



Research article

Academic optimism, capital indicators as predictors of cognitive, affective, and psychomotor learning outcome among students in secondary school. Hierarchical regression approach (HRA)

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ABSTRACT

Background: Studies that were carried out previously on learning outcomes focused mainly on the student's cognitive domain while identifying factors that predicted it. More so, most of the learner's assessments in school are largely dependent on the score obtained from specific subjects by the learner, and efforts to address other domains of instruction such as affective and psychomotor domains have been minimal or absent in regard to the variables selected for the study. This study therefore sought to address that gap by finding out the relative and composite contribution of academic optimism and capital indicators to the learning outcomes (of students). **Methods:** The study adopted a correlational design with a multistage sampling technique to select a total of 534 senior secondary class II students. Two research instruments, the Academic Optimism and Capital Indicators Scale (AOCIS) and the Learning Outcomes Scale (LOS), were used for data collection. Exploratory and confirmatory factors analysis were used to assess the dimensionality of the items and factor structure of the scales. The psychometric properties obtained for scale were adequate for the instrument to be adjudged valid and reliable. The collected data were analysed using the hierarchical regression approach (HRA).

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Results: The findings of the study revealed that academic emphasis, collective efficacy, faculty trust, social capital, economic capital, and cultural capital, relatively and jointly, predict overall learning outcomes (cognitive, affective, and psychomotor construct). The result showed that there was an increased proportion of variance with each addition of a predictor to the model. Social capital reduced the percentage change at the initial time, but with the addition of economic capital, the proportion of change increased among others in the subsequent model examination.

Conclusion: /implication: The study provides knowledge and empirical evidence that academic optimism and capital indicators, with their dimensions, affect composite learning outcomes among students. This study will help school ministries, policymakers, and curriculum planners make sure that the educational objectives, philosophies, and programmes are planned to reflect the total learner in order to produce the total learner that will effect changes in the society. This study has provided evidence that academic inputs and capital indicators are crucial indices of their learning outcomes in the three area of learning. The ability of the school to emphasise academics, ensure that all school agents are committed to instructional delivery, and gain the trust of parents is crucial for adequate support to enhance students learning outcomes. The outcome has implication for policy development and providing a climate that can stimulate equity, trust and motivation.

1. Introduction

Education is a factor in social change. This change begins with the school system and the interaction between input, process, and output. The quality of change that education brings is manifested in the learning outcomes of the students [1]. Learning outcome is the composite achievement of the students in terms of knowledge, skills, and values that are acquired at a particular point in time, most importantly, after being exposed to instructional content. Students learning outcomes are critical in the educational industry (Afkhaminia et al., 2022; [2],[3]). This implies that the learner must be equipped in the brain, mind, and hands. This is what is often described as the ‘cognitive, affective, and psychomotor domains of learning’.

The cognitive domain focuses on the learner’s mental processing capacity, thinking abilities, and intellectual capability to hold, retain, and replicate information at any time. It functions in the ability of the students to acquire information, process it, store it, and retrieve it as the situation demands. Students’ ability to retrieve information stored in the cognitive bank is what, to a greater extent, helps in the performance of the learner in school. Over the years, the emphasis has been on the development of the cognitive domain of learning. Even though, over the years, the level of cognition as stipulated by Bloom: “knowledge”, “comprehension”, “application”, “analysis”, “synthesis”, and “evaluation” (Bloom et al., 1956) has changed, it still constitutes a vital measure of the means of measuring the cognitive domain of learning [4].

The affective dimension focuses on the learner’s behavioural aspects such as character, values, esteem, and respect for established authority, among other things. The affective domain of learning focuses on the learner’s ability to inculcate socially acceptable values that can help in the promotion of peace, respect for other cultures, respect for constituted authority, cohabitation, and preservation of cultural values. The affective components of learning are not often as emphasised as those found in the cognitive domain, even though they are not by any means less important to the cognitive domain (Owan et al., 2022). In fact, what sustains society are the values, character, and traditional moulding obtained from society. Currently, there is a strong emphasis on the acquisition of soft skills that facilitate the sustainability of enterprises. It is imperative that, for the student to achieve maximally after school, such components be adequately built. The psychomotor domain focuses on the learner’s ability to manipulate objects, demonstrate innovative skills with their hands, and develop kinetic abilities. It is their ability to work with their hands and create opportunities that will facilitate development in society. This accounts for the introduction of hands-on subjects like home economics, computer studies, technical drawing, and business education, among others, in secondary schools. Assessment of the learner, therefore, is supposed to be holistic. It is not supposed to be a one-sided exercise; instruments alone will be used in determining the progress of the learners on the educational wheel. The importance of other areas of assessment is manifest in the criteria for job selection in Nigeria (Gaevi et al., 2013). Most companies evaluate applicants based on the acquisition of knowledge (cognitive), skills such as communication, problem solving, interpersonal relations abilities, investigative skills (psychomotor), and values, character, and respect for authority (affective). The effect of this neglect of the affective and psychomotor domains is evident in graduates becoming inadequate to societal values that have culminated in raising criminals, kidnappers, cultists, drug addicts, and assassins, among other things (Taramilla et al., 2022).

Researchers over the years in Nigeria, like in other countries, especially in African countries, have lamented the state of poor learning outcomes among students [5,6]. It has been reported that students knowledge, skills, character development, and inculcation of values that are cherished by society are low. These abnormalities pose a strong threat to achievement of secondary education objectives, and if it is not right at this level, it may be difficult at the tertiary level of education. Concerns are rising given that student acts of indiscipline, moral decadence, attitude towards school, dedication to studies, and perception of school are not encouraging ([7, 8]; Eze, 2021; [9,10]).

Previously, various researchers were concerned with factors influencing learning outcomes and factors underlying such outcomes, as used in various topics. For instance, Meshulam et al. [11] identified three methods of instruction: learning style (Casy and Goodyear, 2015), habit formation (Baabdullah, 2021), and intensity determination [12]. Similarly, the impact of learners’ student’s personal attributes on learning outcomes has been extensively studied by researchers worldwide. These include students’ genetic traits [13],

gender and experience [14], and parental educational background (Mttus et al., 2020). Efforts have been made over time to ensure that learners composite outcomes are examined in schools because the objective of assessment is not restricted to the cognitive component of the learner. In Nigeria, the evaluation report of the learner includes sections on the affective, cognitive, and psychomotor dimensions of the learner (Owan et al., 2023). In this study, the emphasis is on academic optimism and capital indicators as determinant of students learning outcomes in terms of cognitive, affective, and psychomotor learning outcomes among secondary school students.

Academic optimism refers to the strengths and capabilities of the school to succeed. The term optimism is central in that the school sees every opportunity to organise her resources, teachers, materials, students, and external factors that influence the activities of the school to achieve her objectives. It is a measure with three subdimensions, which include collective efficacy, faculty trust, and academic emphasis [15]. Capital indicators refer to the amount of tangible and intangible resources at the disposal of individuals. It is a construct that has different classifications, such as social, cultural, economic, and cultural capital, among others. Students' academic optimism is essential in that it provides the student with the positive mindset to press on against all odds. Where the learner is not optimistic about his or her academic activities, the propensity to push hard will be lower, and the learner may not gain academically. Similarly, the capital factor of the learner is important in that most of the students who are denied the resources that are vital to improving their academic efficiency get frustrated. It is expedient that we look at these factors to model their relationship with learning outcomes in school.

Although these factors have been identified and their relations with learning outcomes established, even with the cognitive domain and not extensively with other domains like affective and psychomotor, the level of such relations has not been established in Cross River State, where this study was carried out. It will also be important to understand how these factors affect three aspects of the learner rather than one area of the learner's behavior. It is against this backdrop that this study was carried out. In this study, six predictor variables, such as collective efficacy, faculty trust, academic emphasis, social capital, cultural capital, and family economic capital, were used as sub variables of the predictors of learning outcomes. Thus, the following research questions and hypotheses were stated for the study.

1.1. Research question

What is the individual and collective contribution of academic optimism, capital indicators on learning outcomes in terms of cognitive, affective, and psychomotor learning outcome?

1.2. Literature review

1.2.1. Studies on academic optimism

Hoy et al. [16] conceived academic optimism as a construct that explains the institution's potential to help the learner reach whatever academic goals they have set as well as the cooperation they can acquire from stakeholders to achieve their academic goals. Academic optimism is frequently characterised in terms of three important words: collective efficacy, faculty trust, and academic emphasis (1977). According to Hoy et al. [16], academic optimism is often conceived as a multidimensional. It contains three areas, such as the faculty tract, collective efficacy, and academic emphasis. 'Faculty trust' is the concept that holds that actors in educational systems, such as teachers, instructors, and students, may collaborate with the institution's policies to increase learning. It looks at microfactor contributions in order to promote collaboration and learning in school. Collective efficacy, according to Goddard et al. [17], is the belief among school actors, such as teachers and parents, that it can accomplish what it sets out to do in order to improve student performance. Academic emphasis refers to the behaviour displayed by the actors because of their belief that the pupils would achieve in school. As a result, a school that is intellectually optimistic is bound to create an environment in which learning outcomes are favourable [17].

Previous studies have attempted to establish a nexus between academic optimism and learning outcomes [16,18,19]. For instance, Ratnawati et al.'s (2021) found that academic optimism strongly relates to academic achievement. Nelson's (2012) study result showed that teachers' academic optimism relates strongly with students' academic achievement, but administrators' optimism does not correlate with students' learning outcome. The findings of Hayat et al. (2022), indicated that there was a positive strong correlation between student identification and their academic achievement ($r = 0.197$). Furthermore, student hope dimensions in terms of agency thinking ($r = -0.15$), pathway thinking ($r = -0.17$), relates with academic achievement. However, other studies do not agree that academic optimism relates to students' academic achievement [20]. For instance, the study by Skaalvik and Skaalvik [21] showed a weak correlation between teachers' collective efficacy and academic achievement. Similarly, the findings of Tschannen-Moran and Hoy [22] showed that only academic emphasis served as a strong predictor of academic achievement among students. These inconsistencies, as well as the focus on cognitive measures only created a gap that gave the impetus for this study in order to have a nuanced understanding of factors influencing learning outcome.

