



Perceived Influence of Large Class Size and Psychological Classroom Environment on Students' Academic Performance in Senior High Schools in Kumasi Metropolis, Ghana

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

This study investigated how large class size and the psychological class environment influenced students' academic performance. Survey design was employed. Three hundred and twenty students were purposively selected from ten senior high schools in Kumasi Metropolis. Questionnaire was used to obtain data from the respondents with a reliability coefficient of 0.7. The study revealed that large class size influenced students' academic performance and also limits their learning opportunities. It also came up that psychological class environment have a great influence on students' academic performance. Furthermore, the study showed that students perform well in smaller class size and good psychological classroom environment. The study, therefore, recommends that small class size and good psychological class environment are better for good performance. Teachers and head teachers should make sure they conform to the required teacher to student ratio of 1:40 recommended by the Ghana Education Service. Teachers should create an enabling environment for students to participate in classroom activities. Government should, therefore, employ more teachers and build more classrooms to solve the problem of large class size in the senior high schools in Ghana.

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1. INTRODUCTION AND JUSTIFICATION OF THE STUDY

Quality education remains the pivot around which educational development of every nation revolves. The quality of education, however, depends on many factors among which are: the number of students in class and the psychological classroom conditions under which students learn. Large class size and poor psychological class environment have been the major concern of government due to the increase in enrolment in schools since the inception of the school feeding program and all the other social intervention programmes. This has necessitated the introduction of many educational policies in order to reduce the number of large classes in Senior High Schools (SHSs) but the results remained the same. One of the widely held aims of education is to equip students with the knowledge, skills, attitudes and competencies that will enable them to render useful services to themselves and to the society at large. As school population increases, class size also increases and this affects the psychological class environment and the academic performance of students [1]. The demand for better education and positive educational activities that are used to build students and make them production and other endeavours of life is largely dependent on their class size, psychological class environment and how teachers are able to supervise students in class. Class size management regarded to have a strong potential to positively influence student achievement and learning.

Psychological class environment includes all things and issues beyond the physical arrangement of a classroom. A psychological environment is created based on the interaction of key players in the classroom, namely students and teachers. Research in this area has varied greatly and proliferated during the early twenty-first century. Studies have been particularly concentrated on student class participation rates, teacher support, and communication of learning goals [2,3,4] & Owusu-Ansah, (2012). The notion of feeling supported as students have also been extensively examined in the classroom environment literature. Patrick, Ryan, and Kaplan [5] found that there is a strong, positive relationship between students' level of motivation and engagement and their perceptions of the classroom environment as being socially supportive. The perception of a climate of mutual

respect is required in order for students to increase their use of effective study strategies and increase feelings of confidence about their ability to successfully complete assignments. Furthermore, when students perceive that they receive emotional support and encouragement from their teachers and academic support from their peers they are more likely to be on-task in the classroom and use self-regulated strategies.

Ghana statistical service report [6] shows that the population growth of 3.7% per annum puts a lot of pressure on the existing deteriorating Public Senior High Schools (PSHSs) educational facilities in the country. The situation is most prevalent in PSHSs in the Ashanti Region. This problem can be attributed to the fact that Ashanti Region has some of the good PSHSs that are performing well academically and in sporting events in the country. For instance, in 2014 academic year the average number of students in the General science and General Arts classes at Kumasi Girls School was 60 respectively. In Kumasi High School, the average number of students in a Science or General Arts class was 57. At Prempeh College, a similar report indicated 62 students in the Business, Visual Arts and Science classes. At Armed Forces Senior High and University Practice Senior High School almost all the classes have more than 55 students in all classes. The Ghana Education Service (GES) guided the behavioural model approach instituted a teacher to students' ratio of 1:40, with the aim of enhancing effective teaching and learning procedure effectively in class. Adeyemi [2] in his findings on the influence of class size on the quality of output in senior high schools revealed that schools having an average class size of 35 and below obtained better results in the secondary school certificate examination (SSCE) than schools having more than 35 students per class.

