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EFFECT OF LARGE CLASS SIZE AND TEACHER-LEARNER RATIO ON CLASSROOM MANAGEMENT IN EARLY CHILDHOOD EDUCATIONAL CENTRES IN GHANA

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ABSTRACT

The main aim of this study was to investigate how large class size and teacher-to-learner ratio affect classroom management in early childhood educational centres in Ghana. A descriptive survey was used as research design for the study, which was underpinned by positivist philosophical thought. The data was collected using a four-point Likert-type scale questionnaire, to be administered to preschool teachers and head teachers. The sample size for the study was 216 participants and the data was analysed using one-way analysis of variance (ANOVA), mean and standard deviation. It was found that the presence of teacher-to-learner ratio (TLR) in early childhood education centres (ECECs) resulted in poor interaction and communication between preschool teachers and pre-schoolers, which had an effect on teachers' classroom management. Moreover, in large classes, where teachers are unable to perform effective classroom management, classroom discipline and engagement will be more difficult to achieve than in the smaller classes. Again, the findings revealed that in cases of large class size, preschool teachers were repeating activities and were unable to attend to two events simultaneously in the classroom without having their attention diverted unduly by disruptions. The study also pointed out that positive reinforcement, shaping, giving prompt feedback and giving clear instructions were effective classroom strategies used in managing pre-schoolers in classes of larger size.

KEYWORDS: Ghana, large class size, teacher-learner ratio, classroom management strategies, early childhood education, pre-schoolers, teachers, head teachers.

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INTRODUCTION

Education remains at the heart of development in every country (Akoto-Baako, 2018) and as such it has been observed that most developed countries have invested significantly in education. Childhood education requires the most attention since it serves as the foundation of every learner. The effectiveness of early childhood learning depends on a number of factors such as the dedication of preschool teachers, the size of the classroom, resources, parental involvement and the teacher-learner ratio (TLR). Large class size and TLR are the major concerns of early childhood educational centres (ECECs) in Ghana due to the compulsory education policy for every Ghanaian child (Ministry of Education, 2017). Before the establishment of the compulsory education policy, the Ministry of Education, Youth and Sports (2008) had established a 1:18 TLR for kindergarten and a 1:22 TLR for lower primary schools to improve the quality and efficiency of classroom management and eventually ensure proper teaching and learning processes in schools.

According to the EFA policy statement, the Government of Ghana was committed to reducing poverty through education. To that end, quality education has been implemented as the poverty reduction strategy – by ensuring that individuals acquire the rudimentary skills such as reading, writing and numeracy. However, education also promotes economic growth, reduces economic inequalities and increases the individual's earnings, and these positive outcomes help to reduce poverty (UNESCO GEM Report, 2016). Nevertheless, universal participation towards the achievement of excellence essentially depends on the quality of education available to all pre-schoolers in the ECECs. The UNESCO (2006) report indicated an average of 1:40 TLR in developing countries. It also showed that 84% of classrooms in developing countries had a TLR of higher than 1:55. A study conducted by Kaloki, Kasau, Kitoo, Mutind and Jeremiah (2015) found that the majority of ECECs in developing countries have a class size of more than 40 pre-schoolers. Findings from other sub-Saharan African countries reflect the situation found in Ghana; these results have undoubtedly affected ECECs in Ghana.

The policy with regard to TLR stated by the Minister of Education, Youth and Sports in 2008 has not yet been accomplished in Ghana and other sub-Saharan African countries. The report of the UNESCO Institute for Statistics (2018) showed that sub-Saharan African and Asian countries have the highest TLR – more than 1:30. In sub-Saharan Africa the TLRs were as follows: Congo (1:54), Mali (1:55), Mozambique (1:67), Rwanda (1:65), Ethiopia and Malawi (1:70), Burundi (1:32), Central African Republic (1:44), Chad (1:32), Gambia (1:48), Ghana (1:38), Guinea (1:34) and Liberia (1:48). Looking at the target set by Ghana's Ministry of Education, Youth and Sports in 2008 and the current situation of TLR, the UNESCO Institute for Statistics report (2018) further indicated that early childhood education (ECE) in Ghana was in a troubling state.