1.3. Studies on social capital

Social capital pertains to the evolving social connections that influence a learner's future interactions, both directly and indirectly. It involves the network of relationships that students leverage within and outside educational settings to gain skills, knowledge, and competencies necessary for various benefits [23,24]. Coleman [25] views social capital as the collection of resources a person utilizes to sustain their social ties. Dufur et al. [26] point out several drawbacks to managing social capital for optimal outcomes. Social capital is often categorized into bonding, bridging, and linking, according to Rostila [27]. While bridging social capital involves less frequent

interactions, such as in organizations, bonding social capital consists of regular, mutual engagement, like with family or close friends [28]. In the framework of this research, social capital is considered in terms of its influence on students' academic performance, the development of healthy behaviors, and the acquisition of skills essential for personal effectiveness [26,28–31]. Social capital plays a vital role not only in enhancing learners' cognitive abilities but also in fostering and expanding their entrepreneurial capacities (Bolino et al., 2002; Faghihi & Feyzi, 2006).

Previous research has highlighted a connection between social capital and educational outcomes. For example, a study by Matthew [32] explored the link between social capital networks and students' GPAs, finding a significant correlation at the 0.01 level. The research indicated that students who enjoy their classes alongside their peers tend to achieve higher grades and participate more in extracurricular activities. Additionally, Adriaan (2016) discovered that family social capital positively affects academic performance through mechanisms such as friendship and self-efficacy. Similarly, a study by Sima et al. (2021) found that both social capital and entrepreneurial behavior are significant predictors of students' educational performance, with entrepreneurial behavior playing a mediating role in strengthening this relationship. Research by Sharique and Surendrakumar [33] demonstrated that students with sociable roommates, especially those from the same caste, tend to perform better academically. Park and Li [34] also noted that social capital from family sources significantly impacts students' academic results.

However, contrasting findings suggest a weaker link between social capital and academic success. Studies by Wentzel et al. [35], Baik et al. [36], and Colarossi & Eccles (2003) indicated only a modest correlation. Furthermore, research by Brand and Xie (2010) showed that social capital is not a significant predictor of academic achievement, a finding echoed by Fernandez and Fernandez-Mateo [37] who reported a weak yet positive correlation between the two. This review points out that there is a lack of consistency in findings regarding the impact of social capital on academic performance, with most research focusing on cognitive outcomes. There has been limited investigation into how social capital affects other learning aspects, such as affective and psychomotor domains. This gap in research highlights an opportunity for further study that could inform policy decisions aimed at a more comprehensive evaluation of learners.

1.4. Studies on cultural capital

Since its coinage by Pierre Bourdieu, the term “cultural capital” has been interpreted in several ways. Cultural capital refers to an individual's cultural features such as awareness of cultural values, knowledge of attending school, acquisition of credentials, aesthetic preferences such as arts, music, skills, and attitude that are habitual and may also go unnoticed (Wenger, 2010; Spasi, 2004). According to Bourdieu's (1986) original conception, the term cultural capital might be classified as embodied, objectified, or institutionalised cultural capital. Embodied cultural capital is conceptualized as individual's attitude that allows them to appropriate high values; objectified cultural capital is conceptualized as the acquisition or possession of cultural objects such as knowledge, music, artefacts, books, and so on; and institutionalised cultural capital is conceptualized as the qualification that one receives. These highlighted components are the wheels that allow an individual to move within current social structures. These are the classes that are used to distinguish people, especially in Nigeria.

Previous research have indicated that a link exists between cultural capital and academic performance. For instance, Tramonte and Willms [38] study indicated that students with embodied cultural capital perform better than students with objectified capital. In a study by Kraaykamp and Van Eijck (2010), the findings demonstrated that cultural capital links to the learning outcomes. What is not clear from this finding is if academic outcome as employed here, is a composite phrase that incorporates other areas of the learner. In a similar vein, Mladen and Dragan [39] investigated the role of self-efficacy as a mediator in the relationship between cultural capital and student achievement. Academic attainment of pupils was found to be directly influenced by cultural capital, as mediated through self-efficacy ($\beta = 0.23$). Also, cultural capital and student self-efficacy were found to be significant ($\beta = 0.12$). In another study by Cheng [40], the results showed that parental education and parental expectations had bigger individual effect sizes than parent-child cultural participation and talks. According to earlier research, the effect sizes were significantly larger for older pupils in terms of reading achievement. The findings of the study also authenticate the effect of cultural capital in explaining the variances in learning outcome.

Contrary to this, other findings have shown that cultural capital does not have a direct effect on academic performance ([41–43]; Jaeger, 2009; Jaeger, 2011 [44]). For instance, Marteleto and Andrade [45] carried out a study on the relationship between cultural indicators and academic performance among students. The findings of the study showed that the relationship between cultural capital and academic performance is weak. In another study by Bodovski et al. [46], the results showed that cultural capital does not directly relate to academic performance. However, Huang and Liang [47] found that cultural capital mediated by family affluence showed a weak positive relationship with performance. It is therefore crystal clear from the literature that existing studies are contradictory in their findings. Similarly, most of the focus of the authors was on the cognitive domain, to the total neglect of the affective and psychomotor domains, and this provided the researchers with the impetus to carry out such studies.

1.5. Studies on economic family capital

Family economic capital is often viewed as a collection of resources owned by the family, including social standing and prestige, which can provide students with advantages in academic achievement [48]. According to a model by Bourdieu and Passeron (1974), education serves as a subtle means of social reproduction. Research by He [49], Bradley [50], Wu [51], and Shi et al. [52] has demonstrated that family income plays a role in influencing student academic outcomes. For example, the study by Hong et al. (1998) identified various dimensions of family capital that collectively impact academic performance. Additionally, a study by Jin et al. [53]

found that family economic capital significantly predicts learning outcomes, and that both embodied and institutional cultural capital have a notable effect on learning, whereas objectified cultural capital does not.

The influence of a family’s cultural capital on students’ academic success has also been documented in studies by Huang & Liang [47] and Caprara (2016). Typically, family capital is closely linked to family income and other resources that facilitate learning, such as textbooks, comfortable living conditions, accessible transportation, technological devices for internet access, dedicated study spaces, and online resources [38,54]. The wealth associated with a family’s economic capital often positions them to excel academically compared to their peers. However, a study by Israel et al. [55] found that family capital does not significantly impact academic success. These findings have generated interest and led researchers to further investigate this variable. Despite the inconsistencies in research outcomes and the lack of studies addressing affective and psychomotor learning domains, this topic has spurred researchers’ interest to delve deeper into the investigation.

1.6. The current study

The present study is relevant in that empirical gaps and knowledge gaps have been identified from the plethora of literature that was reviewed. The knowledge gap results from the outright neglect of the other two components of learning (psychomotor and affective domains). Most of the studies that have been extensively reviewed have focused on how various factors, including demographics, social, family, cultural capital, and academic optimism, influence just the cognitive aspect. More so, the dimensions of social, cultural, and academic optimism have not been effectively used, as the reports presented only show the main variable effect while the subcomponents are ignored. This will not help in identifying the basic areas that will require improvement in policy decisions.

Similarly, in the empirical gaps, research results have been very inconsistent as to the influence of some of the variables, such as family capital, cultural capital, and faculty trust, on students’ achievements. Similarly, it is not known to the researchers if a similar study has been carried out in Nigeria. This is because almost all the studies that were reviewed had 95 % of their citations outside Nigeria, but such problems of concentration on only cognitive assessment alone are a global issue. More so, the psychometric properties of the instrument were taken seriously in order to present results that would be objective. This was not undertaken to discredit existing scales. Utilisation of these instruments raises questions of validity and reliability that can affect the outcome of the study. This study therefore followed the best and acceptable practice for the development and validation of the instrument for data collection.

More so, based on the information obtained from a review of literature related to the variables of the study, a conceptual model was developed (see Fig. 1) to explain the directions of the predictive links of the exogenous variable on the endogenous variables. The basic predictors are academic optimism with three sub-variables such as academic emphasis, faculty trust, and teacher’s collective efficacy, while capital indicators have three sub-variables such as social, cultural, and family economic capital. The dependent variable is learning

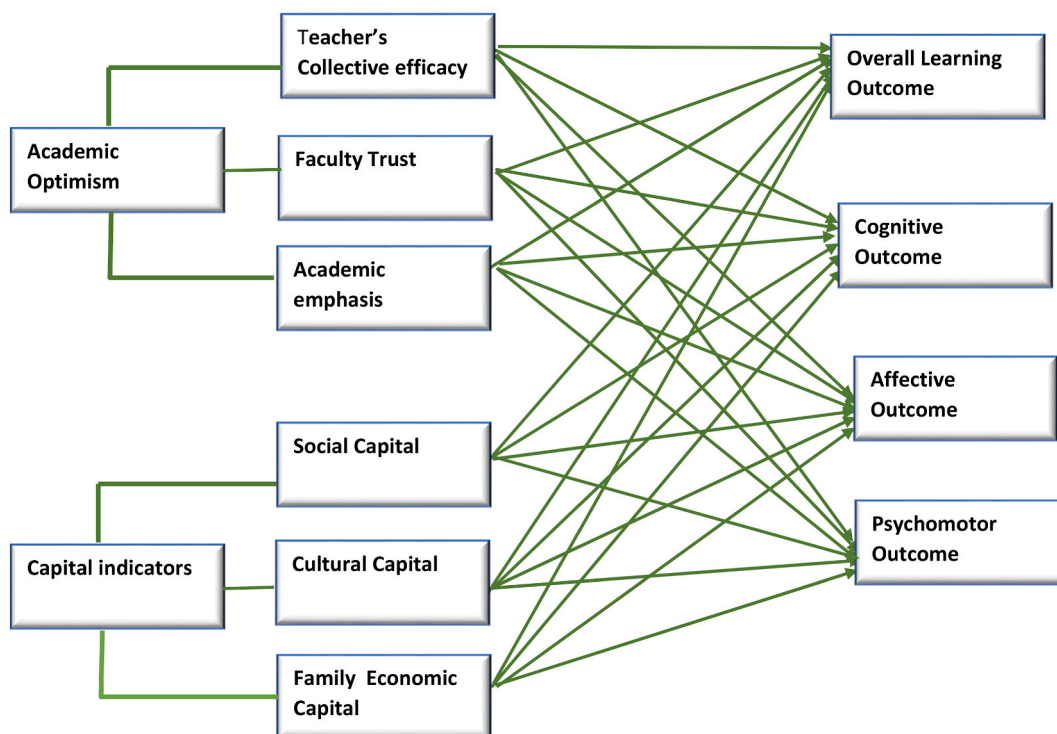


Fig. 1. Conceptual model of academic optimism, capital indicators and learning outcome.

outcome, also taken from dimensions such as students cognitive, affective, and psychomotor outcomes. The model shows our hypothesised relations between the predictors and the criterion variables.

