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The Effects of Class Size on Student Achievement

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The Effects of Class Size on Student Achievement

by

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Chapter 1: Introduction

I am interested in looking at the effects of class size on student academic achievement because the school district that I teach in has executed annual budget cuts for the past 4 years. Each year I have seen my average class size increase. In the 2014-2015 school year, my average class size was 25 students per class. In the 2018-2019 school year, my average class size had increased to 34.5 students per class. That is an increase of 38% in just 4 years. This increase left me wondering what effects these large classes were having on my students.

Results from the Gallup Poll show that 75% of parents and over 80% of teachers believe that reducing class size greatly improves student achievement (Folger & Breda, 1989). This conclusion seems intuitive. Fewer students would mean more individual time for the teacher with each student; thus, resulting in academic success. This theory is challenged by popular author, Malcolm Gladwell, who uses small class size "as an example of a thing we are convinced is such a big advantage [but] might not be such an advantage at all" (Schanzenbach, 2014, p. 1). A reason I chose this topic was to test the validity of these theories. In this paper, I examine articles from around the world to discover what effects class size has on student academic achievement.

Research Question

The following research question guided the development of this starred paper: How does class size affect student academic achievement?

Focus of Paper

The quantitative and qualitative research studies reviewed in Chapter 2 were published throughout the world. Study participants included students in grades 9-12, parents of students in

grades 9-12, and 9-12th-grade teachers. Academic Search Premier and EBSCO were used as the primary database to find relevant journal articles. In addition, Google Scholar was used to search articles.

The focus of my research was to examine class size effects on student academic achievement. Chapter 2 is organized into four main parts: class size related to non-cognitive skills, class size related to student ability, class size related to socioeconomic status (SES), and class size in different grades. Chapter 3 discusses the method, findings, conclusion, limitations, and recommendations of my study.

Importance of the Topic

With the rise in high stakes testing and a shift toward Common Core Standards, student achievement has been subject to increased measurement and accountability (Schanzenbach, 2014). At the same time, public schools across the nation are dealing with the problem of under-funding (Rowe & Lubienski, 2017). The combination of the two issues has left teachers with larger class-sizes and increased pressure for students to succeed in the classroom (Rowe & Lubienski, 2017). I reviewed the literature and preformed action research to discover if this rise in class size has led to an impact on student achievement.

Definition of Terms

Class size. Hoxby (2000) defined "class size is equal to regular enrollment divided by the number of classes" (p. 1245).

Student achievement. Modlin (2008) defined "commonly attendance rate, grade point average, discipline referrals, drop-out rate, co-curricular participation, standardized test scores by

subgroup and by subject, or other measures defined by No Child Left Behind of 2001 (Public Law 107-120) are used as indicators of success or progress" (p. 40).

Chapter 2: Review of the Literature

The purpose of this literature review was to examine the effects of class size on student achievement. In Chapter 1, the background information was introduced. This chapter is organized into four major sections: class size related to non-cognitive skills, class size related to student ability, class size related to SES, and class size in different grades.

Class Size Related to Non-Cognitive Skills

Brunello and Schlotter (2011) defined non-cognitive skills as: "personality traits that are weakly correlated with measures of intelligence, such as the IQ index" (p. 5). Recent studies have shown a direct correlation between non-cognitive skills and student academic achievement (Chatterji & Lin, 2018; Pipere & Mierina, 2017). Since this correlation exists, I analyzed how class size affects non-cognitive skills, thus affecting student academic achievement. I found that smaller class sizes improve non-cognitive skills in students.

Dee and West (2011) used nationally representative survey data across middle school reading and math classes to estimate how class size effects non-cognitive skills. They found that reductions in class size were associated with improvements in non-cognitive skills related to psychological engagement with school (Dee & West, 2011). Some of these improvements include more positive reaction to teachers, peers, and academics in general, higher levels of interest and motivation, lower levels of boredom and anxiety, and a greater sense of belonging (Dee & West, 2011). Dee and West's analysis adds to the growing literature indicating that non-cognitive skills matter for subsequent academic success. Dee and West offered a hypothesis for their findings:

> Smaller classes promote behavioral engagement by allowing teachers to limit disruptive behavior as well as to encourage attentiveness and asking questions. Smaller classes may also help teachers promote emotional engagement in the form of student interest and personal academic identification. Finally, smaller classes may promote cognitive engagement by allowing teachers to assist students in flexible problem-solving in the face of challenges. (p. 33)

These findings are in-line with Fredriksson, Öckert, and Oosterbeek's (2013) results of a study on the long-term effects of class size. Fredriksson et al. (2013) used unique Swedish data to trace the effects of changes in class size in primary school on cognitive and non-cognitive achievement at ages 13, 16, and 18. Fredriksson et al. found that placement in a small class during grades 4 to 6 increases non-cognitive ability at age 13. These results, combined with Dee and West's (2011) findings, indicate that smaller class size improves non-cognitive skills, which in turn, improves academic achievement (Chatterji & Lin, 2018; Pipere & Mierina, 2017).

Class Size Related to Student Ability

Konstantopoulos and Chung (2009) used quantile regression analyses from Tennessee's Student Teacher Achievement Ratio (STAR) project to provide convincing evidence that all types of students (e.g., low, medium, and high achievers) benefit from being in small classes (in early grades) across all achievement tests. Project STAR was a study of 325 K-3 classrooms across 75 schools in Tennessee. Over 7,000 students were randomly assigned into one of three interventions: small class (13 to 17 students per teacher), regular class (22 to 25 students per teacher), and regular-with-aide class (22 to 25 students). As part of the project, students were given the Stanford Achievement Test periodically throughout the 4 years of the study. The

students' scores were recorded and analyzed (Folger & Breda, 1989). Specifically, Konstantopoulos and Chung (2009) found, "for certain grades, in reading and science, low achievers seem to benefit more from being in small classes for longer periods. It appears that the lasting benefits of the cumulative effects of small classes may reduce the achievement gap in reading and science in some of the later grades" (p. 125). Konstantopoulos and Chung (2009) offered a hypothesis for their findings:

> One hypothesis is that in small classes teachers are more likely to identify low achievers and hence are more likely to provide instruction designed to benefit these students in early grades. Alternatively, in small classes, there is a higher likelihood for low achievers to interact with teachers and be more engaged in learning. (p. 150)

These findings would suggest that small class size increase student achievement for students of all academic achievement levels, and for low achievers in particular.

Konstantopoulos and Chung's (2009) findings are in-line with research done by Bosworth (2014) who examined 4^{th-} and 5th-grade class size data provided by the North Carolina Education Research Data Center. Bosworth concluded that "class size reductions appear to both raise average attainment and help close achievement gaps" (p. 162).

Babcock and Betts (2009) used a panel dataset containing achievement scores, grade point averages, and a rich set of behavior measures for primary school students in the San Diego Unified School District to analyze the effects of class size. Babcock and Betts' findings indicate that class-size expansion may reduce gains for low achievement students. Babcock and Betts offered an explanation for their findings: "larger gains for disadvantaged students may have

occurred because small classes allow teachers to incentivize disengaged students more effectively, or because students are better able connect to the school setting in small classes" (p. 321). These findings, combined with Bosworth's (2014), strengthen the notion that small class size increases student achievement for low academic achievers.

Class Size Related to Socioeconomic Status

Finn, Gerber, and Boyd-Zaharias (2005) used data from Project STAR to analyze the effects of small classes on the likelihood of graduating from high school. Finn et al. (2005) collected data from 4,948 students who had participated in Project STAR from K-3, and had graduated, or dropped out of high school. Finn et al. found that more years in small classes had an increasing effect on the odds of completing high school. The findings were even more pronounced for students who were receiving free and reduced lunch. The data showed that for these low SES students: "The odds of graduating were 67.0% greater for students attending small classes for 3 years and almost 2.5 times greater for students attending small classes for 4 years" (Finn et al., 2005, p. 219). This study also analyzed student performance in grades K-3 as an indicator of a student's odds of graduating high school and found, "attending small classes for 3 or 4 years in the early grades had a positive effect on high school graduation above and beyond the effect on early academic performance" (Finn et al., 2005, p. 219). These findings indicate that small class size increases academic achievement, particularly for low SES students.