Muraina and Muraina [7] found that class-size had negative coefficient with students' academic performance in examination. Earthman (2002) revealed that comfortable classroom temperature and smaller classes enhanced teachers' effectiveness and provided opportunities for students to receive individual attention, ask more questions, participate fully in discussion, reduce indiscipline problems and perform better than students in schools with larger class size. Ayeni [8] postulated that there is a gap in the quality of students in crowded classrooms, using

inadequate and absolute equipment, disillusioned teachers and psychological class environment on students. These combined deficiencies perhaps affected the students' academic performance. It has been observed that there are 60 to 70 students in Public Senior High Schools in Kumasi Metropolis and this leads to high incidence of large class size and that influences the psychological class environment of students as well. From the annual general meeting of CHAS conference held in July, 2015 at the University of Ghana, the speakers lamented on the increasing number of students in relation to inadequate facilities, available teachers, and other dwindling resources in schools [9].

The increasing demand for PSHSs in Kumasi Metropolis and consequent increase in the number of students are of great concern to most teachers in the metropolis in recent times. At a staff meeting at Opoku Ware Senior School (OWASS) at Kumasi during the end of the 2014 academic year, teachers complained bitterly of the increasing number of students in a class. Psychologically or emotionally, students cannot concentrate when they are in such classes, a phenomenon that has been evolving in recent times. The same classroom that was given to 40-45 students some years back is now being occupied by 60-70 students hence causing discomfort to students in the class. It is for this reason that the researcher decided to conduct the study on the perceived influence of large class size and psychological classroom environment on students' academic performance [9].

The purpose of the study is to assess how large class size and the psychological classroom environment affect students' academic performance. Arising from the purpose of the study, the following research questions and research hypotheses were formulated.

1. How do class size influence students' academic performance in Public Senior High Schools?
2. How do psychological class environment influence students' academic performance in Public Senior High Schools?
3. How do class size and psychological class environment influence the manner in which teaching and learning is mediated in Public Senior High School?

4. How can large class size and psychological class environment be managed to enhance students' academic performance in Public Senior High Schools?

Arising from the research questions, the following research hypothesis was formulated at $P < 0.05$ level of significance.

H₀1: There is no statistically significant relationship between class size and psychological class environment.

H_A1: There is a statistically significant relationship between class size and psychological class environment.

1.1 Theoretical Framework

The theoretical framework for this study anchors on the social constructivism theory by Lev Vygotsky. In his work, Vygotsky emphasized the roles of social interaction and instruction. "He proposed that development does not precede socialization, but rather social structures and social relations leads to the development of mental functions" [10]. Social interaction plays important role in student learning. It is through social interaction that students learn from each other, as well as adults. Fogarty [11] stated, "Vygotsky's theory suggests that we learn first through person-to-person interactions and then individually through an internalization process that leads to deep understanding" (p. 77). The theory is premised on three major themes which are: social interaction, the more knowledgeable other, and the zone of proximal development.

Social interaction plays a fundamental role in the process of cognitive development. In contrast to Jean Piaget's understanding of child development (in which development necessarily precedes learning), Vygotsky felt that social learning precedes development. He states: "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (inter-psychological) and then inside the child (intra-psychological)". The more knowledgeable other refers to anyone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept.

The more knowledgeable other is normally thought of as being a teacher, coach, or older

adult, but the more knowledgeable other could also be peers, a younger person, or even computers. The zone of proximal development is the distance between a student's ability to perform a task under adult guidance and/or with peer collaboration and the student's ability in solving the problem independently. In summary, the social constructivism theory appears to be an effective framework for delivering on the influence of large class size and psychological class environment on academic performance in PSHSs in Kumasi Metropolis. The use of zone of proximal development can be applicable to the study because social constructivism theory highlights social interaction with the more knowledgeable person like the teacher to move classroom development forward.

Psychological classroom environment and class size have direct influence on academic performance. Similarly, class size has direct influence on psychological classroom environment which also affects students' academic performance. Factors that constitute psychological classroom environment include teacher support, student participation rate and communication of learning goals. In a large class, teacher support rate is very low leads to poor academic performance. Communication of learning goals also plays a significant role in the learning process in the sense that if students understand what is expected of them before, during, and after learning session, the learning process is enhanced and this leads to better understanding of concepts which results in good academic performance among students.

Scaffolding, another significant element that helps students perform tasks on their own without teacher support or the more knowledgeable other is affected by class size. In a large class the teacher or the more knowledgeable other is unable to scaffold due to the large number of students in the classroom and this leads to poor academic performance. But in a smaller classroom, the teacher is able to provide support to individual students until they are able to perform or understand a concept on their own and this will obviously lead to good academic performance. Classroom interaction also contributes significantly to both academic performance and the psychological environment. Smaller class sizes encourage good teacher - student and student - student interaction in the classroom and this leads to good academic performance.

