students' academic achievement in Geography.

Recommendations

Based on the findings and conclusion of the study, the following recommendations were made:

1. Teachers should facilitate students to develop emotional intelligence and self-concept for improved academic achievement in Geography.
2. Students should develop their emotional intelligence and self-concept for improved academic achievement in Geography.
3. Parents should encourage their wards to develop emotional intelligence and self-concept for improved academic achievement in Geography.
4. School administrators should encourage teachers, and create enabling environment to ensure students develop emotional intelligence and self-concept for improved academic achievement in Geography.
5. Curriculum planners should inculcate the development of emotional intelligence and self-concept in the Geography curriculum for improved academic achievement of students in the subject.
6. Government should organize workshops for teachers to develop their capacity for assisting students develop their emotional intelligence and self-concept to ensure improved students' achievement in Geography.

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