Since 2008, Ghana has been faced with TLR challenges due to the shortage of pre-school teachers (MoE, 2010). The situation continues to worsen. The International Monetary Fund (IMF) conditionally had to freeze employment in the public sector for a decade – and as a result Ghana's

growth in 2014 dropped below the sub-Saharan African (SSA) average rate of 5.0% (IMF, 2015). Although the failure of the Ghanaian economy to maintain its growth momentum was a matter of concern, the drop in growth rates were not exclusive to Ghana. The country approached the IMF for a financial bailout because its economy was not performing well. Nonetheless, based on the IMF's conditionality, students who graduated from the Colleges of Education from 2008 to 2016 were not employed. The study by the Ministry of Education (2018) also revealed that between 2008 and 2016, some 7 000 teachers were retired, and another 800 teachers who had health challenges were asked to retire early. In Ghana, the enrolment levels in ECECs have increased from 2.3 million to 4.1 million between 2008 and 2016 (MoE, 2016) and have caused problems such as the availability of physical and human resources to support pre-schoolers in the ECECs. The Ministry of Education (2017) reported that the TLR increased progressively from 1:18 to 1:45 in urban areas and 1:70 in rural areas.

Classroom management had become an essential element in education during the past few years. The reason was that effective instructional activities cannot take place in our ECECs without proper classroom management strategies (Cobbold and Boateng, 2016). However, Cobbold and Boateng (2016) suggested that classroom management denotes a teacher's ability to keep order, engage pre-schoolers in active learning and engage pre-schoolers' cooperation in all activities in class. Mohammad and Bafrin (2015) posited that classroom management places emphasis on how preschool teachers coordinate classroom activities to ensure that order is maintained. Poor classroom management could cause pre-school teachers to stress about maintaining discipline and preventing classroom violence and bullying (Cobbold & Boateng, 2016). In ECEC with a large class size and high TLR, instructors or supervisors spent more instructional time teaching how to maintain discipline and order (Nicks, 2012). When the instructional time is spent maintaining discipline, pre-school teachers would eventually not cover all the learning content needed by the pre-schoolers to achieve the instructional objectives. It could be essential for pre-school teachers to implement efficient classroom management strategies to help improve classroom environments where proper teaching and learning can be mediated with the desired TLRs in ECECs. The main aim of the study was to investigate how large class size and TLR affect classroom management in ECECs in Ghana.

Research questions

1. How does large class size and TLR affect classroom management in ECECs in Ghana?

2. What strategies do preschool teachers use to enhance effective classroom management in ECECs in Ghana?

Research hypothesis

1. There is a significant difference between TLR and classroom management strategies.

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2. There is a significant difference between class size and classroom management strategies.

LITERATURE REVIEW

Effect of large class size and TLR on classroom management in Early Childhood Educational Centres

Studies have shown that the increase in class size affects how teachers manage the classroom environment regarding pre-schoolers' discipline and how teachers spend instructional time handling non-instructional activities (Vandenberg, 2012). For instance, a study by Blatchford, Russel, Bassett, Brown and Martin (2007) revealed how preschool teachers' supervising of large classes affect their instructional delivery and classroom management. The sample size used for the research was 800 preschool teachers. Walker (2019) reported that increase in class size in a limited physical space for pre-schoolers affect the behaviour and safety issues in classroom. However, Deutsch (2003) suggested that an increase in class size affects preschool teachers' engagement or interaction with the pre-schoolers in the classroom. Large class size and less TLR affect how pre-schoolers engage themselves in the classroom, which would have implications for teachers' classroom management (Finn et al., 2003). Cakmak (2009) confirmed that non-instructional activities are part of the instructional tasks because breaktime, sleeping time and worship form part of the curriculum activities. Non-instructional tasks are normally found more in large classes than in small class sizes because in a class where the TLR is (1–60) the teacher may lose control when trying to achieve scaffolding, a zone of proximal development and social interaction at all times to ensure proper classroom management (Akoto-Baako, 2018).

Strategies preschool teachers use to enhance effective classroom management in Early Childhood Educational Centres

Classroom management strategies entail the learnable activities organised by preschool teachers to achieve specific goals. Torkornyo (2019) defined classroom management tactics as the steps taken by preschool teachers to regulate their classes and the pre-schoolers' behaviour. Humanistic psychology maintains the assumption that each individual has a primary responsibility for acceptance (Edjah, 2018). Assertive discipline is a classroom management strategy in which preschool teachers take responsibility of the classroom environment so as to prevent discipline issues. Lee Canter (1976) developed assertive discipline as a leadership programme to improve classroom management. It is a behaviour approach that falls under the banner of authoritarian behavioural philosophy. The basis for this objective is basically the development of strategies to prevent harassment among pre-schoolers through initial guidance based on the expectations of preschool teachers.