2. Research methodology

The method adopted for this study was a purely quantitative type with a correlational research design in focus. The study utilised a multistage sampling procedure. The stratified sampling with a population of 17,542 students, of which 10,666 are boys and 6876 are girls, was done based on the local government areas. All the school administrators were used for the study since the number is manageable. Thus, 60 school administrators (principals, deputy vice principals, and vice principals), males = 32 (53.33%), females = 28 (46.67%), were purposefully selected for the study. A total of 534 students were selected from the schools. The demographic characteristics of the respondents are males = 279 (52.24%), females = 255 (47.5%), age below 15 years ($n = 172$, 32.21%), 15–20yrs ($n = 208$, 38.95%), 21-above yrs. ($n = 154$, 28.84%). Summarily, 60 school administrators (principal, deputies, and vice principals only) and 534 students, totalling 594 respondents, were used for the study. In the selection of school leaders, private secondary school, primary, and tertiary school leaders were not part of the study.

2.1. Instrumentation

Two instruments were developed by the researchers for this study. These were the academic optimism and Capital Indicators Scales (AOCIS) and the Learning Outcome Scale (LOC). The AOCIS was made up of six sub variables of the independent variables, which are ‘academic emphasis, collective self-efficacy, faculty trust, social capital, cultural capital, and family economic capital’. Academic optimism measures the degree to which the institution’s potential can help the learner reach whatever academic goals they have set, as well as the cooperation they can acquire from parents and students to achieve their academic goals. Three components are used in explaining academic performance [16]. Each of these subscales of academic optimism was assessed using five items. That is, academic emphasis (AE) ($n = 5$ items), collective efficacy (CE) ($n = 5$ items), Faculty trust (FT) ($n = 5$ items). Collective efficacy is measured with sample items such as Teachers do not give up on the belief that students will do well; ‘Teachers believe that inadequacies found in the learners will be addressed’; ‘In my school, the teachers are confident that the students in will perform very well, among others. For faculty trust, sample items used include ‘Students are often relied on to perform very well, ‘Teachers can often count on the parents for support in the school, and Parents are sure that schools are doing the right thing for their children, among others. For academic efficacy, sample items that are used include: ‘In my school, every staff member is ensuring that students are committed to the studies, ‘In my school, the focus is on achieving academic excellence, and ‘The school targets are clearly worked for by the staff of the school, among others. Each of these factors was placed on a five-point Likert scale of strongly agree, agree, disagree, strongly disagree, and undecided. The highest score is five, and the lowest score is one (1–5).

Capital indicators in this study were divided into three sub variables, such as social capital (SC) ($n = 5$ item), Cultural Capital (CC) ($n = 5$ items) and Family economic capital (FC) ($n = 5$ items). Social capital measures the number of social relationships that the learner has and can maintain in school. It refers to the ability of the learner to create and maintain social relationships. The variable was measured with five items ($n = 5$) with the following sample items: ‘I keep my relationships very well’; ‘I do not like to lose a friend’; ‘Sometimes, I go and look after my friends, among others. Similarly, cultural capital is the moral capital of the individual measured in the values, norms, skills, and attitude towards traditional activities that the individual can keep and perform. The cultural capital was measured with five items ($n = 5$), with sample items like I respect what I am taught about my culture, I keep to the values I have been taught by my parents, ‘I don’t like behaving any way wherever I find myself’, among others. For family economic capital, which looks at the financial capacity of the family that helps in making available learning facilities, comfort, and care at any time to the learner, it is measured with five items ($n = 5$) with sample items such as: My parents buy my textbooks every term’, I have never been driven home because of fees’, ‘I hardly go to school hungry, among others. The items were developed using the Likert scale’s five-point response options of ‘strongly agree, agree, disagree, strongly disagree. and undecided’.

The learning outcome focuses on ability on learner’s ability to acquire knowledge, values, and skills that can facilitate their functionality in society. It is a composite outcome that is important in the overall learning process. The Learning Outcome Scale (LOS) was the dependent variable of this study, with three dimensions such as the cognitive outcome, affective outcome, and psychomotor outcome. These instruments were developed using the knowledge of extensive literature, focus group discussions, and interviews held with experts in sociology, psychology, and psychometrics. The cognitive outcome is concerned with the ability of the students to think, process information, store it, and retrieve it on demand. It is more concerned with students intergluteal ability, critical thinking, and ability to perform well in examinations. The cognitive outcome could not be assessed using questionnaires. The researcher utilised the scores of students in a session to average the position of each selected participant in the study. That is, the computed average score of each student as reported in the assessment sheet was what was used to determine the cognitive outcome. The affective outcome focuses on the values that the learner holds that affect his or her behaviour. It has a range of variables such as valuing responding, characterization, belief systems, and traditional practices that are culturally cherished, among others, while the psychomotor outcome has to do with the individual’s ability to manipulate objects, develop innovative objects, and perform tasks that are skilled-oriented.

The affective and psychomotor outcomes were developed, while the affective and psychomotor outcomes were designed using a five-point Likert response. The LOS was designed using 20 items. The affective outcome (AO) ($n = 10$ items) The affective outcome looks at some areas of the learners, which include inculcation of attributes that are measured with sample items like ‘punctual to class’, ‘respect for constituted authority, ‘obedience to school authority, participation in class activities’, and ‘participation in social The affective outcome looks at some areas of the learners, which include the inculcation of attributes that are measured with sample items

like “punctual in class,” “respect for constituted authority,” “obedience to school authority,” “participation in class activities,” and “participation in social activities,” among others. For the psychomotor outcome, which measures the ability of the individual to acquire skills that will help the learner be productive. It was measured with 10 items, with sample items such as ‘ability to operate the computer’, ‘sometimes I fix my school reading light if it gets bad’, ‘I use my hands to do bags, and ‘I handle school laboratory equipment very well, among others.

2.2. Validity of the instrument

Validity was carried out quantitatively using 2 experts in Sociology, 2 experts in psychology and 2 experts in Measurement and Evaluation. These experts selected are lecturers with over 10 years of cognate experiences in their areas of specialisation. In Sociology, 2 experts were in the field of demographics and 2 were in the field of sociology of Education. In psychology, the 2 experts were in social and adolescent psychology. In Measurement and Evaluation, the 3 experts were in psychometrics. The experiences garnered over the years were the basis for the validation of the instrument, and each validation was done independently. The item scoring was done using three criteria which are relevance, clarity, and representativeness (Ofem, 2022). The findings from the validation showed that first, for the item level content index (I-CVI) for the Academic Optimism and Capital Indicators (AOCIS), the values for relevance ranged from 0.83 to 0.87, for clarity, it ranged from 0.87 to 0.97, and for representativeness, the I-CVI ranged from 0.87 to 0.98. For LOC, the I-CVI for relevance of items ranged from 0.89 to 0.96, for clarity of items, it ranged from 0.77 to 0.89, and for representativeness, it ranged from 0.81 to 0.88. However, the Scale Content Validity index (S-CVI) for the Academic Optimism and Capital Indicators Scale (AOCIS) has 0.88–0.95(relevance), 0.81–0.97(clarity), and representativeness (0.88–0.96). Researchers have noted that the criteria for determining for Item Content validity Index (I-CVI) is that for two experts, CVI must be should at least be 0.80; where three to five experts are involved, it should be at least 0.99; where there are six to eight experts, it should range from 0.83; and where it involves 9 to above experts, the least index should be 0.78 (See Polite et al. , 2007 [56]). A curious look at the indices obtained for the study are within the possible range of criteria used for determining content Item -Content Validity Index and Scale - Content Validity Index. Thus, the items were retained except for few items that were reworded for more clarity.

The researchers carried out a pilot study to determine the dimensions of the factors of the constructs in academic optimism, capital indicators, and learning outcomes, excluding cognitive outcomes. This was carried out using a total of 361 students in the senior secondary school class (SSII) who were not participating in the main study. A Box plot was used to assess the outliers and normality of

Table 1
Exploratory factor analysis of academic optimism and capital indicators.

Factors	Items	Means	SD	EFA	CFA
Academic emphasis	AE2-The school targets are clearly worked for by staff of the school.	2.362	0.623	0.613	0.689
	AE3-In my school, teachers are monitored to keep to their time schedule	2.164	0.385	0.443	0.488
	AE4-In my school, every staff is ensuring that students are committed to the studies.	2.190	0.393	0.401	0.441
	AE5-In my school, the focus is on achieving academic excellence	2.254	0.476	0.644	0.513
Collective efficacy	CEE5-Teachers do not give up on the believe that students will do well.	3.028	0.571	0.621	0.675
	CEE6-In my school, the teachers are confident that the students in will perform very well.	3.130	0.443	0.711	0.781
	CEE7-In my school, there is this generally believe that instructions from all angles is possible for the teachers.	3.065	0.555	0.701	0.762
Faculty trust	CEE8-Teachers believe that inadequacies found in the learners will be addressed.	2.904	0.695	0.762	0.754
	FCT1- Students are often relied on to perform very well.	2.551	0.695	0.632	0.656
	FCT2-Parents can be trusted to meet their children’s school responsibilities.	2.529	0.699	0.813	0.861
	FCT3-Teachers can often counted on the parents for support in the school	2.463	0.715	0.807	0.858
Social capital	FCT4- Parents are sure that schools are doing the right thing for their children.	2.506	0.761	0.810	0.821
	SC1- Sometimes, I go and look after my friends.	2.439	0.672	0.712	0.758
	SC2- I do not like to lose a friend.	2.383	0.645	0.763	0.831
	SC3- I keep my relationships very well.	2.345	0.619	0.600	0.605
Family Economic capital	EC2-I have never been driven home for non-payment of school fee.	2.320	0.486	0.465	0.470
	EC3- I have all the school materials that I am supposed to get.	2.329	0.485	0.655	0.698
	EC4-Sometimes I go to school hungry.	2.358	0.487	0.830	0.834
Cultural capital	EC5-My parents sometimes do not even provide food for me to eat before going to school	2.342	0.482	0.649	0.670
	CC1-I do not behave the way I like in my place.	2.444	0.567	0.689	0.700
	CC2-Sometimes, our values make me control myself in the public.	2.480	0.602	0.644	0.658
	CC3- I keep to the values I have been taught by my parents’.	2.431	0.556	0.720	0.736
Instrument attributes	CC4-I hold strong to my community rules and regulations wherever I go.	2.377	0.536	0.700	0.703
	Kaiser-Meyer-Olkin (KMO) = 0.880				
	Bartlett’s Test of Sphericity at df = 253, (7654.76, $p < .05$)				
	Corr. Det. Matrix = 0.000				
	Reliability coefficients				
	Academic emphasis ($\alpha = 0.781$)				
	Collective emphasis ($\alpha = 0.842$)				
	Faculty trust ($\alpha = 0.817$)				
	Social capital ($\alpha = 0.820$)				
	Economic capital ($\alpha = 0.899$)				
Cultural capital ($\alpha = 0.852$)					

