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What relationship between preschool class sizes and student behaviors do teachers report?

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Abstract

This paper reports a study on whether preschool teachers of differing class sizes report a relationship between class size and student behaviors. Classes were categorized into small, medium, and large class sizes. Teachers reported Teaching Strategies GOLD scores for socio-emotional skills and gave their opinions about class sizes. Results of this study suggest that there is a relationship between class size and students' social emotional skills, but not always in accordance with teacher opinions.

What Relationship Between Preschool Class Sizes and Student Behaviors Do Teachers
Report?

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ABSTRACT

This paper reports a study on whether preschool teachers of differing class sizes report a relationship between class size and student behaviors. Classes were categorized into small, medium, and large class sizes. Teachers reported Teaching Strategies GOLD scores for socio-emotional skills and gave their opinions about class sizes. Results of this study suggest that there is a relationship between class size and students' social emotional skills, but not always in accordance with teacher opinions.

TABLE OF CONTENTS

ABSTRACT	iii
INTRODUCTION.....	1
Rationale/Conceptual Framework	1
Research Questions.....	1
LITERATURE REVIEW	2
METHODOLOGY.....	5
Participants	5
Data Collection.....	5
Data Analysis	9
RESULTS	10
Classroom Demographics.....	10
Teaching Strategies GOLD	12
Teacher Opinions.....	17
DISCUSSION.....	23
Limitations	24
Recommendations.....	26
CONCLUSION	27
REFERENCES	28
APPENDIX A.....	30
APPENDIX B	35

Introduction

Many preschool programs face the debate between limiting class sizes for academic or behavioral purposes and the ability to afford the option of smaller class sizes. Smaller class sizes allow for more individualized student attention, which can potentially lead to a decrease in problem behaviors within the classroom. When there are fewer problem behaviors occurring in the classroom, the environment is more conducive for both social and academic learning opportunities. Research shows that children with poor socio-emotional skills during preschool years often exhibit poor academic skills later in life (Duncan & Magnuson, 2013) as they may have a difficult time handling stress, persevering through difficult tasks, and controlling their emotions in the classroom setting.

Although smaller class sizes may in some cases promote more positive behaviors, they also create larger expenses for the school district or preschool program. In order to allow for smaller class sizes, schools would either have to accept fewer students into their programs each year or they would need to hire additional staff for extra classrooms. When adding additional classrooms, schools may also run into the problem of having enough available space for those extra rooms. Both of these options result in higher expenses and therefore program administrators end up facing the difficult question of whether the benefits of smaller class sizes outweigh the cost.

One way to determine whether there is a relationship between student behaviors and class size in preschool is to reach out to current classroom teachers

to gather data. This study may provide an answer to whether there is a relationship between the two, based on teacher perceptions.

Literature Review

The majority of previous studies reviewed about the benefits of reduced class sizes focused primarily on children in kindergarten through 6th grade (Fidler, 2002; Illig, 1997). Another common finding among these studies was that data gathered in the studies focused primarily on academic changes, rather than behavioral (Goldstein & Blatchford, 1998; Illig, 1997). Of the studies that were based on classroom sizes, most data was collected on teacher job satisfaction (Price & Terry, 2008), classroom quality (Lillvist, Sandberg, Bjorck-Akesson, & Granlund, 2009; Pianta et al., 2005; Sandstrom, 2012), and teacher-child relationships (Bascia, 2010; Hamre et al., 2012; Pianta et al. 2005). Few studies were found that focused on behavioral differences between larger and smaller class sizes.

Even fewer studies focused on the behavioral implications on preschool-aged students. Among the studies focused on early childhood and preschool-aged children, Hall and Nuttall (1999) studied whether infant class sizes affected the quality of teaching and learning. In their study, Hall and Nuttall found that 99% of teachers surveyed believe that class size does affect the quality of teaching and learning. According to Hall and Nuttall, "The responses show that, on average, teachers judge the optimum class size to be lower than those they currently teach" (p. 7). This study was directed specifically toward teacher quality and student knowledge, rather than reporting results on student behaviors.

Sandstrom's (2012) study of preschool classrooms focused primarily on classroom quality. Classroom quality was observed using the Early Childhood Environment Rating Scale Revised (ECERS-R) (Harms et al., 1998), Classroom Assessment Scoring System (CLASS), and Observation of Activities in Pre-school. These observation results found that a higher student to teacher ratio was associated with lower-quality language modeling, personal care routines, and teacher feedback.

Pianta et al. (2005) developed a study to examine which features of pre-kindergarten classrooms predict classroom quality and child-teacher interactions. Observation tools used were CLASS, ECERS-R, and Emergent Academic Snapshot. According to the authors, "Quality was lower in classrooms where more than 60% of the children were from homes below the poverty line, when teachers lacked formal training (or a degree) in early childhood education, and held less child-centered beliefs" (p. 1). Results also suggest that where the program was located in the building, the length of day, and child:staff ratio had no relation to the classroom quality. While Pianta et al. focused their study on whether classroom features had an impact on classroom quality and child-teacher interactions, they did not mention the effects on student behaviors such as peer interactions or socio-emotional skills.