In Skinnerian learning, the biggest single principle in the learning process is reinforcement. Another behaviour modification strategy used by preschool teachers is the process through which the probability (and often the strength) of a conditioned response is often reduced by withholding the

unconditioned stimulus (Edjah, 2018). Extinction can comprise the selective withholding of pre-schoolers' anticipated rewards for a specific behaviour to occur in the classroom. According to Torkornyo (2019) the extinction procedure is based on the theoretical assumption that a behaviour is maintained when the pre-schooler perceives that there is a supportive consequence attached to the outcome. The business-academic approach ensures that pre-schoolers are free from emotional disruption and also emphasises that pre-schoolers and preschool teachers are engaged in dialogue whereby they follow specific conditions to maintain order in class (Akoto-Baako, 2018).

METHODOLOGY

The philosophical foundation was based on the assumptions of the positivist paradigm, concerning how knowledge was obtained and the methodological procedure adopted by the researchers in the study (Creswell and Creswell, 2018; Jarvie and Zamora-Bonilla, 2011; Patten and Newhart, 2017). The researchers chose the positivist paradigm assumption to help explain and explore how large class size affects TLR in ECECs (Creswell & Creswell, 2017; Kusi, 2012). It was also used where a descriptive survey was collected from a large group of people (Patten and Newhart, 2017).

The target population included 180 registered ECECs, 900 preschool teachers and 180 head teachers from the Tamale, Kumasi and Cape Coast metropolises. The researchers adopted the Gay and Diehl (1992) method for determining the sample and proportionately sampled 20% of ECECs, preschool teachers and head teachers from the target population from each metropolis. As pointed out by Kusi (2012), using 20% of the target population would hopefully help to attain a fair representation from the population in order to make a statistical inference for generalisation.

The sample size was two hundred and sixteen (216) people – one hundred and eighty (180) preschool teachers and thirty-six (36) head teachers. The researchers purposively selected twelve (12) ECECs from the Tamale, Kumasi and Cape Coast metropolises. The convenient sampling technique was used to select sixty (60) preschool teachers who were teaching a class size of more than sixty (60) pre-schoolers. Again, the purposive sampling technique was used to select head teachers from the sampled ECECs from each metropolis.

Ethical clearance from the University of South Africa was sent to all metropolitan education directors. After access was granted, the researchers personally visited the ECECs to discuss the purpose of the study with the participants. The issues of confidentiality, anonymity and informed consent were explained to them. It took the researchers three (3) weeks to collect the data. The period for the data collection was between 21 August and 18 September 2020. Before the data was collected, the instrument was pilot tested at the Sekondi-Takoradi metropolis in Ghana. Piloting the instrument helped us to correct ambiguous questions – and those questions that were not suitable for the study were reconstructed. The test-retest reliability procedure was used. The first test yielded a Cronbach alpha level of 0.83 while the alpha level for the second test was 0.83. In other words, the two tests

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yielded exactly the same alpha level (Ofori & Dampson, 2012). The data was processed through SPSS software and the analysis was done on mean, standard deviation and ANOVA.

RESULTS

This section presents the results for the quantitative data. Table 1 represents the influence of class size and TLR on teaching and learning in ECECs.

Table 1: Influence of class size and TLR on teaching and learning in early childhood education centres

Statement	Mean	St.D
Classroom interaction and communication		
I always have a firm grasp of the class when teaching.	3.78	0.41
I found it difficult to hold pre-schoolers' attention during lessons due to class size.	3.77	0.42
I always write on the black board to explain concepts because pre-schoolers cannot hear my voice very well during classroom sessions due to class size.	3.70	0.71
I found it difficult to speak or communicate clearly during classroom sessions due to class size.	3.68	0.67
Mean of means	***3.73***	***0.55***
Non-instructional tasks		
Non-instructional task activities by pre-schoolers affect preschool teachers by wasting instructional time in the classroom.	3.60	0.52
Non-instructional task activities by pre-schoolers affect preschool teachers' abilities to achieve scaffolding, zone of proximal development and social interaction in classroom.	3.56	0.74
Off-task behaviour like roaming during lesson affects teaching and learning in classroom.	3.34	0.89
Observed break for sleeping and eating disrupts pre-schoolers' attention to concentrate in classroom.	3.30	0.90
Mean of means	***3.45***	***0.76***
Classroom discipline		
I am not able to attend to two events simultaneously in class without being diverted unduly by disruptions.	3.02	1.00
I easily ensure that transition from one learning activity to		

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another is done but due to class size I always lose instructional time.	2.98	1.05
I hardly start lessons on time and continue previous lesson due to interruptions (pre-schoolers' disruptive behaviour such as noise) in class.	2.93	1.50
I consistently enforce the classroom rules and procedures, to ensure discipline – but due to class size it is difficult to enforce it.	2.79	1.77
Mean of means	***2.93***	***1.33***

