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Impact of Class Size on Learning, Behavioral and General Attitudes of Students in Secondary Schools in Abeokuta, Ogun State Nigeria

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Keywords

behavioural attitudes, class size, secondary schools, school factors, students



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Taofeek Ayotunde Yusuf, C A. Onifade, and O S. Bello

Abstract

Poor performance of university undergraduate students has been traced to their poor academic performance and attitudes in secondary schools. There was concern over whether class size was responsible for this. Researches on the effect of class size on academic performance and achievement exist. The study was carried out to investigate the impact of class size on students' attitude to studies using four (4) selected secondary schools in Abeokuta, Ogun State Nigeria. Possible effect of class size on the general, learning and behavioral attitudes were considered. Its impact was also correlated with effect of other possible factors. Questionnaires were administered to three hundred and sixty students selected evenly from JSS1-SS2 classes in each of the schools. Two of the schools were private while the other two were owned by government. Ten (10) hypotheses were tested in the study. It was found that class size has a highly significant impact on students' attitudes to studies in secondary school ($p < 0.05$). It affects students' attention most strongly, then punctuality, motivation and participation but not the rate of participation and asking or answering questions. The result also revealed that excessive noise is the most common behavioral attitude associated with large classes. Hence, a serious attention should be paid to class size in every educational setting for optimum learning achievement.

Introduction

The evident recurring failures in external examinations conducted by National Examination Council (NECO) and West African examinations Council (WAEC) and subsequent low performance of undergraduates in universities are largely traced back to poor attitudes of the secondary school students. Various factors are suspected to be responsible for these ugly developments. One of such factors is class size. Effect of class size on the students' academic performance has been reported. However, it is expected that a strong relationship exists between students' attitudes and performance but the impact of class size on the former has not much been investigated. Hence, the purpose of this research is to determine whether there is a significant relationship between the class size and students' behavioral, learning and general attitudes to study.

Class size is a popular concept in educational research defined as the average number of students per class, calculated by dividing the number of students enrolled by the number of classes. Hoffman (1980) described it as the number of students per teacher in a class. Adeyemi (2008) expressed it as an educational tool that can be used to describe the average number of students per class in a school. It is often simply considered as the respective population of

students in each class. Various researchers have established its strong relationship with students' academic performance. Kedney (1989) saw it as a tool for measuring the performance of educational system.

In Nigeria, Class size in public secondary schools is far above the recommended 30 or 40 students per classroom. Martins *et al.*, (2007) reported in Oyo State that average class size in most secondary school exceeds 50. Nigerian schools that have as many as eighty (80), hundred (100) or above 100 students per class have also been reported (Osim, 2011). These class sizes are considered to be too large for optimum academic achievement of students. This among other factors might have prompted Yusuf (2012) to conclude that a number of things are wrong with the educational systems in Nigeria.

Different researchers (Adeyela, 2000; Adeyemi, 2012; McKeachie, 1980) have reported that large class sizes have negative effect on academic task. Idienumah (1987) has included that class size ranks amongst the most important factors that have strong and direct influence on academic performance of schools. Similarly, Alebiosu (2000) and Oderinde (2003) have reported that students in small classes have greater achievement level than those in large classes. Kolawole (1982) established an inverse correlation between class size and student's achievement concluding that the larger the class, the lower the student's achievement.

Nevertheless, academic performance is directly a function of attitudes of the learners. It is expected that large classes reduce effective classroom control. It thus has a potential to encourage distraction and disruptive behaviours amongst the students. Finn *et al.* (2003) remarked that students in small classes display less disruptive behavior than those in large classes. Fischer and Grant (1983) asserted that class size significantly affects the level of students' cognitive skills in the classroom. According to Finn and Achilles (1999), small classes improved both the students' performance and learning behavior as well as it yields fewer classroom disruptions and discipline problem. In view of the above, research has suggested that smaller classes are usually preferred by both instructors and students (Smith and Glass, 1979; Guseman, 1985). Olatunde (2010) advised an educational policy of class sizes less than 30 while National Policy on Education (FRN, 2004) recommended the teacher-student ratio of 1:40.

