

Prevalence of Assessment, Curriculum and Staff Development Specialists in Small
School Districts of Minnesota

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Michael Cary

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Dr. Frank Guldbrandsen

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Abstract

Legislative mandates for improving student achievement under the No Child Left Behind Act have increased the need for student assessment, curriculum development and staff development in public schools. In order to meet these demands, schools must have the capacity necessary for improvement. Minnesota's small districts and their schools face resource inequities due to higher per-pupil costs for programs due to economies of scale and a linear funding system that assumes equal cost per student. These inequities result in differential access to assessment, curriculum development and staff development specialists based upon the size of school districts within Minnesota. Identification of these differences may serve as a foundation upon which to discern the impacts, if any, upon district ability to meet federal expectations for student achievement.

Keywords: Small schools, school funding, No Child Left Behind, assessment, curriculum development, staff development

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Chapter 1: Introduction

Context of the Problem

The current initiative for school accountability through the No Child Left Behind (NCLB) legislation has forced schools to be more critical of educational outcomes for students. NCLB has shifted the role of the federal government in public education away from simply providing additional funding to improve programming for high need populations. The legislation has shifted this role from simple provision to one of accountability for student learning outcomes (Wong 2008). This shift has placed further emphasis on student results and holding states and districts accountable for the results of those in their care. The new found accountability has reinforced the need for accurate measurement of student learning, curriculum alignment to improve student outcomes and staff development to ensure a staff able to implement new curriculum initiatives (Jennings & Rentner, 2006; Darling-Hammond, 2007). Assessment, curriculum and staff development fall under the umbrella of what traditionally have been considered administrative functions within the district. Overall, this has led to many administrators pushing for change in public schools with the focus being on implementing change strategies in assessment, curriculum and staff development to improve student learning.

Small schools have received a good deal of attention in recent years as a way to improve education. Numerous researchers have pointed to the benefits of small schools in providing a more personal education for students. The definition of what constitutes a small school has varied throughout the research, but the one consistency remains - small schools appear to have better success in educating students. This success rate is even

more pronounced for students from impoverished and underprivileged backgrounds. (Bickel, Howley, Williams and Glascock, 2000; Howley and Bickel, 2000; Howley, Strange, and Bickel, 2000).

Small schools within small districts in Minnesota are facing many challenges in delivering the consistent, high quality education for which they have become known. One such issue is a funding disadvantage due to the Minnesota funding formula for public schools.

Schools in Minnesota are funded primarily based upon a per pupil formula through the state's application of the general education revenue formulas. A majority of the funding distributed through the use of the general education revenue formulas is dispersed through the basic formula. The estimated percent of total education funding that is distributed through the basic formula is 75.3% (Minnesota Department of Education, 2007). The unit of funding is calculated through a unit coined as the Average Daily Membership (ADM). ADM is the average number of pupils enrolled in the school throughout the year. The ADM is then weighted based upon grade level of the students. The state uses this subsequent Weighted Average Daily Membership (WADM) and makes a few minor adjustments to determine funding level. From this calculation the state dedicates a majority of the funding a school receives. The state supplements this funding using specific criteria to compensate for certain situations for which the state has deemed additional funding is necessary to ensure more equitable schooling. One such example is the additional funding granted to districts that qualify due to transportation sparsity. These districts are classified as having fewer than 200 pupil units per square

mile and receive additional funding to cover the increased costs incurred for busing. These additional funding categories account for a relatively small percent of overall school funding.

Above the general education revenue formulas, local districts are allowed the option of supplementing funding within guidelines by proposing a referendum to voters to raise local tax on property within the district. These voter approved referendums account for approximately 10% of the total revenues allocated to schools (Minnesota Department of Education, 2007). It is safe to conclude that Minnesota schools are primarily funded based on a linear per pupil funding model.

One problem this model creates for smaller schools/districts is a higher cost per pupil to educate students. This is due to the inability to take advantage of economies of scale when providing essential services to students. As an example, a small school that provides food service for its students must maintain all of the necessary kitchen equipment and staff to successfully run the program. A baseline number of staff is necessary for the program. Even if the number of students is increased dramatically, little to no additional support may be needed. In this situation, it is economically beneficial to maximize the number of students using the service in order to distribute the cost over the greatest number of recipients. Unfortunately for small schools, this is not possible because there are only a limited number of students within district boundaries. The cost per pupil to run the program is higher, thus the cost to educate the student increases. This example can be applied to a number of services schools provide.

Unfortunately for many smaller schools, the need for improvement and change ushered in by No Child Left Behind comes with a price tag – additional specialized staff and/or expertise. In order to create lasting change, organizations must increase their level of expertise, also termed capacity, by either adding individuals with the necessary expertise or accessing them through other channels (Schwahn & Spady, 1998).

Adding personnel, such as curriculum directors and staff development specialists, often requires administrative level salaries due to their advanced degrees and certifications. Another option for districts, training existing staff to acquire these skills, is also costly and may still result in increased salaries for the trained staff. It would follow that smaller districts, with lower student enrollments, would find themselves financially limited and unable to afford access to these staff/expertise. The higher cost of schooling per pupil due to the inability to take advantage of economies of scale, coupled with a per-pupil funding formula, leaves smaller schools and districts at a financial disadvantage compared to their larger counterparts.

Anecdotally, recent escalation of energy and insurance costs has left many schools/districts in poorer financial standing. Again, this coupled with the aforementioned factors would presumably leave them in a position of being forced to make cuts in order to control costs. A majority of school expense comes in the form of staff salaries and tough financial circumstances would almost certainly require reduction in administrative and teaching staff, rather than adding specialized staff and their skill sets to assist with change initiatives. This creates an additional burden on remaining administrators attempting to create, initiate and implement new strategies for improved

student learning. The phenomena of being forced to do more with less leaves many administrators, and teachers alike, without the time to address and adequately lead the change initiatives desired to boost student achievement.

With a presumed lack of specialist support for Minnesota's small school administrators, there is also a lack of research concerning the number of schools and districts, especially smaller schools and districts, which have assessment, curriculum and staff development specialists or access to their expertise. This lack of data would appear problematic for policymakers, especially those that claim to support education and educational improvement. It would consequently appear to be problematic for administrators if policymakers do not have the data necessary to make appropriate and targeted policy decisions to support them in their school improvement efforts. Identifying the prevalence of specialists in small schools and districts is necessary to paint an accurate picture of what these administrators face in their attempts to improve schooling in Minnesota and meet the requirements of No Child Left Behind.

Statement of the Problem

Little is known concerning the level of access small schools and districts have to assessment, curriculum development and staff development expertise. Research into this topic is necessary to inform state-level policymakers in their decisions to assist schools in meeting the requirements of No Child Left Behind.

Purpose

The purpose of this study was to quantify the percentage of Minnesota small schools and districts that hire an internal staff member expressly for the purpose of

assessment, curriculum development and staff development. Further, what percentage has external access to individuals with these expertise readily available. A secondary purpose of the study was to compare access to specialists between the small schools/districts of Minnesota and their larger counterparts. The final purpose of the study was to ascertain whether Minnesota small school administrators feel they have adequate access to assessment, curriculum development and staff development expertise to achieve the mandated goals under No Child Left Behind.

Hypotheses

In order to address this lack of data, the research attempted to address the following hypotheses:

1. District/school size will have no effect on the prevalence of internal assessment, curriculum development and staff development specialists.
2. District/school size will have no effect on access to external assessment, curriculum development and staff development specialists.
3. District/school size will have no effect on combined access to either internal or external assessment, curriculum development and staff development specialists.
4. District/school size will have no effect on administrators' perceptions of capacity to respond to No Child Left Behind?

For purposes of testing the above hypotheses, each statement was written in a null format.

Chapter 2: Review of the Literature

Impacts of No Child Left Behind and Demographic Trends

Le Floch, Taylor, and Thomsen (2006) summarized the implications for school districts of the No Child Left Behind (NCLB). They highlighted schools' need to meet targets of Adequate Yearly Progress, otherwise known as AYP. The legislation increased requirements placed upon schools for meeting proficiency in student achievement and participation categories and forces schools to demonstrate that a number of identified subgroups of students meet the requirements. The major requirement schools must meet comes in the form of increased student learning as exhibited through improved scores on standardized test measures. In Minnesota, the Minnesota Comprehensive Assessments are the tests used to determine if schools are making AYP. Schools that fail to make AYP for any subgroup for 2 consecutive years are identified for improvement. Failure for 3 consecutive years requires that schools provide students with supplemental services, such as tutoring. If the trend continues through 4 or more consecutive years the school is determined to be in need of corrective action followed by restructuring. Restructuring ultimately leads to one of a palette of options which include closing the school, terminating employees and/or change in school governance.

Jennings and Rentner (2006) highlighted the ten major effects of NCLB. Of particular interest are schools increased attention to curriculum alignment, assessment and staff development. They accentuated the financial burden these additional responsibilities placed upon local districts and the lack of federal financial support to offset the costs.

The National Association of State Boards of Education (2002) stated in their *No Child Left Behind: A Guide for Small and Rural Districts* that districts need to create new systems to provide access to assessment results for teachers and principals. Districts will also need to provide increased training to teaching staff and administration to insure they have the skills necessary to make use of assessment data.

Barton (2003) in a survey of small, rural and isolated schools identified the key challenges for small schools in meeting the new requirements imposed by NCLB. Two key findings included:

- 1) During tough economic times funding new programs and initiatives can be detrimental for small schools and budget limitations can inhibit districts' opportunities to hire and retain highly qualified staff.
- 2) The hiring ability of these schools is further aggravated by low salary scales, lack of opportunity for spouses to find employment and a lack of opportunity for professional development.

Reeves (2003) noted that schools located in rural areas represented 42 percent of schools in the nation and the students they serve accounted for 30 percent of students nationwide. She further noted that rural schools and districts are often small schools and must address issues of geographic isolation and declining enrollment. Declining enrollment has provided specific challenges to small schools and districts under NCLB due to the structure of Minnesota's funding formula.

In general, declining enrollments mean declining budgets. Declines in budget often result in cuts to programs. These cuts are coming at a time when districts should be

increasing training to teachers and administration and providing support through additional specialized personnel. Reeves' (2003) work supports this concept by acknowledging that the demographic situation faced by small rural schools and districts affects funding negatively and reduces access to academic programming, support services and staff training. Mathis (2003) went so far as to say that the new demands placed on small rural schools by NCLB were magnified due to the unique factors these schools are already facing.

A Brief History of Minnesota School Funding

Minnesota's funding system is based primarily upon a per-pupil model determined by weighted average daily membership within a school district. Weighted average daily membership assumes the cost of schooling roughly equates to the number of students the district serves and cost differs based upon the grade-level of student served. In Minnesota, the first movement toward this funding approach was established in 1887 when the state provided per pupil funding to schools based upon the number of students that attended at least 40 days of school per year (Melcher, 2005). The per pupil aid of this time was not the primary source of school funding. It was a state supplement to the majority of school funding, which was derived from local property tax. By 1935, the state was making attempts to provide for equal funding on a per pupil basis. This was done by supplementing districts that taxed themselves above a certain rate to insure they were receiving a minimum level of funding per pupil in average daily attendance (Melcher, 2005). The concept of weighted pupil units was introduced in Minnesota in 1947. A weighted pupil unit increases, or decreases, the amount of funding received for a student

based upon various factors. The common example of pupil weighting is the different value assigned to kindergarten students and high school students. Kindergarten students tend to be valued lower than one full pupil unit, while high school students are valued at a value higher than one pupil unit. This is due to the assumed difference in cost to educate these students.

Over the course of the 20th century, the primary source of funding for Minnesota schools shifted from local constituents and the property tax to the state through use of sales tax revenue. A number of specialized categories are added to state funding calculations to account for differing circumstances among districts. Examples of these categories are sparsity aid, which accounts for districts transportation costs in diffusely populated areas, and supplemental aid for districts with populations of students who exhibit limited English proficiency (Melcher, 2005). Local districts are allowed to supplement state funding within limits through property tax (Minnesota Department of Education, 2008). A number of the limits are placed on local taxing authority. These limits intend to prevent large disparities in school funding due to localized differences in property tax base and ability to pay. The shift from local funding to state funding in conjunction with local tax limits creates a fiscal dependency upon the state.

Implications of State Funding Formulas for Small Districts

Reeves (2003) reviewed the research on the financial standing typical of many small and rural districts. She argued that many states rely heavily on property tax to generate revenue for public schools. For smaller districts, especially rural districts, local property is less developed and less valuable. This forces local education districts to tax at

a higher percentage to achieve the same level of funding as a property wealthy region. On average, Minnesota districts gain 10% of their total revenue from operating referendums based upon a local property tax levee (Minnesota Department of Education, 2007).

In addition to property value concerns, Reeves (2003) identified that small, typically rural, schools can not take advantage of the fiscal benefits achieved through maximizing economies of scale. Much attention is given in the finance research to economy of scale. Economy of scale can be defined as “the financial benefits realized as a function of increased size of an organization” (Streifel, Foldes, & Holman, 1991, p. 14). Reeves (2003) made the argument that small schools and districts must provide certain services, but cannot spread the cost of those services over a large number of students. This results in an increased cost per student. She noted that this is also true of specialist staff salaries. She used busing as a specific example of the impact caused by the inability to take advantage of economies of scale combined with the special circumstances faced by small, typically rural, schools. Reeves (2003) pointed out that larger urban and suburban districts spend approximately 4 percent of their annual budget on busing of students compared to 6 to 8 percent in small rural districts.

Haas (2000) echoed the concerns related to transportation and added that a similar phenomenon occurred with facility maintenance costs. The resultant proportional increase in transportation and maintenance costs reduces the amount of funding remaining for salaries, materials and equipment. This appears particularly problematic when schools are faced with a mandated situation that requires the addition of specialist staff, new training opportunities and systemic changes.

Thorson and Edmondson (2000) identified Minnesota's funding system as one that employs a linear logic which assumes school costs are based almost solely upon the number of students served. They researched the expenditures for Minnesota schools and found that smaller schools have a higher cost per-pupil to educate the students. The authors cited court cases that had led Minnesota legislators to redress the funding system of the day to create a more financially equitable system for Minnesota schools, but maintained that the system created still leads to large disparities in funding which disadvantage small and rural schools. According to their data, Thorson and Edmondson (2000) proposed that an inverse logarithmic model best explains the true costs associated with schooling. They also gathered data that suggested small and rural districts are compensating for the disparities in funding created by a linear funding model by taxing their local constituents at a higher rate per-pupil.

As a result of the research, Thorson and Edmondson (2000) proposed the addition of a new special funding category to the Minnesota General Education Revenue Formula that would appropriate new dollars based on school size to address the disparities caused by the linear funding model.

Thorson and Maxwell (2002) built upon the research of Thorson and Edmondson (2000) by evaluating whether the resource inequities faced by smaller schools led to significant hardship in infrastructure, resources and staffing. They found small districts suffered in terms of infrastructure and resource compared to larger districts. They stated the basic formula, which accounts for a majority of funding to districts, creates a disparity between small and large districts, putting smaller districts at a significant competitive

disadvantage. Thorson and Maxwell further claimed the disadvantage is magnified in small districts where the local citizenry has not opted to tax themselves at higher rates through referendum. Based upon their conclusions, they proposed a change to the funding formula by increasing Basic Revenue by 8% for the first 500 students and 4% for the second 500 students.

As of November 2007, neither of the recommendations put forth by Thorson and Edmondson (2000) and Thorson and Maxwell (2002) had been made to the Minnesota funding formula. The current formula is still based upon a linear per-pupil model with other specialized additional funding categories, none of which, other than the sparsity categories are aimed at assisting small schools (Minnesota Department of Education, 2007). It should be noted that both the sparsity and transportation sparsity categories that currently exist in the Minnesota funding formula were in effect during the writing of the two aforementioned studies.

Mathis (2003) also discussed the use of categorical funding to address issues of equity in financing small rural schools. The author identified the sparsity category, like that used in Minnesota, as one of the common categories used by states to assist small and rural districts. Mathis (2003) gave an important insight into categorical funding of this nature. He highlighted that the dollars dedicated to these specialized funding categories are insufficient. The funding levels tend to be the result of political compromise and are not based on evidence of actual cost or research related to adequate funding.

Researchers point to a trend toward larger schools as a result of policy decisions made based upon research in the late 1960's and early 1970's which stated schools would benefit from larger size and be able to run more cheaply per student due to economies of scale (Stiefel, Foldes, & Holman, 1991). Specifically, the increase in school and district sizes through consolidation is often attributed to James Bryant Conant and his 1967 book which indicated that larger schools could offer a wider array of programming at lower costs (Irmsher, 1997). Mathis (2003) and Lee and Smith (1997) also pointed to the economy-of-scale logic as the main driver of school consolidation and size increases.

While it has been shown that larger schools do spend less per pupil, Stiefel, Iatarola, Fruchter, and Berne (1998) refuted this logic of per-pupil expenditures as an accurate measure of schooling cost and showed that cost per graduate was lower in New York City small schools than in the larger schools despite the larger schools having a lower cost per pupil. The study was able to show that the educational benefits of small schools translated into cost efficiency benefits if we reevaluate how we measure cost. A shift away from the cost per pupil paradigm to a system that views the cost of education per graduate would support systems that are both efficient and effective. This finding was echoed by Bingler (2002).

This finding and new format for viewing cost logically follows the recent changes in how schooling has been perceived by policymakers. Stiefel, Iatarola, Fruchter and Berne (1998) noted that school budgets are not based upon calculations of costs to produce graduates or provide adequate programming, but instead are the result of legislative policy decisions and compromises. When school access is the concern, cost

per-pupil makes sense as we are evaluating the most efficient way to provide this access. As results in the form of student learning become the focus of policy, it makes sense to measure costs vs. results rather than costs vs. access. They point out that research related to outputs rarely ever considers cost and that little work has been done linking costs to output.

Funk and Bailey (1999) used the cost per graduate logic in their assessment of the achievement and cost of small school districts in Nebraska. According to their findings, cost per pupil in the smallest districts was 50 percent higher than in the largest districts, but when the cost was calculated per graduate that difference was lowered to 25 percent. They argued that this 25 percent increase in cost may be negligible when sociological costs associated with dropouts are considered. They pointed to statistics which showed that dropouts, when compared with high school graduates with no college experience, were much more likely to be unemployed, receive other state assistance, or be incarcerated. If employed, high school dropouts, on average, earned only 62 percent of the annual income of their high school graduate counterparts.

Funk and Bailey (1999), in concluding their research, called for a more equitable system of financing Nebraska schools and an outcome-based system of review for measures of efficiency. They proposed a funding system that considered different cost groups based on size as one means of addressing the current system, which they alluded to as being discriminatory.

As further emphasis for the economic viability of small schools, a study by Streifel, Foldesy, and Holman (1991) concluded that cost savings realized by increasing school

size through consolidation, which was popular throughout the latter half of the 20th century, did not reduce budget expenditures to a level that could be leveraged to the schools advantage. They further stated that the consolidations may have led to lower student achievement and less community support.

Mathis (2003) summed up the situation for many small and especially small rural districts in his statement “they have less financial capacity to support education, even if they have the will” (p. 10). Lee and Friedrich (2007) in their review of small learning communities further echoed the issue of school funding stating that the future small schools movement “remains unknown because the issue of cost-effectiveness hangs in the balance” (p. 269).

A Brief History and Benefits of Small and Rural Schools

“Since World War II, the number of schools in the United States has declined 70 percent, while the average size grew fivefold. More than one in four secondary schools nationwide enroll over 1,000 students, and enrollments of 2,000 and 3,000 are not uncommon” (McComb, 2000, p. 3). Howley (2000) echoed this trend indicating that average daily attendance for districts throughout the nation increased from 187 students to 2,848 students from 1937 to 1996. This period also saw the number of districts decline from approximately 119,000 to 20,000. Howley (2000) noted that despite the decrease in districts and the subsequent increase in size, as of 1997-98, almost 64 percent of districts were considered small-town or rural districts. Financial incentives to encourage the consolidation of small rural districts began in Minnesota as early as 1911 at which time Minnesota had approximately 8000 schools districts (Melcher, 2005). Lee and Smith

(1997) state that results of research related to school restructuring find that most high schools have grown too large to maximize student gains.

In a review of small school research in the mid-80's, Barker (1986) pointed out many current innovations and best practices which were common practice in small schools at the turn of the 20th century. Inherent, but not directly stated, was the loss of many of the practices as schools increased in size. Examples of the practices listed by Barker were individualized instruction, peer tutoring and cross-aged grouping.

Barker (1986) also cited many other benefits of smaller schools: closer relationships leading to easier acceptance of new ideas, increased student morale due to opportunity for group participation, greater flexibility in curricula and organizational change, and lower occurrence of discipline issues leading to more direct instructional time. He further stated that teachers were more likely to know their students and adjust curriculum accordingly, teachers were more likely to use a diverse set of instructional and assessment strategies, there were more opportunities for students to develop leadership ability, and small schools were more manageable allowing administrators to spend more time in classrooms focused on instructional improvement. Many of these same benefits are also identified by Bingle et al. (2002).

In their study of Nebraska high school graduation and postsecondary enrollment rates, Funk and Bailey (1999) found the smallest schools exhibited the highest graduation rates and postsecondary enrollment rates by percentage. Specifically, the study found 97 percent of students graduated in districts with fewer than 100 students at the high school level. This compared to an 85 percent graduation rate statewide. Postsecondary

enrollment rates were found to be 9 percent higher for students who attended school in a district with 100 or fewer high school students when compared to districts with 600-999 high school aged students.