the data, and inter-item correlation was carried out to ensure that there is no multicollinearity. This was done as recommended by Field [57], Bassey et al. [58], and Owan et al. [59]. The preliminary result showed that there were no issues of multicollinearity. An exploratory factor analysis (EFA) using Principal Component Analysis (PCA) was executed to extract the dimensionality of the constructs with eigenvalues greater than 1 as the basis of the extraction. The default iteration of 25 was set, and the rotation was carried out using varimax. Factors below 0.40 were suppressed in order to ensure that items loading into factors have a high correlation with those factors. The factors extracted were subjected further to Confirmatory Factors Analysis (CFA) to determine how fit the model was. The reliability of the instruments was tested using Cronbach’s alpha reliability, and the results are presented in Tables 1 and 2.

2.3. Ethical consideration

Survey research in the behavioural or social sciences that is not experimental in nature does not pose a significant threat or risk to the participants. Thus, ethical clearance was waived according to the Nigeria Code for Health Research Ethics (NCHRC) (see <https://bit.ly/3pK9ORh>). However, in line with best practices, ethical approval for the survey since it involves human responses was obtained from the University Ethics Committee (see ref: IRC/CAL/004/0542).

2.3.1. Procedure for data collection

The data collection was collected with some trained research assistants from various schools that were used for the study. The researchers spent time explaining the purpose of the study to the respondents. An interactive session was created for all the respondents to ask and hear the answers to their questions. A total of 594 participants were properly addressed, and all their consent was sought. Those who were not willing to participate in the study were dropped, and the researchers did not make any effort to coerce any of the respondents to take part in the study. The researchers were able to get the consent of the participants by providing a form that they signed, indicating that they were not involved in the study and that they were aware of what the study sought to achieve. Thus, participation was willingly carried out. Similarly, the respondents were promised that the information that was provided was anonymous and that the researchers have developed measures to protect the information so that no access can be gained by any other person outside of this study. This was to ensure that the safe harbour standards were followed strictly. The names of the students were collected only for the purpose of identifying their examination report sheets, which were used for their cognitive measures, and the information after coding will be deleted from the system. The data were coded and stored in a computer system with an access code that only the lead researcher was able to use to un-code it and a firewall to prevent unauthorised access to the obtained data. Finally, the participants were informed that the collected data would be analysed and published in a standard-based journal.

The model specification for this study is a followed.

$$\text{Model 1: LO} = \beta_{\text{CE}} + \varepsilon \text{ (R}^2\text{)} \tag{1}$$

$$\text{Model 2: LO} = \beta_{\text{CE}} + \beta_{\text{FT}} + \varepsilon \text{ (R}^2, \Delta\text{R}^2\text{)} \tag{2}$$

$$\text{Model 3: LO} = \beta_{\text{CE}} + \beta_{\text{FT}} + \beta_{\text{AE}} + \varepsilon \text{ (R}^2, \Delta\text{R}^2\text{)} \tag{3}$$

$$\text{Model 4: LO} = \beta_{\text{CE}} + \beta_{\text{FT}} + \beta_{\text{AE}} + \beta_{\text{SC}} + \varepsilon \text{ (R}^2, \Delta\text{R}^2\text{)} \tag{4}$$

$$\text{Model 5: LO} = \beta_{\text{CE}} + \beta_{\text{FT}} + \beta_{\text{AE}} + \beta_{\text{SC}} + \beta_{\text{CC}} + \varepsilon \text{ (R}^2, \Delta\text{R}^2\text{)} \tag{5}$$

$$\text{Model 6: LO} = \beta_{\text{CE}} + \beta_{\text{FT}} + \beta_{\text{AE}} + \beta_{\text{SC}} + \beta_{\text{CC}} + \beta_{\text{FC}} + \varepsilon \text{ (R}^2, \Delta\text{R}^2\text{)} \tag{6}$$

$$\text{Model 7: CO} = \beta_{\text{CE}} + \varepsilon \text{ (R}^2\text{)} \tag{7}$$

Table 2
Exploratory factor analysis of affective and psychomotor outcome.

Factors	Items	Means	SD	EFA	CFA
Affective outcome	AO1- I am always very punctual to class’.	2.542	1.182	0.713	0.796
	AO2-I ensure that I keep to school rules and regulations.	3.721	1.421	0.743	0.777
	AO3-I have sympathy for others who are maltreated.	3.872	1.052	0.801	0.807
	.A04- I am obedient to school authority	3.152	1.232	0.844	0.820
	AO5-I have respect for the opinion of other people	3.142	1.033	0.822	0.885
Psychomotor outcome	PO1-I can operate the computer system very well.	3.028	0.955	0.708	0.727
	PO2-I use my hands to do bags.	3.130	0.901	0.859	0.863
	PO3-sometimes, I fix my school reading light if it gets bad.	3.065	0.942	0.854	0.861
	PO4-I handle school laboratory equipment very well.	2.904	0.978	0.803	0.860
	PO5- I have the skills to work in the farm very well	3.052	1.900	0.840	0.847
Instrument attributes	Kaiser-Meyer-Olkin (KMO) = 0.967				
	Bartlett’s Test of Sphericity at df = 51, (238.418 p < .05				
	Corr. Det. Matrix = 0.000				
	Reliability coefficients				
	Affective outcome (α = 0.852) Psychomotor outcome (α = 0.831)				

- Model 8: $CO = \beta_{CE} + \beta_{FT} + \varepsilon (R^2, \Delta R^2)$ (8)
- Model 9: $CO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \varepsilon (R^2, \Delta R^2)$ (9)
- Model 10: $CO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \varepsilon (R^2, \Delta R^2)$ (10)
- Model 11: $CO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \beta_{CC} + \varepsilon (R^2, \Delta R^2)$ (11)
- Model 12: $CO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \beta_{CC} + \beta_{FC} + \varepsilon (R^2, \Delta R^2)$ (12)
- Model 13: $AO = \beta_{CE} + \varepsilon (R^2)$ (13)
- Model 14: $AO = \beta_{CE} + \beta_{FT} + \varepsilon (R^2, \Delta R^2)$ (14)
- Model 15: $AO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \varepsilon (R^2, \Delta R^2)$ (15)
- Model 16: $AO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \varepsilon (R^2, \Delta R^2)$ (16)
- Model 17: $AO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \beta_{CC} + \varepsilon (R^2, \Delta R^2)$ (17)
- Model 18: $AO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \beta_{CC} + \beta_{FC} + \varepsilon (R^2, \Delta R^2)$ (18)
- Model 19: $PO = \beta_{CE} + \varepsilon (R^2)$ (19)
- Model 20: $PO = \beta_{CE} + \beta_{FT} + \varepsilon (R^2, \Delta R^2)$ (20)
- Model 21: $PO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \varepsilon (R^2, \Delta R^2)$ (21)

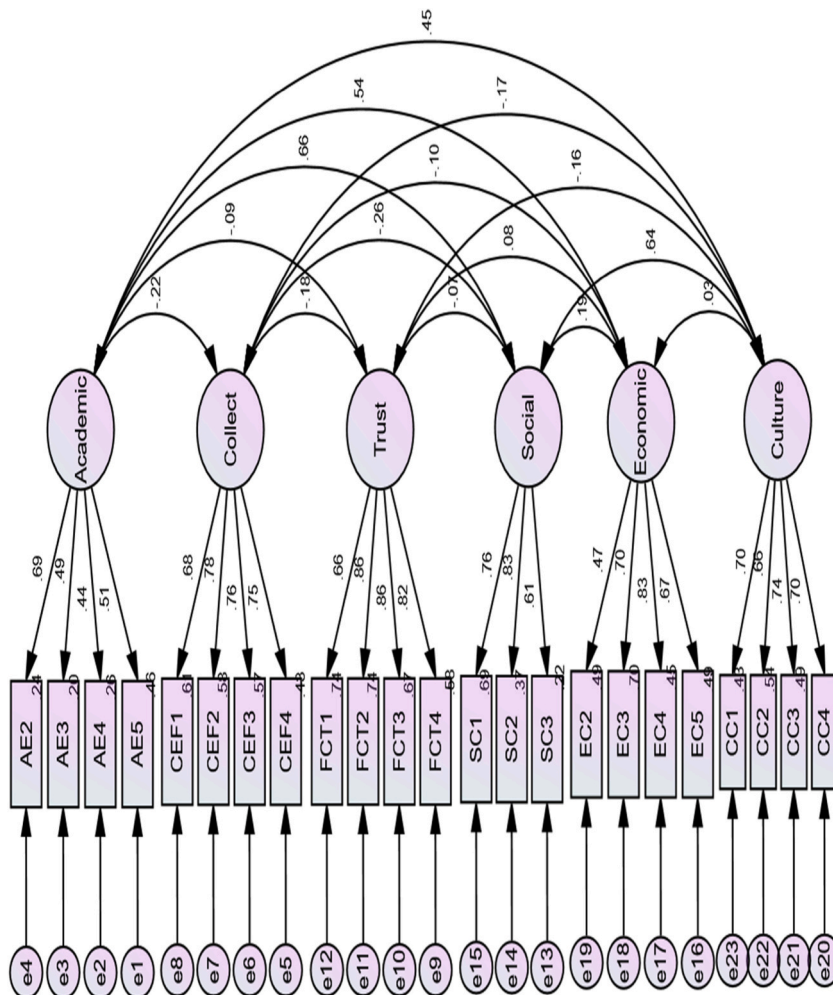


Fig. 2. Confirmatory factor analysis model of academic optimism and capital indicators scale.