More so, students' engagement has been enlisted amongst key elements of educational success (Creemers, 1994). Evidences have shown that it affect pupils' achievement (Rowe, 1995). Meanwhile, Student engagement has been defined as the level of participation and intrinsic interest that a student shows in school (Newmann, 1992). It involves both behaviors and attitudes (Johnson *et al.*, 2001). The author further made distinctions between these two terms. He classified persistence, effort and attention as behaviors and enlisted motivation, positive learning values, enthusiasm, interest and pride in success as attitudes.

Pascarella and Terenzini(1991) equated student's engagement to students' involvement and concluded that the greater it is, the greater is his or her level of knowledge acquisition and general cognitive development. It has also been reported that engaged students learn more, retain more, and enjoy learning activities more than students who are not engaged (Hancock and Frank, 2002). According to McKeachie (1980), large classes are simply not as effective as small classes for retention of knowledge, critical thinking and attitude change. Since large class has been found more prominent in secondary school, poor attitudinal change is expected. This may be due to ineffective classroom management and control by the teachers who are already inundated by the exploded learners' population. This may be the reason why Yusuf (2012) remarked that teachers in public secondary schools feel no concerned about affective development of the

students. Hence, the effect of class size on attitudes related to study is still opened for an in-depth and more decisive analysis.

Methodology

Four prominent secondary schools within two Local Government Areas (LGAs) in Abeokuta, Ogun State Nigeria were selected for the study. The schools include TAIDOB College (Private/Day&Boarding) and Asero High School (Government/Day) in Abeokuta South LGAs as well as Aminat International College (Private/Day&Boarding) and Nawarudeen Grammar School (Government/Day) in Odeda LGA. Ninety students (90) were taken from each of the schools at various arms of Junior Secondary School 1 (JSS1) to Senior Secondary School 2 (SS2). SS3 were excluded from the study due to West African Senior Secondary Certificate Examination (WASSCE) that was on-going at the time. The data for the study were sought through Questionnaires administered to three hundred and sixty (360) students from the four selected schools. The Questionnaire was appropriately designed and formulated to provide answers to questions and information required to achieve the objectives of the study.

Attitudes Classification and Coding

The attitudes are classified as general, learning and behavioral. The effect of class size on each of these classified attitudes as well as on their different combinations was considered. This was coded for each classified attitude using both the alphabets and numbers for easy analysis such that A, B, C...stands for the different categories of general, learning or behavioral attitude while 1,2,3 ...denote the numbers of these attitudes combined in each category. For instance, A (or A1), B (or B1) and C (or C1) means different categories of single general, learning or behavioral attitudes affected by class size while A3, B3, C3 means different categories of three-combined set of these attitudes in each class. The data for the study were analyzed using IBM SPSS statistics software version 21.

Results

Number of Respondents (Students) in Schools

The population and distribution of the respondents across all the schools is presented in Table 1. Table 1: Number of Respondents (Students) in selected schools

Schools	Number of students
Asero High School	90
Aminat International College	90
Taidob College	90
Nawairudeen Grammar School	90
Total	360

The information on Table 1 indicates that 90 students sampled are evenly selected in each of the four schools to make up a total of 360 respondents used in the study.

Gender Distribution

Table 2: Gender distribution of respondents (students)

Gender	Frequency	Percentage
Male	144	40.0
Female	216	60.0
Total	360	100.0

Table 2 indicates that 40% of the respondents were male and 60% were female. It confirms that there were more female (216) respondents than male (144).

Students' Responses to Questions on Class Size

Questions relating to class size and students' attitude as well as the effect of the former on the latter were posed to the students. The analyses of the responses of the respondents to these questions are presented in the Table 3 and 4. Table 3 shows the responses of six (6) of the twelve questions while Table 4 shows the remaining.