These findings are comparable to research was done by Folger and Brenda (1989) who also analyzed data from Project STAR. Their research involved examining the small class size effect on SES schools (e.g., inner-city, suburban, rural, and urban). Their research found that the

small class advantage is found in all types of SES schools. However, largest, on the average, in inner-city schools as compared with other types of schools (Folger & Brenda, 1989).

Krueger and Whitmore (2001) found that the beneficial effect of smaller classes on college aspirations appears to be particularly strong for students on free or reduced-price lunch. In the study, the researchers analyzed follow-up data from Project STAR, specifically ACT and SAT test data. The study found that students who attended small classes from K-3 had a significantly higher probability of taking either the ACT or SAT tests. Since most colleges require one of the two tests, a conclusion can be made that small class sizes appear to be beneficial to college aspirations of students who received free and reduced lunch (Krueger & Whitmore, 2001).

Vasquez, Williams, and Jez (2010) collected data from 419 schools in Houston, Dallas, and Austin, Texas. These are typical urban school districts serving mostly low-income students (Vasquez et al., 2010). The researchers examined different variables to determine the most powerful predictor of changes in reading and math scores. The researchers found that "the most powerful predictor of changes in reading and math in all models was decreasing the student-teacher ratio" (Vasquez et al., 2010, p. 52). The researchers went on to note that, "decreasing the student-teacher ratio by 1 percentage point would increase the percentage of students proficient on the TAKS by 3% for reading and by 4% for math" (Vasquez et al., 2010, p. 52). These findings, along with the findings from Folger and Breda (1989) and Krueger and Whitmore (2001), indicate that small class size increases academic achievement for low SES students.

Class Size in Different Grades

Folger and Breda (1989), in their study of Project STAR, found that K-3 grade students who attended small classes scored significantly higher than students in regular-size classes in reading and math as well as in other subtests of the Stanford Achievement Test each year of the project. Also, the researchers found that academic gains in first grade are about 15% larger in small classes than in regular classes (Folger & Breda, 1989). The researchers offer a hypothesis for their findings, "One possible explanation of the larger effects in kindergarten and grade 1 is that it is more difficult to manage a large group of students who are not well socialized into classroom routines" (Folger & Breda, 1989, p. 24). The researchers also examined the number of times a student was retained or held back a year. The researchers found that "Over the 4 years of Project STAR, 19.8% of the small class students were retained, as compared with 27.4% of students in regular classes. This 7.2% difference in favor of small classes means fewer small class students had to repeat a grade" (Folger & Breda, 1989). These findings would indicate that small class size is beneficial to students in elementary grades.

Konstantopoulos and Chung (2009) found all types of students benefit more in later grades from being in small classes in early grades. "Longer periods in small classes produced higher increases in achievement in later grades for all types of students" (Konstantopoulos & Chung, 2009, p. 125). The researchers offer a hypothesis for why class size reduction is an appealing intervention by noting: "it (class size reductions) is easy to implement and does not necessarily require changes in teaching methods or instructional practices" (Konstantopoulos & Chung, 2009, p. 127).

Finn et al. (2005) used Project STAR data to examine the effects of class size in K-3 classes on high school graduation. The researchers found that a small class was associated with a significantly higher graduation rate (Finn et al., 2005). Since high school graduation is an effect of student academic achievement, this finding strengthens the notion that small class size is beneficial to students in elementary grades.

Glass and Smith's (1979) meta-analysis of small class sizes found that small class sizes (20 students or less) were associated with improved academic performance. The researchers describe their findings:

> Taking all findings of this meta-analysis into account, it is safe to say that between class-sizes of 40 pupils and one pupil lie more than 30 percentile ranks of achievement. The difference in achievement resulting from instruction in groups of 20 pupils and groups of 10 can be larger than 10 percentile ranks in the central regions of the distribution. There is little doubt that other things equal, more is learned in smaller classes.

Bosworth (2014), in his analyses of 4th- and 5th-grade class size data provided by the North Carolina Education Research Data Center, estimated: "the relationship between class size and the standard deviation of student achievement within a classroom to be positive on average, even after controlling for classroom composition" (p. 162). This finding, along with the findings of Finn et al. (2005), Konstantopoulos and Chung (2009), Folger and Breda (1989), and Glass and Smith (1979), reinforce the indication that small class size is beneficial to students in elementary grades.

