

The Moderating Effect of Preschool Class Size on Children's Socio-Emotional Competences in Eldoret Town, Kenya

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Abstract

Overall life success requires that children have socio-emotional competence (SEC) amongst other skills. The effect of class size on children's overall achievement continues to be a widely debated subject. The objective of this mixed methods study was to examine the influence of preschool class size on strategies used to scaffold SEC in children. A total of 301 preschool teachers purposively selected from 98 public and private preschools participated in the study; 6 preschool teachers were interviewed and 2 preschool classrooms observed. Data was collected using questionnaires, observation checklist and interview schedules. Data was analysed quantitatively and qualitatively. Results revealed that preschool class size did not have a significant influence on the strategies used to scaffold SEC in children. However, interviews and observations data showed that regardless of the class size, preschool teachers attempted to scaffold relationship management skills in children more. Strategies that preschool teachers in 'high' class sizes commonly used for scaffolding relationship management in children were: 'monitoring', 'warning' and 'reprimands'. Preschool teachers with 'optimum and below' class sizes, mainly used 'encouraging helping behaviour', 'warning' and 'monitoring' strategies. The study concluded that despite the importance of SEC, preschool teachers did not intentionally scaffold all SEC components in children. The study therefore recommends that professional development and continuing education that focuses on SEC skills in children be encouraged among all preschool teachers.

Keywords: *Preschool, scaffold, socio-emotional competence, preschool class size*

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Introduction

Despite the importance of socio-emotional competence (SEC), evidence has it that many children lack these skills that are necessary for overall life success (Child Maltreatment Report, 2010; Humphrey et al., 2010; Republic of Kenya, 2012). SEC equips preschool children with the capacity to: manage their fears (Berke, 2013); empathize (Lewis, 2011); develop self-control (Florezi, 2011); interpret emotional states of others (Tell, 2009); effectively respond to their environment (Bronson, 2000; Zimmerman, 1994) as well as enhance their future academic performance (Dahlberg, Moss & Pence, 2007) amongst other abilities. Helping children develop SEC skills early in life and specifically at preschool is important because early years mark a critical period in human life. Besides, studies have shown that any form of learning and acquisition of knowledge, skills, and attitudes during early years take place easily and with less effort (Brown & Ward, 2013; Chamberlain, 2009; Knudsen, 2004).

Preschools have crucial and irreplaceable role in the development of children's SEC. In preschool, children learn to accomplish tasks, to socialize with people and abide by rules that define and limit behaviour, feelings and attitudes (Santrock, Payne & Isaacs, 2004; Shanker, 2014; Weissberg & Cascarino, 2013). High rates of educational failure and discipline problems can be attributed to lack of psychological development during early years when children begin school (Taylor, 2004). This is because early years; as has been observed are critical periods of human development (Brown & Ward, 2013; Chamberlain, 2009; Knudsen, 2004). As Steinberg (1998) noted, some areas of the brain require stimulation at the right time in order to take on their normal functions. Preschools therefore, provide the right developmental contexts for scaffolding children's SEC. However according to Taylor (2004), there is no single recipe for developing important SEC competencies in children or a standard way of incorporating SEC competencies in school programs. This comes against the backdrop that schools differ in many aspects including classroom sizes.

Preschool class size refers to the number of children who are usually physically present in a classroom interacting between themselves and with the teacher (Ehrenberg, Brewer, Gamoran, & Willms, 2001). An optimum preschool class size is therefore, one that allows children to interact with themselves as well as with the teacher in an environment that encourages learning. As observed by Ehrenberg et al., the number of children in a class varies from 15-20 with teaching facilitated by one or more adults. According to UNESCO (2013), the recommended preschool class size is 15. In Kenya, the preferred number of children in preschool is an average of 25 (Republic of Kenya, 2008).