Table 3: Students' Responses to Questions Related to Class Sizes

Questions	Response	Frequency	Percentage
Do you personally like your class population?	Yes	281	78.1
	No	66	18.3
	Can't say	13	3.6
	Total	360	100.0
If yes, what is your likely reason?	Academic	244	74.8
	Social	74	22.7
	Others	2	0.6
	Academic & social	6	1.8
	Total	326*	100.0
Do you think the class size will motivate you academically?	Yes	258	71.7
	No	65	18.1
	Can't say	37	10.3
	Total	360	100.0
Do you think the class population has any positive effect on your attitude to study?	Yes	215	59.7
	No	122	33.9
	Can't say	23	6.4
	Total	360	100.0
Do you think the students' population in your class negatively affects your attitude to study?	Yes	116	32.2
	No	216	60.0
	Can't say	28	7.8
	Total	360	100.0
Are you always motivated to attend the class?	Yes	328	92.4
	No	15	4.2
	Can't say	12	3.4
	Total	355*	100.0

*No response from the remaining students

Table 3 shows that 78.1 percent of the students like their class population, 74.8 percent like it for academic reason and 71.7 percent agreed that the class size motivates them academically. More so, 59.7 percent agree that class population would affect their attitude to studies positively; 60.0 percent disagreed with the idea that class population would negatively influence it while 82.4 percent indicated that that they were always motivated to attend classes. The outcome of the correlation analysis of the data on table 3 shows that the class size has a significant impact on student’s motivation to their studies ($p < 0.05$) as well as a highly significant impact on their motivation to attend classes ($p < 0.05$). It also has both a highly significant positive and highly significant negative impacts on the students’ attitude to studies ($p < 0.05$).

Table 4: Responses to questions on effect of class Size

Questions	Response	Frequency	Percentage
Are you always present in class?	Yes	351	98.0
	No	6	1.7
	Can’t say	1	0.3
	Total	358*	100.0
If yes, do you think the population in your class is an encouraging factor?	Yes	251	69.7
	No	77	21.4
	Can’t say	32	8.9
	Total	360	100.0
If no, is your discouragement due to population of students in your class?	Yes	84	30.3
	No	147	53.1
	Can’t say	46	16.6
	Total	277*	100.0
Do you actively participate in class?	Yes	332	93.0
	No	8	2.2
	Can’t say	17	4.8
	Total	357*	100.0
How often do you ask or answer questions during lesson in class?	Always	184	51.3
	Rarely	171	47.6
	Never	4	1.1
	Total	359*	100.0
Do you think the class population influences your frequency of participation in class?	Yes	172	48.3
	No	157	44.1
	Can’t say	27	7.6
	Total	356*	100.0

*No response from the remaining students

Table 4 shows that 98.0 percent of the students were always present in classes and 69.7 percent indicated class size as the factor that encouraged them. Among those that are not always present in classes, 53.1 percent indicated that class size is not the discouraging factor. 93.0 percent actively participate in classes, 51.3 percent frequently ask or answer questions in classes while 48.3 indicated this attitude is influenced by their class population.

The outcome of the correlation analysis of the data on Table 4 shows that the class size has a class size has a highly significant impact on the frequency at which students attend and present in classes ($p < 0.05$). It is also highly significant as a factor that both encourages and also

discourages students to attend classes ($p < 0.05$). Meanwhile, class size has no significant impact on the active participation of students in class as well as on the rate at which students answer questions during lesson in classes ($p < 0.05$) but has a highly significant impact on the rate at which students participate in classes ($p < 0.05$)

Class Size and General Attitude of Students

The possible the effect of class size on the general attitudes of the students as well as on the combination of two or more of these attitudes was examined. The frequencies of the responses given by the students are presented in Table A1. The result in Table A1 is shown on Fig. 1