Model 22: $PO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \varepsilon (R^2, \Delta R^2)$ (22)

Model 23: $PO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \beta_{CC} + \varepsilon (R^2, \Delta R^2)$ (23)

Model 24: $PO = \beta_{CE} + \beta_{FT} + \beta_{AE} + \beta_{SC} + \beta_{CC} + \beta_{FC} + \varepsilon (R^2, \Delta R^2)$ (24)

Source (Field work, Ofem et al. , 2023).

The following are the notes from equations (3)–(1). LO= Aggregate Learning outcome; CO = cognitive outcome, AO = Affective outcome, CE = collective efficacy, FT=Faculty trust, AE = academic emphasis, SC = social capital, CC = cultural capital and FC = family capital. R^2 = Coefficient of determination from each regression of analysis; ΔR^2 = The change in the coefficient of determination due to the inclusion of new variables at different levels and ε = the error term.

3. Results

3.1. Exploratory factor analysis

The AOCIS was subjected to exploratory factor analysis (EFA) to determine the dimensionality and factor structure using 361 students randomly selected from the senior secondary school class (SSII) in the pilot study. Inter-item correlation was examined using the correlation matrix. First, the Kaiser Oklim Mayer (KSM) value, which aimed at examining the sampling adequacy, was 0.780, while the Bartlett’s test of sphericity produced result of $\chi^2 (253) = 4990.887; p < .001$. This result showed that the sample size is suitable for factor analysis to be performed. The principal component analysis (PCA) result showed that six factors with a total variance measure of 66.12 % were obtained. Furthermore, the specific factor loadings per item ranged from 0.450 to 0.86 (see Table 1). Each of the factor variances accounted for shown as: academic emphasis = 20.040 %, collective efficacy = 14.506 %, faculty trust = 10.903 %, social capital = 9.257 %, family economic capital = 5.379 %, and cultural capital = 5.035 %.

For the learning outcome questionnaire, the result in Table 2 showed that correlation among the items produced a determinate value of 0.000, which is different from the identity matrix of 0.00001. The correlation matrix showed that no item was dysfunctional in the measurement of these two constructs. The KMO statistics were assessed, and a result of 0.981 was obtained, while the Bartlett test

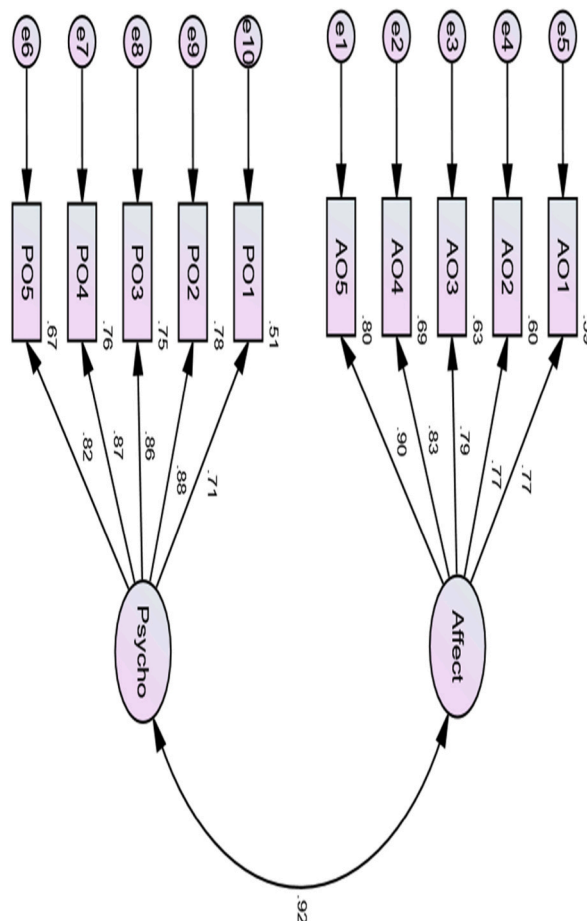


Fig. 3. Confirmatory factor analysis model of learning outcome scale.

of sphericity was obtained as $\chi^2(51) = 238.418$ ($p < .001$, implying the adequacy of the sample for conducting an EFA. The analysis of the data using principal component analysis (PCA) produced a two-factor structure with a cumulative explained variance of 53.23 %. Each of the factor variances accounted for affective outcome (32.98 %) and psychomotor outcome (18.92 %).

3.2. Confirmatory factor analysis

The confirmatory factor analysis was carried out using the Maximum Likelihood estimation statistics. As could be seen in [Tables 1 and 2](#), [Figs. 2 and 3](#), there were not many disparities between the factor’s loadings of items in the EFA and those that are found in the CFA. This indicates that the dimensionalities obtained and the factor loadings from the EFA are valid measures of the constructs, and the instrument is psychometrically sound. Like what was obtained in the inter-item correlation and the examination of factor loadings in EFA, the CFA also indicated that some items, such as item 1 on academic emphasis, item 5 (collective efficacy), item 5 (faculty trust), items 4 and 5 (social capital), item 1 (economic capital), and item 5 (cultural capital), were removed. This is because all the items in the CFA model were less than 0.40, as some of these items earlier examined in the EFA were cross-loaded and below the criteria set at 0.40.

The fit indices of the confirmatory factor analysis were examined. Each of the fit indices has its strengths and weaknesses. Therefore, it is not advisable that only one fit index be reported. According to Kline (2016), four fit indices such as “ χ^2 (Chi-Square)”, “RMSEA (Root Mean Square Error of Approximation)”, “Comparative Fit Index”. According to Kline (2016), four fit indices such as χ^2 (Chi-Square), RMSEA (Root Mean Square Error of Approximation), “Comparative Fit Index” (CFI), and SRMR can be appropriate to decide whether to accept a CFA model. However, in this study, eight fit indices were reported, which include “Goodness of Fit Index” (GFI), “Normed Fit Index” (NFI), “Relative Fit Index” (RFI), “Comparative Fit Index” (CFI), HOELTER’s Critical N, “Incremental Fit Index” (IFI), “Root Mean Square Error of Approximation” (RMSEA), and “Tucker-Lewis Index” (TLI). However, the RMSEA is the best measure and is often used as a condition for accepting the model. The result presented in [Table 3](#) and [Figs. 2 and 3](#) showed that the indices are within the range of values that are used in determining the acceptability of the model and that the models are fit.

4. Results

4.1. Relative and composite contributions to students’ learning outcomes

What is the relative contribution of academic optimism and capital indicators to learning outcomes (cognitive, affective, and psychomotor)? The result of the hierarchical regression as presented in [Table 4](#) showed the relative contribution of the different predictor variables on the overall learning outcome, cognitive, affective, and psychomotor outcomes of the students. In the initial model, collective efficacy accounted for 0.29 % of the variation in the overall learning outcomes of the students. However, when the faculty trust was introduced in Model 2, the contribution of academic optimism increased to 0.57 %, resulting in a relative meaningful change of 0.3 %. In model 3, the contribution of academic emphasis to the model was added to that of model 2, raising the variance explained to 11.0 % with a change in R^2 of 5.3 %. More so, in model 4, the contribution of social capital to model 3 added no value to the model as there was no meaningful change in the variance explained by that variable. Similarly, in model 5, the contribution of cultural capital was added to that of model 4, raising the variance explained to 14.9 % with a change in R^2 of 3.9 %. In model 6, the addition of family affluence to model 5 contributed 19.5 % to the model, with a change in R^2 of 4.6 %. An assessment of the predictor variables showed that among the predictors, academic emphasis is the strongest predictor of overall learning outcome ($\Delta F [1, 532] = 31.885, p < 0.05$), followed by family economic capital ($\Delta F [1, 532] = 30.259, p < 0.05$), cultural capital ($\Delta F [1, 532] = 23.937, p < 0.05$), collective efficacy ($\Delta F [1, 532] = 15.860, p < 0.05$), and faculty trust ($\Delta F [1, 532] = 15.620, p < 0.05$).

[Table 4](#) reveals the contributions of academic optimism and cultural indicators on the cognitive outcome of the students. In the initial model, collective efficacy accounted for 12.1 % of the variation in cognitive outcome of the students. However, when the faculty trust was introduced in model 2, the contribution of the academic optimism increased to 21.0 %, resulting in a relative meaningful change of 0.89 %. In model 3, the contribution of academic emphasis to the model was added to that of model 2 raising the variance explained to 31.0 % with a change in R^2 of 10.6 %. More so, in model 4, the contribution of social capital to model 3 contributed 46.1 % of the variance in cognitive outcome of the students with a change in R^2 of 14.5 %. Similarly, in model 5, the contribution of cultural capital added to that of model 4, raising the variance explained to 50.1 % with a change in R^2 of 4.0 %%. In model 6, the addition of family affluence to the model 5 added to contributing 52.5 % to the model with a change in R^2 of 2.4 %. An assessment of the predictor variables showed that among the predictors, family economic capital is the most strongest predictor on cognitive outcome ($\Delta F [1,$

Table 3
Goodness of fit test of the two CFA model.

S/N	Fit indices	Threshold	AOCIS	LOS
1	χ^2	$p > 0.05$	0.005	0.005
2	AGFI	$p \geq 0.90$	0.939	0.917
3	NFI	$p \geq 0.90$	0.933	0.915
4	CFI	$p \geq 0.90$	0.908	0.928
5	GFI	$p \geq 0.90$	0.937	0.910
6	TLI	$p \geq 0.90$	0.919	0.987
7	IFI	$p \geq 0.90$	0.986	0.933
8	RMSEA	$p \geq 0.08$	0.072	0.056

Table 4

Hierarchical regression analysis of the relative contribution of academic optimism and capital indicators on learning outcome (cognitive, affective and psychomotor).