Raywid (1999), in a review of small schools literature, stated that quantitative studies of school size had “firmly established small schools as more productive and effective than larger ones” (p. 2). In the summary, she pointed to research findings that indicated small schools showed an overall increase in student learning, students advanced toward graduation at a greater rate and reported greater satisfaction, dropout rates were lower, and there was a lower rate and severity of student discipline issues. Small schools have also been shown to have higher passing rates for state-level standardized tests (Stewart, 2009).

School size and poverty interact negatively. Increases in school size showed decreases in student achievement for impoverished students (Bickel, Howley, Williams and Glascock, 2000; Howley and Bickel, 2000; Howley, Strange, and Bickel, 2000). Howley and Bickel (2000) found that the positive effect of small schools on poverty were most important during key middle transition grades when students were most likely to drop out. School size is not a question of a one-size-fits-all model. Schools should be smallest in communities with the highest levels of poverty (Bickel, Howley, Williams and Glascock, 2000). In a statement to policy makers, they urged them to reduce school sizes, especially in the poorest communities, as a mechanism for narrowing the achievement gap. They concluded that a significant number of schools were too large to best maximize the achievement of their students based upon their socioeconomic status.

Bickel, Howley, Williams and Glascock (2000) found evidence of per-pupil cost savings for the smallest schools when they house K-12 programs in a single building as compared to larger districts with multiple schools. They noted that these savings per-pupil rapidly diminished as these K-12 settings increased in size.

Nathan and Hare (2001) in their discussion on small schools estimated “approximately three-quarters of U.S. high school students attend schools of more than one thousand students and more than half of high schoolers attend schools with more than 1500 classmates” (p.5). They reiterated many of the benefits already listed in prior small school research, such as higher achievement, better discipline, etc., as rationale for creating small schools. They stated this is especially important in the near future as an estimated \$84 billion dollars are expected to be spent on the construction and renovation of schools. They pointed out the vast opportunity this represents for affecting the quality of education for generations to come.

In their review for their article on the cost efficiency of small schools, Bingler et al. (2002) and Vander Ark (2002) added a few new benefits of small schools atop those already listed, namely lower levels of violence and vandalism, better attendance and higher grade point averages.

Bingler et al. (2002) calculated a percentage increase in many indicators of the school environment based upon data from the U.S. Department of Education. They found that schools with 1000 or more students compared with schools of less than 300 had “825 percent more violent crime, 270 percent more vandalism, 378 percent more theft and larceny, 394 percent more physical fights or attacks, 3200 percent more robberies and

1000 percent more weapons incidents” (Bingler et al., 2002, p. 19). They also asserted that recent evidence showed that school size may play a bigger role in student success than race and class sizes. They further discussed the added benefit of proximity that would be provided by introducing more small schools. The authors discussed the social impacts, namely reduced family time, of long busing routes brought about by rural consolidation and highlight reintroduction of more small schools as a means to reduce bus and other travel time to school and school related events.

In a 2001 article on the benefits of small schools, Wasley and Lear (2001) laid out the characteristics that made small schools, which they defined as containing fewer than 400 students, effective in educating students. They cited strong relationships between parents, staff and students, shared leadership, focused curriculum, ongoing embedded professional development, strong school culture and community engagement as additional benefits of small schools.

How Big is Small

In a study by Lee and Smith (1997), the authors set out to determine an optimal size for high schools based upon achievement in math and reading. In their analysis, Lee and Smith (1997) took into consideration factors such as socioeconomic status and racial make-up of the schools. The authors stated that “learning is distributed more equitably in smaller schools” (p. 213). Although the smallest schools were the most equitable, they did not show the greatest gains in student achievement for any of the sample groups. According to their results, the optimal school size in terms of academic gains is 600-900 students regardless of socioeconomic status. Results were similar when schools were

analyzed based on percentage of enrollment of minority students. Based on their results, Lee and Smith (1997) made four major conclusions:

1. "High schools should be smaller.
2. High schools can be too small.
3. Ideal size does not vary by the types of students who attend.
4. Size is more important in some types of schools." (p. 216-217)

They further pointed out that although optimal size is similar for all students sampled, it is most critical for disadvantaged students. Increases or decreases from optimal size showed severe drops in gains for disadvantaged students especially as schools grew larger. They noted the troublesome nature of this finding in that many disadvantaged inner city students attend the largest schools.

Raywid (1999) cited two studies and one report from the National Association of Secondary School Principals concerning their recommendations of upper limits of school size. The results from these were a maximum of 800 students from one study, 600-900 (the Lee and Smith Study) and 600 students. All of the recommendations given for upper limits were for high schools. Howley (2000) cited the National Association of Secondary School Principals and the Carnegie Foundation when he stated schools should never enroll more than 600 to 1,000 students.

Howley, Strange, and Bickel (2000) stated that school size should be based upon the socioeconomic status of the community with the smallest schools serving the most impoverished communities. Unlike Lee and Smith, the authors did not claim that schools under a certain size were too small. The authors did not state a specific size or range of

sizes based upon the socioeconomic status of the community, only offering that affluent communities would benefit from slightly larger schools while schools should become progressively smaller as socioeconomic status decreases.

Vander Ark (2002) attempted to address the lack of a concrete definition of small and offered that high schools should have no more than 100 students per grade level. Wasley and Lear (2001) came to a similar conclusion as Vander Ark, but further asserted that schools, of any age level, would benefit from serving 400 students or fewer.

Bingler et al. (2002) addressed the same issue and created a set of ideal upper limits for school and grade level size in order to reap the benefits outlined by research. They specifically used five principles from the research:

- “Elementary schools are, on average, already about half the size of high schools. They should be even smaller.
- There are social and academic liabilities to narrow grade span configurations. Narrow configurations are not advisable because they enroll more students per grade than schools with wider configurations.
- The recommendations given concern the upper limits of small size, not ‘optimal sizes for a small school’.
- The smallest schools should exist in the poorest communities.
- One size does not fit all.” (Bingler et al., 2002, p. 17)

With these precepts serving as a foundation, they stated high schools ideally should have no more than 75 students in each grade level for a total of 300 students in grades nine through twelve. Middle schools would comprise of no more than 50 students per grade

with a total enrollment of 200 for grades five through eight. Elementary schools housing grades one through eight should have no more than 25 students per grade for a total of 200 students. Elementary schools serving grades one through six should maintain the same class size of 25 students putting total enrollment at 150 (Bingler et al., 2002).

Faus and Clark (2009) stated 50 students per grade, or fewer, is small enough and that this maintains an environment where students and teachers “can know each other” (p. 82). Strike (2008) contended that student enrollment is not the ultimate factor in determining what constitutes a small school. He placed primary focus on schools maintaining enrollments low enough to maintain a sense of community among its members in order to feel small.

Summary

New rules were initiated through the No Child Left Behind Act requiring schools to exhibit continuous improvement as evidenced by improved student standardized test scores. These new rules increased pressure on schools to insure a consistent, well-aligned curriculum. The legislation’s requirement that schools disaggregate data based upon identified student subgroups also forced schools to insure that groups of students which may have historically been ignored due their minority status are making satisfactory progress. This has forced schools to pay closer attention to the impact of current curriculum and teaching practices in regard to underserved populations.

As a response, schools have been attempting to make better use of student assessment data, as a means for driving targeted curriculum and staff development. Analysis and interpretation of assessment data, identification and execution of curriculum

development needs and identification and execution of staff development needs have become increasingly important due to the new demands.

The current funding structure of schools, despite many improvements throughout the state's history, still creates inequities in terms of programming and staffing capacity which places small, typically rural, schools and districts at a disadvantage. The new demands of NCLB may well exacerbate this situation leaving small districts and schools without the capacity to respond to the legislation's demands.

The ability to identify potential discrepancies which may exist in staffing to address the change needs of schools and districts under NCLB is critical. If discrepancies do exist, it would be in the interest of legislators to have this knowledge to drive funding and policy decisions to insure all schools have the capacity to respond. This would be especially true for legislators representing districts and schools which are specifically disadvantaged. The research questions proposed in Chapter 1 are meant to serve as a means for the preliminary identification of potential disparities in district and school capacity based upon size.

Chapter 3: Methodology

The initial argument put forth in introducing this research assumed that the many small districts, and by extension small schools, of Minnesota are likely short on capacity in the realms of assessment, curriculum development and staff development. This argument is based upon prior research into the specific consequences of the Minnesota funding formula, similar linear per pupil formulas, and declining enrollments. These phenomena directly affect the capacity of small districts, and their schools, to respond to the demands of No Child Left Behind. The hypotheses developed and introduced earlier in the paper were designed to ascertain the level of access to specialized expertise in assessment, curriculum development and staff development for small school administrators at the district and building level.

Statement of the Problem

Little is known concerning the level of access small schools and districts have to assessment, curriculum development and staff development expertise. Research into this topic is necessary to inform state-level policymakers in their decisions to assist schools in meeting the requirements of No Child Left Behind

Hypotheses

In order to address this lack of data, the research attempted to address the following hypotheses:

1. District/school size will have no effect on the prevalence of internal assessment, curriculum development and staff development specialists.

2. District/school size will have no effect on access to external assessment, curriculum development and staff development specialists.
3. District/school size will have no effect on combined access to either internal or external assessment, curriculum development and staff development specialists.
4. District/school size will have no effect on administrators' perceptions of capacity to respond to No Child Left Behind?

The hypotheses listed were written in a null format assuming no differences based upon district or school size.

Research Methodology

A mixed methods design best addressed the needs of this research. The focus of the research was to discern whether differences existed between districts and schools in regard to prevalence of specialists based upon district and school size as measured by student enrollment. A predominately quantitative approach allowed for direct numerical comparisons between districts/schools which reported access based upon enrollment and allowed for statistical analysis of responses provided by research participants. Respondents' numerical responses were further supplemented by allowing for explanation and clarification through qualitative approaches. Participants were allowed the opportunity to provide further insight into their responses.

Research Design

Data to satisfy the above listed hypotheses were most readily gathered through a survey methodology. A survey design allowed for the efficient gathering of data from a large group of informants. This study aimed to gain an accurate picture of the prevalence

of specialists throughout Minnesota based upon school size. With over 400 schools districts and over 1000 schools, a large number of informants was necessary. A survey design was the most practical means by which to gain a desirable number of informants in a time frame that allowed for timely analysis and dissemination of the data.

The survey was a web-based self-administered design composed primarily of forced response items and discrete visual analog items. Both of the item types gave the informant a choice between two or more potential responses. This design was chosen for three major reasons.

First, it limits the variation in responses allowing for greater ease of data analysis while still gathering the necessary data. As the major focus of this study is specialist access survey questions that focus strictly on access were designed as yes/no response items. A second focus of the research was to determine if administrators felt they had adequate organizational capacity to respond to the demands of No Child Left Behind. Items intended to measure administrators perceptions were designed as discrete visual analog items. All discrete visual analog items allowed the informant to choose from a range of one to four, with a score of one representing the lowest level and a score of four representing the highest possible level. The item types chosen were used as an effective means of gathering the necessary data to answer the research questions.

Secondly, the homogeneity of the informant population sampled allowed for the effective use of a self-administered design. Due to strict administrative licensure requirements, many Minnesota school and district administrators have similar educational backgrounds. Many similarities among districts, such as hierarchical structure, the need

to follow state statutes and federal regulations, and the existence of professional administrative associations lead to a relatively homogenous working experience and vocabulary for Minnesota administrators. These, and other factors, assist to ease the difficulty that can be encountered in attempting to develop a reliable and valid survey instrument.

Lastly, it was presumed that Minnesota districts and schools and their respective administrators, regardless of district size, have access to the internet. For ease of data collection and to save cost, the survey was developed as an internet-based electronic survey.

Population and Sampling Procedure

The survey sampled from district superintendents and head school principals, as the individuals in these positions are ultimately responsible for the function of the respective district or building in most school hierarchical systems. In the event of non-traditional schools, such as charter schools, the individual(s) that most closely approximated the aforementioned positions was targeted, as an example directors or lead teachers.

Sampling was conducted over a single time period during December of 2009. There are over 400 active district superintendents and over 1000 active building principals in Minnesota.

All superintendents and head building principals within Minnesota, according to a list compiled by the State of Minnesota, were mailed a survey consent form which contained information on how to access and participate in the survey. The consent form can be found in Appendix A.

Despite the focus of the study on small Minnesota districts and schools, districts and schools of all sizes throughout the state were included in the sampling. Data from larger districts and schools were necessary to draw comparisons to ascertain whether small schools are disadvantaged in their level of access to specialized staff/skills. Without these comparisons, it would not have been possible to discern whether any findings were specifically applicable to small schools or were a sign of a larger issue for schools of all sizes throughout the state.

Instrumentation

Two separate instruments were utilized, each specific to the group questioned. Both instruments asked the same line of questions. The instrument directed toward superintendents asked questions about the district level. The instrument directed toward principals asked questions specifically about the building level. The survey instruments were housed through the online survey hosting site www.surveymonkey.com. The survey questions can be viewed in Appendix B.

Validity and Reliability

Validity and reliability were not formally tested prior to usage of the instrument. The instrument was reviewed by a panel of four college faculty members prior to conducting the survey. Validity and reliability testing were not conducted in part due to the relatively homogenous population mentioned in the earlier section on research design.

Data Collection Procedures

All informants were provided with a consent form that contained the web address www.d.umn.edu/~mcary/survey.pdf to access the survey. Once informants navigated to

this address, they were able to see a short welcome message and two hyperlinks. A copy of the welcome page can be viewed in Appendix A.

The first hyperlink led to the superintendent survey and the second hyperlink led to the principal survey. Both hyperlinks, when activated, required the informants to enter a password to access the survey. A generic password was provided to each participant within the consent form. Once the informant provided the correct password, he/she was automatically linked to a web-based survey hosted through www.surveymonkey.com.

Survey responses were maintained by Survey Monkey. A one-month time frame was allowed for informants to respond. At the conclusion of this time frame, the results provided were download is a .csv file format. This file format is readily opened using Microsoft Excel.

Data Analysis Procedures

All survey responses were downloaded into a Microsoft Excel spreadsheet. District data and school data were analyzed separately, but underwent the same general treatment. The only difference in treatment of the data between districts and schools was in regard to disaggregation of results into size categories.

Preliminary groupings of the data based upon school and district size were done according to the following patterns. Throughout the literature, many of the recommendations for school size tend to fall in increments of three hundred. Some experts claimed schools should be 300 students or smaller, others reported fewer than 600, and still others reported 600-900. Many, but not all, of the numbers reported for ideal school size were listed as multiples of 300. Due to this phenomenon, the size

groupings by school were broken down in increments of 300 students for many of the statistical comparisons. For district size, no such recommendations were found.

Therefore, for basic statistical comparison, districts were grouped in increments of 1300 hundred students – one hundred students per grade level K-12.

For the research questions related to specialist access, the aggregate data were analyzed to determine the percentage which reported the presence of an internal assessment, curriculum development and staff development specialist. The percentage of districts reporting specialists vs. those not reporting specialists was calculated to provide a simple comparison. The same analysis was completed in regard to access to external assessment, curriculum development and staff development specialists. These aggregate percentages provided a statewide overview and helped to provide a context against which to view the data disaggregated by size category. The categorized data underwent the same treatment. This treatment provided a simple picture of the percentage of districts within each size category which reported specialist access.

The categorized data was further analyzed to determine the percentage which reported any type of access. The results of both the internal and external access questions were combined to determine whether a district reported either type of access. This calculation was reported under the term total access. This treatment sought only to determine if a district had access to at least some form of specialist expertise. These data were used strictly for purposes of reference and did not undergo treatment for determination of statistically significant relationships.

For determinations of statistical significance, data were treated as continuous based upon reported student enrollment and were categorized based upon whether access to a specialist was indicated. Data were entered into the program Statistical Package for the Social Sciences. A univariate analysis of variance was utilized to calculate an F number and p value for determination of a statistically significant difference between the group reporting access and the group which did not. Only results which gave a p value of .05 or less were considered to have met the threshold for statistical significance. This analysis was conducted for each line of questions related to specialist access.

For the research questions related to administrator perceptions, a group average was calculated for each size category. These averages were used for the purpose of reference. Respondents were provided with a four point scale by which to rate their perceptions of specialist capacity. A score of one was considered low and a score of four was considered high. Respondent averages were compared to the scale midpoint of 2.5. An average score under the midpoint was interpreted as meaning administrators felt capacity was inadequate while an average score above the midpoint was interpreted as representing adequacy.

For purposes of determining statistically significant differences, both parametric and non-parametric analyses were utilized. Pearson and Spearman correlation coefficients were calculated for all questions related to administrator perceptions.

Ethical Considerations

All questions asked of respondents were directly related to organizations in which they worked and were not of a personal nature. The survey consent form, research

questions and collection process were reviewed by the Institutional Review Board of the University of Minnesota. The research was determined to be exempt from the requirements for research with human subjects due to its focus on organizations rather than individuals. Despite this exemption, all responses were collected anonymously to prevent any potential ramifications for respondents.

Summary

To accurately determine whether small districts and schools within Minnesota are specifically disadvantaged in their access to specialist expertise, a mixed methods web-based survey approach was utilized. School district and building leaders statewide were notified of the opportunity to participate in the survey.

The survey instrument was made available online and participants were able to access the surveys through a password protected intermediary site hosted through the University of Minnesota's Duluth campus. Survey results were housed online through the survey hosting site Survey Monkey and were downloaded for analysis following a month-long response gathering period.

The data gathered and underwent basic analyses in aggregate and based upon predetermined size classifications. Basic analysis allowed for simple numerical comparisons between statewide data and results disaggregated by student enrollment of the organizations which responded. A more detailed analysis allowed for determination of statistically significant relationships between district/school size and specialist access, as well as administrator perceptions of capacity.

Chapter 4: Results

Survey notices informing head district superintendents and building level principals of the research survey opportunity were mailed to every lead administrator in the state of Minnesota as listed in the mailing list obtained through the Minnesota's Bookstore service. Approximately 2100 notices were mailed to ~400 superintendents and ~1700 principals. The approximated number for principals is likely overinflated due to numerous multiple listings within this group due to individuals who serve at more than one of the following levels: elementary, middle/junior high school, and high school. Responses were received from 42 superintendents and 92 lead principals representing approximately 10% and 5% of the respective populations sampled. In instances where results from the reporting districts and schools were incomplete, the results were not utilized for purposes of this study. Results of these responses will first be reported at the district level followed by school. Each section will address the results in order of the research questions as listed at the end of Chapter 1. Results for each research question will be reported in aggregate form to give a general overview of the state as a whole followed by a report of results by district/school size to highlight potential disparities in access by size.

District Results

District results for each question will be reported in aggregate form first to provide a state-level view of the prevalence of specialist staff within Minnesota districts. This will be followed by results aggregated by district size. Districts were split into three size categories: 0-1300 students, 1300-2600 student and 2600 or more students. Twenty-two districts fell into the first size classification of 0-1300 students, eight districts fell into the second size classification of 1300-2600 students and nine districts fell into the third size classification of 2600 or more students. None of the districts reported having exactly 1300 or 2600 students allowing for the overlap in size categories.

Research question 1.

The first research question addressed issues of internal staffing of assessment, curriculum development and staff development specialists within districts. District leaders were asked if their districts hired an individual(s) specifically for the purpose of assisting with assessment, curriculum development and staff development needs.

Fourteen of the responding districts reported having an individual hired specifically for the purpose of providing assessment expertise while twenty-five districts reported no such individual. The results translate to 36% of districts having access to an internal assessment specialist. Twelve of the responding districts reported having an individual hired specifically for the purpose of providing curriculum development expertise while twenty-seven districts reported no such individual. The results translate to 31% of districts having access to an internal curriculum development specialist. Thirteen of the responding districts reported having an individual hired specifically for the purpose of

providing staff development expertise. Twenty-six districts reported no such individual.

The results translate to 33% of districts having access to an internal curriculum development specialist. Figure 1 summarizes the results of district responses.

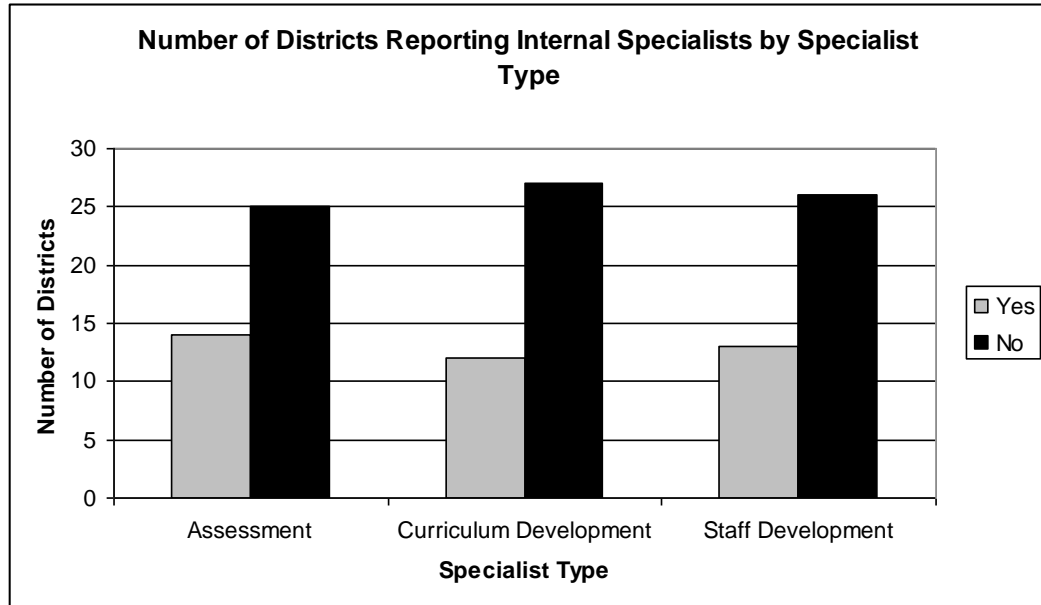


Figure 1. Results provided by district superintendents indicating the presence of an internal specialist by specialist type.