Limitations

The biggest limitation I found in my research was that the articles do not provide adequate data about classroom dynamics, instruction, practices, and teaching ability. Researchers have tried their best to control these variables, but I am not convinced this can be done. In my opinion, each teacher is different, and in turn, each student reacts differently to each teacher. It is almost impossible for a researcher to account for all those variables. There are too many of them, and they are too hard to quantify into numbers for quantitative data.

Another limitation I found in my research was the funding needed for class size studies. Since our funding for our school system is based on property tax, some districts do not have the means to adequately fund class-size reductions. Folger and Breda (1989) estimated that when class size is reduced by a third, operating costs, mostly for additional teacher salaries, will rise by 24%-28%. School districts are not likely to be able to afford these increased costs on their own. Funding from state or federal government would be needed to cover the costs of the additional teachers. If the study returns results that reducing class size is beneficial to students, what will the school districts do when the state or federal funding from the study is gone? Class size reduction is simply something that some school districts cannot afford.

The last limitation that I found was so much of the research done in America is based on Project STAR. Project STAR is considered to be a valid study, with accurate results (Fredriksson et al., 2013; Konstantopoulos & Chung, 2009). Project STAR was also done in the late 1980s. I would like to see a study done on the same scale as Project STAR that incorporated today's technologically advanced classrooms. I would also like to see additional studies completed that have the same accurate results as Project STAR. Two problems that a new study

would have to address would be funding and acquire enough qualified teachers to fill to newly formed smaller classes.

Summary

The reviewed literature suggests that smaller class sizes result in higher academic achievement. Studies show that smaller class sizes improve non-cognitive skills in students (Dee & West, 2011; Pipere & Mierina, 2017). Studies also show smaller classes had a differential advantage for all students, especially low achievers (Konstantopoulos & Chung, 2009). Bosworth (2014) discovered that class size reductions help close achievement gaps. Finn et al, (2005) found students with free and reduced lunch increase their odds of graduating high school by 67% when enrolled in small classes. Overall, the literature reviewed suggests that smaller class sizes result in higher academic achievement.

Chapter 3: Action Research

The purpose of this action research study was to determine whether class size affects student achievement. The study surveyed students, parents, and teachers to discover their opinions on class size and student achievement.

Method

The researcher in this study collected survey data from students, parents, and teachers to assess their perceptions about the implications of class size for learning and behavior issues that could affect student achievement. The student participants in this survey attended a public high school in Minnesota. They were between the ages of 15 and 18 and were in 9-12th grades. The population consisted of a mix of African American, Hispanic, Asian American, and Caucasian students. The student participants were 57% female and 43%, male. In addition, 15% of the students had 504 plans, 2% were English Language Learners, and 27% received Special Education services. The parent participants are parents/guardians of students in 9-12th-grade. The teacher participants are teachers of grades 9-12, spanning multiple content areas. The teacher participants were 77% female and 23%, male.

The student survey was administered to students during their social studies classes. The teacher and parent surveys were administered electronically to the participants. These surveys were all conducted electronically. These surveys were developed by the researcher based on his review of related literature and his interest in the effect of class size on academic achievement. Technical data for the instrument was not available because it was custom designed for this action research project. Copies of the student, parent, and teacher surveys are included in Appendices A, B, and C, respectively.