Source: Field survey, (2021) N=216

The analysis in Table 1 shows that classroom interaction and communication were the first most frequent influences of large class size and TLR on teaching and learning in ECECs, while non-instructional tasks and classroom discipline came second and third, respectively. However, from the classroom interaction and communication section, the result shows mean of means value of (M=3.73, SD=0.55). Thus, the respondents are of the view that the effect of that large class size and TLR on teaching and learning was influenced by classroom interaction and communication. The various scales under classroom interaction and communication recorded a mean value of more than 3.30. However, respondents' comment on "Always have a firm grasp of the class when teaching" scored (M=3.78, SD=0.4) – the highest response rate under classroom interaction and communication. This was followed by (M=3.77, SD=0.42) representing respondents' comment on "Difficult to hold pre-schoolers' attention during lessons due to class size". Again, Table 1 reported respondents' views that for "Always write on the black board to explain concepts because pre-schoolers cannot hear my voice very well during classroom session due to class size" and "It was difficult to speak or communicate clearly during classroom session due to class size" these concepts recorded (M=3.70, SD=0.71) and (M=3.68, SD=0.67) respectively.

On the issue of non-instructional tasks, the analysis from Table 1 shows a mean and deviation standard value of (M=3.45, SD=0.76), which represents a high response rate on the manner in which non-instructional task behaviour influences teaching and learning. From this section the response to the comment "non-instructional task activities by pre-schoolers affect preschool teachers by wasting instructional time in the classroom" scored the second highest response rate with the mean and standard deviation (M=3.60, SD=0.52). However, on how "non-instructional task activities by pre-schoolers affect preschool teachers' abilities to achieve scaffolding, zone of proximal development and social interaction in classroom", (M=3.56, SD=0.74) was recorded – and this represents the third highest response rate. Again, Table 1 shows that "off-task behaviour like roaming during lesson affects teaching and learning in classroom" and "observed break for sleeping and eating disrupts preschoolers'

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attention to concentrate in classroom" both scored high response rates, with mean and standard deviation scores of (M=3.34, SD=0.89) and (M=3.30, SD=0.90) respectively.

The last comment in Table 1 was on classroom discipline which recorded an overall mean of means score of (M=2.93, SD=1.33), representing a moderate response rate. The response to "… not able to attend to two events simultaneously in class without being diverted unduly by disruptions" scored a high response rate with mean and standard deviation value of (M=3.02, SD=1.00). The remaining three scales under classroom discipline recorded a moderate response rate with mean and standard deviation values of (M=2.98, SD=1.05), (M=2.93, SD=1.50) and (M=2.79, SD=1.77) respectively. The subsequent table represents classroom management strategies.

Table 2: Classroom management strategies

Statement	Mean	St.D
Behaviour modification		
Positive behaviour by pre-schoolers is reinforced immediately as it happens.	3.94	0.23
I gradually shape pre-schoolers till the terminal behaviour is performed before reinforcement.	3.85	0.36
I try to get pre-schoolers to behave well by changing negative classroom conditions that make them misbehave such as furniture arrangement and sitting places.	3.79	0.41
I often use a variety of rewards and punishments to keep the pre-schoolers from misbehaving in class and I also model appropriate behaviour.	3.62	0.48
Mean of means	***3.80***	***0.37***
Assertive approach		
Images are posted on the wall to serve as preventive measures for a pre-schooler to behave well in class.	3.73	0.64
I strongly implement rules and regulations to prevent pre-schoolers from misbehaving in class.	3.67	0.47
Mostly, I make pre-schoolers know that I am in charge by specifying behaviours and their consequences.	3.56	0.49
I indicate the consequence of the behaviour to the pre-schoolers by specifying the actions associated with it.	3.52	0.96
Mean of means	***3.62***	***0.64***

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Acceptance approach		
I maintain that every individual needs to feel accepted and have a sense of belongingness.	3.73	0.63
I respect the dignity and worth of every individual.	3.33	1.03
I try to prevent pre-schoolers from misbehaving by giving them attention and accepting their individual differences.	3.31	0.75
I relate well to every individual in the class by attending to their needs on time.	3.04	1.37
Mean of means	***3.35***	***0.94***
Business-academic approach		
Keeping records of the pre-schoolers' accomplishments and giving prompt feedback after assignment.	3.43	1.06
I give clear instructions for every classroom activity to prevent a pre-schooler from disturbing.	3.19	0.72
I often keep the pre-schoolers busy by giving them exercises to prevent them from misbehaving.	3.11	1.08
I have a clear standard of procedure and I monitor pre-schoolers' work to avoid disturbance in the classroom.	2.68	1.46
Mean of means	***3.10***	***1.08***