Although the effect of class size on overall student achievement continues to be a subject of discussion, Ehrenberg et al. (2001) posit that the number of children in a classroom affects learning in diverse ways: it could influence the way children interact with each other, it could also affect how much time the teacher is able to focus on individual children and their specific needs. An effective class size allows children to be adequately and effectively prepared in all aspects of learning including SEC. This is consistent with the observations of other scholars: While Piketty (2004) found that a lower class size had a positive effect on third grade children; Lazear (2001) noted that low class sizes (below 23 children) results in lower frequencies of disruptions among the children, and therefore higher levels of SEC in children. Both scholars are in agreement that low class size is beneficial to children's developmental needs. According to Whitehurst and

Chingos (2011) benefits of effects of low class size have also been observed in Israel although in Florida and Connecticut studies have shown that there is no significant effect of low class size on overall children's achievement.

The debate on class size and children's achievement is attributed to the fact that the pool of credible studies on this area is small and individual studies differ in terms of settings, methods, grades, and magnitude (Brown & Ward, 2013; Lazear, 2001; Piketty, 2004; Whitehurst & Chingos, 2011). Such differences make it difficult to arrive at solid conclusions. This study is therefore important as it makes a contribution to the on-going debate on the overall effect of class size on pupils' achievement.

Methods

Participants: The approval to conduct this study in Eldoret town, Kenya was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). With the approval from NACOSTI, the county director of education gave a second approval letter for the study to be conducted in the region. The respondents who were preschool teachers were asked for consent before participating in the study. Likewise, parents/guardians of children whose classrooms were involved in the study were also asked for consent.

The participants involved in this study were drawn from 117 schools (89 private and 38 public) in Eldoret town, Uasin Gishu County. Six preschool teachers were interviewed and two preschool classrooms observed with the selection criteria being; high SEC questionnaires scores, teaching experience of more than ten years; accepting to be interviewed and observed.

Research Instruments: In this study four research instruments were used in data collection: (1) self-administered biographical form (2) SEC questionnaire (3) interview schedule (4) observation schedule.

Reliability: Test re-test (repeatability test) was used to determine the reliability coefficient of the SEC questionnaire. This method was appropriate because the participants were available to take the test on more than one administration. The reliability coefficient of $r = .90$, a figure above 0.7, was obtained and was considered high and appropriate for this study (Fraenkel & Wallen, 2000).

For qualitative reliability the participants were asked for clarifications during the interviews, after every classroom observation and followed up with a telephone conversation. This ensured that the accounts provided by the researcher and the participants were accurate, trustworthy and was credible (Creswell & Clark, 2011).

Validity: Qualitative validity was ensured by triangulation of data sources and use of rich thick description and clarification of bias that the researcher might have brought to the study (Creswell, 2014). By reflexivity, the researcher was able to address any bias emanating from background, gender, culture, history and socioeconomic orientations that may have influenced the data collection process and findings. With the help of audit trail it was possible to review the data base and qualitative results (Creswell, 2009).

Data scoring: Scoring for questionnaire items were done using a five point Likert scale and scores allocated depending on whether they were favourable or unfavourable responses (Kothari, 2004). In the questionnaire, Strongly Agreed (SA), Agreed (A), Neutral (N) Disagree (D) and Strongly Disagree (SD) were scored 5, 4, 3, 2, and 1, respectively. The scores were calculated as per the components of SEC and the final score also established for each teacher within the four components: self-management, self-awareness, social awareness and relationship management.

Data analysis

Both descriptive and inferential statistics were used to analyse the quantitative data generated using the SEC questionnaire. The analyses employed computer Statistical Package for Social Science (SPSS) version 20. The statistical level of significance was set at .05. After data collection, responses from all questionnaire items were cross-checked to facilitate coding and processing and data analysed quantitatively using descriptive statistics.

A one-way ANOVA was used to determine the effect of preschool class size on the strategies teachers use to scaffold SEC components in children. The use of ANOVA was justified because data on preschool class size were categorized in three independent groups. It was important to determine whether there was any statistically significant difference between the means of the groups (Creswell, 2009; Kothari, 2004).

Qualitative data from observation and interview schedules were used to extract the frequently recurring themes and were categorized into four predetermined themes that summarized the strategies used by preschool teachers to scaffold SEC amongst children: self-management, self-awareness, social awareness and relationship management. These themes were identical to those in the quantitative data.