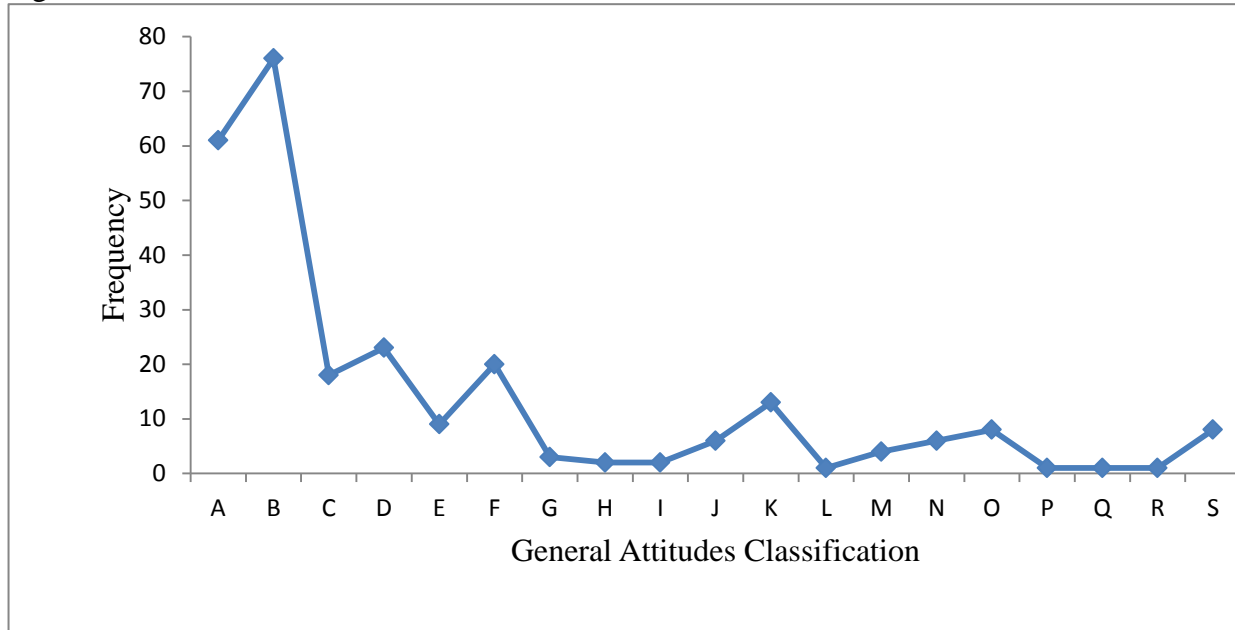


Fig. 1: A graph showing frequency of general attitudes affected by class size

Table A1 shows that 23.2 percent of the students indicate that class size affects their punctuality, 28.9 percent say it affects their attention, 6.8 percent of them indicate its effect on their motivation and 8.7 percent indicate it on their commitment. Meanwhile, 7.6 percent of them indicate its effect on both their punctuality and attention while the percentage indicating its effect on other attitudes combination is insignificant.

Class Size and Learning Attitudes

Frequencies of the respondent to questions of the effect of class size on learning attitudes such as attention or concentration, interest or motivation to studies, attendance in class, participation, asking questions, answering questions and various combination of two or more of these attitudes are presented in Table A2, A3 and A4. Table A2 shows single and double combinations of the attitudes; A3 shows the combinations of three and four of the attitudes while A4 shows five and six of these attitudes combined. The entire information on the three tables is shown in Fig. 2.