2. LITERATURE REVIEW

2.1 Class Size and Academic Performance

The influence of class size on academic performance have been examined empirically in various studies over the past few decades. Numerous experimental and quasi-experimental studies have investigated the effects of class size on student achievement and have been reviewed by Glass & Smith, [12]. Overall, these reviews have indicated that class size reduction has positive effects on student achievement and that these effects become larger as the class size becomes smaller. Nonetheless, the majority of the studies have been small-scale and short term, and although their results may have high internal validity, the generality of their findings may be limited.

Another line of research has examined the effects of class size reduction via education production function studies [13]. Typically such studies compute the association between class size and achievement, adjusting for important student variables such as race/ethnicity, social class, and previous achievement. The interpretation of the results of these econometric studies has been controversial. Although some reviewers have argued that the effects of class size are small and, in many studies, statistically insignificant [13], others have contended that the magnitude of the estimates of the mean differences in student achievement is a better way to assess class size effect than statistical significance [14]. Although most of these studies were large- scale and hence their results may have high external validity, their internal validity may be limited because it is not obvious that the association between class size and achievement is causal (that is, class size may be endogenous). For example, it is likely that achievement defines class membership. In addition, omitted-variable bias is possible in these large-scale observational studies, and this can bias estimates of class size effect. Finally, the key independent variable (class size) is typically constructed using school size and the number of teachers in the school, hence it is not an accurate but an aggregate measure of class size [13].

Literature identified in various classes size effects on student academic performance. Larger class sizes result in less time being utilized for instruction due to more instances of student

misbehaviour and off-task behaviour [15]. A lack of adequate physical space with which to control student behaviour and to implement non-traditional instructional strategies is also a problem in large classes [16]. Teacher and student interactions are more in-depth and focused on student academic and emotional needs in smaller classes, facilitating instructional differentiation [13]. The size of the class impacts the amount of time the teacher has for the management of the class and for the instruction of the students. With decreased instructional time, academic achievement is not likely to increase. Subsequent literature analysis connected class size effects on classroom management and classroom instruction with academic achievement in elementary schools. The issue of class size is one that can be traced back to the early nineteen hundreds (Callahan, 1962), yet is still very relevant to the organizational structures of elementary, middle, and high schools of today [17,13].

2.2 Psychological Class Environment and Academic Performance

According to Miller and Cunningham [18] beyond the physical arrangement of a classroom a psychological environment is also created, based on the interaction of key players in the classroom, namely students and teachers. Research in this area has varied greatly and proliferated during the early twenty-first century. Studies have been particularly concentrated on student class participation rates, teacher support, and communication of learning goals. Many teachers equate student engagement and on-task behavior with classroom participation, typically a top concern for teachers. Researchers support teachers' intuition of a difference in the participation style of the different genders. Whereas girls are more likely to participate as part of the relational responsibility they feel toward the teacher, boys tend to respond more often if they feel the class is interesting and less often if the class is perceived as boring indicating that for these students, teachers may be equally responsible for the participation level and learning [18].

Most studies have found that boys speak out in class about three times as frequently as girls do; however, both genders typically perceive girls as better class participants. Although responses vary when students are asked what participation consists of, the most common response, and one frequently examined by researchers, is that

participation is defined as answering questions when specifically asked [18]. Both boys and girls seem to indicate a need for relational aspects to be present for this type of participation to occur; however, whereas girls more frequently participate by responding to teachers' questions, boys are more likely to participate as a means of obtaining attention or being noticed by the teacher. Teachers who want to encourage development of relational aspects for both genders may need to utilize different acknowledgement techniques for male students to enhance their perceptions of feeling supported as a class participant [13,18].

The notion of feeling supported as students has also been extensively examined in the classroom environment literature. Helen Patrick and colleagues [18,5] found that there is a strong, positive relationship between students' level of motivation and engagement and their perceptions of the classroom environment as being socially supportive. The perception of a climate of mutual respect is required in order for students to increase their use of effective study strategies and increase feelings of confidence about their ability to successfully complete assignments. Furthermore, when students perceive that they receive emotional support and encouragement from their teachers and academic support from their peers they are more likely to be on-task in the classroom and use self-regulated strategies. In contrast, students who are in a classroom where the focus is on learning and improvement demonstrate higher levels of self-efficacy and engagement as well as more positive affect. Researchers have found that whereas students who are more focused on grades tend to have higher grades, those students who are more focused on mastering objectives tend to engage in more academically challenging tasks and retain information learned for a longer period of time [18].