District aggregate results indicate that approximately one-third of schools districts in Minnesota, with a range from 31%-36%, report having access to the internal experts in question. Two-thirds, with a range from 64%-69%, report having no internal access.

Table 1 summarizes the aggregate results from districts for all three specialist types.

Table 1

	Assessment		Curriculum Development		Staff Development	
	Raw #	Percent	Raw #	Percent	Raw #	Percent
Yes	14	35.9%	12	30.8%	13	33.3%
No	25	64.1%	27	69.2%	26	66.7%

Results from the first question were disaggregated based upon district size. Of districts falling into the 0-1300 student size range, three or 13.6%, reported having an individual(s) hired internally for the purpose of assisting with assessment needs. The percent reporting internal assessment expertise increased to 37.5% for the group of districts with 1300-2600 students and to 88.9% percent of districts in the 2600+ student category. Figure 2 and Table 2 summarize these results.

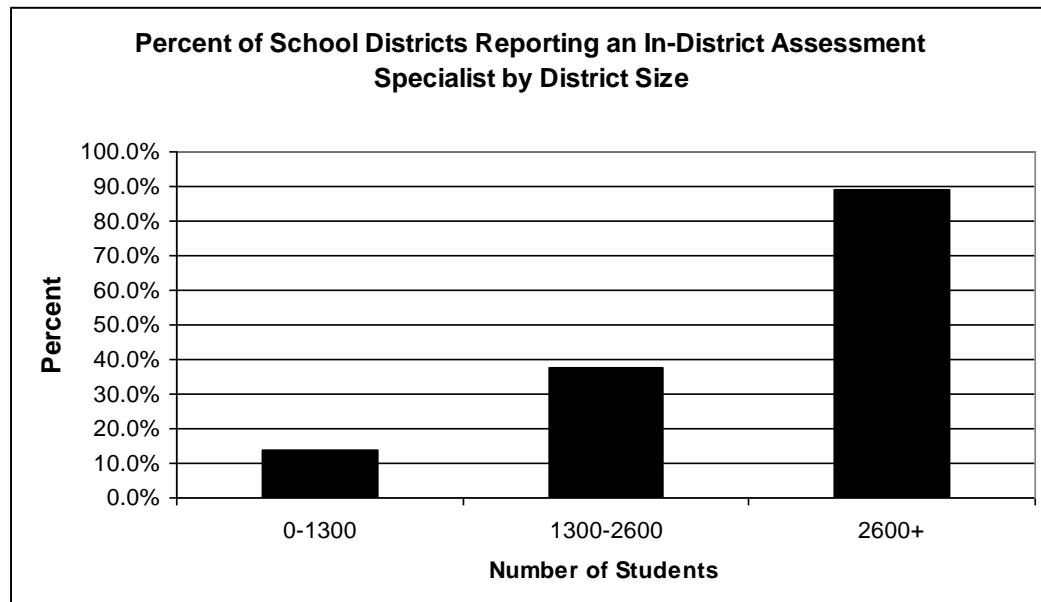


Figure 2. The percent of districts by size reporting an internal individual hired specifically for the purpose of assisting with district assessment needs.

Table 2

Number and Percent of Districts Reporting In-District Assessment Specialists by District Size

	0-1300 students	1300-2600 students	2600+ students
Raw #	3	3	8
Percent	13.6%	37.5%	88.9%

For curriculum development assistance, the informants reported two, or 9.1%, of the smallest districts having access to internal specialist staff. The 1300-2600 student cohort reported 37.5% with curriculum development specialists and the largest cohort with 2600+ students reported 77.8%. Figure 3 and Table 3 summarize the results.

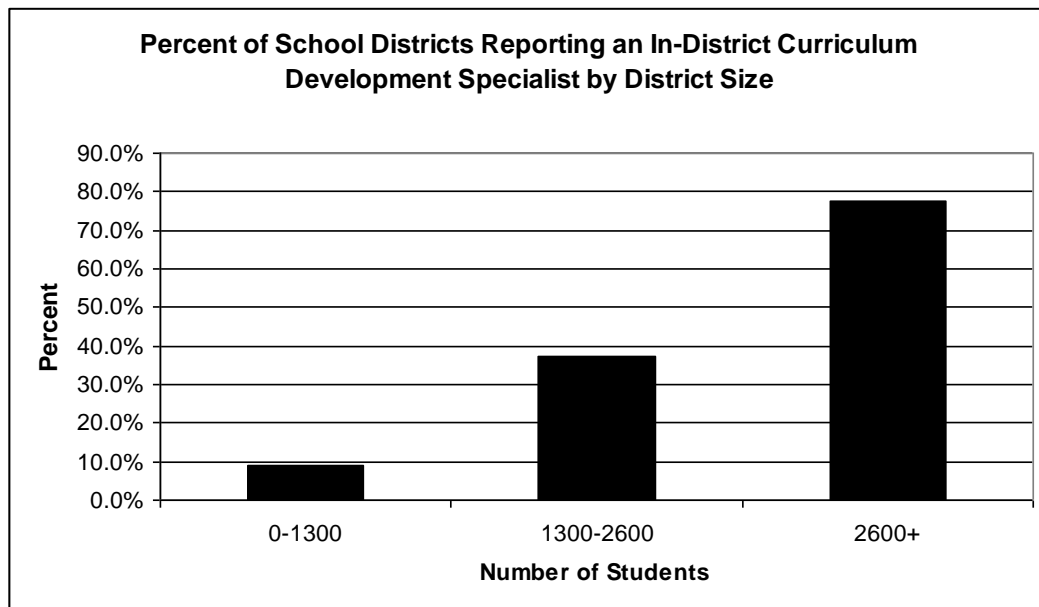


Figure 3. The percent of districts by size reporting an internal individual hired specifically for the purpose of assisting with district curriculum development needs.

Table 3

Number and Percent of Districts Reporting In-District Curriculum Development Specialists by District Size

	0-1300 students	1300-2600 students	2600+ students
Raw #	2	3	7
Percent	9.1%	37.5%	77.8%

For purposes of staff development, the informants reported one, or 4.5%, of the smallest districts having access to internal specialist staff. The 1300-2600 student cohort reported 50.0% with staff development specialists and the largest cohort with 2600+ students reported 88.9%. Figure 4 and Table 4 summarize these results.

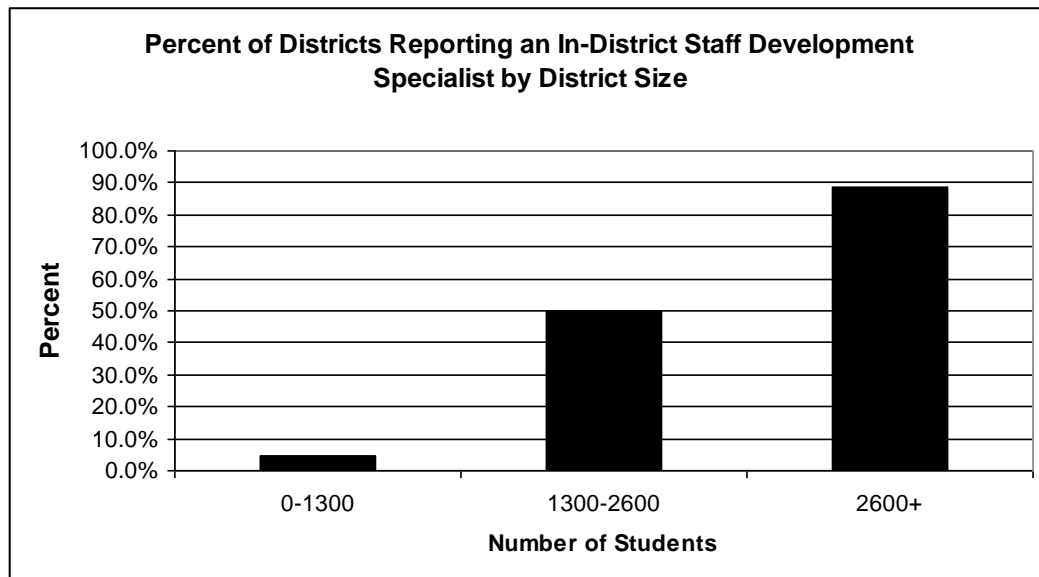


Figure 4. The percent of districts by size reporting an internal individual hired specifically for the purpose of assisting with district staff development needs.

Table 4

*Number and Percent of Districts Reporting In-District Staff
Development Specialists by District Size*

	0-1300 students	1300-2600 students	2600+ students
Raw #	1	4	8
Percent	4.5%	50.0%	88.9%

Results for each specialist category were analyzed for statistical significance using a univariate analysis of variance with district responses set as the independent variable and district size set as the dependent variable. This analysis determined if there was a statistically significant difference in the average size of districts reporting access to internal specialist staff.

Results for access to internal assessment specialists were analyzed. The average district size for all districts reporting no access to internal assessment specialists was 1011.9 with 25 districts reporting no access. The average district size reporting access was 5755.7 with 14 districts reporting access. This difference was found to be statistically significant resulting in an F value of 9.470 with $p = .004$ and a coefficient of determination of .204. Figure 5 shows the mean size for districts reporting no access to internal assessment staff vs. those reporting at least one internal assessment specialist and their respective ranges utilizing a 95% confidence interval.

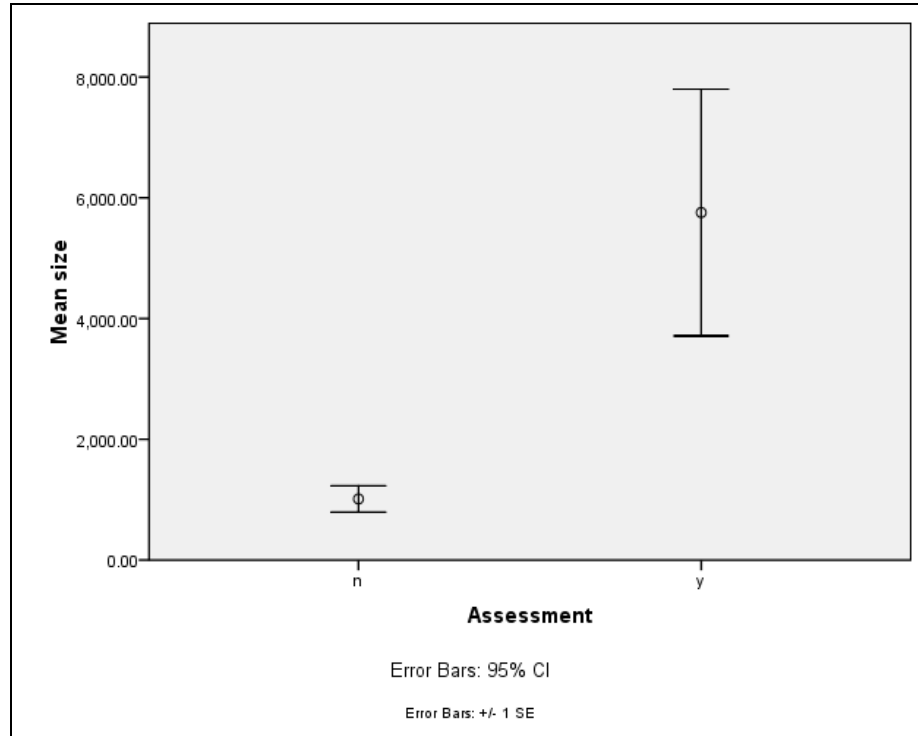


Figure 5. The mean size of districts reporting either “no” or “yes” when asked if there was an individual hired within the district for the purpose of assisting with district assessment needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Results for access to internal curriculum development specialists were analyzed.

The average district size for all districts reporting no access to internal curriculum development specialists was 1336.9 with 27 districts reporting no access. The average district size reporting access was 5815 with 12 districts reporting access. This difference was found to be statistically significant resulting in an F value of 7.476 with $p = .010$ and a coefficient of determination of .168. Figure 6 shows the mean size for districts reporting no access to internal curriculum development specialists vs. those reporting at least one internal curriculum development specialist and their respective ranges utilizing a 95% confidence interval.

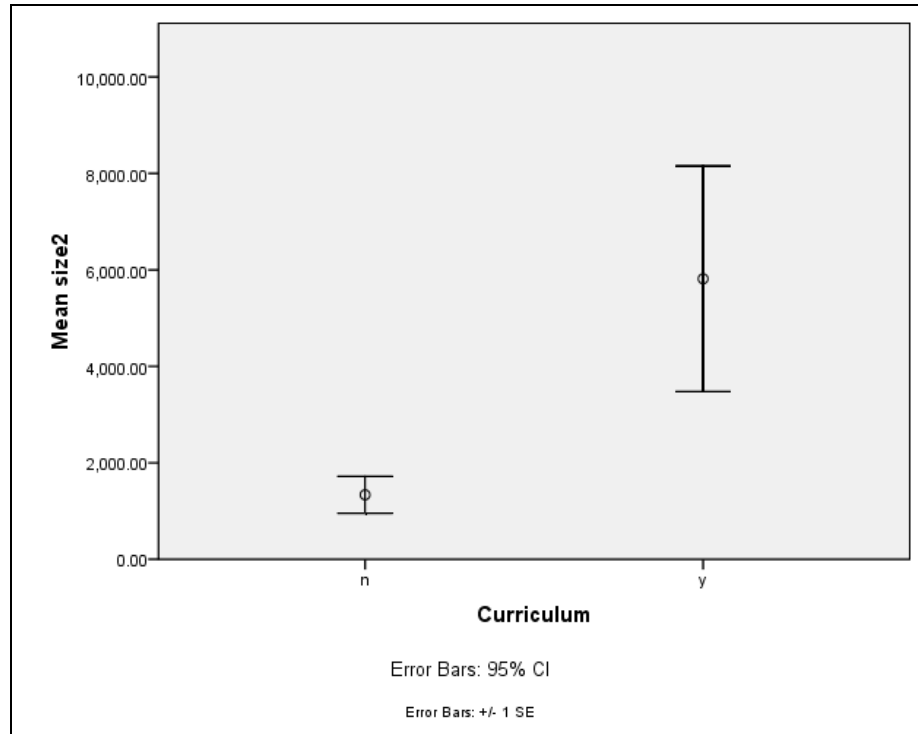


Figure 6. The mean size of districts reporting either “no” or “yes” when asked if there was an individual hired within the district for the purpose of assisting with district curriculum development needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Results for access to internal staff development specialists were analyzed. The average district size for all districts reporting no access to internal staff development specialists was 957.5 with 26 districts reporting no access. The average district size reporting access was 6229.4 with 13 districts reporting access. This difference was found to be statistically significant resulting in an F value of 11.880 with $p = .001$ and a coefficient of determination of .243. Figure 7 shows the mean size for districts reporting no access to internal staff development specialists vs. those reporting at least one internal staff development specialist and their respective ranges utilizing a 95% confidence interval.

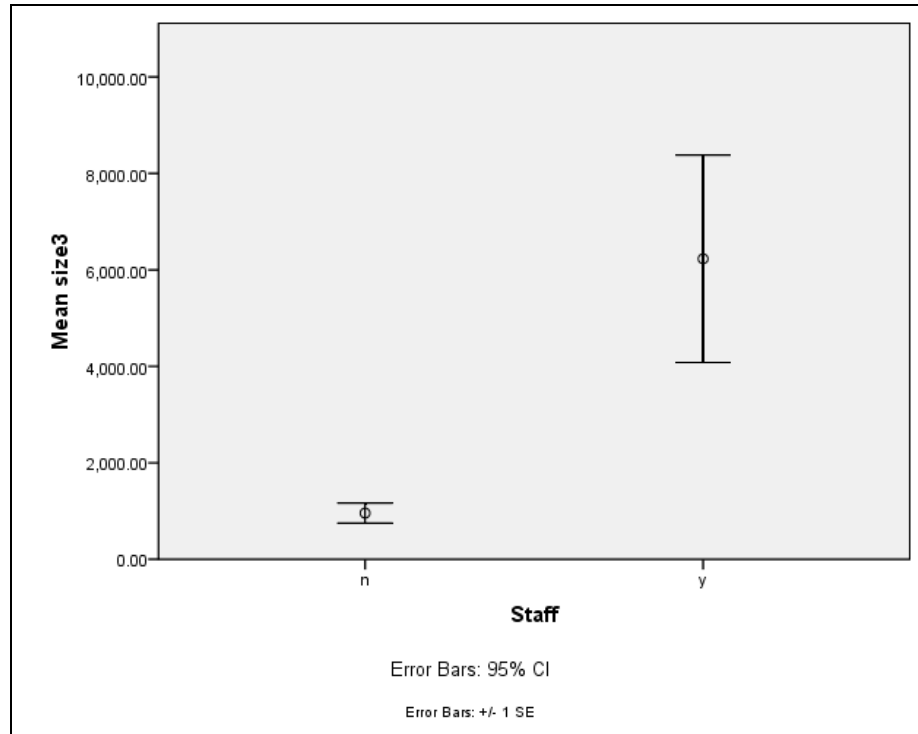


Figure 7. The mean size of districts reporting either “no” or “yes” when asked if there was an individual hired within the district for the purpose of assisting with district staff development needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Research question 2.

The second research question addressed the opportunity for access to external expertise to assist with assessment, curriculum development and staff development.

Superintendents were asked if their districts have access to outside services/expertise in each of the three areas.

In aggregate, the district leaders indicated that 19, or 48.7%, did have some form of access to outside assessment expertise. Informants were asked to give examples of how and where they were able to obtain this access. Results varied widely but most districts cited local educational service cooperatives, universities, the Minnesota Department of Education and privately contracted experts as their source(s) for outside assessment assistance. Slightly more districts reported access to external curriculum and staff

development support with 23 and 21 districts reporting access. This represented 59.0% and 53.8% of the districts respectively. The examples of how and where districts were able to access these individuals were similar to those for assessment specialists. Table 5 summarizes the numbers and percentages of districts reporting access.

Table 5

Number and Percent of Districts Reporting External Specialists

	Assessment		Curriculum Development		Staff Development	
	Raw #	Percent	Raw #	Percent	Raw #	Percent
Yes	19	48.7%	23	59.0%	21	53.8%
No	20	51.3%	16	41.0%	18	46.2%

When results from superintendents were reviewed based upon district size, 50% of districts in the 0-1300 student category reported access to an external assessment specialist, 50% of districts in the 1300-2600 student category reported this access, as well as 44.4% of districts in the 2600+ student category. In regards to external curriculum development specialists, 59.1% of districts in the 0-1300 student category reported access, as well as 62.5% of districts in the 1300-2600 student category and 55.6% of districts in the 2600+ student category. Results for external staff development access showed 50% of the smallest districts reporting access, 37.5% of the middle sized districts and 77.8% of the large districts. Tables 6-8 and Figures 8-10 summarize these results.

Table 6

*Number and Percent of Districts Reporting External Assessment
Specialists by District Size*

	0-1300 students	1300-2600 students	2600+ students
Raw #	11	4	4
Percent	50.0%	50.0%	44.4%

Table 7

*Number and Percent of Districts Reporting External Curriculum
Development Specialists by District Size*

	0-1300 students	1300-2600 students	2600+ students
Raw #	13	5	5
Percent	59.1%	62.5%	55.6%

Table 8

*Number and Percent of Districts Reporting External Staff
Development Specialists by District Size*

	0-1300 students	1300-2600 students	2600+ students
Raw #	11	3	7
Percent	50.0%	37.5%	77.8%

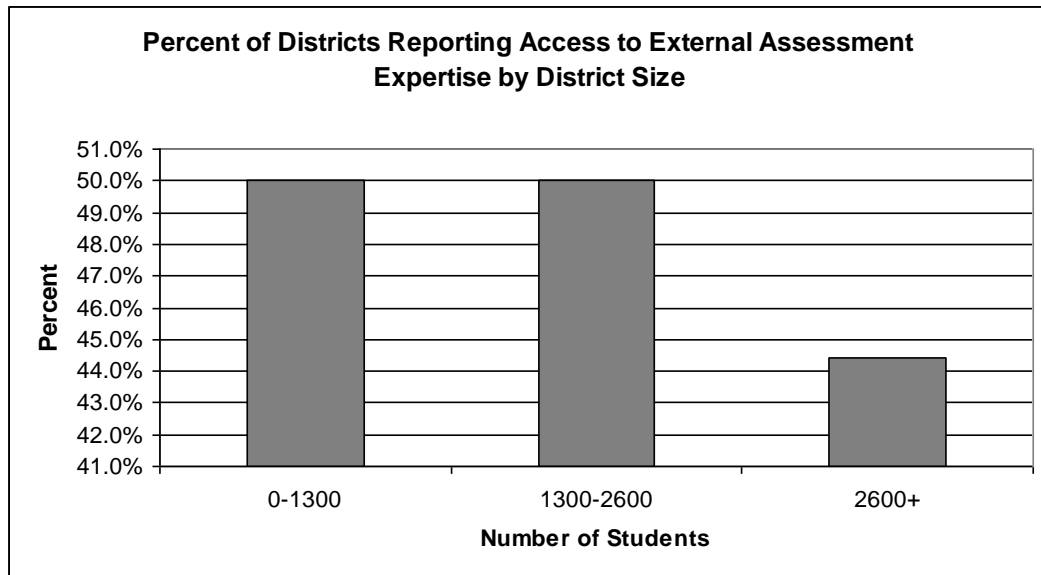


Figure 8. The percent of districts reporting access to an external individual(s) for the purpose of providing assessment expertise by district size.