Source: Field survey (2021) N=216

The rationale behind Table 2 was to assess how frequently respondents practise these classroom management strategies in ECECs. From Table 2, behaviour modification recorded a mean and means score of (M=3.80, SD=0.37), which represents a high response rate. The result recorded (M=3.94, SD=0.23) for the behaviour modification section on classroom management strategies shows that "positive behaviour by pre-schoolers is reinforced immediately as it happens" was the highest response rate. The second statement that respondents identify as the most frequent strategy, namely that they "gradually shape pre-schoolers till the terminal behaviour was performed before reinforcement", recorded (M=3.85, SD=0.36). Again, the result shows that respondents "try to get pre-schoolers to behave well by changing negative classroom conditions that make them misbehave such as furniture arrangement and sitting places" was also frequently practised, with a mean and standard deviation score of (M=3.79, SD=0.41). The last strategy reported under behaviour modification was that respondents "often use a variety of rewards and punishments to keep the pre-schoolers from misbehaving in class and also model appropriate behaviour" recorded (M=3.62, SD=0.48).

The next classroom management strategy frequently used by preschool teachers was the assertive approach. This theme recorded a mean and means score of (M=3.62, SD=0.64), which shows that this strategy was highly practiced among preschool teachers in ECECs. Respondents highlighted that "images are posted on the wall to serve as preventive measures for a pre-schooler to behave well in class" was the most frequently used strategy under the assertive approach. This theme recorded a mean and standard deviation value of (M=3.73, SD=0.64). Again, the mean and standard deviation score of (M=3.67, SD=0.47) gives an indication that implementing rules and regulations help to prevent pre-schoolers from misbehaving in classroom. The response by the respondents that they "make pre-schoolers know they are in charge by specifying behaviours and their consequences" recorded (M=3.56, SD=0.49) while "the consequence of the behaviour is indicated to the pre-schoolers by specifying the actions associated with it" also recorded (M=3.52, SD=0.96).

The third classroom management strategy frequently used by the preschool teacher was the acceptance approach. The mean of means value of (M=3.35, SD=0.94) corresponds with a high response rate. From Table 2, respondents suggested that they "maintain that every individual needs to feel accepted and have a sense of belongingness" (M=3.73, SD=0.63). However, the result also shows that respondents "respect the dignity and worth of every individual" scored (M=3.33, SD=1.03). Again, the mean value of (M=3.31) and the standard deviation score of (SD=0.75) reflect respondents' assertion on "trying to prevent pre-schoolers from misbehaving by giving them attention and accepting their individual differences". On the last aspect of the acceptance approach, namely "how well preschool teachers relate to every individual in the class by attending to their needs on time", the response recorded (M=3.04, SD=1.37).

The mean and means value of (M=3.10, SD=1.08) indicates that the business-academic approach was the least implemented classroom management strategy. Table 2 shows that "keeping records of the pre-schoolers' accomplishments and giving prompt feedback after assignment", which was recorded as (M=3.43, SD=1.06), was the strategy most frequently used by preschool teachers under the business-academic approach. Table 2 further revealed that "respondents gave clear instructions for every classroom activity to prevent pre-schoolers from disturbing"; this recorded (M=3.19, SD=0.72). This suggests that clear instructions prevented misbehaviour of pre-schoolers in the classroom. Issues of "keeping pre-schoolers busy by giving them exercises prevented them from misbehaving" recorded (M=3.11, SD=1.08), while "having a clear standard of procedure and monitoring pre-schoolers' work help to prevent disturbance in the classroom" scored (M=2.68, SD=1.46).

Hypothesis 1: There is a significant difference between TLR and classroom management strategies
To perform the ANOVA, the researcher tested for normality and homogeneity of variances of the variables. Table 3 shows the normality test of the variables in the study.