Variables	Models	R	R ²	Adj R ²	SE	Δ R ²	Δ F	df1	df2	Sig Δ F
Learning outcome	1	0.170 ^a	0.029	0.027	8.26605	0.029	15.860 ^a	1	532	0.000
	2	0.238 ^b	0.057	0.053	8.15476	0.028	15.620 ^a	1	531	0.000
	3	0.332 ^c	0.110	0.105	7.92747	0.054	31.885 ^a	1	530	0.000
	4	0.332 ^d	0.110	0.104	7.93456	0.000	0.0540	1	529	0.817
	5	0.386 ^e	0.149	0.141	7.76794	0.039	23.937 ^a	1	528	0.000
	6	0.442 ^f	0.195	0.186	7.56126	0.046	30.259 ^a	1	527	0.000
Cognitive outcome	1	0.349 ^a	0.121	0.120	8.46575	0.121	13.370 ^a	1	532	0.067
	2	0.459 ^b	0.210	0.208	8.45759	0.089	12.949 ^a	1	531	0.086
	3	0.563 ^c	0.316	0.315	7.46168	0.106	10.263 ^a	1	530	0.871
	4	0.679 ^d	0.461	0.457	6.46590	0.145	11.410 ^a	1	529	1.000
	5	0.709 ^e	0.501	0.500	6.47007	0.040	12.012 ^a	1	528	0.913
	6	0.725 ^f	0.525	0.521	6.46555	0.024	22.071 ^a	1	527	0.151
Affective outcome	1	0.161 ^a	0.026	0.024	3.51628	0.026	14.208***	1	532	0.000
	2	0.261 ^b	0.068	0.064	3.44287	0.042	23.927***	1	531	0.000
	3	0.393 ^c	0.154	0.150	3.28238	0.086	54.198***	1	530	0.000
	4	0.393 ^d	0.155	0.148	3.28514	0.000	0.109	1	529	0.741
	5	0.472 ^e	0.222	0.215	3.15380	0.068	45.978***	1	528	0.000
	6	0.513 ^f	0.263	0.255	3.07334	0.041	29.008***	1	527	0.000
Psychomotor outcome	1	0.140 ^a	0.020	0.018	3.50987	0.020	10.675***	1	532	0.001
	2	0.169 ^b	0.029	0.025	3.49711	0.009	4.890***	1	531	0.027
	3	0.311 ^c	0.097	0.092	3.37565	0.068	39.898***	1	530	0.000
	4	0.313 ^d	0.098	0.091	3.37645	0.001	0.750	1	529	0.387
	5	0.370 ^e	0.137	0.129	3.30591	0.039	23.815***	1	528	0.000
	6	0.434 ^f	0.189	0.179	3.20816	0.052	33.665***	1	527	0.000

^a = significant at .05 level.

532] = 22.071, $p < 0.05$), collective efficacy ($\Delta F [1, 532] = 13.370$, $p < 0.05$), faculty trust ($\Delta F [1, 532] = 12.948$, $p < 0.05$), and cultural capital ($\Delta F [1, 532] = 12.012$, $p < 0.05$), social capital ($\Delta F [1, 532] = 11.410$, $p < 0.05$) and then, academic emphasis as the smallest predictor ($\Delta F [1, 532] = 10.263$, $p < 0.05$).

Similarly, examining the relative effect of academic optimism and capital indicators on affective outcome, the result as presented in Table 4 showed that, collective efficacy accounted for 2.6 % of the variation in cognitive outcome of the students. However, when the faculty trust was introduced in model 2, the contribution of the academic optimism increased to 6.8 %, resulting in a relative meaningful change of 4.2 %. In model 3, the contribution of academic emphasis to the model was added to that of model 2 raising the variance explained to 15.4 % with a change in R^2 of 8.6 %. More so, in model 4, the contribution of social capital to model 3 contributed 15.5 % of the variance in affective outcome of the students with a change in R^2 of 0.1 %. Similarly, in model 5, the contribution of cultural capital added to that of model 4, raising the variance explained to 22.2 % with a change in R^2 of 6.8 % In model 6, the addition of family affluence to the model 5 added to contributing 26.3 % to the model with a change in R^2 of 4.1 %. An assessment of the predictor variables showed that among the predictors, academic emphasis is the most strongest predictor on affective outcome ($\Delta F [1, 532] = 54.198$, $p < 0.05$), followed by cultural capital ($\Delta F [1, 532] = 45.978$, $p < 0.05$), family economic capital ($\Delta F [1, 532] = 29.008$, $p < 0.05$), faculty trust ($\Delta F [1, 532] = 23.927$, $p < 0.05$) and then collective efficacy ($\Delta F [1, 532] = 14.208$, $p < 0.05$) which is the smallest predictor.

Furthermore, examining the relative effect of academic optimism and capital indicators on psychomotor outcome, the result as presented in Table 4 showed that, collective efficacy accounted for 2.0 % of the variation in psychomotor outcome of the students. However, when the faculty trust was introduced in model 2, the contribution of the academic optimism increased to 6.4 %, resulting in a relative meaningful change of 0.9 %. In model 3, the contribution of academic emphasis to the model was added to that of model 2 raising the variance explained to 15.4 % with a change in R^2 of 6.8 %. More so, in model 4, the contribution of social capital to model 3 contributed 14.8 % of the variance in psychomotor outcome of the students with a change in R^2 of 0.1 %. Similarly, in model 5, the contribution of cultural capital added to that of model 4, raising the variance explained to 21.5 % with a change in R^2 of 3.9 % In model 6, the addition of family affluence to the model 5 added to contributing 25.5 % to the model with a change in R^2 of 5.1 %. An assessment of the predictor variables showed that among the predictors, academic emphasis is the most strongest predictor on psychomotor outcome ($\Delta F [1, 532] = 39.898$, $p < 0.05$), followed by family economic capital ($\Delta F [1, 532] = 33.665$, $p < 0.05$), cultural capital ($\Delta F [1, 532] = 23.815$, $p < 0.05$), collective efficacy ($\Delta F [1, 532] = 10.675$, $p < 0.05$) and then faculty trust ($\Delta F [1, 532] = 4.890$, $p < 0.05$) which is the smallest predictor.

4.2. Hypothesis testing: Composite contribution

What is the composite contribution of six predictors on overall learning outcome, cognitive, affective, and psychomotor learning outcome? The Analysis of Variance (ANOVA) result in Table 5 was used in testing the significant contribution of the model at 0.05 level of significance. The result showed that collective efficacy made a significant contribution to overall learning outcomes in model 1, with $F (1, 532) = 9.542$, $p < 0.05$. In model 2, there was a significant collective contribution of collective efficacy and faculty trust on

Table 5

ANOVA result of the Hierarchical regression of the composite contribution of six predictors on overall learning outcome, cognitive, affective and psychomotor learning outcome.

Criterion variables		Model	SS	df	MS	f-ratio	p-val
Overall learning outcome	1	Regression	659.604	1	659.604	9.542	0.002 ^b
		Residual	36774.320	532	69.125		
		Total	37433.924	533			
	2	Regression	2466.986	2	1233.493	18.732	0.000 ^b
		Residual	34966.937	531	65.851		
		Total	37433.924	533			
	3	Regression	4126.158	3	1375.386	21.885	0.000 ^b
		Residual	33307.765	530	62.845		
		Total	37433.924	533			
	4	Regression	4129.531	4	1032.383	16.398	0.000 ^b
		Residual	33304.392	529	62.957		
		Total	37433.924	533			
	5	Regression	5363.965	5	1072.793	17.662	0.000 ^b
		Residual	32069.959	528	60.739		
		Total	37433.924	533			
	6	Regression	7303.903	6	1217.317	21.292	0.000 ^b
		Residual	30130.020	527	57.173		
		Total	37433.924	533			
Cognitive Outcome	1	Regression	436.376	1	436.376	22.671	0.000 ^b
		Residual	10240.450	532	19.248		
		Total	10676.826	533			
	2	Regression	337.965	2	168.982	8.679	0.009 ^b
		Residual	10338.861	531	19.470		
		Total	10676.826	533			
	3	Regression	926.326	3	308.77	16.783	0.000 ^b
		Residual	9750.499	530	18.397		
		Total	10676.826	533			
	4	Regression	1026.326	4	256.581	14.065	0.000 ^b
		Residual	9650.5	529	18.242		
		Total	10676.826	533			
	5	Regression	165.647	5	33.129	1.664	0.141 ^b
		Residual	10511.179	528	19.908		
		Total	10676.826	533			
	6	Regression	967.857	6	161.309	8.589	0.009 ^b
		Residual	9708.969	527	18.779		
		Total	10676.826	533			
Affective outcome	1	Regression	199.945	1	199.945	16.231	0.000 ^b
		Residual	6553.480	532	12.319		
		Total	6753.425	533			
	2	Regression	738.582	2	369.291	32.602	0.000 ^b
		Residual	6014.843	531	11.327		
		Total	6753.425	533			
	3	Regression	1043.212	3	347.737	32.276	0.000 ^b
		Residual	5710.213	530	10.774		
		Total	6753.425	533			
	4	Regression	1044.392	4	261.098	24.193	0.000 ^b
		Residual	5709.034	529	10.792		
		Total	6753.425	533			
	5	Regression	1213.469	5	242.694	23.131	0.000 ^b
		Residual	5539.956	528	10.492		
		Total	6753.425	533			
	6	Regression	1775.695	6	295.949	31.333	0.000 ^b
		Residual	4977.730	527	9.445		
		Total	6753.425	533			
Psychomotor outcome	1	Regression	30.374	1	30.374	2.428	0.120 ^b
		Residual	6654.938	532	12.509		
		Total	6685.313	533			
	2	Regression	453.306	2	226.653	19.312	0.000 ^b
		Residual	6232.007	531	11.736		
		Total	6685.313	533			
	3	Regression	645.939	3	215.313	18.895	0.000 ^b
		Residual	6039.374	530	11.395		
		Total	6685.313	533			
	4	Regression	654.492	4	163.623	14.352	0.000 ^b
		Residual	6030.821	529	11.400		
		Total	6685.313	533			
	5	Regression	906.059	5	181.212	16.556	0.000 ^b

(continued on next page)

Table 5 (continued)

Criterion variables	Model	SS	df	MS	f-ratio	p-val
6	Residual	5779.254	528	10.946	20.424	0.000 ^b
	Total	6685.313	533			
	Regression	1261.264	6	210.211		
	Residual	5424.048	527	10.292		
	Total	6685.313	533			

learning outcomes with $F(1, 532) = 18.732, p < 0.05$. In model three, a collective composite contribution of collective efficacy, faculty trust and academic emphasis exist on overall learning outcome of students with $F(1, 532) = 21.885, p < 0.05$. Furthermore, the result in Model 4 showed that collective efficacy, faculty trust, academic emphasis and social capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 16.398, p < 0.05$. In model 5, collective efficacy, faculty trust, academic emphasis, social capital and cultural capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 17.662, p < 0.05$. More so, in Model 6, the findings of the study revealed that collective efficacy, faculty trust, academic emphasis, social capital, cultural capital and family economic capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 21.292, p < 0.05$. The outcome of this result supports the alternate hypothesis that there is composite contribution of the six predictors on overall learning outcome of students. Thus, the null is rejected.