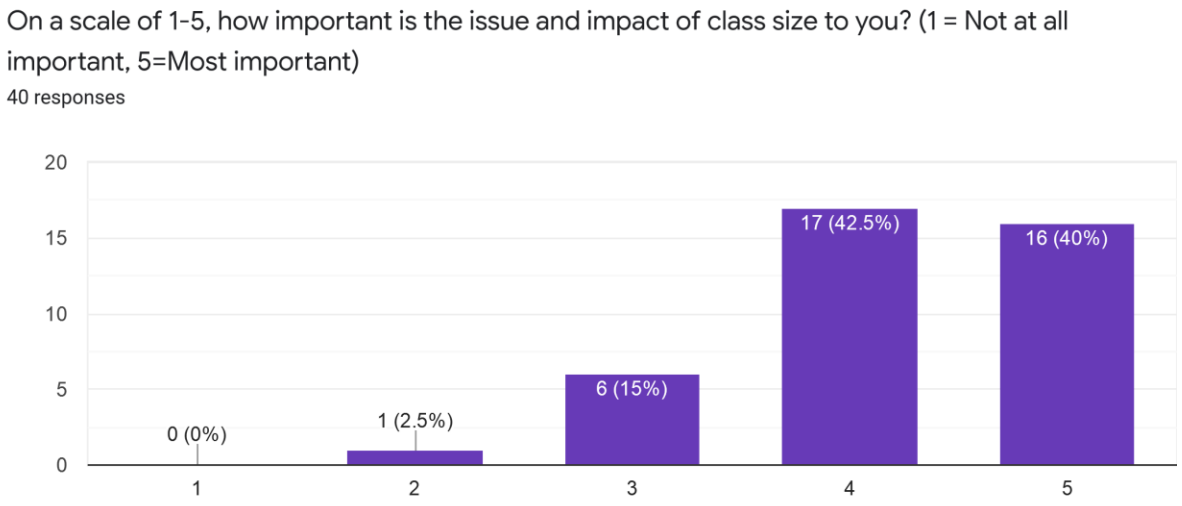
Findings

Upon analysis of the student survey, I found that 72.4% of students feel they attain higher academic achievement in a smaller class setting (less than 30 students). This is opposed to 6% of students who feel that they attain higher academic achievement in a larger class setting (more than 30 students), and 21.6% of students who feel that class size has no impact on their academic achievement. I also found that 76.9% of students feel that they get more personal attention in a smaller class setting (less than 30 students). Seven-point five percent of students feel that they get more personal attention in a larger class setting (more than 30 students). Fifteen-point seven percent of students feel that class size has no impact on the amount of personal attention they receive. Another discovery was 74.2% of students noticed that larger classes (more than 30 students) have more discipline problems than smaller classes (less than 30 students). Ten-point six percent of students noticed that smaller classes (less than 30 students) have more discipline problems. Fifteen-point two percent of students did not notice a correlation between class size and discipline problems.

Upon analysis of the parent survey, I found that 82.5% of participants feel the issue of class size was important (Figure 1).