An additional study aimed at preschool-aged children was conducted by Lillvist et al. (2009). The purpose of this study was to determine whether teachers' definitions of social competence were related to the current research definition and to preschool environmental factors, such as number of children lacking social competence, what support was provided to the children, and the preschool

environment. Results showed that none of these factors were related to the definition of social competence, but instead that the teachers' definitions of social competence were multi-dimensional. This result suggests that when trying to promote students' social skills, interventions should also be multi-dimensional. Although Lillvist et al. (2009) addressed behaviors in preschool, their study did not address effects of class sizes.

Because of the limited amount of research found addressing preschool class sizes along with behaviors and teacher opinions, I felt it would be beneficial to other educators to do my own research study on whether there is a relationship between class sizes and student behaviors reported by teachers. I chose to focus on behavioral differences among class sizes because I feel that it is developmentally appropriate to assess behaviors in preschool as well as academic skills. Although many preschools do focus on pre-academic skills, the skills taught do not tend to be as universal in nature as the behavioral expectations are.

Among the literature found that addresses the relationship between class size and student behaviors, the most common tools used to collect data within these studies have been teacher surveys or questionnaires. Price and Terry's (2008) teacher survey results have shown that higher teacher job satisfaction has been associated with fewer children assigned to each classroom. As mentioned previously, other studies have focused their data collection on teacher-child interactions using classroom observation scales and scoring systems, such as Classroom Assessment Scoring System (CLASS) (Pianta et al., 2005; Sandstrom, 2012), Early Childhood Environmental Rating Scale Revised (ECERS-R) (Pianta et

al., 2005; Sandstrom, 2012), and teacher surveys gathering opinions on effects of smaller class sizes on their teaching effectiveness (Hall & Nuttall, 1999). One thing that was not as common among the teacher surveys or questionnaires was asking for information related to social emotional status of their students in comparison to the overall class size. While creating a teacher survey of my own to use within my research study, I decided to combine multiple factors, including those that are common within literature found on this subject and those for which there is a need to have more research done. Thus I have included teacher:child ratios in my opinion survey, even though teacher:child ratios are not the focus of my research.

Methodology

Participants

My research focused on three and four-year-old preschool classrooms, with student ages ranging from three years-old to five years-old. The survey specifically focused on the age of the students when entering preschool. All preschool classrooms were either from preschools affiliated with school districts or private preschool programs (see Appendix B). I focused on this age-range to add to the limited amount of research found about preschoolers, along with a focus on behavioral data rather than academics.

Data Collection

My research study was based on a self-developed teacher survey (see Appendix A), which was distributed through Qualtrics. Research has shown that mixed-method approaches can be beneficial in answering a question of study (Lillvist et al., 2009), therefore I decided to make a multi-dimensional survey that

allowed teachers to provide multiple opinions and statistics in order to help educators and administrators understand the relationship between class sizes and student behaviors in preschool, as reported by the participating teachers. The first part of the teacher survey I created focused on classroom demographics. It determined whether the teacher being surveyed taught three or four year old preschool and where his or her preschool program was held. This includes whether the program was a school-based preschool program. One of the most important parts of the survey was determining how many students were in their classrooms. For the sake of my study, "small class sizes" were considered to have 0-10 students, "medium class sizes" ranged from 11-15 students, and "large class sizes" had more than 15 students. Another factor that was taken into consideration during this research study was how much support was provided to children (Lillvist et al., 2009) on a daily basis, which in my study pertained to how many adults were consistently present within the classroom. One of the final demographic questions was whether the program consisted of students with Individualized Education Plans (IEP), and if so, how many. This information was taken into consideration when analyzing data.

In addition to the classroom demographics, I felt it was important to get some statistical information from each teacher regarding students' social emotional capabilities. Because few studies in my search of literature included socio-emotional skills, I designed my study to address this gap. Some studies showed similarities in using a classroom assessment scoring system (CLASS), which requires observations of classroom quality (Hamre et al., 2012; Pianta et al., 2005). Rather than focusing

on classroom quality, I chose to use a different scoring system according to where students fall within the developmental levels in relation to the social emotional areas. Since all preschools being surveyed currently use Teaching Strategies GOLD (Heroman, Burts, Berke, & Bickart, 2010) as one of their forms of assessment, I chose to take the social emotional objectives and integrate them into my survey. For the purpose of this survey, I have asked teachers to review their winter 2016 GOLD checkpoints and determine how many students fall within each developmental level for each given objective. Levels range from *not yet* to *level 8*. By examining their answers, I was able to determine how many of their students were within developmentally appropriate levels for their age group according to the GOLD standards. For data purposes, I took the youngest age represented and used that for my baseline to determine how many students were below their developmental expectations. Those that fell below their developmentally appropriate age level were considered to be showing inappropriate social emotional behaviors for their age group. I chose the following GOLD objectives and dimensions on which to focus my study:

Objective 1: Regulates Own Emotions and Behaviors

Dimension 1a: Manages Feelings

Dimension 1b: Follows Limits and Expectations

Dimension 1c: Takes Care of Own Needs Appropriately

Objective 2: Establishes and Sustains Positive Relationships

Dimension 2a: Forms Relationships with Adults

Dimension 2b: Responds to Emotional Cues

Dimension 2c: Interacts with Peers

Dimension 2d: Makes Friends

Objective 3: Participates Cooperatively and Constructively in Group Situations

Dimension 3a: Balances Needs and Rights of Self and Others

Dimension 3b: Solves Social Problems

(Heroman et al., 2010, p. 5-21)

The final part of my survey contained questions focused on each teacher's opinions on given subjects related to class sizes. Using a similar survey strategy to the Lillvist et al. (2009) and Hall and Nuttall (1999) studies, the first set of answers indicated how teachers felt about small, medium, and large class sizes, along with whether they felt the current 10:1 student ratio requirements were appropriate for preschool classrooms. The subsequent set of teacher opinion questions gave insight into how teachers felt that class sizes affected different aspects of teaching, including teacher effectiveness, job satisfaction, relationship between teacher and students, student engagement, number of negative behavior occurrences, use of enriching classroom activities, ability to meet all individual student needs, and classroom management.

Following the teacher opinions, each teacher gave information regarding his or her students' behaviors by indicating which behaviors took place in their classroom on a weekly basis, including meltdowns (crying, kicking, screaming, falling to the ground, etc.), physical and verbal aggression towards adults and peers, non-compliance/defiance, and elopement, or withdrawing from a group. Participants then stated whether the majority of the negative behaviors in the

classroom came from students on IEPs, non-IEP students, or a mix of both. Those without any behavior concerns in the classrooms indicated so.

Finally, teachers filled out a short answer section on their beliefs about small class sizes and large class sizes. They were encouraged to list the benefits of small and large class sizes, in their own opinions. Many responses had similarities between them, with many supports for both small and large class sizes. (See Appendix A.)

Data Analysis

The first step in data analysis was to sort through the Qualtrics results to find which surveys were completed in full and which were partial. Out of the 98 surveys sent by e-mail, 46 surveys were opened. I categorized the opened surveys into those that were simply opened but no portions were completed (17), surveys that were completed all except the GOLD data collection (2), those that contained the GOLD data partially or incorrectly completed (2), and surveys that were fully completed (25). I then gave each classroom an anonymous identifier (Class A-Class CC) (see Appendix B). I did not include the surveys that had no answers filled out, as they did not give any indication as to class size, social-emotional data, or teacher opinions. Classes A-Y were classes for which teachers filled out the entire survey correctly. Classes Z, AA, BB, and CC did not have complete GOLD data, but they included the classroom demographic and personal opinion sections.

After giving each class an anonymous identifier, I then categorized each class based on class size. I sorted each class into small (0-10 students), medium (11-15 students), and large (16-20 students) categories. When analyzing data for each

class size as a whole, I added together all the students for each size range to use in comparison among the three class sizes. Other classroom demographics were categorized for each class as well, including number of adults present on a daily basis, age of students taught, and the number of children on IEPs.

Then, using the survey results of the GOLD social-emotional assessment data, I determined the number of students in each class size category that were below the developmental expectations for their specific class size. As a whole, each class size category was calculated into a percentage of non-proficient students and directly compared for each GOLD social emotional standard.

Next, I analyzed the results of the teacher opinion rating scales. I used the tables created by the Qualtrics website to determine the number of teachers that responded to each question and where they rated their responses on the questions that included rating scales. This data gave me an idea of teacher perceptions about the relationship between class sizes and student behaviors, along with behaviors that they have witnessed in their classrooms.

Results

Classroom Demographics

Out of the 29 completed surveys, 25 of the preschools were associated with an elementary school. Eleven respondents indicated that they taught full-day preschool, while the additional 18 taught half-day classes, with a total of 43 classes in all. Because half-day classes were included in the survey, the number of classrooms were greater than the number of respondents. Ages of children taught ranged from 3 years old to 5 years old and several classrooms served multiple ages.

The ages of children in the classrooms taught by participants included approximately 58% single-aged (17% 3 year-olds, 41% 4 year-olds), and approximately 41% multi-age (24% 3 and 4 year-olds, 7% 4 and 5 year-olds, and 10% 3 through 5 years of age).

The reported student numbers per classroom, categorized into 3 size groups, included 8 small classes, 20 medium classes, and 15 large classes. These numbers are representative of all classes, including those 18 respondents with half-day classes. Table B1 represents each classroom's demographic data. Surveys completed by teachers who taught two half-day sections were given a number following their anonymous identifier to identify each class separately (see Appendix B).