2.3 The Role of the Teacher in Psychological Class Environment

The third focus of many examinations of classroom environment has been on teacher behaviours, specifically teacher development and school culture and how these components affect classroom environment. Some research suggests that due to the complexity of cultivating an effective classroom environment, it may be beyond the developmental scope of the newly graduated teacher. Some researchers recommend that professional development for

new teachers should include intense mentoring and teaching partnerships that reduce isolation and form productive and meaningful relationships with other adults in the school community [18].

Following the research studies on physical and psychological environment many suggestions for teachers have been presented in the literature, including classroom management plans and recommendations for building better relationships with students. Classroom rules and procedures should be introduced early in the school year and consequences should be enforced consistently across students and throughout the school year. Research has shown that routine and fairness have a positive impact on behaviour as well as academic quality. It has been found that teachers who run respectful classrooms are in turn more respected by their students, and students believe that these teachers also hold higher learning expectations. Teachers are encouraged to focus more on the learning task than on the outcome or grade assigned at the end of the task, although this becomes much more difficult if the emphasis in education is placed on accountability and high-stakes testing [18,9].

Although most classroom environment studies are by definition limited to classrooms, a few studies have investigated the impact of the school culture on classroom environment. Findings suggest that schools with an authoritative culture (e.g., clear direction, delegation of responsibilities, accountability to and from all) tend to be judged by students and teachers as being successful. Schools that lack

leadership or have a culture of multiple micro-conflicts tend to be perceived by students and teachers as undermining educational gains [18].

3. METHODOLOGY

Cross sectional survey was chosen for the study [19]. The purpose of the study was to assess how large class size and the psychological class environment affect students' academic performance. Again, the researcher sought to determine the extent to which large class size and psychological class environment influence the manner in which teaching and learning is mediated in senior high schools.

The study population consisted of all senior high school students in the Kumasi Metropolis. The estimated population consists of thirty-four thousand, two hundred and seventy four students (34,274) from sixteen Public Senior High Schools in the Kumasi Metropolis as at 2015/2016 academic year. The sample size consists of 320 students. The number was obtained with the help of Krejcie and Morgan's [20] table because the population of (34,274) correspond to 320 from the table. The sample was used to guide the researcher in the technique used in sampling the respondents. The large sample was selected for the study because the researcher wants to have a fair representation from the population to make statistical inference and can also help generalise it to the public [19].

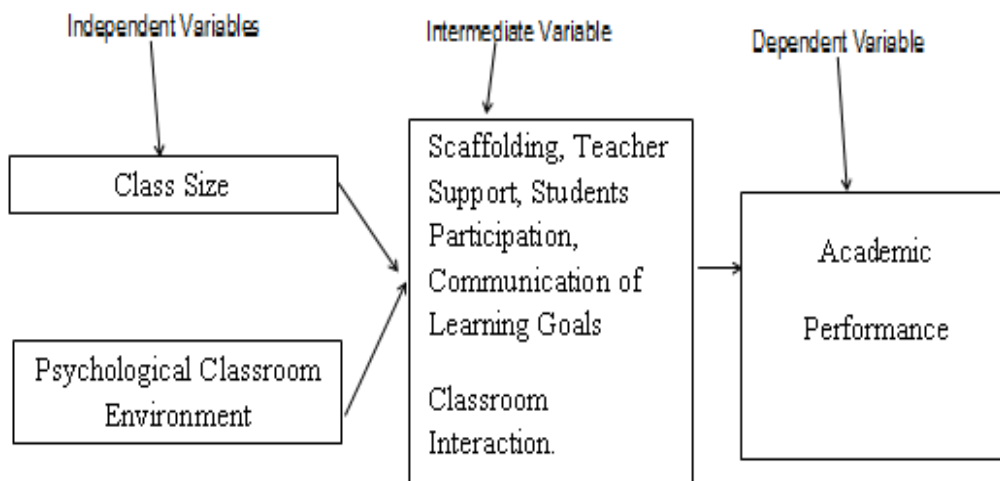


Fig. 1. Conceptual framework
 Source: Author's Construct, (2018)

A questionnaire structured on a Four Point Likert-type scale, was used for the study. The research questions in the study call for the use of Likert scale. A scale is a series of gradations, levels or values that describe various degrees of something. Scales are used extensively in questionnaires because they allow fairly accurate assessment of beliefs or opinions. This is because many of our beliefs and opinions are thought of in terms of gradations [21]. Likert-type scales are used to register the extent of agreement or disagreement with a particular statement of attitude, beliefs or judgment [22]. The four Point Likert-type scale was scored as: "Strongly Disagree" =1, "Disagree" =2, "Agree" =3, and "Strongly Agree" =4.