Figure 1

Parent Issue and Importance of Class Size

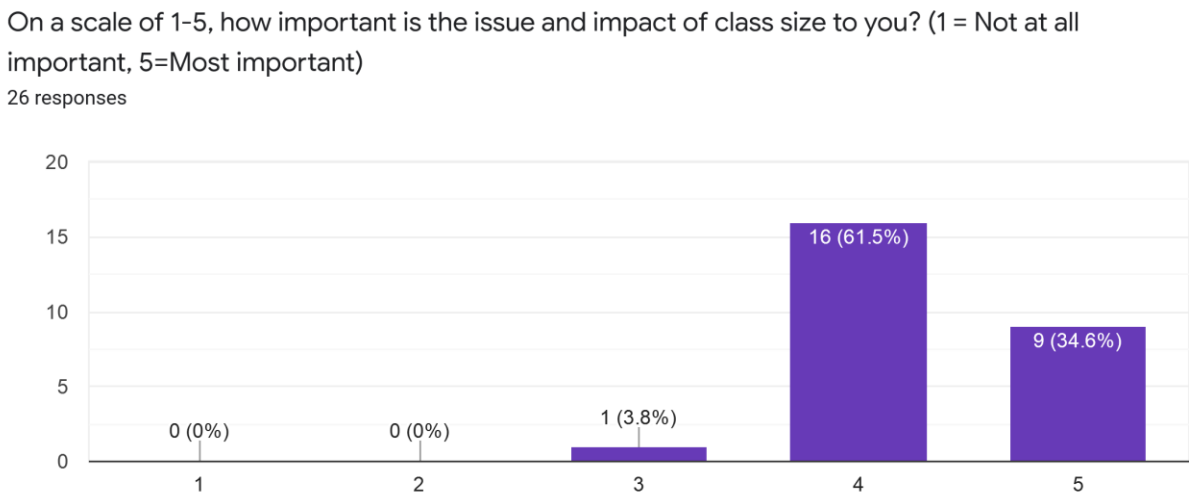


I also discovered that 92.5% of parents feel their student attains higher academic achievement in a smaller class setting (less than 30 students). Seven-point five percent of parent participants feel that class size has no impact on their students' academic achievement. No parent participant feels their student attains higher academic achievement in a larger class setting (more than 30 students). Another discovery I made while analyzing the parent survey was that 95% of parent participants feel their student gets more personal attention in a smaller class setting (less than 30 students). Five percent of parent participants feel that class size has no impact on the amount of personal attention students receive. No parent participant feels their student receives more personal attention in a larger class setting (more than 30 students).

Upon analysis of the teacher survey, I found that 95.1% of participants feel the issue of class size was important (Figure 2).

Figure 2

Teacher Issue and Importance of Class Size



I also discovered that 100% of teachers surveyed responded that students attain higher academic achievement in a smaller class setting (less than 30 students), as opposed to students attaining higher academic achievement in a larger class setting (more than 30 students) or feeling that class size has no impact on my students' academic achievement. Another discovery I made was that 100% of teachers surveyed responded that their students get more personal attention in a smaller class setting (less than 30 students). No teacher participants answered that they feel their students get more personal attention in a larger class setting (more than 30 students), or that the class size has no impact on the amount of personal attention students receive.

The fourth discovery I made when examining the teacher's survey was that 88.5% of participating teachers noticed that larger classes have more discipline problems. Eleven-point five percent of teachers did not notice a correlation between class size and discipline problems.

No participating teachers responded that they have noticed a correlation between class size and discipline problems. The fifth discovery I made was that 76.9% of participating teachers responded that they have noticed that smaller classes have led to more specialized skills learned by students. Twenty-three-point one percent of teachers surveyed responded that they have not noticed a correlation between class size and specialized skills learned by students. No participating teacher answered that they have noticed that larger classes have led to more specialized skills learned by students.

The researcher asked the following question on all three surveys: Based on your experience, what is the class size range that results in maximum effectiveness for students in terms of academic achievement? The results from all three surveys are listed in Table 1.

Table 1

Class Size Range that Results in Maximum Effectiveness

Based on your experience, what is the class size range that results in maximum effectiveness for students in terms of academic achievement?

Survey Group	Less than 15	15 to 19	20 to 24	25 to 29	30 to 35	Over 35
Students	2.2%	17.2%	44%	27.6%	7.5%	1.5%
Parents	2.5%	17.5%	45%	22.5%	12.5%	0
Teachers	3.8%	19.2%	50%	23.1%	3.8%	0
Total	**2.5%**	**17.5%**	**45%**	**26%**	**8%**	**1%**

Conclusion

My findings suggest that there is a perceived notion among students, parents, and teachers that small class sizes result in higher academic achievement. This finding is in-line with my review of the literature. The majority of the response in each of the surveys correlated smaller class sizes with academic achievement. One student responded to the survey "the smaller the class, the better the focus, less the distractions and more of time spent understanding things before moving on." This student has highlighted their perceptions of the benefits of smaller classes, and their opinion matches my own personal experience in the classroom. In my experience, smaller classes have led to fewer distractions and better focus. With fewer distractions, the focus of the class can stay on learning objectives for the lesson, thus leading to higher academic success. Another student summarized their perception of class size effects on student achievement by simply stating, "Mo' Students, Mo' Problems"(more students, more problems) on their survey.

Another result I found interesting was that 91% percent of the students identified their ideal class size as less than 30 students per class; however, it is very rare at this school to have a class that small. Only 10% of the social studies classes in the 2018-2019 school year were under 30 students. Thus, 91% of students have a 90% chance of being in a class larger than their preferred class size to achieve high academic success. Along the same lines, 87.5% of parents have a 90% chance that their student is in a class larger than their optimal class size. Ninety-six-point two percent of teachers have a 90% chance of teaching a class larger than their optimal class size. If everyone perceives this, should more be done to accommodate their preferences?