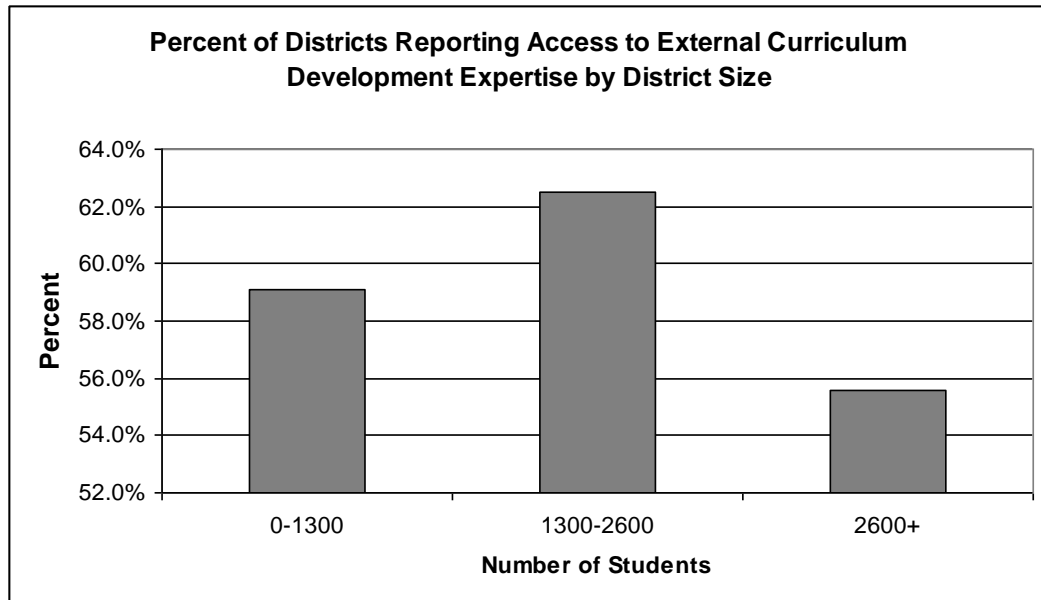


Figure 9. The percent of districts reporting access to an external individual(s) for the purpose of providing curriculum development expertise by district size.

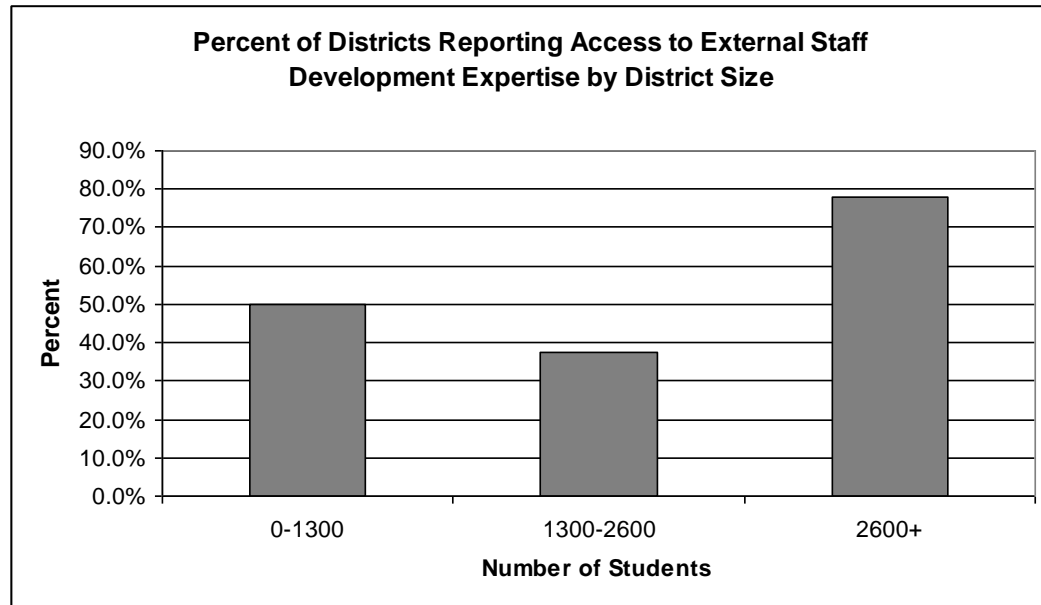


Figure 10. The percent of districts reporting access to an external individual(s) for the purpose of providing staff development expertise by district size.

Results for each specialist category were analyzed for statistical significance using a univariate analysis of variance with district responses set as the independent variable and district size set as the dependent variable. This analysis determined if there was a statistically significant difference in the average size of districts reporting access to external specialist staff.

Results for access to external assessment specialists were analyzed. The average district size for all districts reporting no access to external assessment specialists was 3598.2 with 20 districts reporting no access. The average district size reporting access was 1784.9 with 19 districts reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of 1.236 and $p = .273$. Figure 11 shows the mean size for districts reporting no access to an external assessment specialist vs. those reporting access and their respective ranges utilizing a 95% confidence interval.

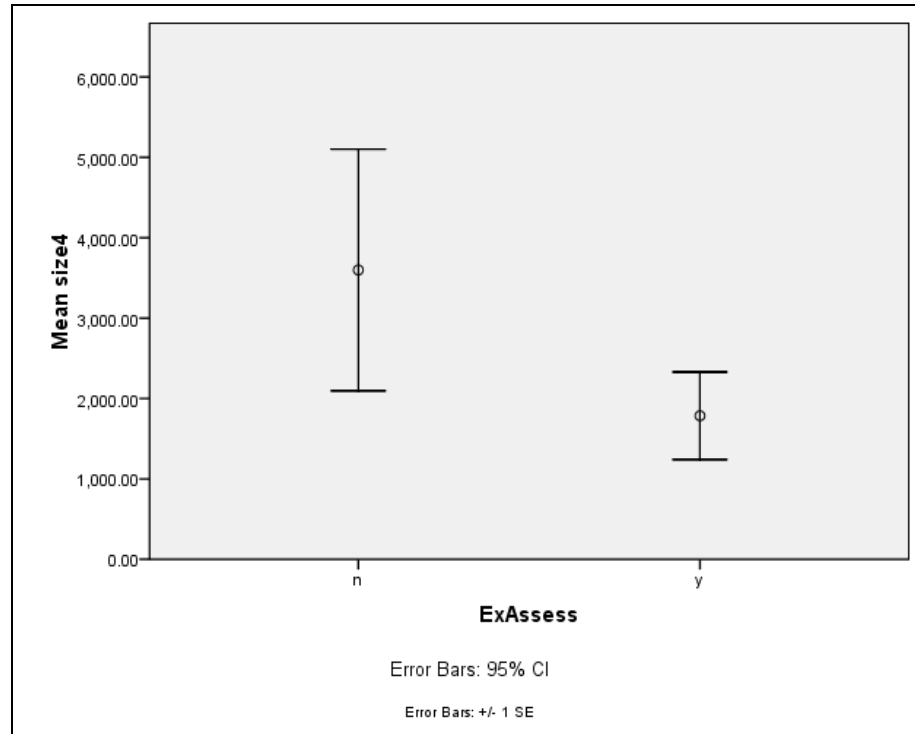


Figure 11. The mean size of districts reporting either “no” or “yes” when asked if there was an individual accessible from outside of the district for the purpose of assisting with district assessment needs. The error bars indicate the range representing the true score at a confidence interval of 95%.

Results for access to external curriculum development specialists were analyzed.

The average district size for all districts reporting no access to external curriculum development specialists was 3530.8 with 16 districts reporting no access. The average district size reporting access was 2147.2 with 23 districts reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .687 and $p = .413$. Figure 12 shows the mean size for districts reporting no access to an external curriculum development specialist vs. those reporting access and their respective ranges utilizing a 95% confidence interval.

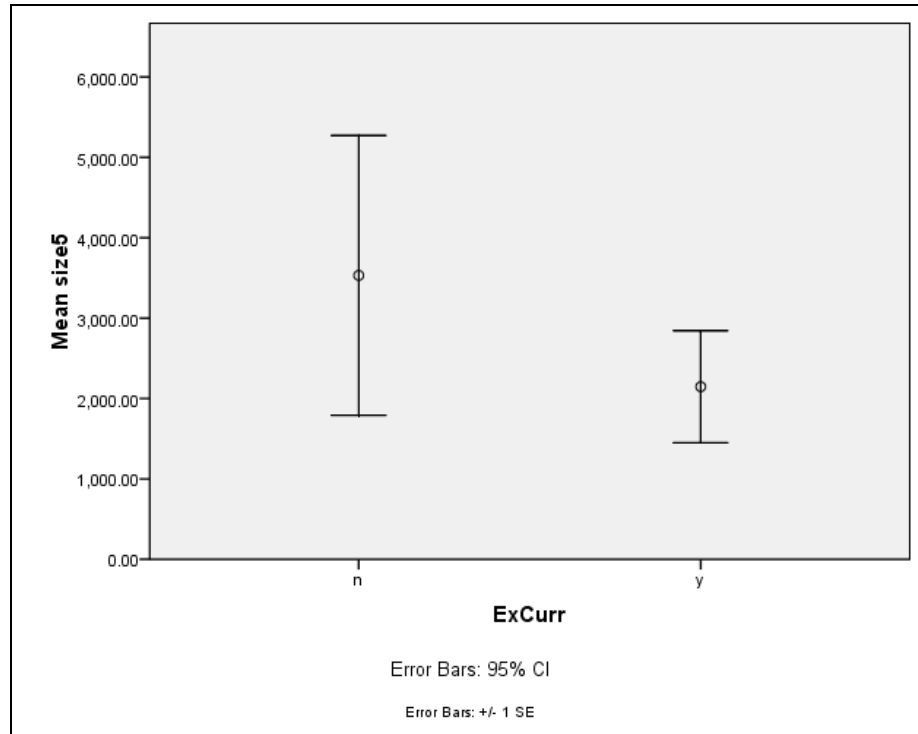


Figure 12. The mean size of districts reporting either “no” or “yes” when asked if there was an individual accessible from outside of the district for the purpose of assisting with district curriculum development needs. The error bars indicate the range representing the true score at a confidence interval of 95%.

Results for access to external staff development specialists were analyzed. The average district size for all districts reporting no access to external staff development specialists was 1295.4 with 18 districts reporting no access. The average district size reporting access was 3931.4 with 21 districts reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of 2.698 and $p = .109$. Figure 13 shows the mean size for districts reporting no access to an external staff development specialist vs. those reporting access and their respective ranges utilizing a 95% confidence interval.

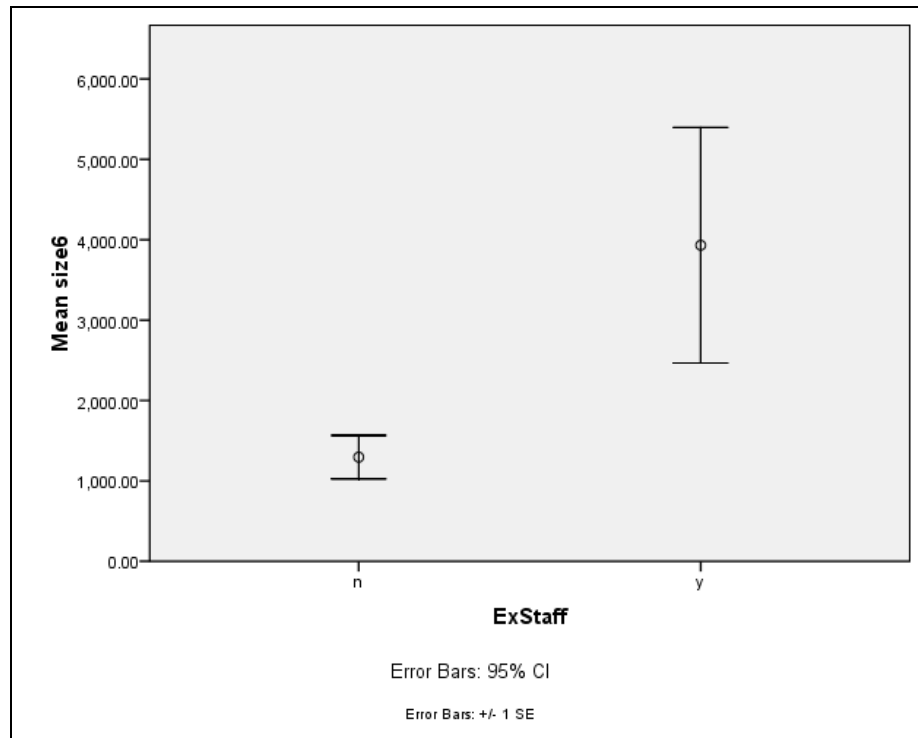


Figure 13. The mean size of districts reporting either “no” or “yes” when asked if there was an individual accessible from outside of the district for the purpose of assisting with district staff development needs. The error bars indicate the range representing the true score at a confidence interval of 95%.

Research question 3.

The third research question asked whether small districts reported lower levels of access to specialized staff. The results from research questions one and two can be used to address this question. Responses will be combined to determine if districts answered affirmatively to either research question related to access. Districts could answer affirmatively to one of the two access questions, both of the access questions, or neither of the access questions. Districts that answered negatively to both access questions will be considered as having no access. Districts that answered affirmatively to one or both questions will be considered as having access. Additionally, a breakdown of the districts which answered affirmatively will be provided to determine the types of access available.

In aggregate, 58.9% of districts reported having some form of access to assessments specialists, 66.7% reported access to curriculum development specialists and 61.4% reported access to staff development specialists. This left 41.1%, 33.3% and 38.6% with no access to assessment, curriculum development or staff development specialists respectively.

When analyzed by district size, access to assessment specialists is reported by 50% of the smallest districts, 50% of the middle-sized districts and 88.8% of the large district cohort. In regards to curriculum development specialists, 59.1% of small districts, 50% of middle-sized districts and 88.8% of large districts report access. For staff development specialist access, 50% of small districts, 62.5% of mid-sized districts and 100% of large districts report affirmatively. Figure 14 summarizes the results for total access by district size. These results indicate that for small districts 50% do not have access, of any kind, to assessment specialists, 40.9% do not have access to curriculum development specialists and 50% do not have access to staff development specialists.

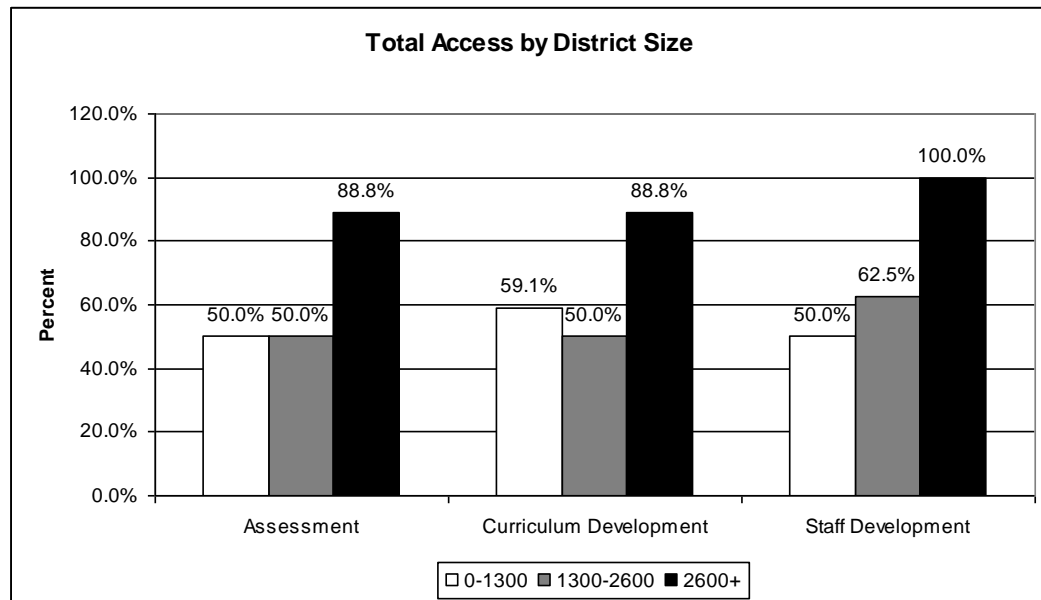


Figure 14. Percent of districts reporting access to internal and/or external specialists by district size.

The total access percentages listed were then broken down by “type” of access. The types of access are both internal and external access, internal access only and external access only. The percent of districts, by size, reporting will be listed in the order of access to both, internal only and external only for each specialist category questioned.

For assessment specialists, districts with 0-1300 students reported that 13.6% have access to both internal and external specialists, 0% have access to internal specialists only and 36.4 percent have access to external specialists only. For districts with 1300-2600 students, 37.5% have access to both internal and external specialists, 0% have access to internal specialists only and 12.5% have access to external specialists only. For the districts with 2600+ students, 44.4% have access to both internal and external specialists, 44.4% have access to internal specialists only and 0% have access to external specialists only. Table 9 and Figure 15 summarize these results.

Table 9

Percent and Types of Access to Assessment Specialists by District Size

District Size by Enrollment	Access Type			
	Internal and External	Internal Only	External Only	None
0-1300	13.6%	0.0%	36.4%	50.0%
1300-2600	37.5%	0.0%	12.5%	50.0%
2600+	44.4%	44.4%	0.0%	11.1%

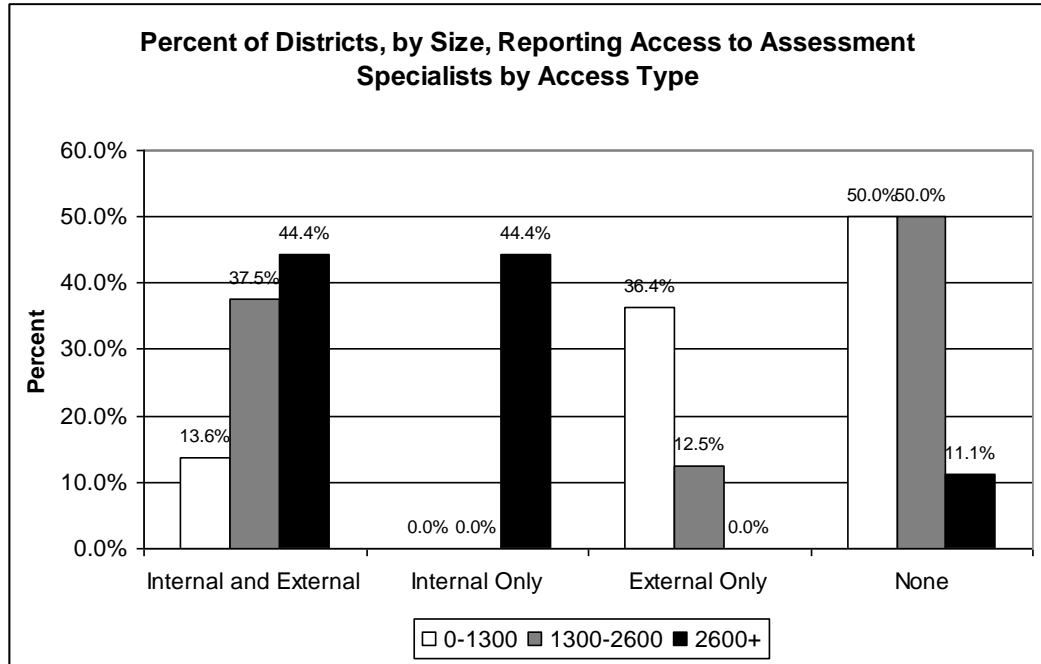


Figure 15. The percent of districts by size reporting access to both internal and external assessment specialists, only internal assessments specialists, only external assessment specialists or no access to either internal or external assessment specialists.

In regards to curriculum development specialists, districts with 0-1300 students reported 9.1% of them have access to both internal and external specialists, 0% have internal access only and 50% have external access only. Districts with 1300-2600 students report 37.5% have access to both internal and external specialists, 0% have internal access only and 25% have external access only. For those districts with 2600+ students, 44.4% have access to both internal and external specialists, 33.3% have internal access only and 11.1% have external access only. Table 10 and Figure 16 summarize these results.