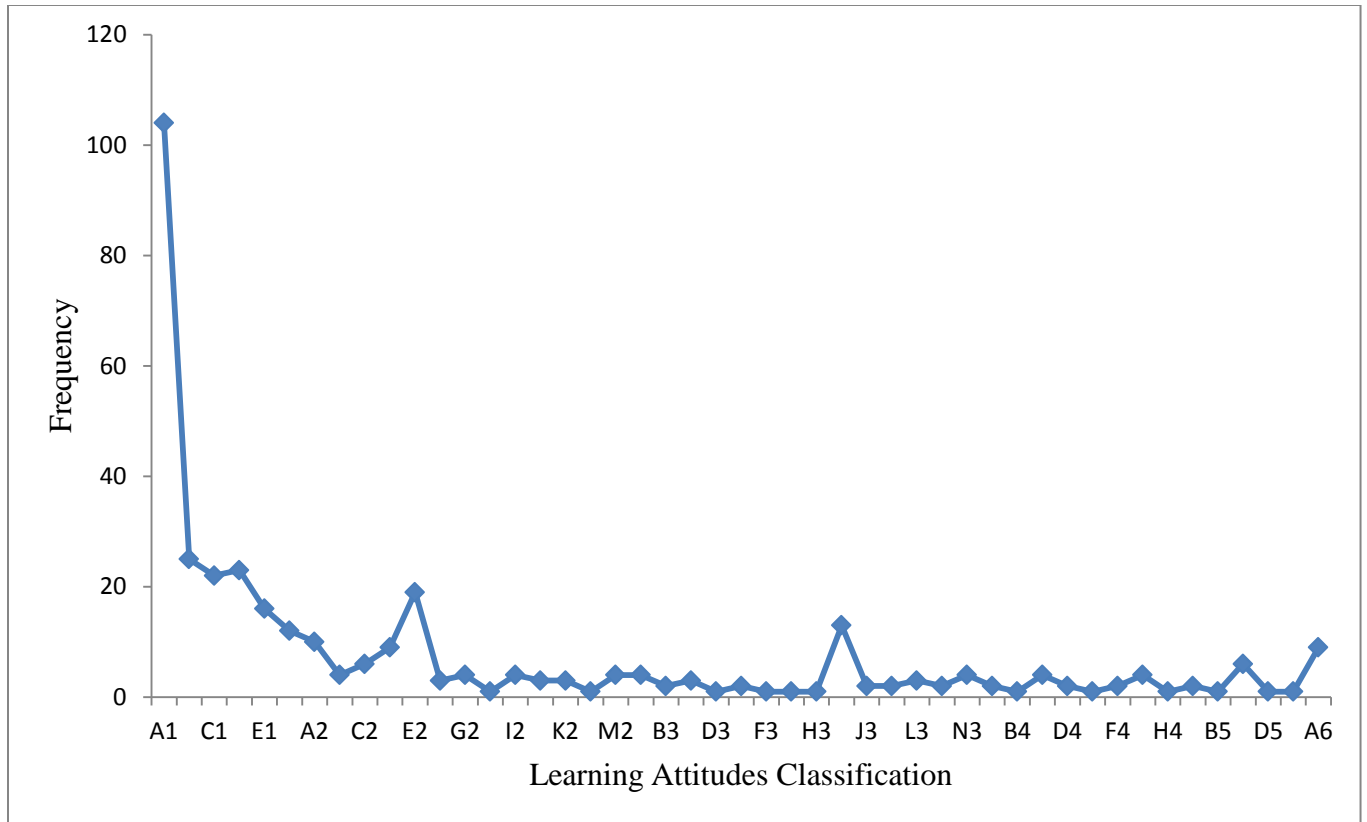


Fig. 2: A graph showing effect of class size on learning attitudes

Table A2 shows that 104 students indicate that class size affect their attention/concentration, 25 indicate that it affects their interest/motivation, 23 indicate that it affects their participation; attendance, 22; both attention and answering questions, 19 while 16 of them indicate that it affects their asking questions while the rest is insignificant. In Table A3, 13 students indicate that it class size affects their attention/concentration, attitude to asking questions and answering questions altogether; 4 students indicate that the class size also affect collectively, their attention/concentration, interest/motivation and attendance altogether while 4 students indicate that class size affects all of their attention/concentration, participation, asking questions and answering questions and so on. In Table A4, 9 students indicate that the class size affect the entire six attitudes of attention/concentration, interest/motivation, attendance in class, participation, asking questions and answering questions while 6 students indicate five with the exclusion of attendance in class. The number of the remaining respondents is insignificant.

Behavioral attitudes associated with large class size

Responses were also elicited on the behavioral attitudes associated with larger classes such as excessive noise, teachers’ inaudibility, group learning, usual disagreement, and collective problem solving. The finding is presented in Table A5 and A6. Table A5 shows the frequencies of the single and double attributes affected by large class while A6 shows that of three and four attributes. The result on the two tables is shown in the Fig. 3.