In the analysis, a frequency of strategies reported by the preschool teachers during the interviews and preschool classroom observations were tallied. The occurrences were then compared to the quantitative data for similarities, difference and explanations with regard to the strategies that preschool teachers used to scaffold SEC amongst children.

Ethical Considerations

This study honoured the principles of: autonomy, beneficence and confidentiality. However, the participants were duly informed that the study would likely be reviewed by other researchers in future.

Results

The hypothesis in this study was that there is no statistically significant relationship between preschool class sizes and the strategies preschool teachers used to scaffold SEC components: self-management, self-awareness, social awareness and relationship management in children. The responses of the participants to the SEC questionnaire items were scored and the mean scores calculated and reported in Table 1.

Table 1: Mean SEC Components Scores by Class Size

	Class sizes								
	Low ≤15			Optimum 16-35			High ≥36		
Socio-emotional components	N	\bar{x}	SD	N	\bar{x}	SD	N	\bar{x}	SD
Self-management	301	39.5	4.35	301	40.1	5.57	301	38.6	4.92
Self-awareness	301	34.1	5.27	301	33.26	5.17	301	34.08	5.17
Social awareness	301	41.7	4.21	301	41.8	4.52	301	41.24	4.53
Relationship management	301	43.57	3.25	301	43.1	4.74	301	43.6	38.5

From the mean scores, it is evident that preschool teachers in all the categories of class sizes; low, optimum and high, did better in scaffolding relationship management. The lowest scores were obtained from the preschool teachers' strategies of scaffolding self-awareness. This is further illustrated in Fig. 1.