Table 10

Percent and Types of Access to Curriculum Development Specialists by District Size

District Size by Enrollment	Access Type			
	Internal and External	Internal Only	External Only	None
0-1300	9.1%	0.0%	50.0%	40.9%
1300-2600	37.5%	0.0%	25.0%	37.5%
2600+	44.4%	33.3%	11.1%	11.1%

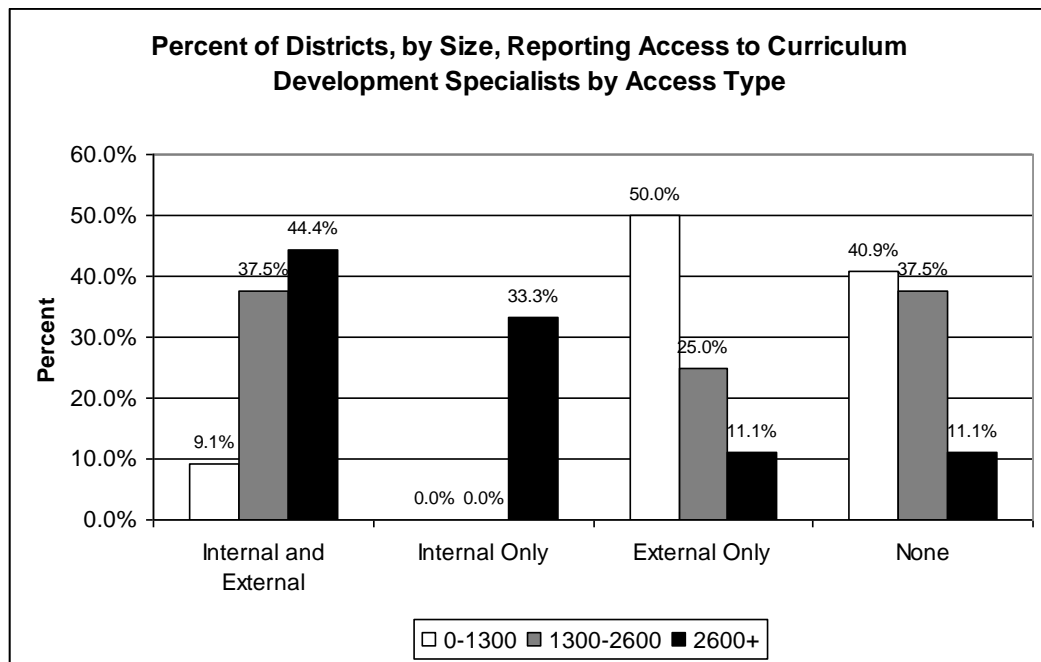


Figure 16. The percent of districts by size reporting access to both internal and external curriculum development specialists, only internal specialists, only external specialists or no access to either internal or external curriculum development specialists.

For staff development specialists, districts with 0-1300 students reported 4.5% have access to both internal and external specialists, 0% have access to internal specialists only and 45.5% have access to external specialists only. Districts with 1300-2600 students report 25% have access to both internal and external specialists, 25% have access to internal specialists only and 12.5% have access to external specialists only. Districts with

2600+ students report 66.7% have access to both internal and external specialists, 22.2% have access to internal specialists only and 11.1% have access to external specialists only. Table 11 and Figure 17 summarize these results.

Table 11

Percent and Types of Access to Staff Development Specialists by District Size

District Size by Enrollment	Access Type			
	Internal and External	Internal Only	External Only	None
0-1300	4.5%	0.0%	45.5%	50.0%
1300-2600	25.0%	25.0%	12.5%	37.5%
2600+	66.7%	22.2%	11.1%	0.0%

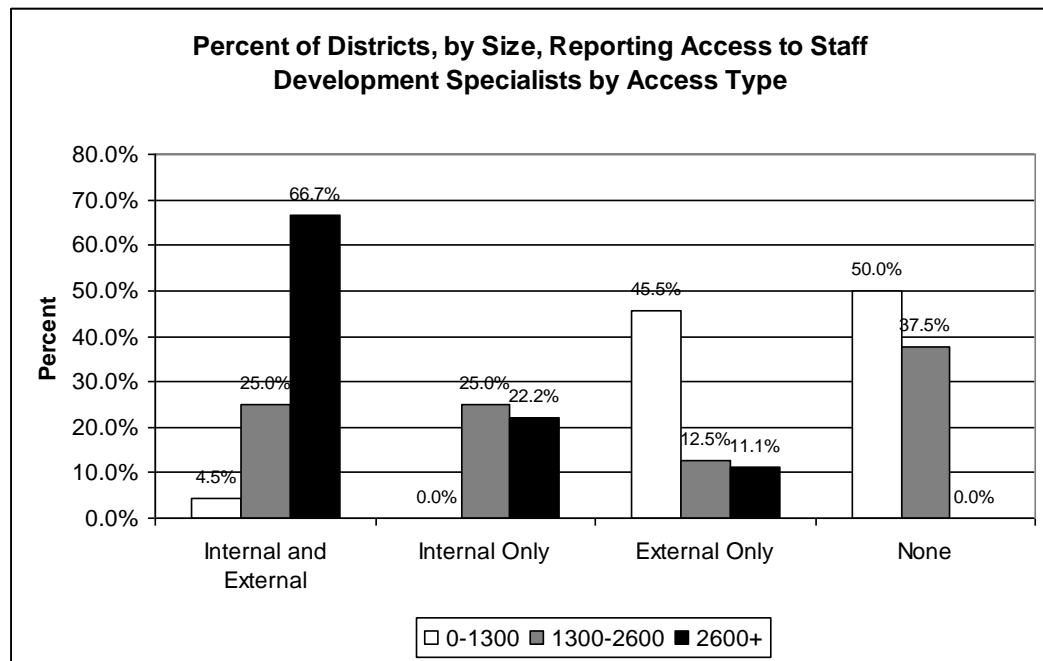


Figure 17. The percent of districts by size reporting access to both internal and external staff development specialists, only internal specialists, only external specialists or no access to either internal or external staff development specialists.

Results for each specialist category were analyzed for statistical significance using a univariate analysis of variance with district responses set as the independent variable

and district size set as the dependent variable. This analysis determined if there was a statistically significant difference in the average size of districts reporting access to specialist staff.

Results for total access to assessment specialists were analyzed. The average district size for all districts reporting no form of access to assessment specialists was 1285.2 with 16 districts reporting. The average district size reporting any form of access was 3709.3 with 23 districts reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of 2.193 and $p = .147$. Figure 18 shows the mean size for districts reporting no access to assessment staff vs. districts reporting some form of access and their respective ranges utilizing a 95% confidence interval.

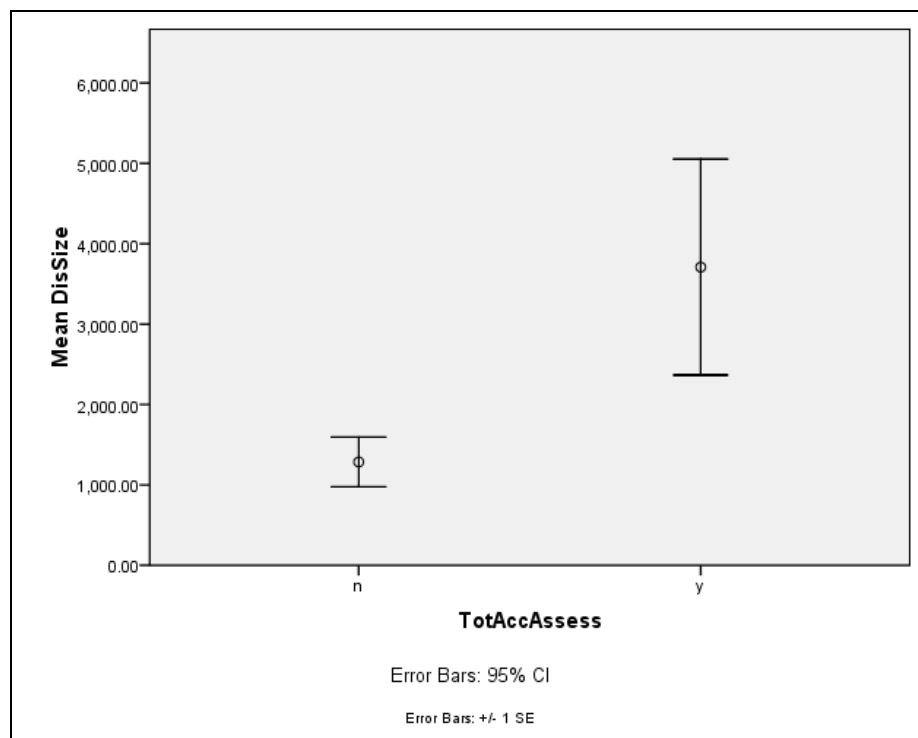


Figure 18. The mean size of districts reporting either “no” or “yes” when results are combined for questions of both internal and external access to specialists for the purpose of assisting with district assessment needs. The error bars indicate the range representing the true score at a confidence interval of 95%.

Results for total access to curriculum development specialists were analyzed. The average district size for all districts reporting no form of access to curriculum development specialists was 1584 with 13 districts reporting. The average district size reporting any form of access was 3280.2 with 26 districts reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .955 and $p = .335$. Figure 19 shows the mean size for districts reporting no access to curriculum development staff vs. districts reporting some form of access and their respective ranges utilizing a 95% confidence interval.

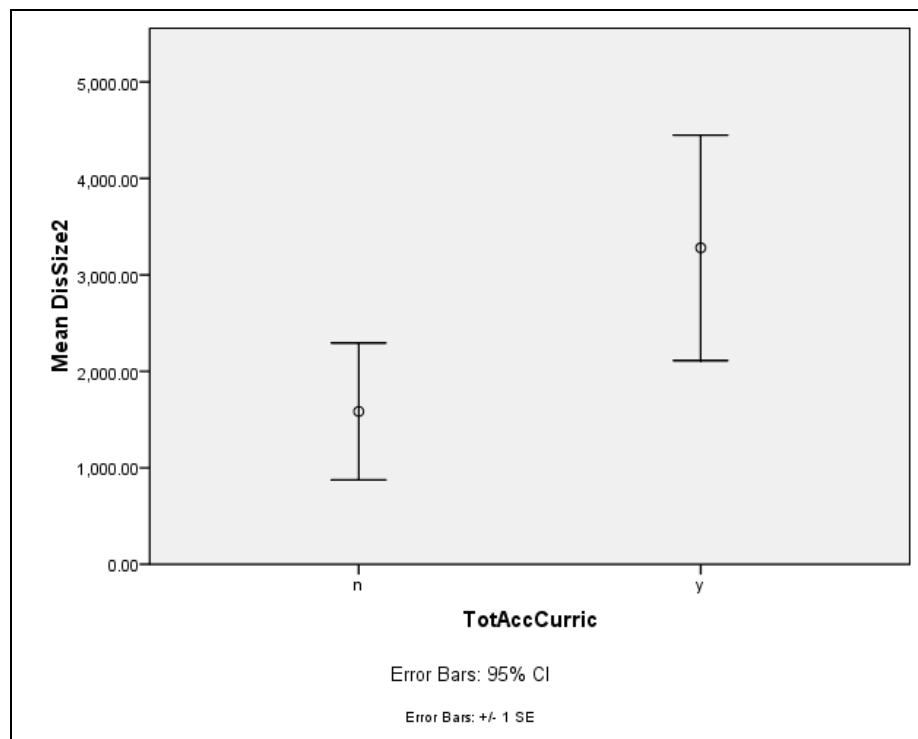


Figure 19. The mean size of districts reporting either “no” or “yes” when results are combined for questions of both internal and external access to specialists for the purpose of assisting with district curriculum development needs. The error bars indicate the range representing the true score at a confidence interval of 95%.

Results for total access to staff development specialists were analyzed. The average district size for all districts reporting no form of access to staff development specialists

was 863.6 with 14 districts reporting. The average district size reporting any form of access was 3751.5 with 25 districts reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of 3.023 and $p = .090$. Figure 20 shows the mean size for districts reporting no access to staff development specialists vs. districts reporting some form of access and their respective ranges utilizing a 95% confidence interval.

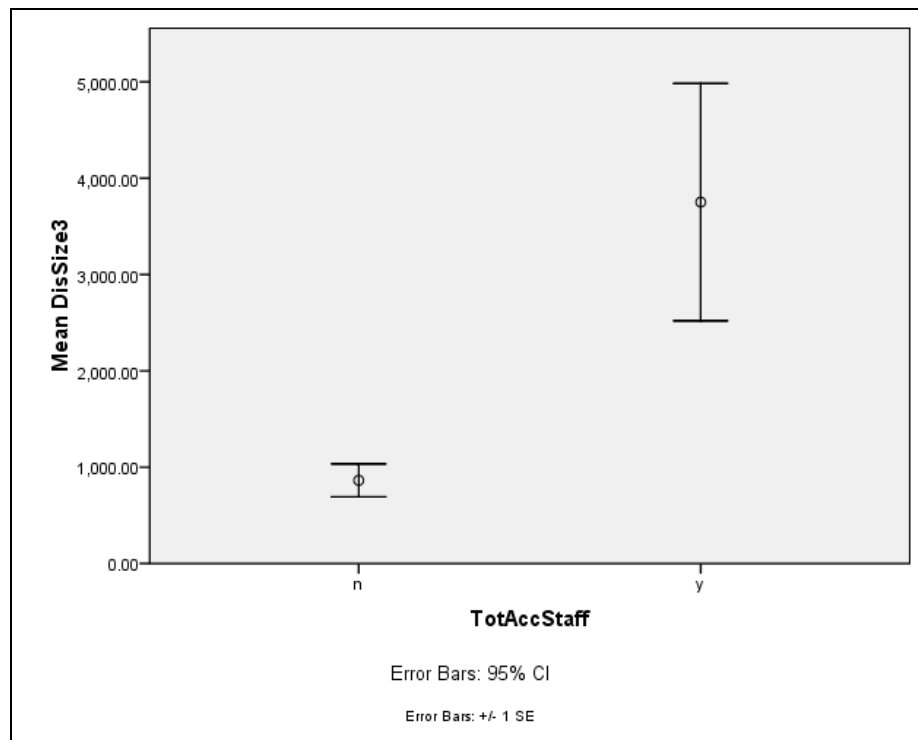


Figure 20. The mean size of districts reporting either “no” or “yes” when results are combined for questions of both internal and external access to specialists for the purpose of assisting with district staff development needs. The error bars indicate the range representing the true score at a confidence interval of 95%.

Research question 4.

The fourth and final research question related to adequacy of current access to specialists. District administrators were asked to rank the adequacy of access to each of the specialist groups. Administrators were asked to rank adequacy on a scale of one to

four, one being the lowest level of adequacy and four being the highest. The average score for all districts reporting was calculated as well as the averages by district size.

For all districts, the average rank given by superintendents was 2.3 for adequacy of access to assessment specialists, 2.2 for curriculum development specialists and 2.2 for staff development specialists. The midpoint of a one to four scale is 2.5.

When viewed by district size, superintendents from districts with 0-1300 students ranked the adequacy of access to assessment specialists at a 2.4, for districts with 1300-2600 students a 2.3 and for districts with 2600+ students a 2.3. In regards to curriculum development specialists, districts with 0-1300 students reported an average rank of 2.1, districts with 1300-2600 students a 2.4 and districts with 2600+ students a 2.2. When ranking adequacy of access to staff development specialists, districts with 0-1300 students reported an average ranking of 2.1, districts with 1300-2600 students a 2.4 and districts with 2600+ students a 2.4. Figure 21 summarizes these results.

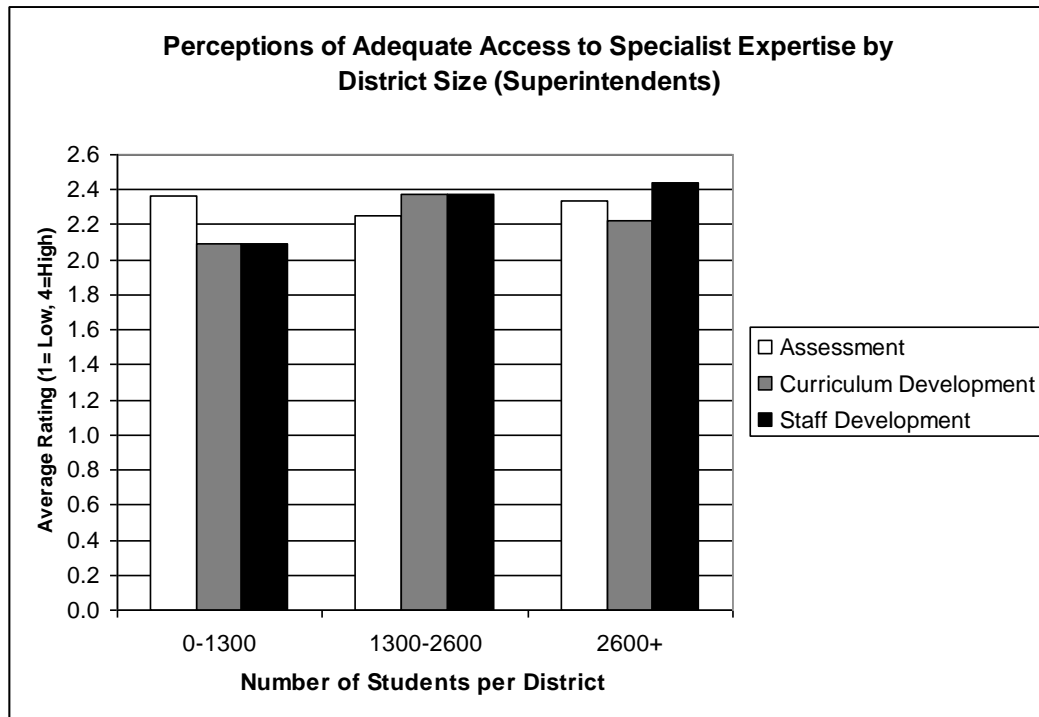


Figure 21. Average score given by district superintendent's when asked to rank the adequacy of staffing to address assessment, curriculum development and staff development on a 1 (lowest) to 4 (highest) point scale. Results are summarized by district size.

District superintendents were also asked to rank the adequacy of access within their districts to specialist staff relative to other districts in the state. As with the general series of adequacy questions, averages for this series of questions were calculated in aggregate and based upon district size.

For all districts, the average rank given by superintendents in response to each of the specialist categories was 2.2.

When viewed by district size, superintendents from districts with 0-1300 students ranked their relative access to assessment specialists at an average score of 2.2, those from districts with 1300-2600 students gave an average score of 1.9 and those from districts with 2600+ students gave an average score of 2.4. For curriculum development

specialists, districts with 0-1300 students reported a relative average rank of 2.1, districts with 1300-2600 students an average of 2.4 and districts 2600+ an average of 2.1. In regards to staff development specialists, superintendents from districts with 0-1300 students reported an average rating of 2.1, districts with 1300-2600 students an average of 2.3 and districts with 2600+ students an average of 2.3. Figure 22 summarizes the above results.

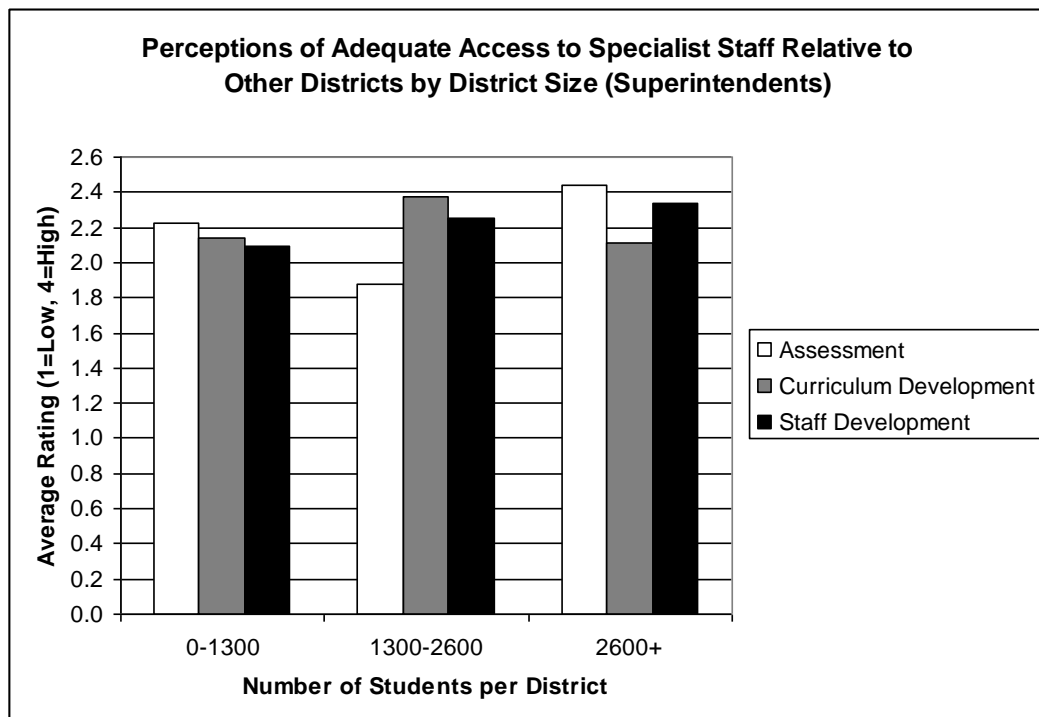


Figure 22. Average score given by district superintendent's when asked to rank the adequacy of staffing in their district relative to other districts to address assessment, development and staff development. Superintendents were asked rank adequacy on a 1 (lowest) to 4 (highest) point scale. Results are summarized by district size.

All aggregate results given by superintendents related to perceptions of adequacy for all specialist categories fell below the mid-point of the scale.

Results from the questions related to perception of adequacy were analyzed utilizing both parametric and non-parametric correlation measures. None of the results

met the criteria for statistical significance with most measures exhibiting very weak correlation.

School Results

School results for each question will be reported in aggregate form first to provide a state-level view of the prevalence of specialist staff within Minnesota schools. This will be followed by the results broken down by school size. Existing research on school size varied as to what is considered a small school. These variations in size were often in multiples of 300 students. Some researchers considered schools under 300 students to be small, others listed schools under 600 or 900. For purposes of this research, schools were split into four size categories: 0-300 students, 301-600 students, 601-900 students and 901 or more students. It should be noted that the largest school in the 901+ student category reported an approximate enrollment of 2650 students resulting in a range of 1750 students between the smallest and largest school within the final size grouping. Sixteen schools fell into the first size classification of 0-300 students, forty-one schools fell into the second size classification of 301-600 students, seventeen schools fell into the third size classification of 601-900 students and fourteen fell in the fourth size classification of 901 or more students.