Surveys indicated that 62% of classrooms had two adults in the room on a regular basis, 24% had three adults, 7% had four adults, and 7% had five or more adults within the classroom. Early childhood regulations require a 10:1 student-teacher ratio within four and five year-old early childhood classrooms and 9:1 ratio for classrooms with three and four year olds . In mixed-age classes, the ratio of the youngest child applies (Vincent et al., 2007). These results show that 100% of teachers surveyed report that they are in compliance with this ratio, but the majority of surveyed preschools are not exceeding this recommended ratio. The remaining 38% that had three or more adults in the classroom on a regular basis likely relate to the special education needs reported for many classrooms. Out of the completed surveys, the number of students on IEPs in a classroom ranged from zero to five or more. Among the 29 completed surveys, 21% reported no students

on an IEP, while 10% reported having one student on an IEP, 14% had two students on an IEP, 21% had three, 3% reported having four students on an IEP, and 31% reported having five or more students on an IEP. With more IEP students in the classroom, there is often a need for additional support staff, whether they are a shared associate or someone assigned specifically to be with a child with high needs.

Teaching Strategies GOLD

After categorizing all classes according to their size, comparisons of GOLD social-emotional data were made by determining how many students were below the expected developmental ranges for their age groups. Table 2 shows the percent of students for each class size that fell below each specific GOLD social-emotional objective 1a-3b.

Class Size	1a	1b	1c	2a	2b	2c	2d	3a	3b
Small	11.59	13.04	18.84	18.84	24.64	11.59	13.04	11.59	24.64
Medium	5.51	5.93	15.68	8.05	13.14	5.08	16.53	10.17	17.8
Large	8.17	8.65	12.98	21.63	9.62	4.81	8.65	6.73	14.42

Table 2 Percent of Students Below Expected Developmental Ranges (GOLD Social-emotional Objectives 1a-3b)

After analyzing the data in Table 2, I then graphed the results for each GOLD social-emotional objective to show a direct comparison between class sizes and the percentage of children considered non-proficient for their age. Assessment data for GOLD Objectives 1a-1c, Regulates Own Emotions and Behaviors, shown in Figure 1, all resulted in small class sizes having the highest percentage of students falling

below the expected developmental age level. Results for Objective 1a, Manages Feelings, were that 11.59% of children in small class sizes fell below their developmental expectations, compared to 5.51% of medium class sizes and 8.17% of large class sizes. Objective 1b, Follows Limits and Expectations, proved to be an even higher percentage of non-proficient students across all class sizes, including 13.04% of small class sizes, 5.93% of medium class sizes, and 8.65% of large class sizes. Objective 1c had the highest percentage of non-proficient students in comparison to all Regulates Own Emotions and Behaviors objectives. Small class sizes had 18.84% of students falling below their expected age level, 15.68% for medium class sizes, and 12.98% for large class sizes. The results of this data report that children in smaller class sizes have a harder time managing their feelings, following limits and expectations, and taking care of their own needs appropriately, in comparison to medium and large class sizes. One reason may be that the class sizes are kept smaller because there are already evident behavior issues, or possibly they have had fewer peer models for these developmental skills so it may be harder to develop these skills on their own.

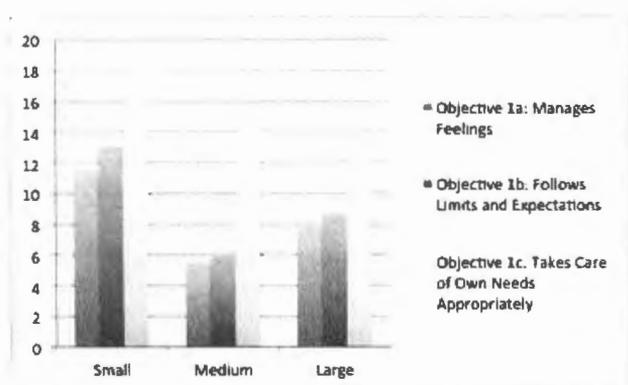


Figure 1 Non-proficient Students for GOLD Objective 1: Regulates Own Emotions and Behaviors

Assessment data for GOLD Objective 2, Establishes and Sustains Positive Relationships,(Figure 2) showed mixed results across class sizes. For Objective 2a, Forms Relationships with Adults, large class sizes appear to have the largest percentage (21.63%) of students unable to form relationships with adults at their developmentally appropriate level, while small class sizes had 18.84% non-proficient students, and medium class sizes had 8.05% non-proficient. A potential reason for the lower level of adult-child interaction among larger class sizes is that there are typically fewer adults and more students, therefore students don't get as much teacher interaction as they may receive in a class with fewer students.

Objective 2b, Responds to Emotional Cues, results were that children in smaller class sizes have a harder time understanding others' emotions and responding to their emotional cues. A total of 24.64% of the students in the small classes fell below their developmental expectations in this area, compared to 13.14% of medium classes and 9.62% of large class sizes students. With less experience around larger numbers of children, these students in the small class sizes may not have had the opportunities to experience emotions that they learn to identify and recognize amongst their peers. With more students in the class, there may be more opportunities to experience emotional circumstances in which students learn to react more appropriately.