Before data collection, ethical clearance was sent to all senior high schools which were involve in the study. When access was granted, the researchers personally discussed informed consent, confidentiality and anonymity with the participants. By way to establish validity of the instruments, three (3) independent raters with key knowledge in administration and analysis of data were given the instruments for a thorough check for flaws and problems in the study. Remarks from the independent raters were favourable and no massive changes were made in the instruments. Moreover, to grant the content validity of the instrument, it was given to two (2) lecturers, who had knowledge about the case to scrutinize the instruments. The questionnaire was analysed using mean and standard deviation and the hypothesis was tested using Pearson correlation. The analysis was calculated using an alpha level of .005 to achieve statistical significance. The Statistical Package for the Social Science (SPSS) for Windows (2010) was the computer program used to analyse data for this study. Because this study sought to discover which factors associated with large class size and psychological classroom environment and could predict the degree of student academic performance, Pearson correlation was selected as the appropriate method for this study.

4. RESULTS AND DISCUSSION

4.1 RQ1: How do Class Size Influence Students' Academic Performance in Public Senior High Schools?

On a four-point Likert scale, the students were asked to indicate their levels of agreement or disagreement with statements concerning how class size influence students' academic

performance. A mean score of 2.50 and above indicate positive responses while a mean of 2.49 and below indicate students' negative responses. The test value was computed by adding all the scores on the Likert scale. That is Strongly Agree was scored as 4, Agree as 3, Disagree as 2 and strongly Disagree as 1. The test value was obtained by adding all the scores together ($4 + 3 + 2 + 1 = 10$) and was divided by the four point Likert scale ($10/4 = 2.5$).

The purpose of this research question was to investigate and find out how class size influenced students' academic performance in Public Senior High School. The overall mean score ($M = 2.64$, $SD = 1.32$) gave evidence to prove that class size influenced students' academic performance. The responses on the item "large class size limits my ability to listen to daily instruction from my teacher" produced a ($M = 2.63$, $SD = 1.47$) which is greater than test value of 2.5. On the issue of whether large class size limits the students ability to participate in classroom activities, the ($M = 2.59$, $SD = 1.13$) shows that indeed class size limits students ability to participate in classroom activities. The analysis further gave evidence that large class size influenced students' academic performance. The ($M = 2.57$, $SD = 1.22$) shows that students' academic performance are influenced by the large class size. Finally, on the learning opportunities of the students, the results show that large class size limited their learning opportunities. The ($M = 2.76$, $SD = 1.43$) which is more than the test value of 2.5 gives evidence to those effects.

The findings of the present study confirms the work of Blatchford, Bassett, Goldstein and Martin, [15]; Blatchford, Russell, Bassett, Brown, and Martin, [16]; Cakmak [23] and Finn and Achilles, [24] who also found out that larger class sizes result in less time being utilized for instruction due to more instances of student misbehaviour and off-task behaviour and this leads to low academic performance of students. Also, the study is in line with a study by Blatchford et al., [16] who argued that large class limits students ability to participate in classroom activities and a lack of adequate physical space with which to control student behaviour and to implement non-traditional instructional strategies is also a problem in large classes and leads to low academic performance of students. Kornfeld, (2010) showed that large class sizes of the quasi-experimental studies and policy initiatives cited in the literature, have a wide range of average class sizes. The targeted high school

Mathematics and English classes of this study ranged from an average of 11 students in the average small class to 20 in the average large class. Large class size has a critical influence on students' academic achievement, because there were significant differences between students who were educated in classes nearly twice as large as other classes. Agyemeng [3] agreed that teacher quality and the teacher student relationship are what most impact students' achievements. The study showed that students in the smaller class improve teacher quality include: high quality professional development; regular and focused teacher collaboration and strong supervision of students in class. All schools can deliberately foster strong relationships between teachers and students.