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Table 3: Descriptive statistics of the study variables (TLR & CMS)

TLR	N	M	St.D	St.D Error	Rank
1:30	68	59.35	3.51	.43	1st
1:45	88	59.18	3.09	.33	2nd
1-45 above	24	52.00	3.56	.73	3rd
1-15	36	49.39	2.91	.49	4th

Source: Field survey (2021)

Table 3 shows descriptive statistics of the variables in the study. The analysis of variables from Table 3 shows that there were differences between the mean score of Teacher-to-Learner Ratio and Classroom Management Strategies. For instance, preschool teachers supervising 1:30 pre-schoolers in a classroom recorded the highest mean (M= 59.35, SD= 3.51, N=68), while between 1:45 also recorded (M= 59.18, SD= 3.09, N=88). Again, the descriptive statistics found in Table 3 further indicated that preschool teachers supervising above 45 pre-schoolers ranked third and 1–15 Teacher -to-Learner Ratio ranked fourth. The analyses were shown as (M= 52.00, SD= 3.56, N=24) and (M= 49.39, SD= 2.91, N=36) respectively. Table 4 presents results on the summary of one-way analysis of variance.

Table 4: Summary of one-way analysis of variance (ANOVA)

	Sum of Squares	Df	Mean Squares	*F*	Sig	Rks
Between groups	3472.657	4	1157.552	109.302	.000	Diff existed
Within groups	2245.176	212	10.590			
Total	5717.833	216				

Source: Field survey, (2021)

The overall F ratio of the one-way ANOVA was significant. This means that the F-ratio (109.302) was significant (p =.000) at the .05 alpha level. This shows that there was a significant difference between the mean scores for TLR and classroom management strategies. From this reason, the researcher accepts the alternate hypothesis that states: “There is a significant difference between TLR and CMS”. There was a difference between TLR and classroom management strategies; therefore, the researcher conducted the Post Hoc test to check where the statistical difference occurred.

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Table 5: Post-hoc tests between teacher-to-learner ratio and classroom management strategies

Dependent variable: Classroom management strategies				
(I) TLR	(J) TLR	Mean Diff(I-J)	Std Error	Sig. Value
1:15	1:30	-9.964*	.671	.000(s)*
	1:45	-9.793*	.644	.000(s)*
	1:45 above	-2.61*	.858	.014(s)*
1-30	1:15	9.964*	.671	.000(s)*
	1:45	.171	.525	.988(ns)
	1:45 above	7.353*	.773	.000(s)*
1:45	1:15	9.793*	.644	.000(s)*
	1:30	-.171	.525	.988(ns)
	1: 45 above	7.182*	.749	.000(s)*
1: 45 above	1:15	2.61*	.858	.014(s)*
	1:30	-7.353*	.773	.000(s)*
	1:45	-7.182*	.749	.000(s)*

Source: Field survey (2021)

Table 5 shows the results of the post-hoc test. The analysis of the post-hoc test revealed that there were differences between TLR and classroom management strategies. Table 5 indicates a significant difference between TLR (1:15-1:30) and (1:15 - 1:45), with a mean difference and standard error of (MD=-9.964*, SR=.671) and (MD=-9.793*, SR=.644), both of which recorded the sig value of 0.000* (2-tailed), which shows the statistically significant difference. Again, Table 5 recorded a significant difference between (1:15-1:45 above), with a mean difference and standard error of (MD=-2.61*, SR=.858) with a sig value of 0.014. However, there was also a significant difference between the TLR of (1:30-1:45 above) and (1:45-1:45 above), which recorded (MD=7.353*, SR=.773) and (MD=7.182*, SR=.749) at p=.000 (2-tailed); it shows the statistically significant difference. From this assertion, the researchers accept the alternative hypothesis stated as: "There is a significant difference between TLR and classroom management strategies" with a medium Eta effect size of 0.61 using Cohen's (1988) Eta squared formula.

Hypothesis 2: There is a significant difference between class size and classroom management strategies

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After studying the results of the normality test of variables and homogeneity test of variances, it was found that the assumption had not been violated. Table 8 shows the descriptive statistics of the study variables.

Table 6: Descriptive statistics of the study variables (CS & CMS)

CS	N	M	St.D	St.D Error	Rank
41-50	82	59.39	2.96	.32	1st
Above-51	24	59.17	2.94	.40	2nd
31-40	68	57.50	4.46	.54	3rd
20-30	42	49.29	3.06	.47	4th

Source: Field survey (2021)

Table 6 shows the descriptive statistics of the variables in the study. An analysis of the variables from Table 6 indicated differences between the mean score of class size and classroom management strategies. The class size between 41–50 recorded the highest mean (M= 59.39, SD= 2.96, N=82), while class size above 51 recorded (M= 59.17, SD= 2.94, N=24), which was the second highest. Again, Table 6 further indicated that the class size between 31:40 also recorded (M= 57.50, SD= 4.46, N=68), which was third while class size between 20-30 recorded (M= 49.29, SD= 3.06, N=42) which was fourth.