The following two objectives, 2c, Interacts with Peers, and 2d, Makes Friends, had mixed results. Objective 2c results found that small class sizes have much higher percentage (11.59%) of students falling below the developmental expectations for interacting with peers, while medium (5.08%) and small (4.81%)

classrooms had fewer students below the same expectations. With fewer students in a class, it is possible that the students in smaller class sizes do not have as many opportunities to interact with other peers, therefore their assessments fall below GOLD expectations. With more students in the class there are more social opportunities and chances to find peers with similar interests and strengths. Another possibility is that small class sizes may have more students on an IEP, and therefore class sizes are kept smaller because of high student needs.

Survey answers showed that the class size with the greatest non-proficiency in making friends were the medium class sizes (16.53%), followed by small class sizes (13.04%) and large class sizes (8.65%). The GOLD Objective 2d, Makes Friends, aims to assess whether students maintain a friendship for a short period of time or for several months. The fact that large class sizes have the lowest percentage of non-proficient students could indicate that the more students there are in a classroom, the greater the opportunity for developing long-lasting friendships. On the other hand, there may also be a relationship between small class sizes and the number of students on an IEP. Some class sizes may be kept smaller because they have great number of students on an IEP that possibly struggle with social-emotional skills.

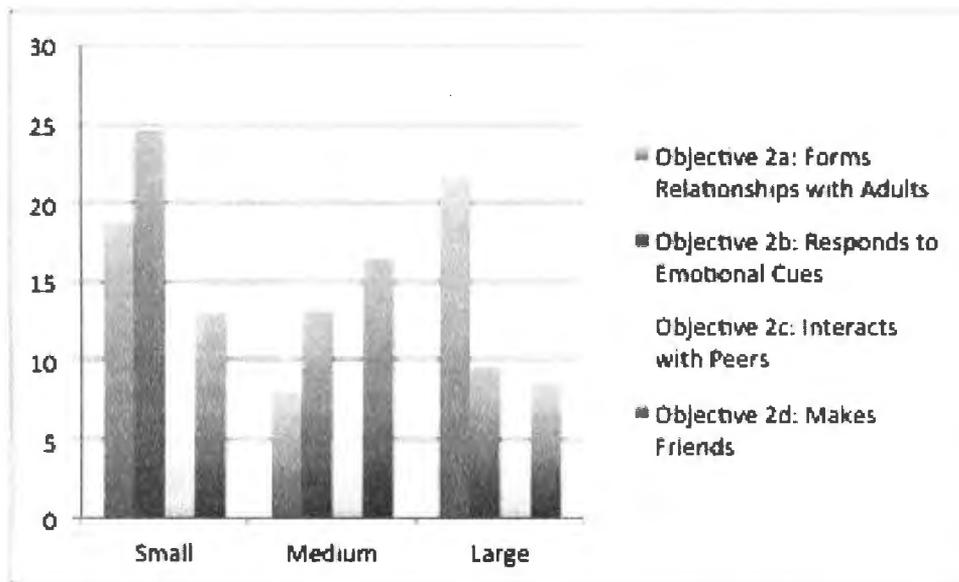


Figure 2 Non-Proficient Students for GOLD Objective 2: Establishes and Sustains Positive Relationships

A similar trend took place for both Objective 3a, Balances Needs and Rights of Self and Others, and 3b, Solves Social Problems, as seen in Figure 3. When comparing students' abilities to balance needs and rights of themselves and others, small class sizes had the greatest overall percentage of 11.59% below expectations, while medium class sizes consisted of 10.17% below expectations, and 6.73% of students in large class sizes fell short of their developmental levels. Following this trend, 24.64% of students in small class sizes failed to be able to solve social problems at their appropriate age level, 17.8% of students in medium classes fell short, and 14.42% of students in large classes were unable to meet their developmental expectations according to GOLD.

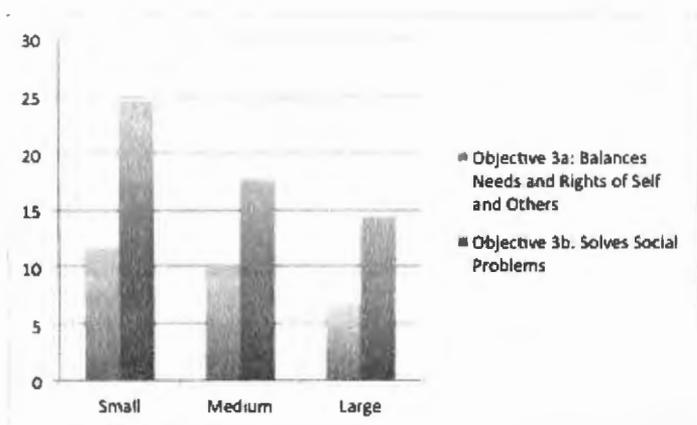


Figure 3 Non-Proficient Students for GOLD Objective 3: Participates Cooperatively and Constructively in Group Situations

Teacher Opinions

Twenty-nine teachers completed the first teacher opinion question, which asked whether they agreed or disagreed with given statements about class sizes, and to what degree they agreed or disagreed. Table 3 shows the number of answers chosen for each question asked, giving an idea of teachers' opinions toward differing class sizes and teacher-student ratios.