4.2 RQ2: How do Psychological Class Environment Influence Students' Academic Performance in Public Senior High Schools?

The rationale behind this research question was to examine how psychological class environment influence students' academic performance in the Public Senior High Schools. From Table 2, the overall mean ($M=2.58$, $SD=1.25$) gives the general picture that psychological class environment has a great influence on students' academic performance. Most of the responses to the items produced mean score that are greater than the test value of 2.5. For example, to find out whether the student classroom was favourable for forming groups to help corporative learning for academic success, the results ($M=2.74$, $SD=.83$) show that psychological classroom environment affects students ability to form groups to help corporative learning for academic success. Again, the study shows that psychological class environment makes students to feel alone during lesson period. The ($M=3.25$, $SD=.83$) which is more than the test value of 2.5 confirm this fact. The researcher again elicited from the students whether their classroom environment supports positive involvement of students' ideas during classroom activities. The ($M=2.06$, $SD=1.09$) which is less than the test value of 2.5 shows that indeed psychological class environment does not support students' positive involvement of ideas during classroom activities. The respondents (students) further gave evidence ($M=2.01$, $SD=1.10$) that their psychological class environment does not make students safe to participate and ask questions.

The present study gives ample evidence to the work of Miller and Cunningham [18] that for

students to enhance their perceptions of feeling supported as a class participant, they need to be supported by good psychological environment. That notwithstanding the above empirical evidence, Miller and Cunningham, [18]; Patrick, Ryan, & Kaplan, [5] also found that there is a strong, positive relationship between students' level of motivation and engagement and their perceptions of the classroom environment as being socially supportive when students' have a good psychological environment. In comparing the results from earlier studies, the results of both Glass and Smith's [12] and Biddle and Berliner's [17] meta-analyses showed a consensus that short term exposure to psychological class environment generated gains in student achievement. Other researchers, such as Slavin (1990), have suggested that smaller classes with good class environment have only moderately positive effects over larger class sizes. Even then, according to Slavin, these moderately positive effects were only seen in students that experienced substantially smaller class sizes with good psychological class environment.

4.3 RQ3: How do Class Size and Psychological Class Environment Influence the Manner in which Teaching and Learning is Mediated in Public Senior High School?

The objective for this research question was to find out whether the combination of class size and psychological class environment influence the manner in which teaching and learning was mediated in the Public Senior High Schools. To realise this objective, means and standard deviations were computed for the items. The responses from the students produced a mean score of ($M=2.13$, $SD= 0.82$) which means that class size and psychological class environment does not influence the manner in which teaching and learning is mediated in the selected Public Senior High Schools. From Table 3, response to item whether classroom support positive motivation, the results shows that ($M=2.01$, $SD=.70$) class size and psychological class environment does not promote and support positive motivation in classroom. Students perceive classroom environment as being socially supportive produced a ($M=1.76$, $SD=.43$) which is less than the test value of 2.5 confirms the fact that class size and psychological class environment does not allow students have socially supportive classroom activities. On whether students receive emotional

support from teachers, it was revealed that (M=2.26, SD= 1.08) due to the class size and psychological class environment students do not receive any emotional support from teachers. Table 3 further shows that teachers do not encourage students to talk and share ideas in class. To confirm this, the item produced a mean of (M=1.52, SD=.89) which shows that class size and psychological class environment in the Public Senior High Schools does not allow and encourage students to talk and share ideas in class. On the issue of whether large class size increase the time teacher spent on handling non-instructional tasks, the results reveals (M=1.99, SD=.71) that class size and psychological class environment in the Public Senior High Schools makes it difficult for teachers to control students to maximize learning.

The findings are again consistent with the findings of Miller and Cunningham, [18] that teachers who run respectful classrooms are in turn more respected by their students, and students believe that these teachers also hold higher learning expectations. Teachers are encouraged to focus more on the learning task than on the outcome or grade assigned at the end of the task, although this becomes much more difficult if the emphasis in education is placed on accountability and high-stakes testing and this classroom management and psychological environment. Kobina [4] asserted that smaller class size influence the way and manner a teacher will be able to deal with the psychological needs of students. Because with smaller class the teacher will be able to concentrate on the needs of students that is; psychological, personal, emotional and social aspect of the student. In support of this statement, Agyemeng [3] believed that a smaller class size leads to good psychological class environment which can help students to perform well academically than students in large classes where arrangement in class causes distress to them. A qualitative study by Owusu-Ansah [9] suggested that teachers struggle in large and this affect student academic and the psychological classroom.