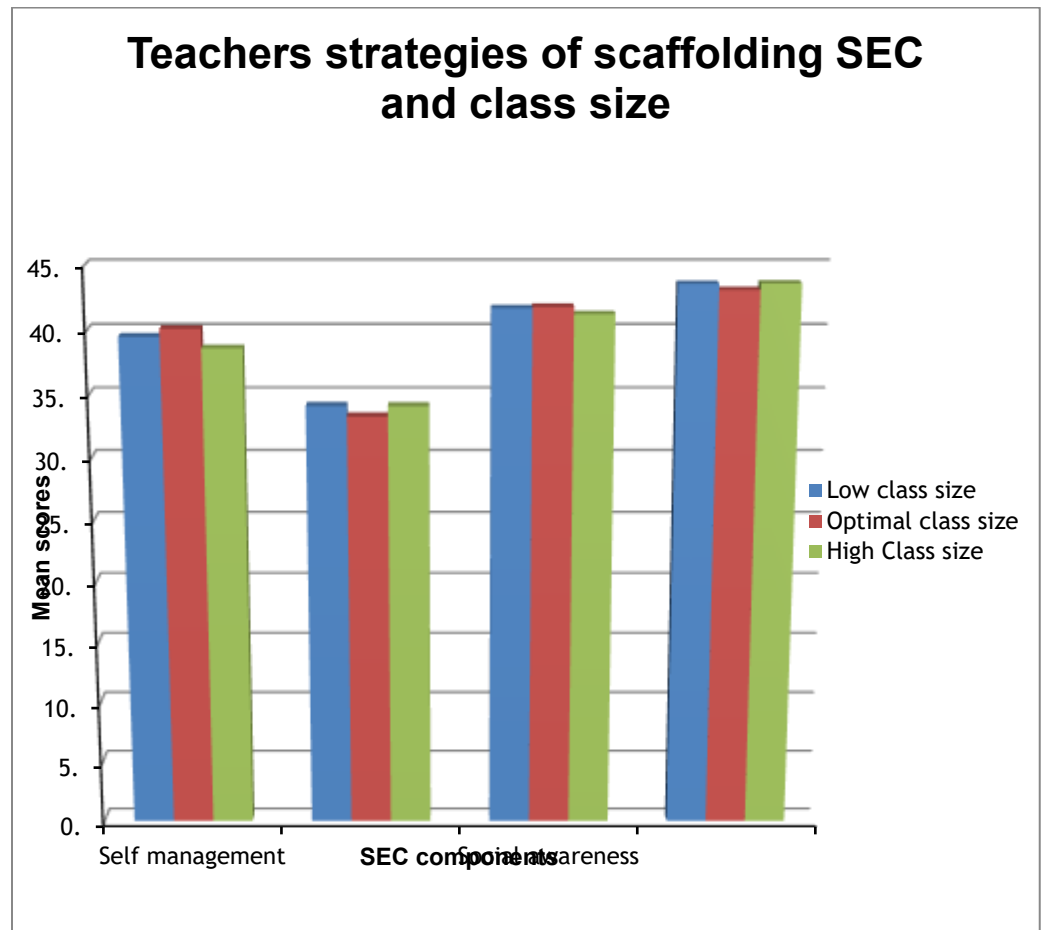


Fig. 1: Preschool teachers' strategies of scaffolding SEC and class size.

To test the effect of class sizes on the strategies that preschool teachers use to scaffold each of the four SEC Components, a one-way ANOVA was conducted. The results of the analyses showed that there was no significant effect of preschool class sizes on the strategies that preschool teacher used to scaffold the four SEC components in children: Self-management $F(2, 298) = 1.514, p = .222$; Self-awareness $F(2, 298) = .242, p = .785$; Social awareness $F(2, 298) = .242, p = .664$; Relationship management $F(2, 298), p = .664$. These findings indicate that the preschool class size does not have a significant influence on the strategies that teachers use to scaffold SEC components in children.

To explain the quantitative results, interviews and observations were carried out to find out the strategies preschool teachers used to scaffold SEC in children. The study findings revealed the highest and the least scaffolded SEC component; relationship management and self-awareness

component respectively. Six preschool teachers were interviewed and two preschool classrooms observed. The interview and observation results are discussed in the next section.

The preschool teachers interviewed were categorized into two: those teaching in ‘optimum and below’ classrooms (classroom with up to 35 children) and those teaching in ‘high’ (classrooms with more than 35 children). The classrooms with ‘optimum and below’ number of children ended up being in private preschools while those with ‘high’ class sizes were basically public preschools. The interview data revealed that in scaffolding relationship management, the preschool teachers interviewed regardless of the class sizes mentioned five different strategies that were commonly used although with different frequencies: ‘monitoring’, ‘warning’, ‘giving reprimands’, ‘encouraging helping behaviour’, ‘discouraging children from making mean comments about each other’, and ‘settling disputes’ among the children. The use of ‘warning’ as a second strategy in the hierarchy of relationship management strategies was used by all the teachers regardless of the class size as illustrated in Fig. 2