Table 3 Teacher Opinions on Class Sizes

#	Question	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1	I feel that a 10:1 student-teacher ratio is adequate for the preschool setting	1	6	11	2	6	3	0
2	I feel class size has an effect on the number of negative behavior occurrences within the classroom	1	0	0	0	6	14	8
3	I believe less than 10 students in a preschool classroom would promote positive student behaviors	1	2	3	8	6	2	7
4	I believe 10-15 students in a preschool classroom would promote positive student behaviors	1	0	0	3	6	15	4
5	I believe 15-20 students in a preschool classroom would promote positive student behaviors	5	9	8	5	0	1	1

The greatest number of teachers reported that they somewhat disagree with a 10:1 teacher-student ratio being adequate for the preschool setting. Overall attitudes towards which class size would best promote positive behaviors indicated that the teachers surveyed would prefer class sizes of 10-15 students. The class size that the teachers most often disagreed with being the best to promote positive student behaviors in the preschool setting was 15-20 students. The majority of teachers reported that they agree that the number of students in a classroom has an effect on the number of negative behavior occurrences in the classroom.

When asked how they felt that class size affected the following aspects of teaching, 28 out of 29 teachers responded by indicating no relationship, slight relationship, moderate relationship, or strong relationship between the given questions. One teacher did not respond to the question. Table 4 shows the number of total responses. The greatest number of teachers reported either a moderate or strong relationship between class size and the other variables addressed by the survey.

Table 4 Teacher Opinions on Class Size Relationships

#	Question	No Relationship Between	Slight Relationship Between	Moderate Relationship Between	Strong Relationship Between
1	Teacher Effectiveness	0	0	16	12
2	Job Satisfaction	0	2	14	12
3	Relationship Between Teacher and Students	0	0	8	20
4	Student Engagement	0	2	11	15
5	Number of Negative Behavior Occurrences	0	4	11	13
6	Use of Enriching Classroom Activities	2	4	13	9
7	Ability to Meet All Individual Student Needs	0	0	6	22
8	Classroom Management	1	3	11	13

Table 5 shows which behaviors teachers reported seeing in their classroom on a weekly basis. Participants were allowed to select multiple behaviors as a response.

The behaviors that occurred most often within the classrooms surveyed were meltdowns, such as crying, screaming, kicking, or falling to the ground (80%), and non-compliance or defiance (88%), as shown in Table 5 below. The behaviors that were the least occurring were physical aggression towards adults (28%) and eloping from the classroom or building (16%).

Table 5 Student Behaviors

#	Answer	Response	%
1	Meltdowns (crying, kicking, screaming, falling to ground, etc.)	20	80%
2	Physical Aggression Towards Adults (hitting, kicking, throwing items)	7	28%
3	Physical Aggression Towards Peers (hitting, kicking, throwing items)	9	36%
4	Verbal Aggression Towards Adults	10	40%
5	Verbal Aggression Towards Peers	9	36%
6	Non-Compliance/Defiance	22	88%
7	Elopement (running out of room or building)	4	16%

Out of all 29 completed surveys, 31% indicated that the majority of negative behaviors taking place in the classroom were from students on IEPs, while 28% reported most of their problems being with students not on IEPs. In addition to those responses, 28% indicated that problem behaviors come from all students in the classes, and the remaining 14% reported they did not have negative student behaviors occurring within their classrooms.

The final two questions of the survey were open-ended. These questions asked teachers what they thought benefits of small and large class sizes might be.

The most popular answers as to why small class sizes may be beneficial to students were that teachers could build a stronger relationship with each student and better meet each student's individual needs. Other responses supporting benefits of small class sizes included experiencing fewer challenging behaviors, ability to communicate better with parents, development of closer relationships between peers, more effective classroom management, less stress on the teacher, less time taken to teach lessons, and less time taken on assessing children and more time to play with them. One teacher responded that he/she did not feel that there were many benefits to smaller class sizes, because he/she felt that a small class size could hurt children's social-emotional development if he or she had fewer peers to interact with and develop friendships with.

The most common responses for a benefit of large class sizes were more peer interactions and opportunities for development of social skills. This included peers having more friends to play with and a larger range of positive peer models. Other responses included the ability to do large-group lessons and activities more effectively with more participants, more openings for additional preschool students when class sizes are extended, more money for the district, and stronger peer support rather than relying on adult support in the classroom. Three of the teachers indicated that they did not feel there were any benefits to larger class sizes.