Research question 1.

The first research question addressed issues of internal staffing of assessment, curriculum development and staff development specialists within schools. School leaders were asked if their schools hired an individual(s) specifically for the purpose of assisting with assessment, curriculum development and staff development needs.

For all schools, thirty reported hiring one or more individuals specifically for the purpose of providing assessment expertise while fifty-seven reported no such individual within the school. This represented 34.5% and 65.5% of the schools respectively. In regards to curriculum development specialists, twenty-three schools reported having an individual hired within the school while sixty-four schools reported no such individual. This represents 26.4% and 73.6% of the schools reporting respectively. For staff development specialists, twenty-one schools reported having an individual within the school for assisting with this purpose and sixty-six schools reported no such individual. This represents 24.1% and 75.9% of the schools respectively. Figure 23 summarizes these results and Table 12.

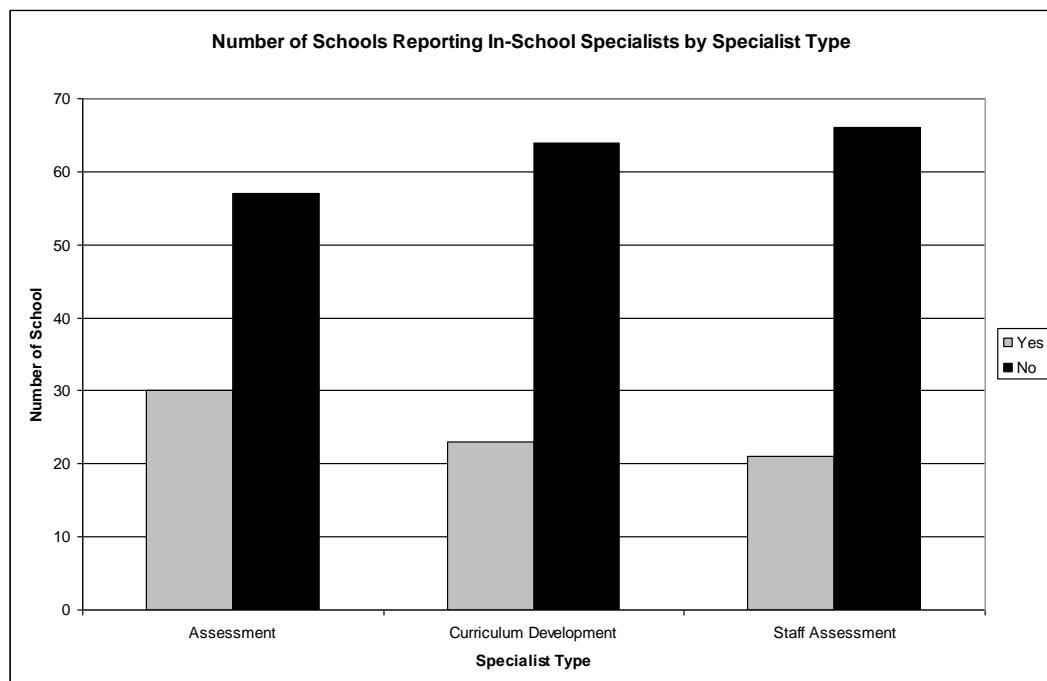


Figure 23. Results provided by building principals indicating the presence of an in-school specialist by specialist type.

Table 12

Number and Percent of Schools Reporting In-School Specialists

	Assessment		Curriculum Development		Staff Development	
	Raw #	Percent	Raw #	Percent	Raw #	Percent
Yes	30	34.5%	23	26.4%	21	24.1%
No	57	65.5%	64	73.6%	66	75.9%

When the results for internal specialist staff were categorized by school size, six schools in the 0-300 student category, or 37.5%, reported having an individual hired for the purpose of providing assessment expertise. For those schools with 301-600 students, twelve or 29.3% reported having an assessment staff member within the school. Seven schools, or 47.2%, of the schools with 601-900 students reported the same. Six of largest schools, or 42.9%, reported assessment staff. Figure 24 and Table 13 summarize these results.

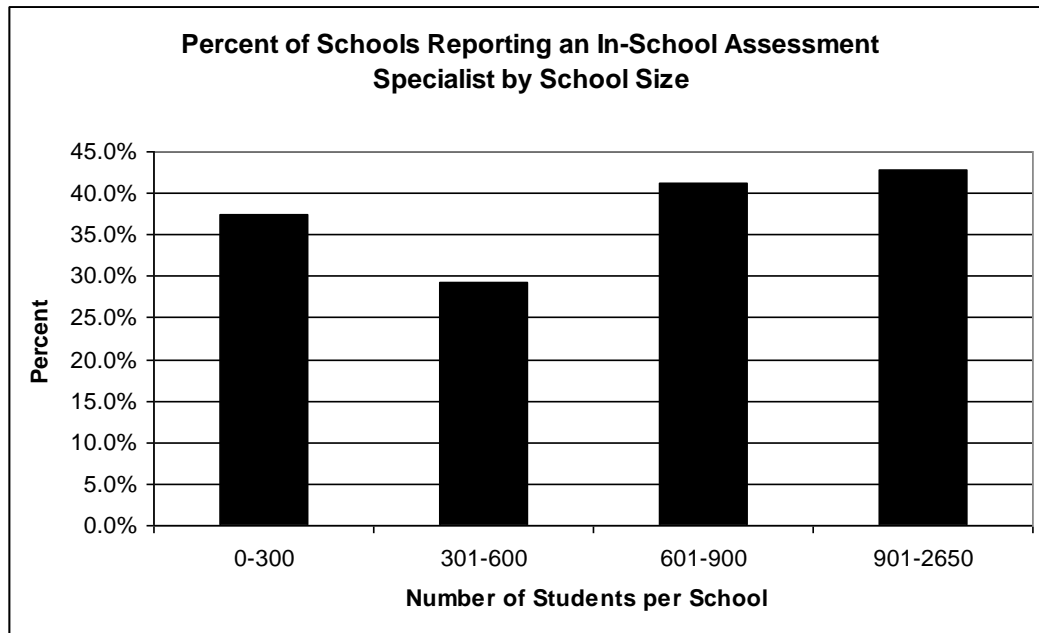


Figure 24. The percent of schools, by size, reporting an internal individual hired specifically for the purpose of assisting with school assessment needs.

Table 13

Number and Percent of Schools Reporting In-School Assessment Specialists by School Size

	0-300	301-600	601-900	901-2650
Raw #	6	12	7	6
Percent	37.5%	29.3%	41.2%	42.9%

Schools in the smallest category with 0-300 students reported that only one of these schools, or 6.3%, had an individual hired for the purposes of curriculum development. Eight schools in the 301-600 student category, or 20%, reported having an in-house curriculum development staff member. Seven, or 41.2%, of schools in the 601-900 student category reported an internal curriculum development staffer. The largest schools

reported that seven, or 50%, of them had an internal curriculum development specialist.

Figure 25 and Table 14 summarize the above.

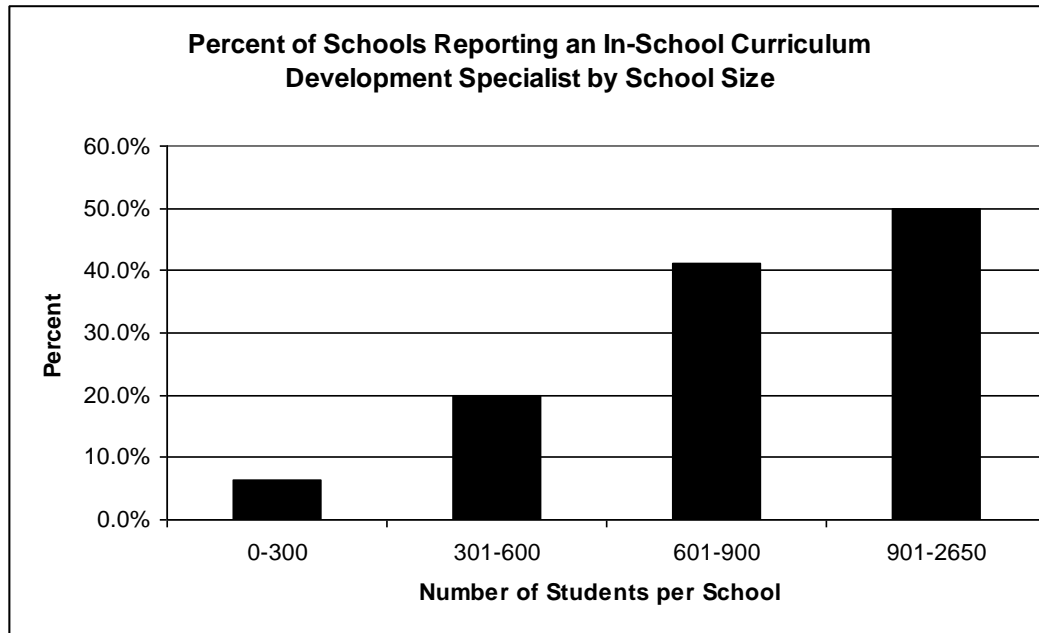


Figure 25. The percent of schools, by size, reporting an internal individual hired specifically for the purpose of assisting with school curriculum development needs.

Table 14

Number and Percent of Schools Reporting In-School Curriculum Development Specialists by School Size

	0-300	301-600	601-900	901-2650
Raw #	1	8	7	7
Percent	6.3%	20.0%	41.2%	50.0%

With respect to staff development specialists, four schools in the 0-300 student cohort, or 25%, have at least one individual hired within the school. Eight schools in the 301-600 student cohort, or 20%, reported having an internal staff development specialist. Six schools with 601-900 students, representing 35.3%, reported the same. Three schools

from the largest cohort, representing 21.4%, indicated having an internal staff development staff member. Figure 26 and Table 15 provide a summary of the staff development specialist results.

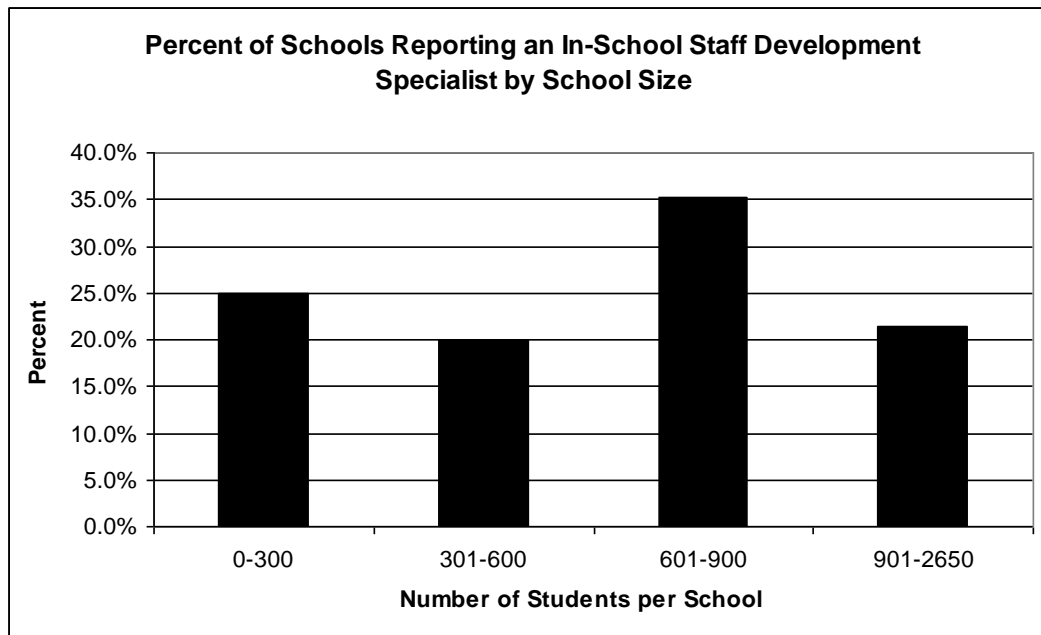


Figure 26. The percent of schools, by size, reporting an internal individual hired specifically for the purpose of assisting with school staff development needs.

Table 15

Number and Percent of Schools Reporting In-School Staff Development Specialists by School Size

	0-300	301-600	601-900	901-2650
Raw #	4	8	6	3
Percent	25.0%	20.0%	35.3%	21.4%

Results for each specialist category were analyzed for statistical significance using a univariate analysis of variance with school responses set as the independent variable and school size as the dependent variable. This analysis determined if there was a

statistically significant difference in the average size of schools reporting access to internal specialist staff.

Results for access to internal assessment specialists were analyzed. The average school size for all schools reporting no access to internal assessment specialists was 618.7 with 57 schools reporting no access. The average school size reporting access was 632.5 with 30 schools reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .017 and $p = .897$. Figure 27 shows the mean size for schools reporting no access to internal assessment staff vs. those reporting at least one internal assessment specialist and their respective ranges utilizing a 95% confidence interval.

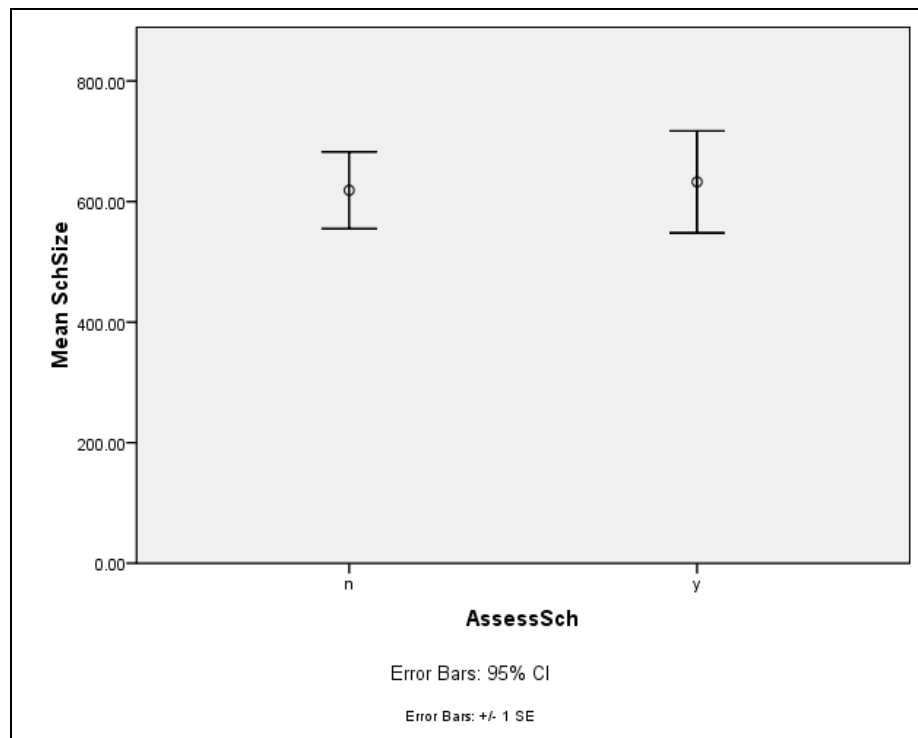


Figure 27. The mean size of schools reporting either “no” or “yes” when asked if there was an individual hired within the school for the purpose of assisting with assessment needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Results for access to internal curriculum development specialists were analyzed. The average school size for all schools reporting no access to internal curriculum development specialists was 542.1 with 64 schools reporting no access. The average school size reporting access was 849.8 with 23 schools reporting access. This difference was found to be statistically significant resulting in an F value of 7.735 with $p = .007$ and a coefficient of determination of .083. Figure 28 shows the mean size for schools reporting no access to internal curriculum development staff vs. those reporting at least one internal curriculum specialist and their respective ranges utilizing a 95% confidence interval.

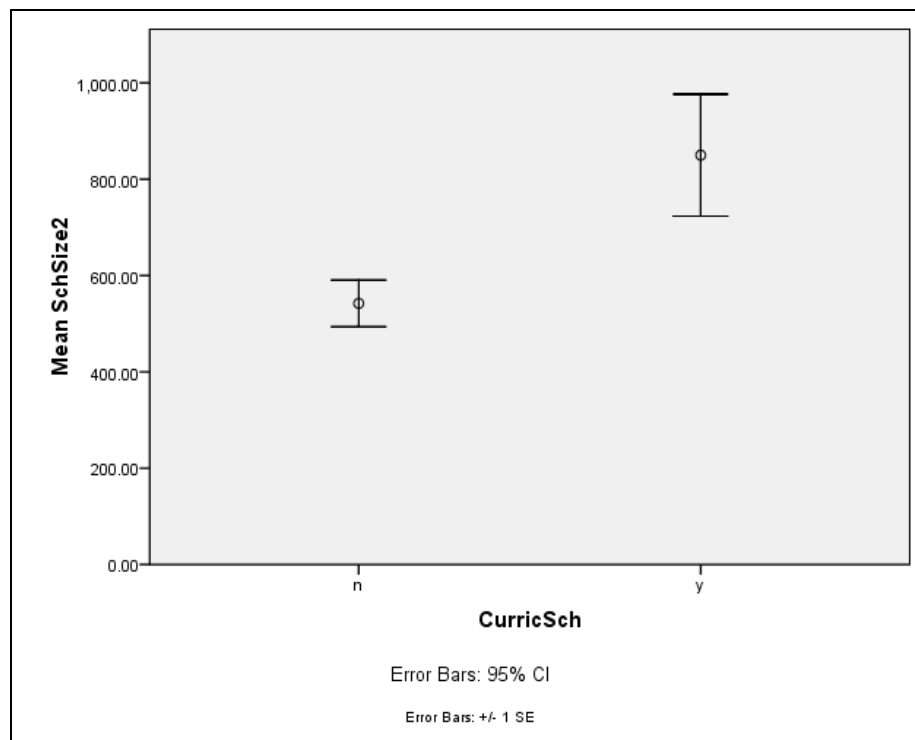


Figure 28. The mean size of schools reporting either “no” or “yes” when asked if there was an individual hired within the school for the purpose of assisting with curriculum development needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Results for access to internal staff development specialists were analyzed. The average school size for all schools reporting no access to internal staff development specialists was 618 with 66 schools reporting no access. The average school size reporting access was 640.6 with 21 schools reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .036 and $p = .850$. Figure 29 shows the mean size for schools reporting no access to internal staff development specialists vs. those reporting at least one internal staff development specialist and their respective ranges utilizing a 95% confidence interval.

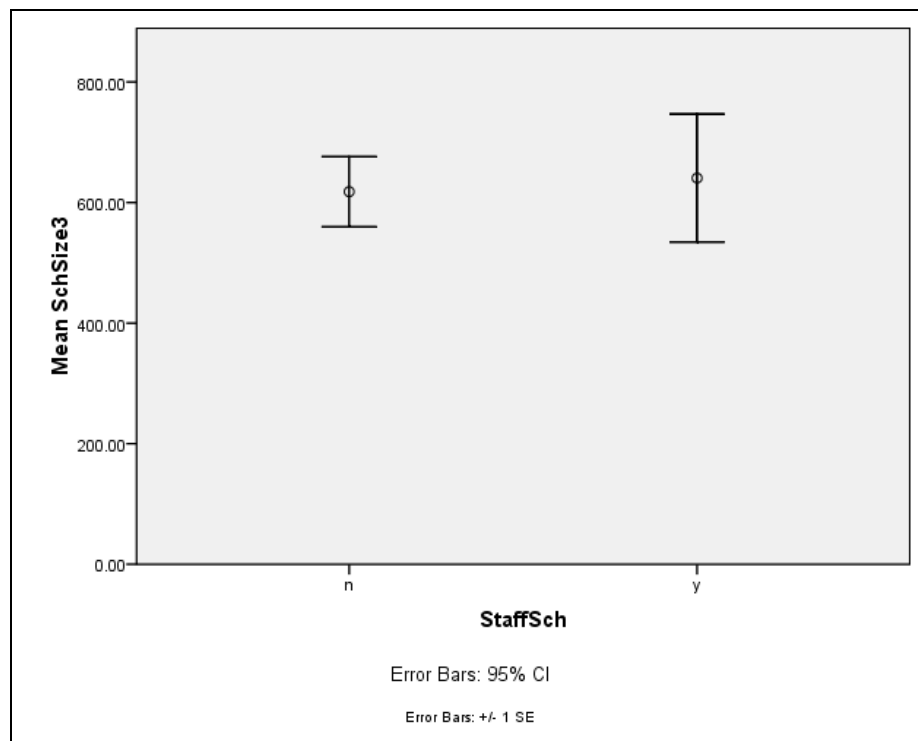


Figure 29. The mean size of schools reporting either “no” or “yes” when asked if there was an individual hired within the school for the purpose of assisting with staff development needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Research question 2.

The second research question addressed the opportunity for access to external expertise to assist with assessment, curriculum development and staff development. Principals were asked if their schools have access to outside services/expertise in each of the three areas.

In aggregate, school leaders indicated that 64.4% of them had access to external assessment experts. Informants were asked to give examples of where they were able to access these experts. Results were consistent with those for the district level. Informants identified area service cooperatives, individual contractors, support from assessment software organizations, the Minnesota Department of Education, and district-level assessment specialists. The identified sources were similar across the different staff specialist types. School leaders reported 67.4% had access to external curriculum development expertise and 69.8% reported access to external staff development expertise. Table 16 summarizes the number and percent of schools reporting access to external expertise in the three sampled areas.