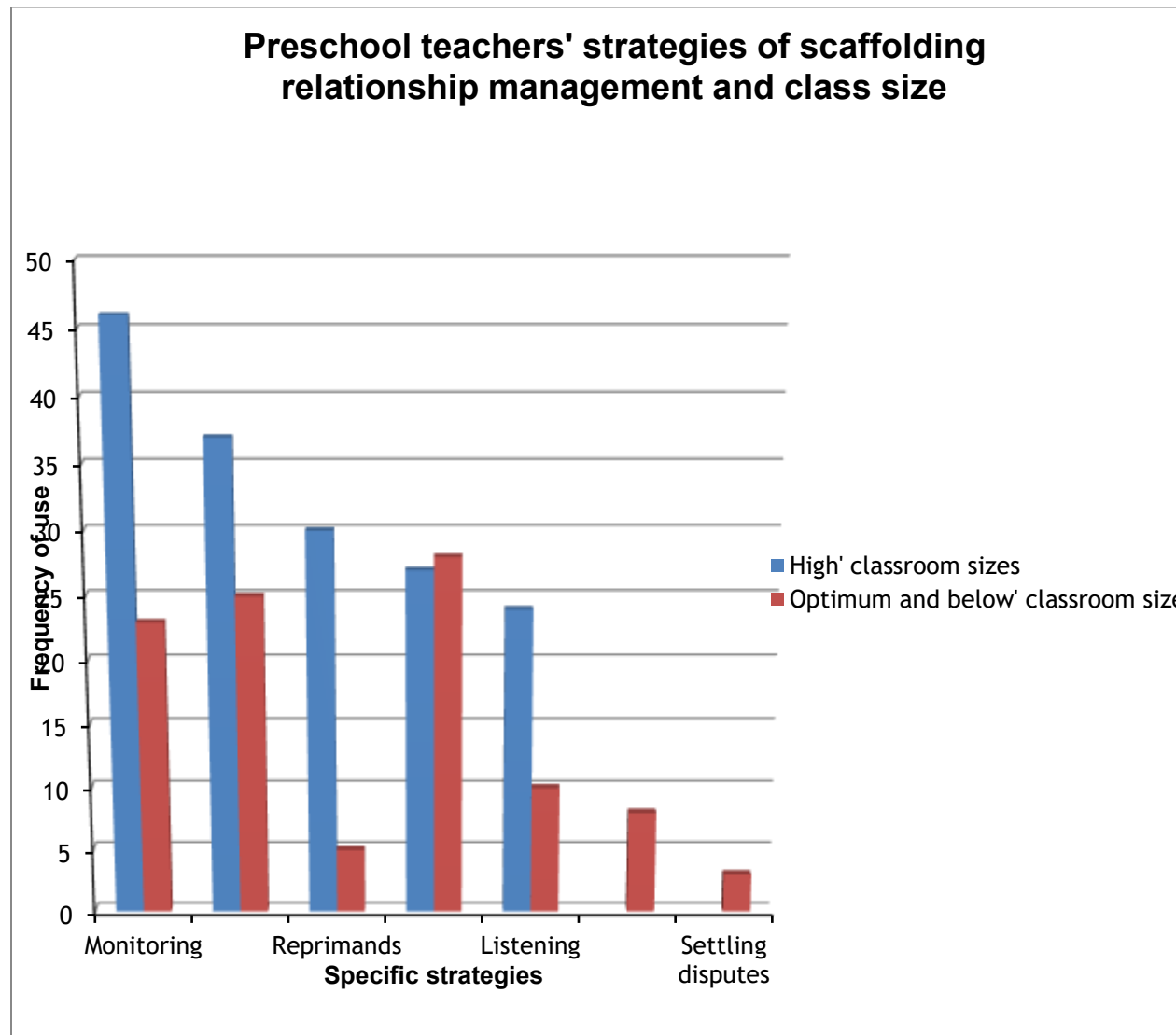


Fig. 2: Preschool teachers' strategies of scaffolding relationship management and class size.

Preschool teachers in 'optimum and below' classrooms specifically use strategies such as: 'discouraging children from making mean comments' and 'settling dispute' to scaffold relationship management in children. In both private and public preschools, teachers gave varied reasons for using specific strategies. For example, the preschool teachers in classrooms in 'high' class size explained that they used 'monitoring' so that children would not hurt each other. Preschool teachers in the 'optimum and below' classrooms on the other hand explained that 'reprimanding children' was a strategy they rarely used because children interpreted it as being harsh. This was not acceptable to many parents who the preschool teachers observed were very sensitive and would confront the school administration at the slightest opportunity.

Findings from this study also revealed that comparatively, the least scaffolded skill regardless of class size was the self-awareness component of SEC. Strategies used to scaffold self-awareness included: ‘allowing children to be’, ‘encouraging self-expression’, ‘encouraging self-appreciation’, ‘congratulating’, ‘modelling’ and ‘urging children to complete tasks’. This is illustrated in Fig. 3.