Discussion

Do class sizes affect student behaviors? As this study indicated, class size may affect students' abilities to develop social emotional skills, but not necessarily in alignment with teacher opinions. The majority of teachers reported the opinion that larger class sizes cause more negative behaviors, but GOLD documentation shows us that small class sizes reported having the greatest percentage of students falling below developmental expectations. According to this survey, students in small class sizes were least able to manage feelings, follow limits and expectations, take care of their own needs appropriately, interact with peers, respond to emotional cues, balance needs and rights of self and others, and solve social problems. These results may indicate that having too few of students in a class doesn't offer students the opportunity to interact with a range of peers or learn from other peers' behavior models. With more students in a class, there is a greater chance that students will be faced with dealing with children that have different interests and behaviors, and learning to adapt to those differences. It may also be possible that smaller class sizes often have more children on IEPs who already have lower levels of age-appropriate behaviors; therefore students that are not on IEPs may not be exposed to as many appropriate social-emotional behaviors.

Large class sizes had the highest percentage of students falling below GOLD's developmental expectations for forming relationships with adults. This indicates that having too many students in the class gives the adults less time to build strong relationships and interact with each student. With more students in the class the teachers are forced to split up their time in order to meet the needs of all the

students, leaving less time for each student to get adult attention. In medium and small class sizes, students had higher scores for forming relationships with adults, which suggests class size has an effect on this social emotional skill. Large class sizes had the lowest percentage of non-proficient students in six out of nine social emotional objectives. Contrary to teachers' reported opinions about large class sizes, this study shows that larger classes may actually be beneficial to students' social emotional skills. More students in the room offer more experiences to interact with peers, learn to respond to others' emotional cues, practice patience, and manage feelings. A larger class also offers a chance for students to develop friendships with peers.

Although high percentages of teachers reported witnessing several different behavior concerns in their classrooms, such as meltdowns, verbal and physical aggression, and eloping, reported GOLD documentation suggests two things. First, it suggests that these behavior occurrences may have minimal impact on the child's overall social emotional skills. Second, it suggests that the negative behaviors may be coming from potentially only a couple students in the class, therefore the class's overall percentages of students below expectations may not be as high for medium and large class sizes as they may be for small class sizes.

Limitations

This study gives insight into behaviors and social emotional characteristics of differing class sizes. However, this study does have several limitations. Participants were only teachers in southeast Iowa and therefore were not representative of all

other parts of the state, much less of the United States and their early childhood educational systems.

One difficult part of this study was interpreting the GOLD data for mixed-age classrooms. For instance, teachers who indicated they taught children ages 3-5 years old did not indicate which students were below developmental expectations for the social emotional objectives. For data purposes, I took the youngest age represented and used that for my baseline to determine how many students were below their developmental expectations. This means there may have been a higher percentage of students below their expected age level developmentally, but because I couldn't distinguish between ages in the GOLD data, this causes the results to be potentially less precise.

Another limitation to be considered when comparing data is the number of students with IEPs reported by each teacher. Teachers who taught half-day preschool reported their total number of IEP students, rather than how many were in each section. Understanding the number of students with IEPs compared to general education students in each classroom could make a difference when analyzing the behavioral data. In addition to this, another limitation for the results of small class sizes is that I could not distinguish which might be self-contained special education classes that are small because of the student behaviors and special needs.

Lastly, teacher ratings of students based on the GOLD social emotional objectives may not be reliable, that is, not all teachers may rate in a comparable way. Assigning students a developmental level is subject to the teachers' observations

and assessments, yet some teachers may look at the same observations and assessments and rate a child slightly differently. Some teachers may have higher expectations for students and expect complete mastery of a level before they will rate them higher, while others may consider a limited amount of instances to be sufficient for moving to the next developmental level.

Recommendations for Future Research

This study was only done within a relatively small area of school districts. Further research could be done on a larger population, allowing more responses to return from each class size. More responses would show a better representation for each class size and their behaviors. I would also suggest changing the survey to eliminate classrooms with any children on IEPs in order to control the level of behaviors and get more accurate data across the classrooms.

This study focused primarily on GOLD data and teacher opinions rather than documenting specific behavior incidents or number of occurrences. Since a limitation to this study is that teachers may rate their GOLD documentation differently, future research may ask for specific documentation, such as number of negative behavior occurrences taking place each day or the number of students having negative behavior incidents. Data could be taken over a period of time and compared directly with other class sizes.

One change that could be made in this study to make data easier to interpret is to ask teachers with mixed-age classrooms to indicate the age of the students falling in each GOLD objective level. This would allow the researcher to get a more accurate number of students falling below their developmental expectations, unlike

this survey was able to do. This could also be changed to document where IEP students fall on the GOLD developmental levels to determine if students falling below expectations are primarily those on IEPs or general education students. In addition to this, I would change the question regarding how many students in their classrooms are on an IEP to be a fill-in-the-blank question, therefore eliminating the 5+ option. This would give a better picture of exactly how many students are on an IEP if the number were greater than five. I would also ask that they answer how many students were on an IEP for each class taught, which would specifically improve the accuracy of data for the teachers who taught two half day classes. My current survey makes it hard to determine how many of the students in each class were on IEPs.