A teacher summarized their thoughts on the effects of class size on student achievement by saying:

> Larger classes change the way a teacher can give feedback and the style of learning demonstrations that they can reasonably have students complete. There are more multiple-choice and fewer fill-in-the-blank, short-answer, or essay responses in classrooms where the teacher is overwhelmed by numbers. There is also less personal attention for each student in a large class. There are fewer supports for classrooms (behavior services like ISS, restorative counselors/ deans, hallway monitors, etc.) when one or two students are choosing to keep others from learning.

I agree with this teacher, by saying that type of assessment changes as class size does. If a teacher teaches six classes that have an average of 34.5 students, that is 207 students a teacher has on a given day. It would be extremely time-consuming to read that many essays and short answer assessments. I would agree with this teacher that it would be more likely that a teacher with large class sizes to create more assessments that are multiple-choice questions, where grading can be done much faster.

A parent summarized their thoughts on the effects of class size on student achievement by saying:

> The more students there are in a class means that the teacher cannot help as many students in one day as they could with fewer students. The students that don't get a chance to ask a question or help on assignments will just not care or fail because nobody was there to help them before the assignment was due. They may not understand the homework or project and like myself, not all parents know how to do it.

I think this parent brings up multiple good points in support of the notion that smaller class sizes lead to higher student achievement. The first point is that students receive less personal attention in a large class than they would in a small class. From my experience, it is much easier to get around the room and help students in the room when there are fewer students. I am also more available to help students with specific questions on a homework assignment, or project. This personal attention has led to academic achievement in my experience.

The second point this parent brings up is the fact that some parents do not possess the skillset to help with homework. In this case, personal time with the teacher is even more valuable to that student's academic achievement. That personal time with the teacher may be the only time that student has access to one-on-one support, which some students need to be successful. If that student were in a larger class, they would receive less personalized learning and attention.

Limitations

One limitation of this study was that the student surveyed all came from the same school. Students from a school with larger or smaller class sizes may have different perceptions of the effects of class size on student achievement. Because of this type of limitation, results may vary. More research incorporating multiple schools may lead to a broader review of how students perceive the effects of class size on student achievement. Another limitation of this study was that the student survey was only conducted on grades 9-12. More grade levels would be needed to get a comprehensive view of student perception of how class size affects student achievement. More grade levels would get a more accurate perception of the effects of class size on student achievement in the K-12 setting as a whole.

The last limitation I had was the sample size of the participants of the action research. Class size is a topic that the administration is reluctant to discuss during years of budget cuts. I found a lack of support from some administrators who did not want me to ask questions to parents about class sizes after the announcements of teacher layoffs. This limited the number of parents in the school district I was able to reach out to. More parent feedback may be needed to get a broader understanding of the parent's perception of the effects of class size on student achievement.

Recommendations

Based on my action research, I would recommend that smaller class sizes result in high academic achievement for students. I would recommend that class sizes be kept under 29 students per classroom. This recommendation is in-line with the review of the literature, and with 91% of the participants of the survey (Table 1). This class size would ensure a higher level of academic success for all students, especially low achieving students (Konstantopoulos & Chung, 2009), minority and free or reduced-price lunch students (Krueger & Whitmore, 2001), and low effort students (Babcock & Betts, 2009). Konstantopoulos and Chung even went on to suggest that the lowering of class size could help close the achievement gap in reading and science for later grades. Overall, the majority of literature, students, parents, and teachers all agree that lowering class size will result in higher academic achievement.

As a side note, I was able to apply my knowledge gained during research for this starred paper during a department meeting. As a department, we were faced with the challenge of deciding which classes would have larger class sizes compared to other classes within the department. It was suggested that the honors class would be the class with a smaller class size,

due to the rigor of the class. I was able to intervene and provide evidence that low achievers benefit more from the effects of small classes than their peers (Konstantopoulos & Chung, 2009). As a department, we were able to make class size decisions using research for this paper.

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Appendix A: Student Class Survey

1. On a scale of 1-5, how much thought have you given to the number of fellow students in your High School Classes? (5=Think about it a lot, 1=Never think about it). *Mark only one circle.