Table 7: Summary of one-way analysis of variance (ANOVA)

	Sum of Squares	Df	Mean Squares	*F*	Sig	Rks
Between groups	3089.416	4	1029.805	83.061	.000	Diff existed
Within groups	2628.417	212	12.398			
Total	5717.833	216				

Source: Field survey, (2021)

The overall F ratio of the one-way ANOVA was significant. This means that the F-ratio (83.061) was significant (p =.000) at the .05 alpha level. Hence, there was a significant difference between the mean scores for class size and classroom management strategies. From this reason, the researchers accept the alternate hypothesis that states: “There is a significant difference between CS and CMS”. A difference existed between CS and CMS; therefore, the researchers conducted the post-hoc test to check where the statistical difference occurred.

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Table 8: Post-hoc tests between class size and classroom management strategies

Dependent variable: Classroom Management Strategies				
(I) CS	(J) CS	Mean Diff(I-J)	Std Error	Sig. Value
20-30	31-40	-8.214*	.691	.000(s)*
	41-50	-10.104*	.668	.000(s)*
	Above 51	-9.880*	.900	.000(s)*
31-40	20-30	8.214*	.691	.000(s)*
	41-50	-1.890	.577	.007(s)*
	Above 51	-1.666*	.836	.194(ns)*
41-50	20-30	10.104* .668		.000(s)*
	31-40	1.890	.577	.007(s)*
	Above 51	.223*	.817	.993(ns)*
Above-51	20-30	9.880*	.900	.000(s)*
	31-40	1.666*	.836	.194(ns)
	41-50	-.222*	.817	.993(ns)

Source: Field survey (2021)

Table 8 shows the results of the post-hoc test. The analysis of the post-hoc test shows that there were differences between CS and CMS. Table 8 indicates a significant difference between CS (20-30 and 31-40), (20-30 and 41-50) and (20-30 and Above 51), with a mean difference and standard error of (MD=-8.214*, SR=.691); (MD=-10.104*, SR=.668) and (MD=-9.880*, SR=.900) recorded the sig value of 0.000* (2-tailed) which shows the statistically significant difference. Again, Table 8 recorded a significant difference between (31-40 and 41-50) with a mean difference and standard error of (MD=-1.890, SR=.577), with a sig value of 0.007 (2-tailed); it shows the statistically significant difference. From this assertion, the researchers accept the alternative hypothesis stated as: "There is a significant difference between CS and CMS" with a medium Eta effect size of 0.54 using Cohen's (1988) Eta squared formula.

DISCUSSION

This section comprises a discussion on how large class size and TLR influence classroom management. As found in the study, maintaining effective classroom interaction is very difficult in the presence of large class size and high TLR. The study further revealed that, unconsciously, teachers were interacting less with pre-schoolers who were paying attention and contributing in the classroom than with those

who were disturbing. In support, Deutsch (2003) posits that an increase in class size affects preschool teachers' engagement or interaction with the pre-schoolers in the classroom. Studies by Akoto-Baako (2018) and Walker (2019) show that class size affects teacher engagement or classroom interaction. The finding under classroom interaction and communication suggests that preschool teachers were always writing on the blackboard when explaining concepts because pre-schoolers cannot hear their voice very well during an instructional session. The researchers believe that even though it may be difficult to communicate to all pre-schoolers, teachers should stand in front of the classroom entrance in the morning to welcome pre-schoolers before the start of the lesson. It is believed that in smaller classes the preschool teacher would be able to interact effectively with the pre-schoolers and decrease the amount of time the teacher devotes to managing the classroom.

The study revealed that non-instructional activities by pre-schoolers affect preschool teachers by wasting instructional time in the classroom. This assertion confirms that time spent managing the classroom and unconventional asking of permission to visit the toilet or urinal took up most of time allocated for teaching. However, the increase in non-instructional tasks in the classroom helped pre-schoolers to relax for instructional activities. Cakmak (2009) confirms that non-instructional activities were part of the instructional tasks because break time, sleeping time and observing worship in school form part of the curriculum activities.

The findings show that preschool teachers hardly start lessons on time and continue with the previous lesson due to interruptions (pre-schoolers' disruptive behaviour such as noise) in the classroom. Again, preschool teachers reported that they consistently enforce the classroom rules and procedures to ensure discipline; however, due to class size it was difficult to enforce it. The researchers believe that pre-schoolers running and roaming in the classroom could disrupt classroom management, teaching and learning. For instance, using instructional time for handling pre-schoolers' misbehaviour would affect their learning process (Blatchford et al., 2007). Again, Vandenberg (2012) revealed that in ECECs classrooms with ninety (90) or more pre-schoolers, preschool teachers were having more difficulties in managing and handling pre-schoolers than in classes with eighteen (18) or fewer pre-schoolers.