Conclusion

The purpose of this study was to determine whether there is a relationship between class sizes and student behaviors in preschool. The results of this study suggest that there is a relationship between class size and student behaviors, but it may not correspond with teacher opinions on class sizes. Although the majority of teachers agree that large class sizes do not best promote positive student behaviors and social emotional skills, findings within this study indicate otherwise. Small class sizes offer more time for teachers to provide more individual student attention, but they do not best promote positive social interactions and social emotional skills in comparison to medium and large class sizes.

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Appendix A

Teacher Survey Questions

Is your preschool affiliated with an elementary school?

Yes

No

Which preschool program do you teach?

Full Day

Half Day

What age of students do you teach? (age when entering preschool- check all that apply)

3 year olds

4 year olds

5 year olds

How many girls are in your classroom? (Half day format: AM #, PM #)

How many boys are in your classroom? (Half day format: AM #, PM #)

How many students are in your classroom? (Half day format: AM #, PM #)

How many adults are in your classroom on a regular basis? (including yourself)

1

2

3

4

5 or more

Number of students on an Individualized Education Plan (IEP)

None

1

2

3

4

5 or more

Please enter the NUMBER of students that fall within each level for the following

winter 2016 social-emotional GOLD objectives: (No names needed) *Note: Half Day preschool programs use the following format: AM #, PM #)

1a. Manages Feelings

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

1b. Follows Limits and Expectations

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

1c. Takes Care of Own Needs Appropriately

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

2a. Forms Relationships with Adults

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

2b. Responds to Emotional Cues

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

2c. Interacts with Peers

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

2d. Makes Friends

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

3a. Balances Needs and Rights of Self and Others

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

3b. Solves Social Problems

Not Yet

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

Personal Opinion Questions

Possible Answers:

Strongly Disagree

Disagree

Somewhat Disagree

Neither Agree nor Disagree

Somewhat Agree

Agree

Strongly Agree

I feel that a 10:1 student-teacher ratio is adequate for the preschool setting

I feel class size has an effect on the number of negative behavior occurrences within the classroom.

I believe less than 10 students in a preschool classroom would promote positive student behaviors.

I believe 10-15 students in a preschool classroom would promote positive student behaviors.

I believe 15-20 students in a preschool classroom would promote positive student behaviors.

How do you feel class size affects the following:

	No Relationship Between	Slight Relationship Between	Moderate Relationship Between	Strong Relationship Between
Teacher Effectiveness				
Job Satisfaction				
Relationship Between Teacher and Students				
Student Engagement				
Number of Negative Behavior Occurrences				
Use of Enriching Classroom Activities				
Ability to Meet All Individual Student Needs				
Classroom Management				

Select the student behaviors that take place in your class on a weekly basis:

- Meltdowns (crying, kicking, screaming, falling to ground, etc.)
- Physical Aggression Towards Adults (hitting, kicking, throwing items)
- Physical Aggression Towards Peers (hitting, kicking, throwing items)
- Verbal Aggression Towards Adults
- Verbal Aggression Towards Peers
- Non-Compliance/Defiance
- Elopement (running out of room or building)

Do the majority of your negative student behaviors come from:

- IEP students
- Non-IEP students
- Both IEP and Non-IEP students
- Not Applicable/No negative student behaviors occurring

In your opinion, what are benefits to smaller class sizes?

In your opinion, what are benefits to larger class sizes?

Appendix B

Table B1 Classroom Demographics

Class (anonymous identifiers)	Number of students	# of adults	Age(s) of students (entering preschool)	# of students on IEP
A	20	2	4	2
B1	10	2	3	5+
B2	10	2		
C	19	4	4	3
D1	20	2	3 & 4	3
D2	14	2		
E1	15	2	3, 4, & 5	5+
E2	14	2		
F1	15	3	3 & 4	5+
F2	14	3		
G	18	5+	3 & 4	5+
H1	19	2	4	5+
H2	10	2		
I1	14	2	4	1
I2	15	2		
J1	19	2	4	3
J2	11	2		
K1	14	2	4	4
K2	14	2		
L	14	2	4	0
M	10	2	3	0
N	20	5+	3, 4, & 5	5+
O	11	2	3, 4, & 5	0
P1	15	2	4 & 5	1
P2	18	2		
Q1	13	5+	3	5+
Q2	9	5+		
R	10	2	3 & 4	2
S	13	3	4	3
T	15	2	4	0
U	10	3	3	2
V	16	3	4	3
W	19	3	4	0
X	20	2	4 & 5	1
Y	15	4	3	5+
Z1	12	3	3 & 4	3

Z2	8	3		
AA1	16	2	3 & 4	5+
AA2	17	2		
BB1	18	2	3 & 4	2
BB2	12	2		
CC1	18	2	4	0
CC2	13	2		

Table B2 Survey Participants

# of Surveys Sent Via Email	# of Surveys Opened	# of Fully Completed Surveys	# of Partially Completed Surveys (Partial GOLD)	# of Partially Completed Surveys (No GOLD)	# of Blank Surveys (No Answers)
98	46	25	2	2	17