Table 16

Number and Percent of Schools Reporting Access to External Specialists

	Assessment		Curriculum Development		Staff Development	
	Raw #	Percent	Raw #	Percent	Raw #	Percent
Yes	56	64.4%	58	67.4%	60	69.8%
No	31	35.6%	28	32.6%	26	30.2%

When results from principals were reviewed based upon school size, 62.5% of schools in the 0-300 student category reported access to an external assessment specialist, 63.4% of schools in the 301-600 student category reported this access, 76.5% of schools in the 601-900 student category reported this access as well as 50% of schools in the largest group with 901 or more students. In regards to external curriculum development specialists, 75% of schools in the 0-300 student category, 57.9% of schools in the 301-600 student category, 76.5% of schools in the 601-900 student category and 76.9% of schools in the 901+ student category reported access. Results for external staff development access showed 73.3% of the schools in the 0-300 student category, 62.5% of schools in the 301-600 student category, 94.1% of the schools in the 601-900 student category and 57.1% of the schools in the 901+ student category reported access. Tables 17-19 and Figures 30-32 summarize these results.

Table 17

Number and Percent of Schools Reporting Access to External Assessment Specialists by School Size

	0-300	301-600	601-900	901-2650
Raw #	10	26	13	7
Percent	62.5%	63.4%	76.5%	50.0%

Table 18

Number and Percent of Schools Reporting Access to External Curriculum Development Specialists by School Size

	0-300	301-600	601-900	901-2650
Raw #	12	22	13	10
Percent	75.0%	57.9%	76.5%	76.9%

Table 19

Number and Percent of Schools Reporting Access to External Staff Development Specialists by School Size

	0-300	301-600	601-900	901-2650
Raw #	11	25	16	8
Percent	73.3%	62.5%	94.1%	57.1%

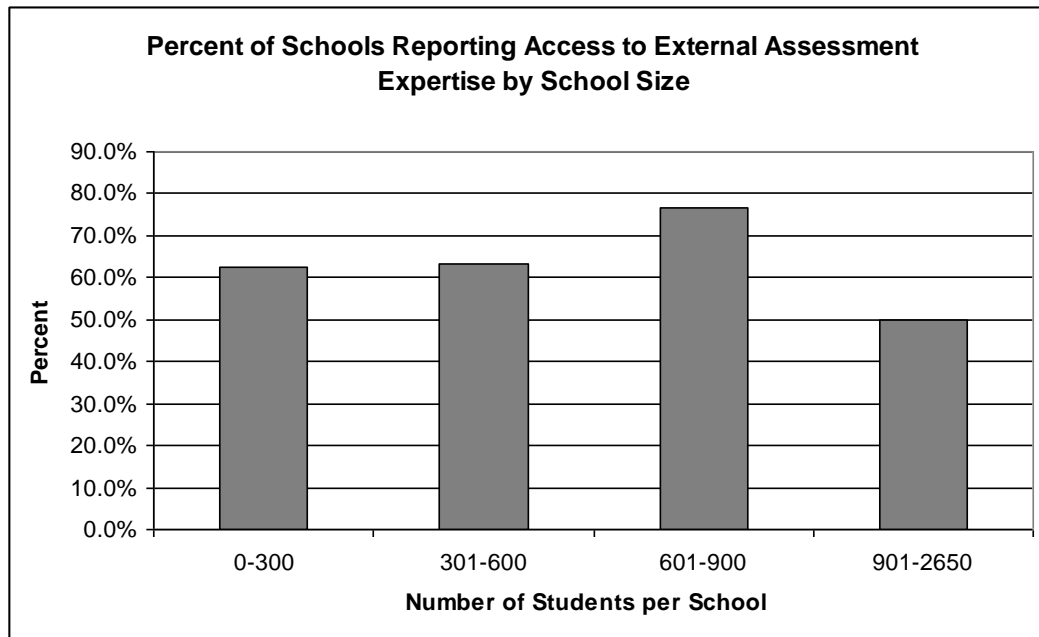


Figure 30. The percent of schools reporting access to an external individual(s) for the purpose of providing assessment expertise by school size.

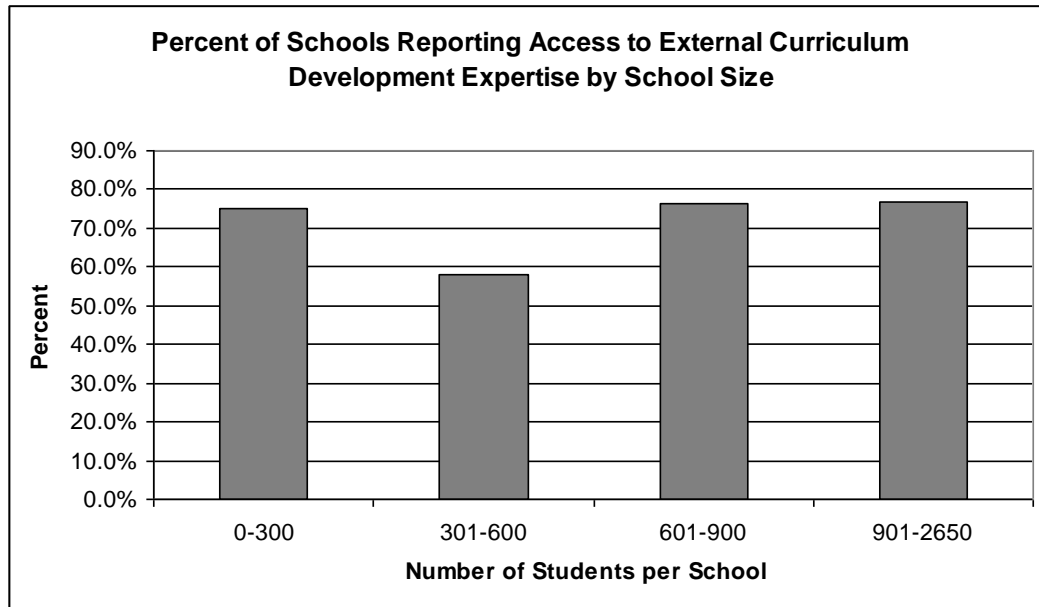


Figure 31. The percent of schools reporting access to an external individual(s) for the purpose of providing curriculum development expertise by school size.

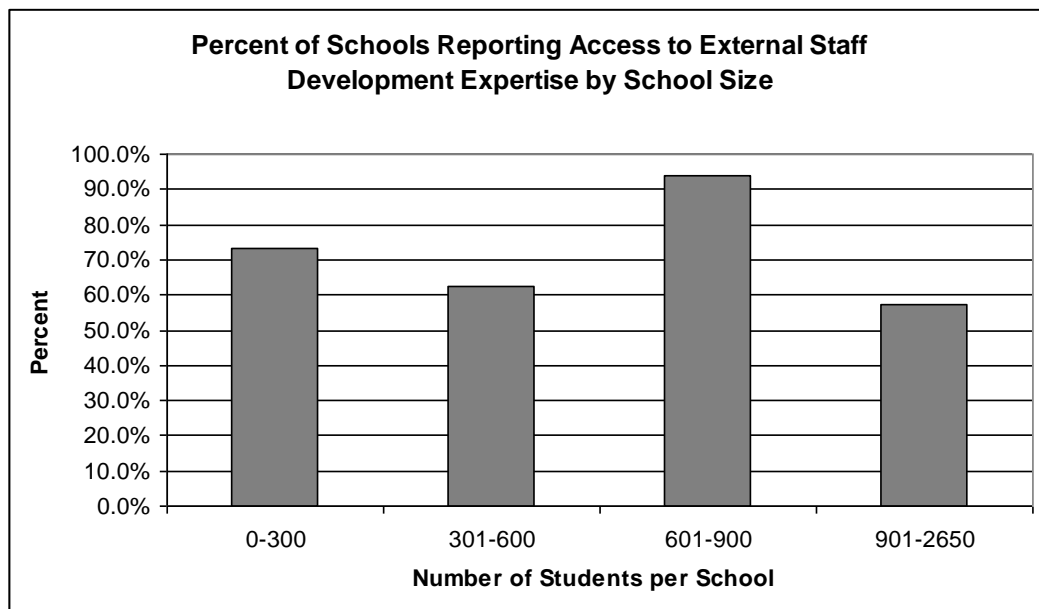


Figure 32. The percent of schools reporting access to an external individual(s) for the purpose of providing staff development expertise by school size.

Results for each specialist category were analyzed for statistical significance using a univariate analysis of variance with school responses set as the independent variable and school size as the dependent variable. This analysis determined if there was a

statistically significant difference in the average size of schools reporting access to external specialist staff.

Results for access to external assessment specialists were analyzed. The average school size for all schools reporting no access to external assessment specialists was 657.2 with 31 schools reporting no access. The average school size reporting access was 604.8 with 56 schools reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .244 and $p = .623$. Figure 33 shows the mean size for schools reporting no access to internal assessment staff vs. those reporting access and their respective ranges utilizing a 95% confidence interval.

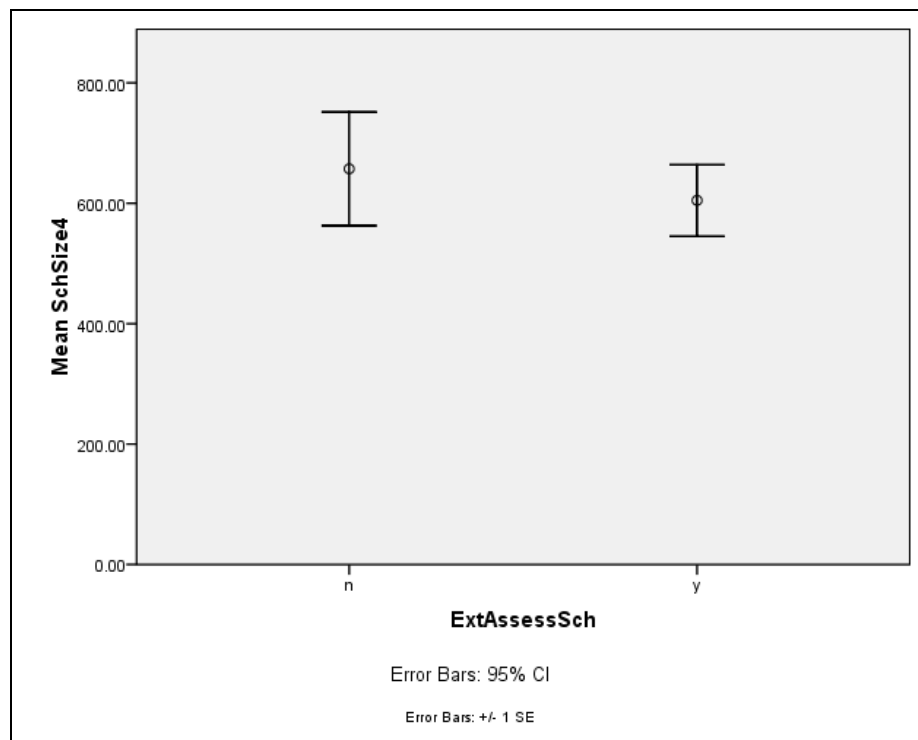


Figure 33. The mean size of schools reporting either “no” or “yes” when asked if there was an individual accessible outside of the school for the purpose of assisting with assessment needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Results for access to external curriculum development specialists were analyzed. The average school size for all schools reporting no access to external curriculum specialists was 615.9 with 28 schools reporting no access. The average school size reporting access was 631.9 with 58 schools reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .021 and $p = .884$. Figure 34 shows the mean size for schools reporting no access to external curriculum staff vs. those reporting access and their respective ranges utilizing a 95% confidence interval.

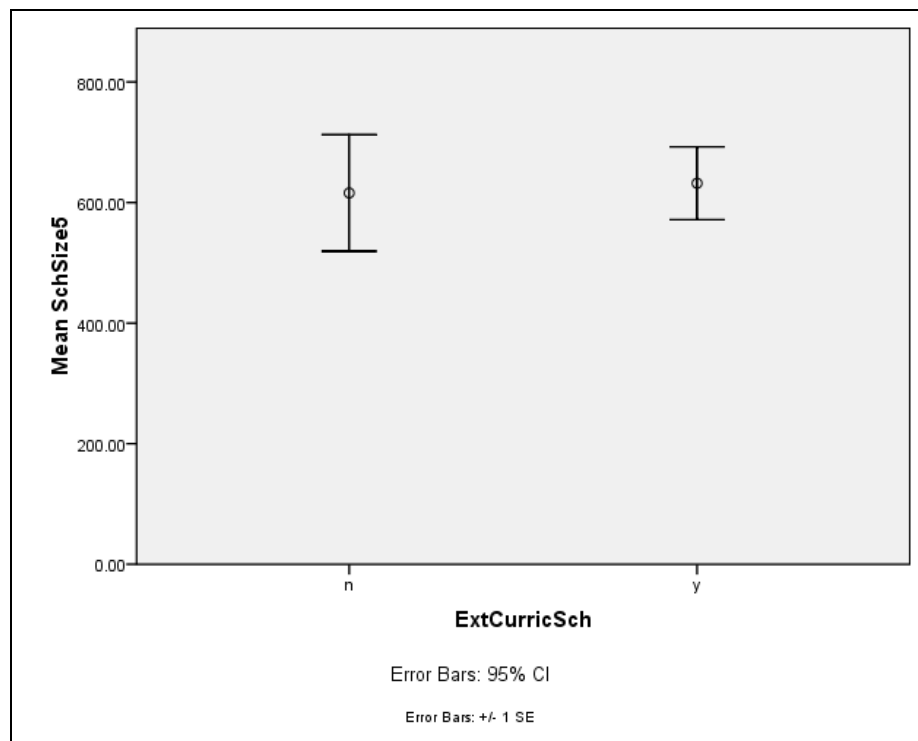


Figure 34. The mean size of schools reporting either “no” or “yes” when asked if there was an individual accessible outside of the school for the purpose of assisting with curriculum development needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Results for access to external staff development specialists were analyzed. The average school size for all schools reporting no access to external staff development

specialists was 697.5 with 26 schools reporting no access. The average school size reporting access was 600.5 with 60 schools reporting access. The results failed to meet the criteria for statistical significance with a calculated F value of .764 and $p = .384$.

Figure 35 shows the mean size for schools reporting no access to external staff development specialists vs. those reporting access and their respective ranges utilizing a 95% confidence interval.

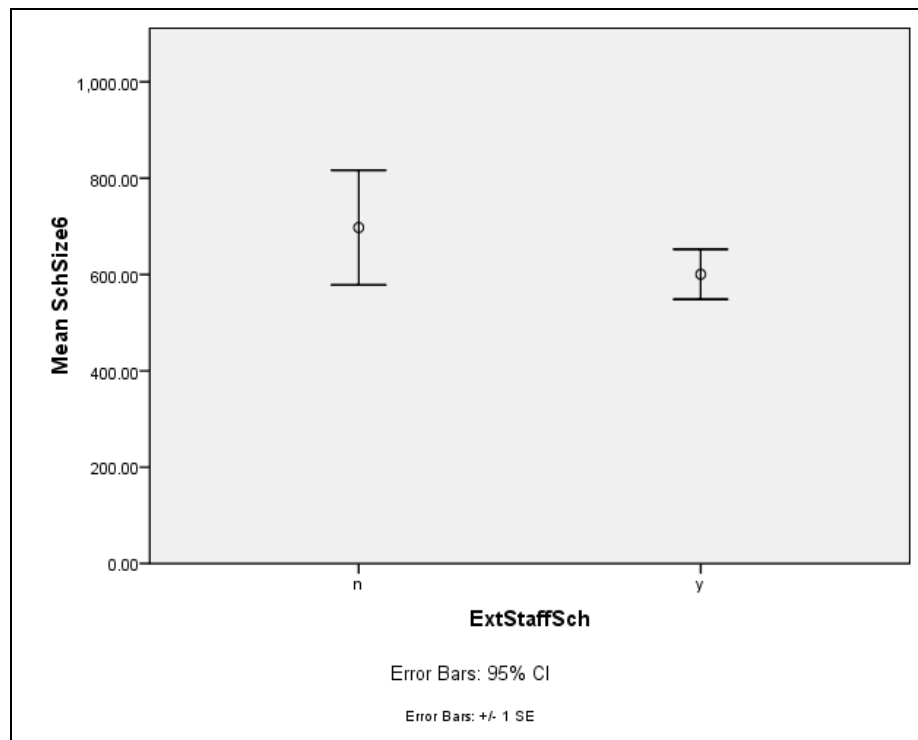


Figure 35. The mean size of schools reporting either “no” or “yes” when asked if there was an individual accessible outside of the school for the purpose of assisting with staff development needs. The error bars indicate the range representing the true size at a confidence interval of 95%.

Research question 3.

The third research question asked whether small schools reported lower levels of access to specialized staff. The results from research questions one and two can be used to address this question. Responses will be combined to determine if schools answered

affirmatively to either research question related to access. Schools could answer affirmatively to one of the two access questions, both of the access questions or neither of the access questions. Schools that answered negatively to both access questions will be considered as having no access. Schools that answered affirmatively to one or both questions will be considered as having access. Additionally, a breakdown of the schools which answered affirmatively will be provided to determine the types of access available.

In aggregate, 81.8% of schools reported at least one type of access to assessment specialists, 78.2% reported access to a curriculum development specialist and 77.0% reported access to a staff development specialist. This leaves 18.2%, 21.8% and 23.0% of schools with no access to assessment, curriculum development and/or staff development specialists respectively.

When analyzed by school size, access to assessment specialists is reported by 81.3% of schools in the 0-300 student category, 78.0% in the 301-600 student category, 88.2% in the 601-900 student category and 85.7% in the 901+ student category. In regards to curriculum development specialists, 75.0% of schools in the 0-300 student category report some level of access, followed by 72.5% of schools in the 301-600 student category, 76.5% in the 601-900 student category and 100% in the 901+ category. For staff development specialists, 75% of the 0-300 student schools reported access, as well as 72.5% of the 301-600 student schools, 94.1% of the 601-900 student schools and 71.4% of the 901+ student schools. Figure 36 summarizes the results of school access by size.

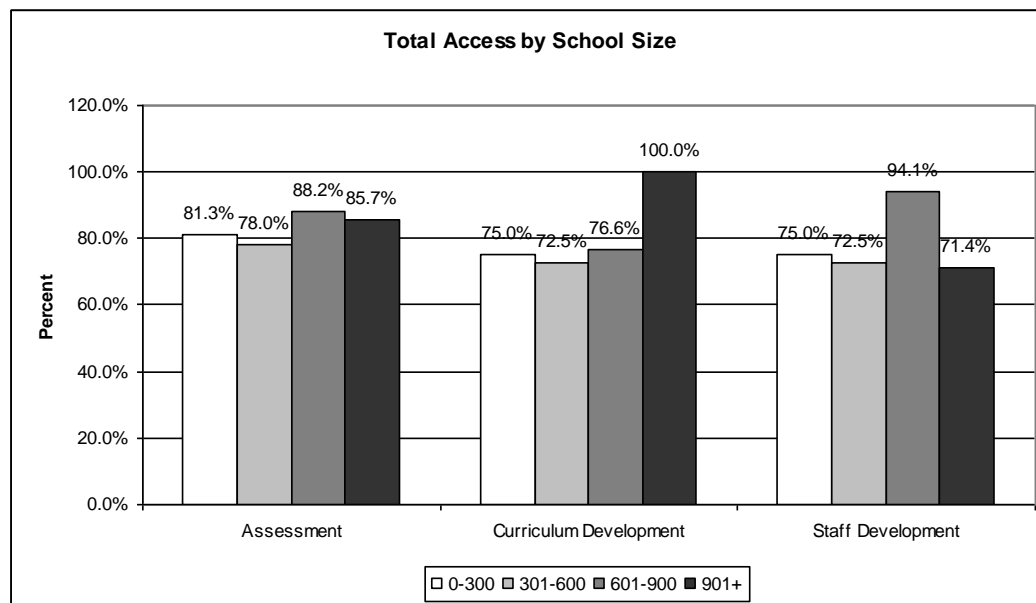


Figure 36. Percent of schools reporting access to internal and/or external specialists by school size.

The total access percentages listed were then broken down by “type” of access. The types of access are both internal and external access, internal access only and external access only. The percent of schools, by size, reporting will be listed in the order of access to both, internal only and external only for each specialist category questioned.

For assessment specialists, the schools in the 0-300 student category reported 18.8% have access to both internal and external staff, 18.8% have access to internal staff only and 43.8% have access to external staff only. Schools in the 301-600 student category reported 14.6% have access to both internal and external staff, 14.6% have access to internal staff only and 48.8% have access to external staff only. Schools with 601-900 students reported 29.4% have access to both internal and external staff, 11.8% have access to internal staff only and 47.1% have access to external staff only. Schools with 901 or more students reported 7.1% have access to both internal and external staff, 35.7% have access to internal staff only and 42.9% have access to external staff only. Table 20 summarizes these results.

Table 20

Percent and Types of Access to Assessment Specialists by School Size

School Size by Enrollment	Access Type			
	Internal and External	Internal Only	External Only	None
0-300	18.8%	18.8%	43.8%	18.8%
301-600	14.6%	14.6%	48.8%	22.0%
601-900	29.4%	11.8%	47.1%	11.8%
901+	7.1%	35.7%	42.9%	14.3%

In regards to curriculum development specialists, schools in the 0-300 student cohort reported 6.3% have access to both internal and external staff, 0.0% have access to internal staff only and 68.8% have access to external staff only. For the 301-600 student cohort, 7.5% have access to both internal and external staff, 12.5% to internal staff only and 52.5% to external staff only. The cohort of schools with 601-900 students reported 41.2% have access to both internal and external staff, 0.0% have access to internal staff only and 35.3% have access to external staff only. The cohort of the largest schools with 901 or more students reported 28.6% have access to both internal and external staff, 21.4% have access to internal staff only and 50.0% have access to external staff only. Table 21 summarizes these results.