The analysis shows that the behaviour modification strategy was applied extensively in ECECs in Ghana. Teachers were reinforcing positive behaviour by pre-schoolers immediately – as it happened. Edjah (2018) concludes that positive reinforcement includes any action that increases the probability of a behaviour occurring. The situation of modifying pre-schoolers' behaviour on time and consistently shaping could help the pre-schoolers to perform the acceptable behaviour. In the same vein, the observational section reported that private ECECs were practising shaping as a behaviour modification strategy.

The researchers suggest that changing pre-schoolers' sitting arrangement was another form of strategy to modify pre-schoolers' behaviour in the classroom. The researchers believe that effective use of negative reinforcement in the classroom would create a situation where a pre-schooler cannot take part

in any activity, he/she prefers due to his/her performance on a test but may have access to that activity when he or she performs better on a test in the future. Bellon, Bellon and Blank (2012) posited that negative reinforcement was taking away something from a pre-schooler, to increase the probability of more desirable behaviours occurring in future.

With regard to the acceptance approach, the data shows that "preschool teachers maintain that every individual need to feel accepted and have a sense of belongingness in the class". The researchers suggest that when you respect pre-schoolers' existence in the classroom and politely talk to them it makes them feel accepted in the classroom and their behaviour will be less destructive. Edjah (2018) added that the acceptance approach allows pre-schoolers to take part in decision making in the classroom. The counselling principle on respecting the dignity and worth of every individual can be linked to this. Hypothesis two (2) shows the difference between CS and classroom management strategies. To approve this hypothesis, the ANOVA F-ratio (83.061) was significant (p =.000) at the .05 alpha level. In support, Finn, Pannozzo and Achilles (2003) opined that smaller class size ensures effective class management while larger class size results in disruption of the instructional period.

CONCLUSION

- The study concluded that the prevailing challenge encountered in the presence of TLR in ECECs resulted in poor interaction and communication between preschool teachers and pre-schoolers. Again, the study revealed that a high TLR affects instructional duties due to the influence of non-instructional activities by pre-schoolers in the classroom.
- The insight gained from the study shows that classroom discipline and engagement will be reduced when there is a high TLR. For instance, one preschool teacher supervising sixty (60) pre-schoolers will not be able to attend to their needs and also engage with them to know what their problems are so as to provide possible assistance.
- The study revealed that teachers of large classes were less able to perform effective classroom management than those teaching smaller groups.
- It was discovered that due to the large class size, preschool teachers were repeating activities and were unable to attend to two events simultaneously in the classroom without being diverted unduly by disruptions.
- The study established that behaviour modification and the assertive approach were frequently practised by preschool teachers to manage pre-schoolers in large classes; the class size and TLR have an impact on classroom management.
- The results of the study indicated that the preschool teachers were having difficulties holding pre-schoolers' attention during lessons and were wasting time on non-instructional activities due to the large class size they were operating in ECECs.

RECOMMENDATION

In line with the results of the study, the researchers recommend that:

- the Ministry of Education should build more ECECs to reduce the total congestion of large class size found in ECECs;
- the Ministry of Education should also employ more preschool teachers to meet the national policy of eighteen (18) pre-schoolers in the classroom as integrated into the guidelines of the Ministry of Education, Youth and Sport (2008) for establishing ECECs;
- an appropriate classroom management plan or guideline under which the preschool teacher must operate should be well established in the ECECs. The classroom management guideline should be based on the national guidelines but must be tailored to meet the specific needs of the pre-schoolers in each ECEC. Teacher trainee should be taught about classroom management during practicums to guide them in executing their duties in the classroom.

Classroom and social implications

- Preschool teachers should understand and accept pre-schoolers' behaviour so that they can move to a more democratic form of classroom management.
- Effective communication of learning goals should be established between the pre-schoolers and preschool teachers to ensure discipline in the classroom.
- Preschool teachers should assist pre-schoolers with their instructional tasks; the teacher should make sure that all pre-schoolers have started the work. Again, preschool teachers should scaffold in classroom to ensure that the assignments are completed.
- Instructional activities in class should be appropriately organised to prevent pre-schoolers from roaming and disrupting other pre-schoolers.
- Instructions on expected outcomes should be communicated to the pre-schoolers at the appropriate time to prevent pre-schoolers from misbehaving.

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