4.4 RQ4: How Can Large Class Size and Psychological Class Environment be Managed to Enhance Students' Academic Performance in Public Senior High Schools?

This research question sought to find out how class size and psychological class environment

can be managed to enhance good students' academic performance in Public Senior High Schools. The overall mean score of (M=2.58, SD=1.34) gives the indication that there are many factors that can be put in place to help to enhance and manage psychological class environment in schools. A few of them such as support teachers can give to students produced (M=2.78, SD=1.30) This shows that support teachers give to students can serve as one of the key factors that can be put in place to manage psychological class environment in schools. Furthermore, the results showed that employing more teachers in the class to reduce the work load of a regular teacher can help in managing psychological class environment in schools. The item produced (M=3.00, SD=2.23) confirming the fact that it can serve as a measure to manage psychological class environment in schools. With regards to the item whether teachers making it a priority to give students time to work together when the teacher is not directing them (teaching strategies) can help in managing psychological class environment in schools. The mean score (M=2.78, SD=1.30) which is more than the test value of 2.5 gives evidence to that fact. On the contrary, some of the items show that they cannot help in managing psychological class environment in schools. For example, on the issue of "I prefer clustering students' desks or use tables so they can work together (classroom environment)" it was revealed that (M=2.00, SD=1.23) which is less than test value 2.5 shows that it cannot help in managing psychological class environment in schools.

Kobina [4] explained that managing class size helped improve students' academic performance because class teachers have attention for each student in classroom. Qaiser and Ishtiaq [25] concluded that proper arrangement of classroom environment plays a remarkable role in making instructional process more effective and establishes an atmosphere favourable and encouraging to learning. The quality of the physical classroom setting significantly affects academic achievement of the students. Physical facilities in classrooms ensure effective and successful teaching learning process. Students get more information from their teachers in well facilitated classrooms and consequently they show good performance. On the other hand, if students feel uncomfortable in classroom then they will fail to get more information from their teachers. Halstead [26] supported the idea that high temperature and humidity creates physiological and psychological problems which

expedite fatigue, causes people to work more slowly, apply much efforts and causes to make more mistakes and errors. The classroom climate should be cautiously managed not only to provide physical comfort but also to serve as a positive factor in the learning process by stimulating attentiveness and concentration. To maintain such a climate, the atmosphere must be treated to simultaneously controlled temperature, humidity, cleanliness and circulation. Earthman [27] established that good temperature, heating and air quality create conducive environment for educational attainment of students.

4.5 Research Hypothesis 1

H₁: There is no statistically significant relationship between class size and Psychological Class Environment.

As a way of achieving the purpose of the study, the researcher tested the hypothesis to find out whether there is a statistical significant relationship between Large Class Size and Psychological Class Environment. To materialise this, correlation was computed among the two variables (Large Class Size correlate and Psychological Class Environment). The general results from the findings reveal that large class correlate with Psychological Class Environment and the results shows that there is a statistically significant relationship between the variables. That is $r(320) = -.691$, $p < 0.05$ (Sig. = .000, 2-tailed). This, therefore, means that the null hypothesis is rejected to accept that alternative hypothesis that large class size in Ghanaian schools has relationship with students Psychological Class Environment.

Table 1. Descriptive statistics (Means and Standard Deviation) analysis of how class size affects students' academic performance in the Public Senior High Schools

S/n	Statement	N	Mean	St.D
1.	Large class size limits my ability to listen to daily instruction from my teacher	320	2.63	1.49
2.	Large class size limits my ability to participate in classroom activities	320	2.59	1.13
3.	Large class size affect my academic performance.	320	2.57	1.22
4.	Large class size limits my learning opportunities.	320	2.76	1.43
	Mean of Means/SD	320	2.64	1.32

Source: Field Survey, (2018)

Table 2. Descriptive (Means and Standard Deviation) analysis of how psychological class environment affect students' academic performance in the Public Senior High Schools

S/n	Statement	N	Mean	St.D
1.	The classroom environment supports cohesiveness.	320	2.53	1.50
2.	The classroom environment supports participation.	320	2.52	1.11
3.	Our classroom is favourable for forming groups to help corporative learning for academic success	320	2.74	.83
4.	I feel left alone during lesson period.	320	3.25	.83
5.	My classroom environment supports positive involvement of students' ideas during classroom activities.	320	2.06	1.09
6.	My classroom environment is safe for students to participate and ask questions.	320	2.01	1.10
7.	Teachers encourage us when we have difficulties during lessons.	320	2.02	.71
8.	Teachers communicate learning goals to us.	320	2.50	.43
9.	Teachers emphasis learning process instead of learning products during lessons.	320	2.02	.71
	Mean of Means/SD	320	2.58	1.25