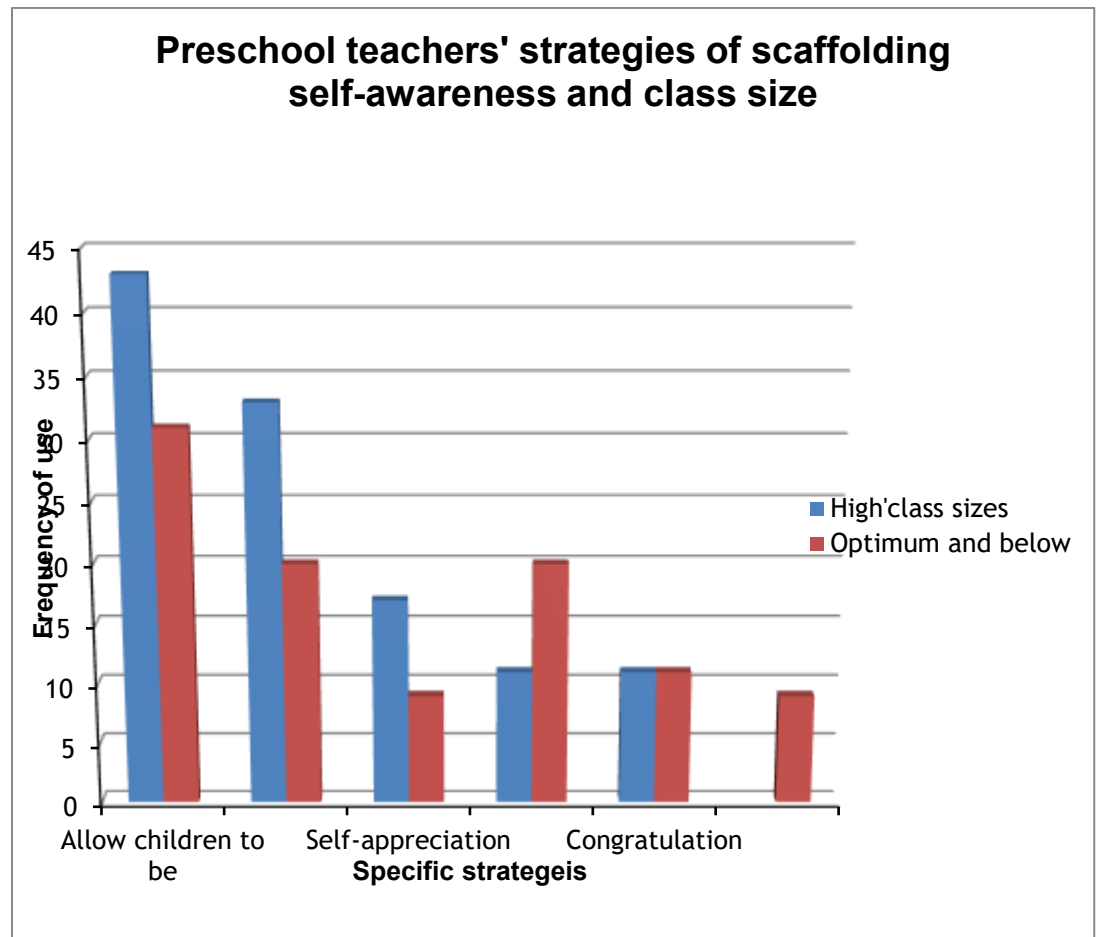


Fig. 3: Preschool teachers' strategies of scaffolding self-awareness and class size

During the interview, the study found that preschool teachers in ‘high’ classroom sizes did not urge children to complete their tasks as a strategy to scaffold self-awareness. However, congratulating children and encouraging children to congratulate each other was a strategy used by preschool teachers in both categories of classrooms with equal frequencies.

Observation data revealed that the same songs and phrases were used as congratulatory messages in both categories of preschool classrooms to an extent that children were accustomed to reciting them. For example a phrase such as:

'Well done, well done Rose that is better, better, another better, better, try again another time.'*

OR another version;

"Well done, well done Rose, that is better, better, another better, better, you shine like a star",*

These phrases could be heard immediately a child's answer or action was congratulated by the teacher. This was accompanied by claps as often encouraged by the teachers. As the children recited the phrase, the child being appreciated would stand up and dance. From observation, it was obvious that most children looked forward to being congratulated by their peers.