The result in Table 5 shows the six predictors impact on cognitive learning outcome. The result showed that collective efficacy made a significant contribution to cognitive outcomes in model 1, with $F(1, 532) = 22.671, p < 0.05$. In model 2, there was a significant collective contribution of collective efficacy and faculty trust on cognitive learning outcomes with $F(1, 532) = 8.679, p < 0.05$. In model three, a collective composite contribution of collective efficacy, faculty trust and academic emphasis exist on cognitive outcome of students with $F(1, 532) = 16.783, p < 0.05$ on cognitive learning outcome. Furthermore, the result in Model 4 showed that collective efficacy, faculty trust, academic emphasis and social capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 14.068, p < 0.05$. In model 5, collective efficacy, faculty trust, academic emphasis, social capital and cultural capital collectively contributes no significant effect on cognitive outcome of the learners with $F(1, 532) = 1.664, p > 0.05$. More so, in Model 6, the findings of the study revealed that collective efficacy, faculty trust, academic emphasis, social capital, cultural capital and family economic capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 8.589, p < 0.05$. The outcome of this result supports the alternate hypothesis that there is composite contribution of the six predictors on cognitive outcome of students. Thus, the null is rejected but supported for the null in model 5.

Furthermore, the result in Table 5 shows the six predictors impact on affective learning outcome. The result showed that collective efficacy made a significant contribution to affective outcomes in model 1, with $F(1, 532) = 16.231, p < 0.05$. In model 2, there was a significant collective contribution of collective efficacy and faculty trust on affective learning outcomes with $F(1, 532) = 32.602, p < 0.05$. In model three, a collective composite contribution of collective efficacy, faculty trust and academic emphasis exist on affective outcome of students with $F(1, 532) = 32.276, p < 0.05$ on affective learning outcome. Furthermore, the result in Model 4 showed that collective efficacy, faculty trust, academic emphasis and social capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 24.376, p < 0.05$. In model 5, collective efficacy, faculty trust, academic emphasis, social capital and cultural capital collectively contributes effect on affective outcome of the learners with $F(1, 532) = 23.131, p < 0.05$. More so, in Model 6, the findings of the study revealed that collective efficacy, faculty trust, academic emphasis, social capital, cultural capital and family economic capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 31.333, p < 0.05$. The outcome of this result supports the alternate hypothesis that there is composite contribution of the six predictors on affective outcome of students. Thus, the null is rejected.

More so, the result in Table 5 shows the six predictors impact on psychomotor learning outcome. The result showed that collective efficacy made a nonsignificant contribution to affective outcomes in model 1, with $F(1, 532) = 2.428, p > 0.05$. In model 2, there was a significant collective contribution of collective efficacy and faculty trust on affective learning outcomes with $F(1, 532) = 19.312, p < 0.05$. In model three, a collective composite contribution of collective efficacy, faculty trust and academic emphasis exist on overall learning outcome of students with $F(1, 532) = 18.895, p < 0.05$ on affective learning outcome. Furthermore, the result in Model 4 showed that collective efficacy, faculty trust, academic emphasis and social capital collectively contributes to psychomotor outcome of the learners with $F(1, 532) = 14.352, p < 0.05$. In model 5, collective efficacy, faculty trust, academic emphasis, social capital and cultural capital collectively contributes effect on affective outcome of the learners with $F(1, 532) = 16.556, p < 0.05$. More so, in Model 6, the findings of the study revealed that collective efficacy, faculty trust, academic emphasis, social capital, cultural capital and family economic capital collectively contributes to overall learning outcome of the learners with $F(1, 532) = 20.424, p < 0.05$. The outcome of this result supports the alternate hypothesis that there is composite contribution of the six predictors on psychomotor learning outcome of students. Thus, the null is rejected.

4.3. Hypothesis testing: relative contributions

What is the individual contribution of six predictors on overall learning outcome, cognitive, affective, and psychomotor learning outcome? According to Table 6, the result showed the individual contribution of the six predictors to the overall learning outcome, cognitive, affective, and psychomotor outcome of the students. The result showed that for the six predictors (collective efficacy, faculty trust, academic emphasis, social capital, cultural capital, and family economic capital) individually contributed significantly to

Table 6
Individual contribution of six predictors on overall learning outcome, cognitive, affective, and psychomotor learning outcome.

Variables	Model	Predictors	B	t	SE	p-val	
overall Learning outcome	1	Academic emphasis	0.170	3.982	0.147	0.000	
	2	Academic emphasis	0.201	4.690	0.148	0.000	
		Collective efficacy	0.169	3.952	0.192	0.000	
	3	Academic emphasis	0.214	5.138	0.144	0.000	
		Collective efficacy	0.145	3.454	0.188	0.001	
		Faculty trust	0.233	5.647	0.131	0.000	
	4	Academic emphasis	0.220	4.544	0.167	0.000	
		Collective efficacy	0.147	3.422	0.193	0.001	
		Faculty trust	0.238	5.153	0.146	0.000	
		Social capital	-0.012	-0.231	0.164	0.817	
	5	Academic emphasis	0.236	4.971	0.164	0.000	
		Collective efficacy	0.191	4.449	0.193	0.000	
		Faculty trust	0.290	6.238	0.147	0.000	
		Social capital	0.133	2.263	0.186	0.024	
		Family capital	-0.272	-4.893	0.223	0.000	
	6	Academic emphasis	0.250	5.403	0.160	0.000	
		Collective efficacy	0.142	3.312	0.192	0.001	
		Faculty trust	0.249	5.423	0.145	0.000	
		Social capital	0.211	3.592	0.187	0.000	
		Family capital	-0.319	-5.825	0.219	0.000	
		Cultural capital	-0.234	-5.501	0.199	0.000	
	Cognitive outcome	1	Academic emphasis	0.179	4.836	0.079	0.000
2		Academic emphasis	0.293	3.121	0.081	0.034	
		Collective efficacy	0.275	4.717	0.066	0.000	
3		Academic emphasis	0.193	4.107	0.081	0.031	
		Collective efficacy	0.176	3.723	0.106	0.002	
4		Faculty trust	-0.307	-4.162	0.074	0.000	
		Academic emphasis	0.493	4.815	0.094	0.000	
		Collective efficacy	0.276	5.683	0.042	0.003	
5		Faculty trust	-0.237	-5.145	0.082	0.004	
		Social capital	0.543	8.120	0.092	0.000	
		Academic emphasis	0.293	4.816	0.094	0.000	
		Collective efficacy	0.277	4.666	0.011	0.000	
6		Faculty trust	-0.306	-6.116	0.085	0.005	
		Social capital	0.433	7.055	0.071	0.000	
		Economic capital	-0.341	-4.109	0.028	0.000	
		Academic emphasis	0.197	4.895	0.094	0.001	
		Collective efficacy	0.663	8.328	0.013	0.000	
		Faculty trust	-0.118	-0.350	0.086	0.000	
Affective outcome		1	Academic emphasis	0.161	3.769	0.063	0.000
		2	Academic emphasis	0.199	4.677	0.062	0.000
			Collective efficacy	0.208	4.891	0.081	0.000
		3	Academic emphasis	0.216	5.317	0.059	0.000
	Collective efficacy		0.177	4.335	0.078	0.000	
	4	Faculty trust	0.297	7.362	0.054	0.000	
		Academic emphasis	0.208	4.414	0.069	0.000	
		Collective efficacy	0.174	4.163	0.080	0.000	
	5	Faculty trust	0.290	6.436	0.061	0.000	
		Social capital	0.017	0.331	0.068	0.741	
		Academic emphasis	0.230	5.060	0.066	0.000	
		Collective efficacy	0.233	5.669	0.078	0.000	
	6	Faculty trust	0.358	8.070	0.060	0.000	
		Social capital	0.208	3.717	0.076	0.000	
		Family capital	-0.360	-6.781	0.090	0.000	
		Academic emphasis	0.243	5.482	0.065	0.000	
		Collective efficacy	0.187	4.556	0.078	0.000	
		Faculty trust	0.320	7.290	0.059	0.000	
	Psychomotor outcome	1	Academic emphasis	0.140	3.267	0.062	0.001
		2	Academic emphasis	0.158	3.627	0.063	0.000
			Collective efficacy	0.096	2.211	0.082	0.027
		3	Academic emphasis	0.173	4.112	0.061	0.000
Collective efficacy			0.068	1.619	0.080	0.106	

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Table 6 (continued)

Variables	Model	Predictors	B	t	SE	p-val
	4	Faculty trust	0.263	6.316	0.056	0.000
		Academic emphasis	0.194	3.983	0.071	0.000
		Collective efficacy	0.076	1.765	0.082	0.078
		Faculty trust	0.281	6.038	0.062	0.000
	5	Social capital	-0.045	-0.866	0.070	0.387
		Academic emphasis	0.211	4.399	0.070	0.000
		Collective efficacy	0.121	2.792	0.082	0.005
		Faculty trust	0.333	7.115	0.063	0.000
	6	Social capital	0.100	1.697	0.079	0.090
		Family capital	-0.273	-4.88	0.095	0.000
		Academic emphasis	0.226	4.846	0.068	0.000
		Collective efficacy	0.068	1.593	0.081	0.112
		Faculty trust	0.289	6.285	0.062	0.000
		Social capital	0.184	3.107	0.079	0.002
		Family capital	-0.323	-5.87	0.093	0.000
		Cultural capital	-0.248	-5.80	0.084	0.000

students' overall learning outcomes as well as the cognitive learning outcome. However, in model 4, the relative contribution of social capital to students' affective learning outcomes of the students was insignificant. As a result, the alternative hypothesis was not supported, indicating that social capital has no significant relative contribution to students' affective learning outcomes. In model 3 and model 6, the relative contribution of collective efficacy on students psychomotor learning outcome was insignificant. This showed that the claim of the null hypothesis is supported. This implies that the null hypothesis is accepted. More so, for model 4 and 5, the relative contribution of social capital on psychomotor learning outcome were insignificant. This suggest that social capital have no relative significant contribution on psychomotor learning outcome. Hence, it is important to the null hypothesis for overall learning outcome and cognitive outcome were rejected but for affective outcome, only collective efficacy showed no significant contribution in Model 4. Similarly, variables like social capital and collective efficacy also showed relative insignificant contribution to psychomotor learning outcome.