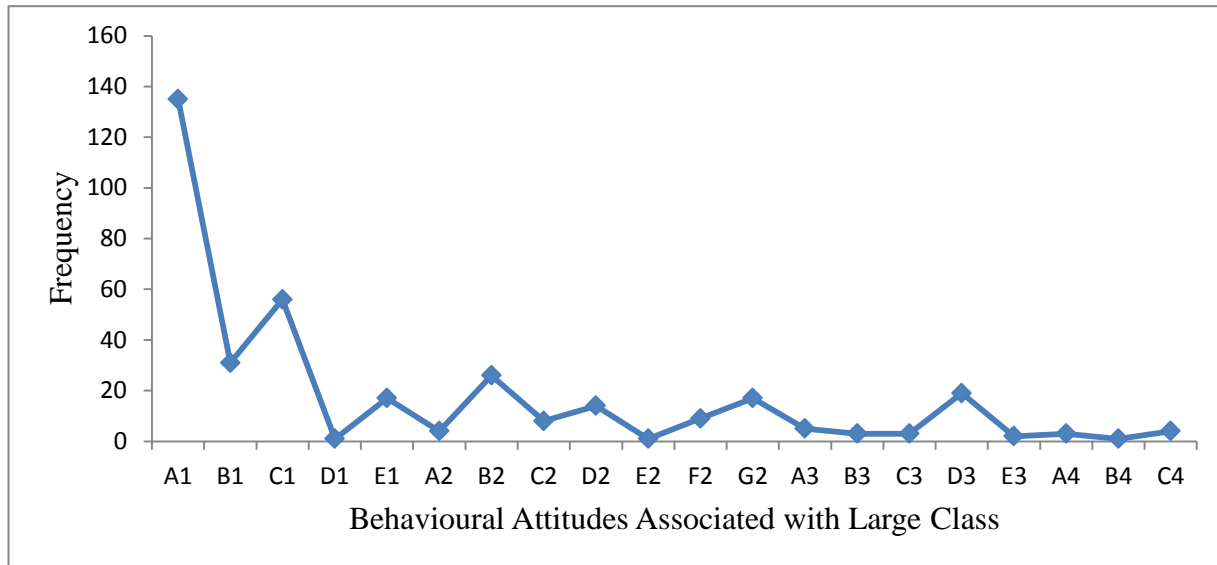


Fig. 3: A Graph showing the frequency of behavioral attitudes associated with large class size

Table A5 shows that 135 students indicates excessive noise as the commonest class behavior in large class; 31 indicate it as teachers’ inaudibility; 56 indicate it as group learning and 17 indicate it as collective problem solving. Meanwhile, 26 students indicate it as both the excessive noise and group learning; 14 indicate as both excessive noise and collective problem solving while 17 indicate it as both the group learning and collective problem solving. Other responses are in significant. In Table A6, 5 students indicate that the commonest class behavior in large class are excessive noise, teachers’ inaudibility and group learning , 19 students indicate them as excessive noise, group learning and collective problem solving while 4 (10%) students indicate them as excessive noise, group learning, usual disagreement and collective problem solving altogether. Other responses are insignificant.

Results and Discussion

The result indicates the ration of male and female students as 2:3 respectively. Since, the students are selected randomly based on class population and/or willingness, it is reasonable to conclude that female students constitute a larger percentage of class sizes in secondary schools than male and/or that they are more inquisitive and readily show willingness to responsibility than male students. The result also shows that student’ attention is the most affected general attitude by class size, followed by punctuality. This implies that students’ attention in class in being diverted when class size is large due to various distractions. The regular distractions and daily loss of attentions discourage some students who my likely feel reluctant to attend schools which then reduces their level of punctuality. Generally, these findings agree in total with that of Prime and star (2003) and Olatunde (2010).

More so, the result has also confirmed that class size has a significant effect on the motivation of students to attend classes as well to their studies. The study again reveals that class size may significantly encourage or discourage students from attending or being present in classes. Large classes are often too boring, noisy and rowdy which may constitute discouragement. On the other hand, small class size is less congested and may encourage staying in the class room.