Source: Field Survey, (2018)

Table 3. Descriptive (Means and Standard Deviation) analysis of how class size and psychological class environment influence the manner in which teaching and learning is mediated in the Public Senior High Schools

S/n	Statement	N	Mean	St.D
1.	Your classroom support positive motivation.	320	2.01	.70
2.	Students perceive classroom environment as being socially supportive	320	1.76	.43
3.	Student receives emotional support from teachers.	320	2.26	1.08
4.	Student receives encouragement from teachers	320	2.02	.71
5.	Teachers encourage students to talk and share ideas in class.	320	1.52	.88
6.	Students are given immediate feedback when they need direction to proceed.	320	2.00	.00
7.	Class size affects the pace of lessons in class.	320	2.24	1.09
8.	Teachers are able to identify students who have difficulties in understanding the main ideas of a lesson.	320	2.52	1.11
9.	Large class size increase the time teacher spent on handling non-instructional tasks.	320	2.23	.84
10.	Teachers spend a lot of time controlling students rather than teaching.	320	1.99	.71
11.	Teachers are able to assess the instructional needs of students.	320	2.53	1.12
12.	Teachers able to assess to emotional need of students.	320	2.52	1.11
Mean of Means/SD		320	2.13	.82

Source: Field Survey, (2018)

Table 4. Descriptive (Means and Standard Deviation) analysis of how class size and psychological class environment be managed to enhance good students' academic performance in Public Senior High School

S/n	Statement	N	Mean	St.D
1.	By the support teachers give to students	320	2.78	1.30
2.	Through professional development of teachers	320	2.52	1.11
3.	Through the enhancement of reduced class size	320	2.52	1.11
4.	Employing more teachers in the class to reduce the work load of a regular teacher.	320	3.00	2.23
5.	Enrolling according to the space that can hold the number of students in the class.	320	2.52	1.11
6.	Teachers making it a priority to give students time to work together when the teacher is not directing them (teaching strategies)	320	2.78	1.30
7.	I prefer clustering student's desks or use tables so they can work together (classroom environment)	320	2.00	1.23
Mean of Means/SD		320	2.58	1.34

Source: Field Survey, (2018)

Table 5. Correlation between Large Class Size correlate and Psychological Class Environment

		Large Class Size	Psychological Class Environment
Large Class Size	Pearson Correlation	1	-.691**
	Sig. (2-tailed)		.000
	N	320	320
Psychological Class Environment	Pearson Correlation	-.691**	1
	Sig. (2-tailed)	.000	
	N	320	320

** Correlation is significant at the 0.05 level (2-tailed)

5. CONCLUSIONS AND RECOMMENDATIONS

Educational leaders need effective academic strategies to increase student academic performance. Effective education depends on the class size and the psychological classroom conditions that students are experiencing. Reduced class sizes and providing good psychological class environment is the method suggested to increase student academic performance. However, the study revealed that smaller class size and good psychological classroom environment were found to be a good way of increasing students' academic performance. For instance, its supervisors/teachers have time to provide good educational delivery such as class exercise, assignment and good interaction between teachers and students. On the side of students, the study found that when students are in stress free classroom, they are able to concentrate and form groups for discussion which can improve their academic performance. In relation to the class size and psychological class environment, it is concluded that teachers found it difficult to control or handle non-instructional tasks of students to maximize learning in class.

Based on the findings, the following recommendations were made

For Practice:

1. The study revealed that small class size and good psychological class environment are better for academic performance and so teachers and head teachers should make sure they conform to the required teacher to student ratio of 1:40 by the Ghana Education Service.
2. Teachers should create an enabling environment for students to participate in classroom activities.

3. Teachers should emphasize learning process instead of the learning product during instructional periods.

For Policy:

4. The finding of this study showed that students perform well in smaller class size and good psychological class environment. With this the government should employ more teachers and build more classrooms to solve the problem of large class size in senior high schools in Ghana.
5. The monitory division of Ghana Education Service should put measures in place to ensure that schools do not admit more than their facilities can contain.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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