    - 5
    - 4
    - 3
    - 2
    - 1

2. Which statement do you identify with the most regarding student achievement and class size? *Mark only one circle.

    - I feel that I attain higher academic achievement in a smaller class setting (less than 30 students)
    - I feel that I attain higher academic achievement in a larger class setting (more than 30 students)
    - I feel that class size has no impact on my academic achievement

3. Which statement do you identify with the most regarding class size and personal attention? *Mark only one circle.

    - I feel that I get more personal attention in a smaller class setting (less than 30 students)
    - I feel that I more personal attention in a larger class setting (more than 30 students)
    - I feel my that class size has no impact on amount of personal attention I receive

4. Based on your experience, have you noticed a correlation between class size and discipline problems. *Mark only one circle.

    - Yes, I have noticed that larger classes have more discipline problems
    - Yes, I have noticed that smaller classes have more discipline problems
    - No, I have not noticed a correlation between class size and discipline problems

5. Based on your experience, how many students should be in a given high school class? *Mark only one circle.

    - Less than 15
    - 15 to 19
    - 20 to 24
    - 25 to 29
    - 30 to 35
    - Over 35

6. Are there any comments you would like to make about class size and student achievement?

Appendix B: Parent Class Size Survey

1. On a scale of 1-5, how important is the issue and impact of class size to you? (1 = Not at all important, 5=Most important) *Mark only one circle.

    - 1
    - 2
    - 3
    - 4
    - 5

2. Which statement do you identify with the most regarding student achievement and class size? *Mark only one circle.

    - I feel my student attains higher academic achievement in a smaller class setting (less than 30 students)
    - I feel my student attains higher academic achievement in a larger class setting (more than 30 students)
    - I feel that class size has no impact on my student's academic achievement

3. Which statement do you identify with the most regarding class size and personal attention? *Mark only one circle.

    - I feel my student gets more personal attention in a smaller class setting (less than 30 students)
    - I feel my student gets more personal attention in a larger class setting (more than 30 students)
    - I feel that class size has no impact on amount of personal attention students receive

4. Based on your experience, how many students should be in a given high school class? *Mark only one circle.

    - Less than 15
    - 15 to 19
    - 20 to 24
    - 25 to 29
    - 30 to 35
    - Over 35

5. Are there any comments you would like to make about class size and student achievement?

Appendix C: Teacher Class Size Survey

1. On a scale of 1-5, how important is the issue and impact of class size to you? (1 = Not at all important, 5=Most important). *Mark only one circle.

    - 1
    - 2
    - 3
    - 4
    - 5

2. Which statement do you identify with the most regarding student achievement and class size? *Mark only one circle.

    - I feel my students attain higher academic achievement in a smaller class setting (less than 30 students)
    - I feel my students attain higher academic achievement in a larger class setting (more than 30 students)
    - I feel that class size has no impact on my students' academic achievement

3. Which statement do you identify with the most regarding class size and personal attention? *Mark only one circle.

    - I feel my students get more personal attention in a smaller class setting (less than 30 students)
    - I feel my students get more personal attention in a larger class setting (more than 30 students)
    - I feel my that class size has no impact on amount of personal attention students receive

4. Which statement do you identify with the most regarding class size and workload? *Mark only one circle.

    - My workload increases with increased class size
    - My workload decreases with increased class size
    - My workload does not increase or decrease with class size

5. Based on your experience, have you noticed a correlation between class size and discipline problems? *Mark only one circle.

    - Yes, I have noticed that larger classes have more discipline problems
    - Yes, I have noticed that smaller classes have more discipline problems
    - No, I have not noticed a correlation between class size and discipline problems

6. Based on your experience, have you noticed a correlation between class size and specialized skills learned by students? *Mark only one circle.

    - Yes, I have noticed that smaller classes have led to more specialized skills learned by students
    - Yes, I have noticed that larger classes have led to more specialized skills learned by students
    - No, I have not noticed a correlation between class size and specialized skills learned by students

7. Based on your experience, what is the class size range that results in maximum effectiveness for students in terms of academic achievement? *Mark only one circle.

    - Less than 15
    - 15 to 19
    - 20 to 24
    - 25 to 29
    - 30 to 35
    - Over 35

Are there any comments you would like to make about class size and student achievement?