Discussion

In the study area, records from the county education office showed that there were only 43 public against 117 private registered preschools (Uasin Gishu County Office, 2015). The small number of public preschools therefore cannot meet the demand for preschool education and explains why there are more private preschools. The study found that most public preschools are attached to the primary schools and are managed by a committee selected by parents. These committees are responsible for paying the teachers, the care takers as well as ensuring that the children are given snacks, and/or either tea or porridge. For this reason the public preschools charge a small fee; and therefore the higher the number of children, the lower the operation costs. The private preschools on the other hand are either individually owned or affiliated to religious institutions. In most cases, the private preschools charge higher fees than the public ones. This could explain the reasons behind disparity in class sizes in preschools.

The current study found that the average class was 25.53 ± 10.21 . This shows that the highest number of children recorded in the classroom on average was 35 pupils although there were classrooms with over 40 children. The recommended teacher to pupil ratio is 1:15 (United Nations Educational & Scientific Organization [UNESCO], 2013). In this study, the number of children per teacher was twice that of the recommended number in most classrooms. Studies in Kenyan schools have shown that large classroom sizes compromised the quality of education in the teaching centres as most of these centres ended up overcrowded and lacked proper infrastructure (Duflo, Dupas, & Kremer, 2016; Mutindi, Chepngeno & Jeruto, 2016). Studies in other parts of the world have also confirmed this ((Heyneman, 2015; Neuman et al., 2015).

Early childhood development centres with high teacher to pupil ratio are more likely to engage more in large group activities. The implication of this is that children with difficulty regulating aspects such as attention may be less able to be engaged and participate in learning activities compared to their peers with better attention regulation skills especially in large groups. This could also imply that in schools with 'high' classroom sizes the development of children's SEC skills may be minimal. Children with deficits in SEC skills usually are neglected by their teachers (Ren, Knoche & Edwards, 2016; Wang, 2006).

Ngure (2014) observes that for a long time early childhood education (ECE) has been at the periphery of the education programming in Kenya. It was formerly considered as social rather than an education activity. There hasn't been a specific budget allocation for ECE, except for school inspection and minimal amounts for teacher training. Parents and the community, therefore, have had to provide learning facilities and materials, somehow take care of the teacher, and generally run the programme. All these factors have serious implications for the SEC development of the child at this foundational level.

Weare and Nind (2013) assert that the development of SEC skills is best done through effective classroom instruction, student engagement in positive activities in the classroom, and broad parent and community involvement in program planning, implementation, and evaluation. This may not be possible in schools with large class size. However, the study findings reveal that even in 'optimum and below' classrooms, preschool teachers did not intentionally scaffold all SEC components. The classroom size therefore does not seem to be the problem in this case.

Large class size may not be the only challenge that preschool teachers face. It is documented that most of the pre-school centers in Kenya do not give proper incentives and remuneration to teachers. According to Ngure (2014) pre-school centers in Kenya employ teachers on a low remuneration package with salary payment that was irregular and unpredictable. Such low salary according to Ngure is one of the factors that discouraged preschool teachers from staying in the profession long. This shows that provision of quality education including the scaffolding of SEC in pre-schools goes beyond class size, proper infrastructure and adequate materials. Teacher motivation is as equally important.

Conclusion

The objective of this study was to examine the influence of preschool classroom sizes on the strategies that preschool teachers use to scaffold SEC in children. The study revealed that in preschools within Eldoret town, preschool classrooms had either 'low', 'optimum' or 'high' classroom sizes. Although the majority of public preschools had high classroom sizes, the study did not find any statistically significant relationship between the classroom size and the strategies that preschool teachers used to scaffold SEC in children.

The study concludes that preschool teachers did not intentionally scaffold SEC in children. During the interview the study found that parents put undue pressure on preschool teachers that made them focus mainly on cognitive development of children. This is despite the fact that studies reveal that for children to have a successful adult life, they need to be developed in all aspects: social, emotional, cognitive, physical and even language. This study recommends that all stakeholders be educated on the importance of non-cognitive abilities in children and the preschool teachers be exposed to professional development with SEC as the main focus.

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