Nevertheless, the result further indicates that class size has a significant positive or negative impact on students' attitudes. Of course, when class size is large, the expected impact is negative and vice versa. The students in smaller classes are found to exhibit better learning achievement than those in larger classes. This is similar to the result obtained by Blatchford et al. (2003) that children in large classes are more likely to be off task, particularly in terms of not paying attention to the teacher and not focusing on their work when working on their own. However, the study shows that active participation as well as the rate of asking or answering questions is not affected by class size. It implies that once in the classroom, students participate actively regardless of the number of students' in the class. They also ask or respond to questions not minding of the populations of students in the classroom. This may mean that other factors such as interest in the subject influences active participations and asking or responding to questions.

The study found that attention or concentration is the learning attitude that is most affected by class size. Students may likely lose the attention because of their far distance from the board. This makes teachers' voice less audible and writings unclear. This agrees with the report of Totusek and Staton-Spicer (1982) that students who choose a seat near the blackboard show greater creativity, being more intellectually engaged and conscious of the school purposes. It was also reported that that students who sit close to front of the class usually have fewer absences (Stires, 1980), participate actively in class (Sommer, 1967) and give more attention to the taught subject (Schwebel, 1972).

This also corroborates the additional finding that excessive noise is the most common behavioral attitude associated with large class. It is not unexpected that attention or concentration is impaired in the large classroom where noise is inevitably a usual occurrence. It is the same facts expressed by Finn and Achilles (1999) that small classes improved the learning behavior as well as it yields fewer classroom disruptions and discipline problem.

Class size affects students' learning, behavioral and general attitudes in secondary schools in Abeokuta, Ogun state Nigeria. It has a highly significant impact on varieties of students' attitudes to studies. It affects students' attention most strongly, then punctuality, motivation and participation but not the rate of participation and asking or answering questions. Excessive noise is the most common behavioral attitude associated with large classes.

Appendices

Table A1: Class Size and General Attitudes

S/N	General Attitudes	Coding	Frequency	Percent
1	Punctuality	A	61	23.2
2	Attention	B	76	28.9
3	Motivation	C	18	6.8
4	Commitment	D	23	8.7
5	Absence	E	9	3.4
6	Punctuality/Attention	F	20	7.6
7	Punctuality/Motivation	G	3	1.1

8	Punctuality/Commitment	H	2	0.8
9	Punctuality/Absence	I	2	0.8
10	Attention/Motivation	J	6	2.3
11	Attention/Commitment	K	13	4.9
12	Attention/Absence	L	1	0.4
13	Motivation/Commitment	M	4	1.5
14	Punctuality/Attention/Motivation	N	6	2.3
15	Punctuality/Attention/Commitment	O	8	3.0
16	Punctuality/Attention/Absence	P	1	0.4
17	Punctuality/Motivation/Commitment	Q	1	0.4
18	Attention/Motivation/Commitment	R	1	0.4
19	Punctuality/Attention/Motivation/ Commitment	S	8	3.0
	Total		263*	100.0

*No response from remaining students

Table A2: Learning attitudes affected by class size

S/N	Learning Attitudes	Coding	Frequency
1	Attention/Concentration	A1	104
2	Interest/Motivation	B1	25
3	Attendance	C1	22
4	Participation	D1	23
5	Asking Questions	E1	16
6	Answering Questions	F1	12
7	Attention/Concentration& Interest/Motivation	A2	10

8	Attention/Concentration& Attendance	B2	4
9	Attention/Concentration& Participation	C2	6
10	Attention/Concentration& Asking Questions	D2	9
11	Attention/Concentration& Answering Questions	E2	19
12	Interest/Motivation& Participation	F2	3
13	Interest/Motivation& Asking Questions	G2	4
14	Interest/Motivation& Answering Questions	H2	1
15	Attendance& Asking Questions	I2	4
16	Attendance& Answering Questions	J2	3
17	Participation & Asking Questions	K2	3
18	Participation& Answering Questions	L2	1
19	Asking Questions& Answering Questions	M2	4
	Total		273

Table A3: Learning attitudes affected by class size (Cont'd)