5. Discussion of findings

The study examined the influence of six variables, 'academic emphasis, collective efficacy, faculty trust, social capital, economic capital, and cultural capital' on the composite earning outcome of secondary school students. The findings of the study showed that these variables, in their individual and collective forms, predict learning outcomes. This is because the learner in the school must be helped by the entire school system, either in the form of being provided answers to bogging questions, providing the environment that will help him/her strive academically, or being trusted by the school and parents to be provided with certain needs. Similarly, where the learner can build friends and maintain the acceptable practices in school, there is a high tendency that the students will perform well, behave well, and get committed to any other responsibility that is assigned to them. The study result is in line with that of Hoy, Gage, & Tarter [16], who noted that students' academic optimism relates to high earning performance. Similarly, the study findings align with those of other scholars who noted that capital factors such as social, economic, and cultural factors relate strongly with learners' performance in school [32,36,60]. However, most of these studies do not specifically look at the learning outcome from the perspectives that this study took. That is, the holistic perspective of the study but the findings have shown that students' need a lot of help to be effective in academic, character, and skill acquisition. Academic emphasis has been seen as a significant indicator of student success. Schools that prioritize academic achievement tend to foster an environment conducive to learning and skill development, which can positively impact students' long-term earning potential [61]. This emphasis on academics not only enhances students' cognitive abilities but also instils a sense of discipline and work ethic crucial for career advancement [62].

Taking the learning outcome individually, the study showed that academic optimism and capital indicators predict a learner's cognitive outcome. The result could be since a student needs support from the stakholders to perform very well. More so, money, attention, care, and a social network are necessities for the learner to perform maximally. Where these factors are in place, there is every likelihood that the learner will learn cognitively. The outcome provide empirical support to existing studies that show that academic optimism and capital indicators affect students' academic achievement in different subjects [63–65]. The outcome have contributed to the existing deficit in studies on cognitive outcomes using collective variables like academic optimism and capital factors. The results also showed that students who have high social relationships, work with others, and are exposed to finances that will help them access materials they need for academic output have tendencies that will be significant predictors of academic performance.

More so, the findings of the study also showed that academic emphasis, collective efficacy, and social, economic, and cultural capital predict students affective outcomes. The result could be due to the fact that the school is not just an agent for building the child's cognitive capacities. The child is also equipped in terms of character. This accounts for why areas of affective functioning are assessed in the report sheet of the learner even though efforts have not been made to translate that score to the overall performance of the learner. Where the school environment is friendly and teachers relate well with the students and students with themselves, there is a high tendency for students to inculcate the norms, values, and attitude that are required for effective social living. The results are in

line with those of some scholars who carried out similar studies [56,66]. The results from these findings showed that family capital expressed in the wealth that the child is exposed to provides the child with all the comfort and satisfaction needs that are required for behaving appropriately in any environment. Regarding collective efficacy, Bryk and Schneider [65] highlighted its pivotal role in shaping student outcomes within schools. They argued that schools where the teachers and students believe in themselves create environments where students feel supported and empowered to achieve common goals. This notion is further supported by Borman and Overman [67], who found that collective efficacy in mathematics is associated with academic resilience among disadvantaged students. Therefore, fostering a sense of collective responsibility and mutual support among students, teachers, and administrators can contribute to a conducive learning environment and ultimately influence students' learning trajectories.

Similarly, the result showed that the variables combined (academic emphasis, collective efficacy, social, economic, and cultural capital) predict students' affective outcomes. This is because the skills that the students are expected to acquire are based on the academic emphasis that is provided by the school. Where the school does not encourage the students to acquire the skills that are relevant in everyday functioning, the learner may finish school but may not acquire those skills that will help them become self-reliant in the world of work. More so, where there is collective efficacy expressed in the ability of the school to be confident of the learner possessing the required skills, the student population will demonstrate high ability in the manipulation of objects as required in their daily lives. The findings were in line with those of Ofem (2015), who noted that the manipulation of skills by the learner is not only a function of the capacity of the learner in the school but a deliberate attempt by the school to provide the needed facilities and teaching exposure for the students. This is because trust in the school's capacity to deliver is what has mandated most families to enrol their children in certain schools. Therefore, given the trust and input from the school and parents, there is every likelihood that the outcome will be effective.

The study also highlighted the importance of faculty trust in enhancing students' academic performance. It suggested that students are more likely to seek help and perform better when they trust their teachers and feel confident in their support. This positive relationship fosters a sense of belonging and motivation to learn [68]. Furthermore, the study indicated that maintaining a symbiotic relationship between educational institutions and community stakeholders is crucial. Such relationships can develop social networks that provide resources, facilities, and opportunities for access to essential information and potential job prospects, thereby affecting students' future career paths.

Economic capital was also shown to be a significant predictor of learning outcomes. Schools with access to financial resources can obtain facilities, staff, and state-of-the-art materials necessary for students to develop the skills, knowledge, and character required by the community [69]. Cultural capital plays a role in learning outcomes as well. Recognizing and accommodating cultural and religious diversity within the educational environment promotes inclusivity and aids in the selection of pedagogical methods and differentiated assessment approaches. Additionally, students who embrace inclusivity, regardless of visible disabilities, are likely to benefit from enriched academic interactions and maximise their learning potential [70].

The decision to exclude demographic factors such as age and gender from the model has implications, although these can be explored by other researchers. The primary focus of the study was to identify factors influencing the relationship between exogenous and criterion variables without considering how these effects might vary across different subgroups and impact the study variables. By omitting these demographic factors, the researchers aimed for a more detailed assessment of the capital factors being examined, allowing for a nuanced understanding of how these indicators influence learning outcomes, irrespective of age and gender. The question arises whether the findings are generalizable. While the answer is affirmative, the extent to which these effects are applicable across all subgroups is limited since demographic factors were not considered [71].

5.1. Limitations of the study and suggestions for further research

The study, like any other study in the behavioural sciences, has its challenges or weaknesses. First, the area of affective and psychomotor outcome that is measured in this study using a few items is so broad that the items used in this study may not be enough to picture the total domain that this study sought to measure. Secondly, the study utilizes only students and principals in public schools. This is too limited for the study to be generalised to the entire area, given that private school students were not included in the study. Thus, the findings of the study may not be generalised to the entire study area in which it was carried out. Thirdly, the study does not involve the use of moderator variables such as the age and gender of the students, which could be a drawback. The researchers could not decipher which group of students performed better in those areas. This, however, does not mean that the study's findings are not important. There is no single study that can incorporate all the variables at the same time. It only provides the opportunity for further studies to be carried out using a multi-group analysis. However, the strength of the study is in the involvement of robust statistical methods in examining these academic optimism and capital indicators, which cannot be undermined. These have provided empirical evidence to support studies that previously could not look at the composite outcome of instruction from this perspective.

6. Conclusions

The study result provides empirical evidence for a long-standing lacuna between variables like 'academic emphasis, collective efficacy, and faculty trust' and capital indicators (social, economic, and cultural and their composite effect on composite learning (cognitive, affective, and psychomotor). Relatively, the results showed each of the individual variables was important in understanding the variation in the learning outcomes of the students. The study showed that where there is emphasis on the academic engagements of the learner, the collective belief that the learner can acquire the required skills needed to perform maximally in school, and the trust from parents and students that the school can keep to its goals and objectives, thereby providing the needed support, the students

outcomes (cognitive, affective, and psychomotor) will be achieved. The outcome of the study revealed that students who maintain high social relationships, cultural values and norms, and an attitude that is worthwhile are bound to perform maximally well in cognitive, affective, and psychomotor outcomes. In fact, these capital factors are necessities for the anticipated learning outcome. This study is important in measurement and educational psychology in that it has helped to bridge the knowledge and empirical evidence gap that has been found in this specialty. The concentration of previous studies on only cognitive outcomes has been solved in that the use of academic optimism and capital indicators on learning outcomes will be a reference point for researchers.

6.1. Practical and theoretical contributions

The findings of the study have significant implications for decision-making, suggesting that by recognizing various influential factors such as 'academic emphasis, collective efficacy, faculty trust, social capital, economic capital, and cultural capital', targeted interventions can be implemented to enhance student success across cognitive, affective, and psychomotor learning domains. For instance, educators might focus on creating a supportive social environment that fosters trust in the educational system, promotes inclusivity, and eliminates barriers that restrict access to resources and opportunities.

Theoretically, the study sheds light on complex factors that interact within educational systems and can be utilised to develop and articulate theories regarding student performance. By incorporating frameworks like social and capital theory, a deeper understanding of the elements that contribute to student success can be explored. Furthermore, the study serves to validate and refine existing theoretical models, thereby improving their applicability in educational research and practice.

6.2. Implications and recommendations

The implication of the findings is that the management of the school has a role to play in ensuring that the school environment and activities are programmed towards improving learning outcomes of the learners. The students should be made to engage in serious academics, and staff and other members of the school community should be confident in what they inculcate in the learners to maximise their academic output. The findings stand as an input to policy makers who have not seen the need to view the school output from the three areas of the learner's development to ensure that programmes and policies that are developed focus on improving not just the cognitive ability of the learner but the affective and psychomotor areas as well. Lastly, curriculum planners should place the learner's learning outcome in a pivot and ensure that all objectives, philosophy, and inputs are built towards the learner's development in these three areas of instruction. From the findings, it was recommend that schools should maintain workable social relationships that foster collaborations in order to develop manipulative skills relevant in the world of technology. The school community should ensure that activities that will maximise students' potential are emphasised to help improve their earning outcomes. The school should ensure that activities that are carried out win the trust of parents and other members of the school community to gain their support.

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Data availability

The researchers will make available the data on reasonable request.

CRedit authorship contribution statement

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2024.e30773>.

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