S/N	Learning Attitudes	Coding	Freq.	Percent
1	Attention/Concentration, Interest/Motivation & Attendance	A3	4	6.9
2	Attention/Concentration, Interest/Motivation & Participation	B3	2	3.4
3	Attention/Concentration, Interest/Motivation & Asking Questions	C3	3	5.2
4	Attention/Concentration, Interest/Motivation & Answering Questions	D3	1	1.7
5	Attention/Concentration, Attendance & Asking Questions	E3	2	3.4
6	Attention/Concentration, Attendance & Answering Questions	F3	1	1.7
7	Attention/Concentration, Participation & Asking Questions	G3	1	1.7
8	Attention/Concentration, Participation & Answering Questions	H3	1	1.7
9	Attention/Concentration, Asking Questions & Answering Questions	I3	13	22.4
10	Interest/Motivation, Participation & Asking Questions	J3	2	3.4
11	Interest/Motivation, Participation & Answering Questions	K3	2	3.4
12	Interest/Motivation, Asking Questions & Answering Questions	L3	3	5.2
13	Attendance, Asking Questions & Answering Questions	M3	2	3.4
14	Participation, Asking Questions & Answering Questions	N3	4	6.9
15	Attention/Concentration, Interest/Motivation, Attendance & Participation	A4	2	3.4
16	Attention/Concentration, Interest/Motivation, Participation & Asking Questions	B4	1	1.7
17	Attention/Concentration, Interest/Motivation, Participation & Answering Questions	C4	4	6.9
18	Attention/Concentration, Interest/Motivation, Asking Questions & Answering Questions	D4	2	3.4
19	Attention/Concentration, Attendance, Participation & Answering Questions	E4	1	1.7
20	Attention/Concentration, Attendance, Asking Questions & Answering Questions	F4	2	3.4
21	Attention/Concentration, Participation, Asking Questions & Answering Questions	G4	4	6.9
22	Interest/Motivation, Participation, Asking Questions & Answering Questions	H4	1	1.7
	Total		58	

Table A4: Learning attitudes affected by class size (Cont'd)

S/N	Learning Attitudes	Coding	Freq.
1	Attention/Concentration, Interest/Motivation, Attendance, Participation& Answering Questions	A5	2
2	Attention/Concentration, Interest/Motivation, Attendance, Asking Questions& Answering Questions	B5	1
3	Attention/Concentration, Interest/Motivation, Participation, Asking Questions & Answering Questions	C5	6
4	Attention/Concentration, Attendance, Participation, Asking Questions & Answering Questions	D5	1
5	Interest/Motivation, Attendance, participation, Asking Questions & Answering Questions	E5	1
6	Attention/Concentration, Interest/Motivation, Attendance, Participation, Asking Questions & Answering Questions	A6	9
	Total		20

Table A5: Common behavioral attitudes associated with large class

S/N	Behavioral Attitudes	Coding	Frequency
1	Excessive Noise	A1	135
2	Teachers Inaudibility	B1	31
3	Group learning	C1	56
4	Usual disagreement	D1	1
5	Collective Problem Solving	E1	17
6	Excessive Noise& Teachers inaudibility	A2	4
7	Excessive Noise & Group learning	B2	26
8	Excessive Noise& usual Disagreement	C2	8
9	Excessive Noise& collective Problem Solving	D2	14
10	Teachers Inaudibility & Group Learning	E2	1
11	Teachers Inaudibility & Collective problem Solving	F2	9
12	Group learning & Collective problem Solving	G2	17
	Total		319

Table A6: Common behavioral attitudes associated with large class

S/N	Behavioral Attitudes	Coding	Frequency
1	Excessive Noise, Teachers Inaudibility & Group Learning	A3	5
2	Excessive Noise, Teachers Inaudibility & Collective Problem Solving	B3	3
3	Excessive Noise, Group Learning & Usual Disagreement	C3	3
4	Excessive Noise, Group Learning & Collective problem Solving	D3	19
5	Teachers Inaudibility, Group Learning & Usual Disagreement	E3	2
6	Excessive Noise, Teachers Inaudibility, Group Learning & Usual Disagreement	A4	3
7	Excessive Noise, Teachers Inaudibility, Group Learning & Collective problem Solving	B4	1
8	Excessive Noise, Group learning, Usual Disagreement & Collective Problem solving	C4	4
	Total		40

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