Table 21

Percent and Types of Access to Curriculum Development Specialists by School Size

School Size by Enrollment	Access Type			
	Internal and External	Internal Only	External Only	None
0-300	6.3%	0.0%	68.8%	25.0%
301-600	7.5%	12.5%	52.5%	27.5%
601-900	41.2%	0.0%	35.3%	23.5%
901+	28.6%	21.4%	50.0%	0.0%

Pertaining to staff development specialists, schools with 0-300 students reported 18.8% having access to internal and external staff, 6.3% internal staff only and 50.0% external staff only. Schools with 301-600 students reported 10.0% have access to both internal and external staff, 10.0% have access to internal staff only and 52.5% have access to external staff only. For those schools with 601-900 students, 35.3% report having both internal and external access, 0.0% report having internal access only and 58.8% report having external access only. The cohort with 901 or more students reported 7.1% have both internal and external access, 14.3% have internal access only and 50.0% external access only. Table 22 summarizes these findings.

Table 22

Percent and Types of Access to Staff Development Specialists by School Size

School Size by Enrollment	Access Type			
	Internal and External	Internal Only	External Only	None
0-300	18.8%	6.3%	50.0%	25.0%
301-600	10.0%	10.0%	52.5%	27.5%
601-900	35.3%	0.0%	58.8%	5.9%
901+	7.1%	14.3%	50.0%	28.6%

Due to the failure to achieve statistically significant results in all but one of the measures related to the influence of school size in determining the prevalence of internal and external specialists, the statistical analysis of results for total access were not executed and are assumed to be insignificant.

Research question 4.

The fourth and final research question related to adequacy of current access to specialists. School administrators were asked to rank the adequacy of access to each of

the specialist groups. Administrators were asked to rank adequacy on a scale of one to four, one being the lowest level of adequacy and four being the highest. The average score for all schools reporting was calculated as well as the averages by school size.

For all schools, the average rank given by principals was 2.4 for adequacy of access to assessment specialists, 2.4 for curriculum development specialists and 2.5 for staff development specialists. The midpoint of a one to four scale is 2.5.

When viewed by school size, principals from schools with 0-300 students ranked the adequacy of access to assessment specialists at a 2.7, for schools with 301-600 students a 2.3, for schools with 601-900 students a 2.8 and for schools with 901 or more students a 2.3. In regard to curriculum development specialists, principals from the cohort with 0-300 students ranked the adequacy of access to specialist staff at 2.3, from the cohort with 301-600 students a 2.1, from the cohort with 601-900 students a 2.8 and from the cohort with 901 or more students a 2.6. Lastly, relating to staff development specialists, the schools with 0-300 students ranked adequacy at 2.5, schools with 301-600 students at 2.3, schools with 601-900 students at 2.9 and schools with 901 or more students at a 2.3. Figure 37 summarizes these results.

When viewed as mean or average results based upon the pre-determine size categories, more than half of the indicators were below the scale midpoint of 2.5. The only size group with average scores above 2.5 for all three specialist categories was the group of schools in the 601-900 student category.

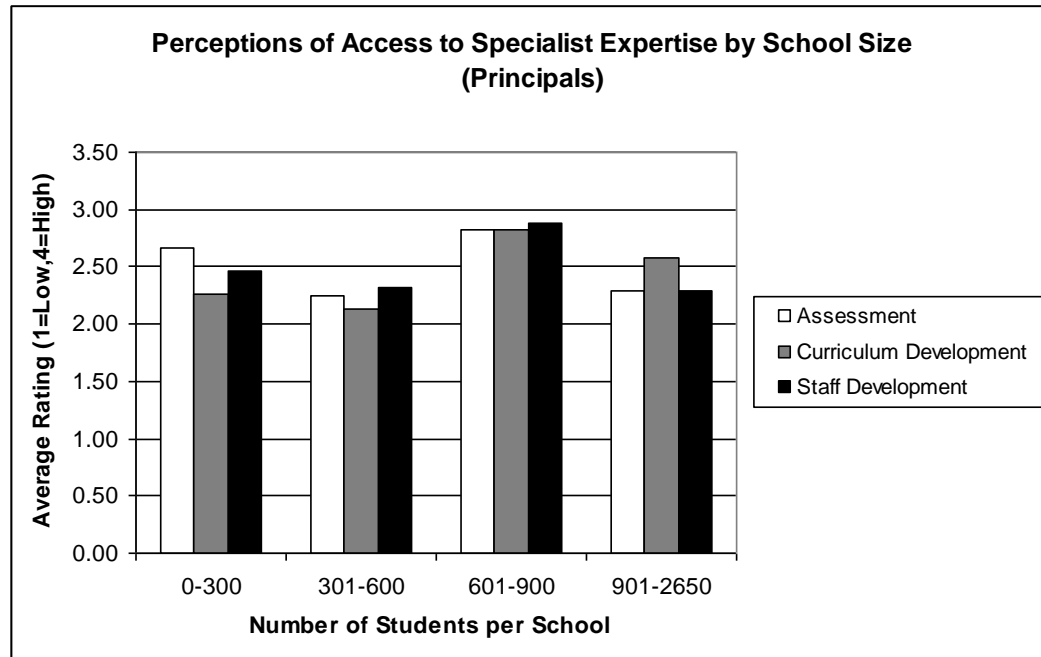


Figure 37. Average score given by school principals when asked to rank the adequacy of staffing to address assessment, curriculum development and staff development on a 1 (lowest) to 4 (highest) point scale. Results are summarized by school size.

School principals were also asked to rank the adequacy of access within their schools to specialist staff relative to other schools in the state. As with the general series of adequacy questions, averages for this series of questions were calculated in aggregate and based upon school size.

In aggregate, principals reported adequacy to access relative to other schools at a 2.3 for all three specialist categories. When viewed by school size, principals with 0-300 students report relative adequacy at a 2.3 for assessment specialist access, principals with 301-600 students report a 2.2, those with 601-900 students report a 2.8 and those with 901 or more students report a 2.4. In reporting relative access to curriculum development specialists, principals in the 0-300 student cohort reported an average of 2.3, in the 301-600 student cohort a 2.0, in the 601-900 student cohort a 2.6 and in the 901 or more student cohort a 2.5. Lastly, for staff development specialists, the 0-300 student schools

reported an average of 2.3, the 301-600 student schools a 2.1, the 601-900 student schools a 2.9 and the 901 or more student schools a 2.4. Figure 38 summarizes these findings.

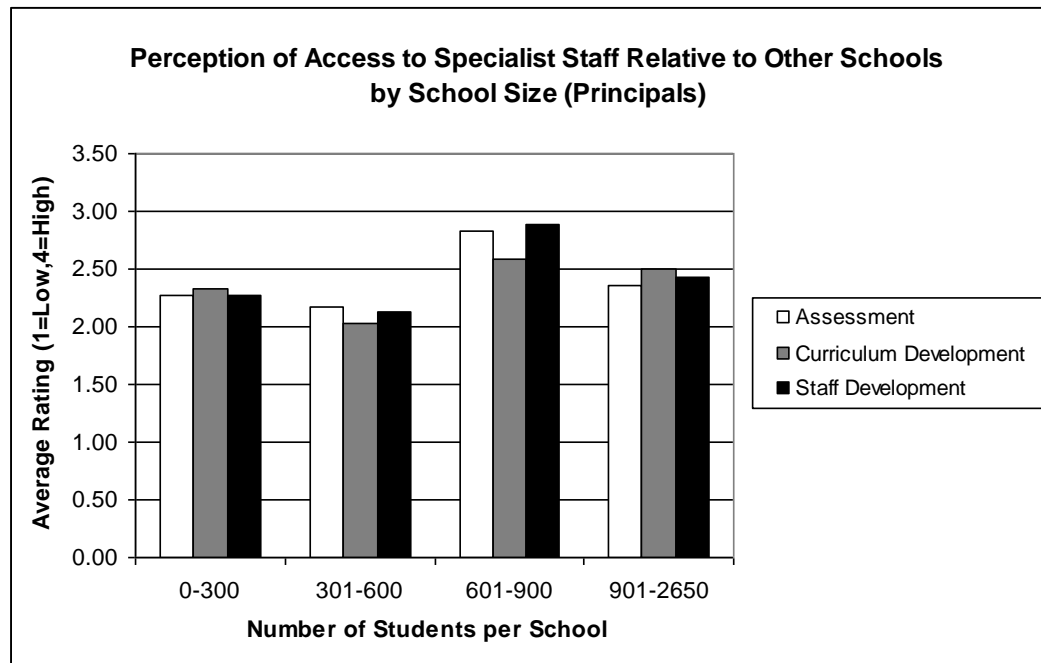


Figure 38. Average score given by school principals when asked to rank the adequacy of staffing to address assessment, curriculum development and staff development relative to other districts in Minnesota. Principals were asked to report using a 1 (lowest) to 4 (highest) point scale. Results are summarized by school size.

When viewed as mean or average results based upon the pre-determine size categories, three quarters of the indicators were at or below the scale midpoint of 2.5. The only size group with an average score above 2.5 was the 601-900 student category. Principals from this size group indicated an average for all three specialist categories above 2.5.

Results from the questions related to perception of adequacy were analyzed utilizing both parametric and non-parametric correlation measures. None of the results met the criteria for statistical significance with most measures exhibiting very weak

correlation. Only one measure was near the threshold for significance. This was the non-parametric correlation of principal's perceptions related to adequacy of curriculum development specialists within their schools. The calculation of the non-parametric Spearman correlation coefficient carried a p level of .069.

Summary

Four of the areas researched showed statistically significant differences in relation to specialist access. Larger districts were more likely to have an internal staff for assessment, curriculum development and staff development. Larger schools were significantly more likely to have an internal curriculum development specialist than were smaller schools. Table 23 summarizes these significant findings and their associated F and p values.

Table 23

<i>Statistically Significant Results</i>		
	<i>F</i>	<i>p</i>
Larger districts are more likely to have internal assessment specialists.	9.47	0.004
Larger districts are more likely to have internal curriculum development specialists.	7.476	0.01
Larger districts are more likely to have internal staff development specialists.	11.88	0.001
Larger schools are more likely to have internal curriculum development specialists.	7.735	0.007

None of the results related to external access, total access, or administrator perceptions met the threshold for statistical significance.

Chapter 5: Conclusions

This research set out to answer four questions. Do small districts and schools employ any individuals for the express purpose of assessment, curriculum development and staff development and at what level? If small districts and small schools are unable to hire individuals for these purposes, do administrators within the organization have access to individuals with the expertise? Do small districts/schools report a lower level of access to these specialized staff? Lastly, do small district and small school administrators report having adequate access to assessment, curriculum development and staff development expertise to address improvement strategies and implementation? Similar to the structure of the results, I will discuss the findings and implications of the study addressing each question in order. I will begin with the district level and then move to the school level. After this discussion, there will be a third section reviewing the findings and implications of the two sets of data in light of one another.

District Conclusions

Research question 1.

Do small districts employ any individuals for the express purpose of assessment, curriculum development and staff development and at what level? This is a two part question. The first part is, “do small districts employ assessment, curriculum and staff development staff?” The simple answer is a very small percentage do. Of the 22 districts in the smallest size category, 0-1300 students, three had an internal individual with at least some portion of his/her FTE dedicated to assessment, two had an individual for curriculum development and one had an individual for staff development. When

compared with their larger counterparts, small districts are significantly lagging in terms of profusion of specialists. Of the largest districts responding, an overwhelming majority hire staff in the areas surveyed. The results indicate that as the size of the district increases the likelihood that the district will have specialist staff also increases.

The results do not, however, address whether the lack of specialist staff is a matter of choice. In the review of the literature, the argument was made that small districts, due to the inability to take advantage of economies of scale, would not have individuals hired internally for assessment, curriculum and staff development. While this may explain the lack of specialist staff in small districts, there are other explanations that could be at work. One alternative explanation is, due to their small size, smaller districts do not need specialists. The coordination of assessment, curriculum and staff development within smaller districts may be a much less complex issue than in larger districts and may not require the same dedication of staff time. Although alternative explanations exist, the reported need for greater support in assessment, curriculum development and staff development due to the No Child Left Behind act would indicate that the lack of these individuals within smaller districts is likely due to the inability to fiscally support the positions. As such, the results of this research do not address why small schools do not typically employ staff for the purposes addressed in the survey. It does however lay a foundation by revealing that an imbalance in internal access to specialist staff exists. Future research could build upon these results and focus on determining the root causes behind the lower rates of profusion of specialists within small districts.

One very serious implication of the lack of specialists, is that it may result in the inability of small districts to effectively coordinate change strategies through the use of assessment, curriculum and staff development. If this is true, the very punitive nature of the current No Child Left Behind legislation could lead to a disproportionate number of schools within small districts being labeled as underperforming. These small districts may be more likely to suffer the consequences under the law due to a fiscal inability to retain the capacity to drive improvement efforts. However, this study did not address district ability to effectively implement change/improvement strategies or the effect of specialist staff in this regard. Future research could build upon this study by focusing on whether the presence of internal assessment, curriculum and staff development specialists improves a district's ability to effectively implement improvement efforts.

The second part of the first research question addressed the level at which districts staffed in each of the surveyed categories. The data was gathered in the form of two follow up questions. Districts that answered affirmatively to having internal specialist staff were asked how many individuals were hired and the total number of FTE dedicated within the district. For the FTE portion of the question, respondents were given a drop down menu from which to choose total FTE in 0.5 FTE increments.

The results of the follow-up questions were not reported. This is due, in large part, to two factors. The first is the low total number of districts responding affirmatively to the presence of specialist staff. The total number of districts indicating internal specialist staff was 14, 12 and 13 for assessment, curriculum development and staff development respectively. The low number of respondents coupled with FTE reporting by pre-

determined category led to a very small number of responses within any one FTE category. In future attempts to determine the level of staffing through FTE, I would suggest allowing districts to report the exact FTE dedicated. This would create a continuum of data and allow for the use of parametric tests in determining a correlation between district size and level of staffing.

Research question 2.

If small districts are unable to hire individuals for these purposes, do administrators within the district have access to individuals with the expertise? The results of question one do indicate that small districts are either unable or choose not to hire individuals for the purposes of assessment, curriculum development and staff development. The second question attempts to discern if districts then have access to individuals external to the district that can assist with these needs. The results indicate that approximately half of all small districts do have access to external specialists with some variation dependent upon the specialist category in question. District administrators were asked to specify where they were able to access these individuals. A variety of responses were given with the most prevalent being regional service cooperatives and consortiums, the Minnesota Department of Education, regional colleges and universities and private consultants.

Access to external specialists remains fairly consistent across districts regardless of size. There does appear to be minor variation dependent upon specialist type, but the results of this study failed to find any difference that met the threshold for statistical significance.

The results indicate that size does not appear to play a role in access to external staff as it does in terms of internal staff. The results also indicate that approximately 40% to 50% of districts do not have access to external specialists. This, coupled with the very low rates of internal specialist staff in small districts, again highlights the issue that many small districts may not have the option to access specialists even if they have the means to do so on a limited basis through contract for service. Another issue that is not resolved in this question is whether access equals use. The question asked if districts had access to external specialists. It did not address whether the districts had the fiscal resources to take advantage of this access. Administrators may have inferred that the term access included the ability to take advantage of the available specialists, but this point remains unclear. Future research could build upon the results of this study by determining whether districts that report access to external specialist staff are in a fiscal position to take advantage of this access.

Research question 3.

Do small districts report a lower level of access to these specialized staff? The results of first two research questions were combined to determine the percentage of districts in each of the different size categories which had access to some form of specialist help. Districts which had both internal and external access, only internal access and only external access were considered to have access. Only districts which had no form of access to specialist staff were considered to not have access. When comparisons were made based upon district size, the results failed to achieve a statistically significant finding in total access. In this determination of access, it was assumed that all access

types are equal and that there is no real advantage in having internal staff or access to multiple sources of specialist staff. In reality, there is much more likely a spectrum relationship in access to specialists. All things being equal, it would be beneficial to have both an internal staff person and access to external experts. Internal staff are presumably more likely to understand the workings of the district and have developed working relationships with district staff. These people should be better positioned to implement improvement initiatives. The ability to supplement this with additional support externally when desired would appear to be a very advantageous situation. The next best arrangement would be to have an internal specialist followed by external access only.

When you view the patterns of access based upon district size, a trend begins to appear. The smallest districts are likely to have either no access or access to only external specialists. As you move to the middle sized districts, access begins to shift away from external specialists only to a greater percentage of internal specialists. Moving up the size categories to the largest districts, you see that very few districts report no access and a large percentage of districts have access to internal staff or both internal and external staff.

This study may have failed to find statistical significance in terms of overall access, but when you look at types of access there do appear to be distinct trends as district size increases. Future research could focus more distinctly on the type of access based upon district size and the effects of various access configurations.

Research question 4.

Do small district administrators report having adequate access to assessment, curriculum development and staff development expertise to address improvement strategies and implementation? The short answer is no and neither do their larger district counterparts. District administrators were first asked to rank the adequacy of access to specialists in the three categories in regard to the ability to assist in program improvements. When results were viewed in aggregate and disaggregated by the three size categories, no group reported an average score higher than 2.5, which represents the midpoint of the scale. If you assume a score of 2.5 indicates a neutral position, anything lower would be considered inadequate and anything larger adequate with varying degree as you move to either end of the scale. The highest average score given for any size group in any specialist category was a 2.4. The smallest school districts reported average adequacy scores of 2.4, 2.1 and 2.1 for assessment, curriculum development and staff development respectively. The scores of 2.1 represent the lowest score by any group and in any category. It is important to highlight that there was no statistical difference in the adequacy rankings when viewed by district size based upon the results of this study. A very slight upward trend in rating was seen as district size increased. The relatively low overall number of respondents and compressed scale may have hindered the ability to determine a significant difference. Additional research that remedies these two limiting factors may provide greater insight.

District administrators were also asked to rank the adequacy of access to specialists in their districts relative to other districts in the state. The results of this line of

questioning provided very little differentiation from the first line of adequacy questions. Total aggregate and categorical averages by district size were all below the scale midpoint of 2.5.

School Conclusions

Research question 1.

Do small schools employ any individuals for the express purpose of assessment, curriculum development and staff development and at what level? This is, again, a two part question. I'll begin with the first part of this question, "do small schools employ any individuals for the purposes of assessment, curriculum development and staff development?" The simple answer, as with small districts, is that some do, but they are a minority.

The results of this study indicate that a little under one in three schools (31.6%) in the bottom two size categories (0-600 students) have an individual hired for the purpose of assisting with assessment needs. The numbers drop to approximately one in six (16%) with curriculum development staff and a little over one in five (21.4%) with staff development specialists. This can be compared to the larger two groups of schools with 601 or more students. These schools report that approximately four in ten schools (41.9%) have an internal assessment staff member, just under one in two (45.2%) have an internal curriculum development staff member and just under three in ten (29%) have a person hired for staff development purposes. In every category, the largest two classifications of schools showed a higher percentage with specialists than the schools in the bottom two classifications. However, this difference only met the criteria for

statistical significance in regard to curriculum development specialists. Future research could focus on a similar line of questioning and work to gather a larger sample of respondents to determine whether the smaller, non-significant differences identified in this study are indeed true differences or an artifact of the sample.

Research question 2.

If small schools are unable to hire individuals for these purposes, do administrators within the school have access to individuals with the expertise? The simple answer is a majority of small schools do have access to external experts. The results indicate that a little under two in three of the schools in the smallest two size categories have access to external assessment specialists (64.3%). These number are similar for the other two specialist categories in question. Sixty-three percent have access to external curriculum developers and 65.5% have access to external staff developers. As with internal school specialists, a higher percentage of larger schools report access to external assessment, curriculum development and staff development specialists with 64.5%, 76.7% and 77.4% of school reporting access respectively. However, none of these differences met the criteria for statistical significance.

The results indicate that size does not appear to play a significant role in access to external staff. The results also indicate that approximately 30% to 35% of schools do not have access to external specialists. This coupled with the low rates of internal specialist staff highlights the issue that many small schools may not have the option to access specialists even if they have the means.

As with districts, the issue that is not resolved in this question is whether access equals use. The question asked if schools had access to external specialists. It did not address whether they had the fiscal resources to take advantage of this access. One of the instances where we may be able to infer that access does equal use is when school administrators listed district experts as the external source. Future research could build upon the results of this study by determining whether schools that report access to external specialist staff are in a fiscal position to take advantage of this access.

When asked where they are able to access external experts, principals provided similar responses to superintendents. They indicated regional service cooperatives, the Minnesota Department of Education, and private contractors. Principals also provided one new source of experts, district level specialists.

The slightly higher percentages of larger schools with access to external specialists may relate to the results reported by district superintendents. Larger districts were much more likely to have internal specialists. Assuming that large schools are more likely to exist within large districts, this would provide many large schools with an additional layer of external access to specialists.

Interestingly, the percentage of small schools reporting access to external “assessment” staff may have been over-reported. A number of the small schools reporting external access listed school psychologists, special education cooperatives and district psychologists as their external sources. This is not the type of assessment expertise that was intended in the survey. The term assessment for purposes of the survey was used in reference to assessment of learning/achievement, not assessment for

qualification for special education services. A large number of principals in the smaller schools did not appear to make this differentiation. Approximately one in three that indicated access to external assessment specialists listed a psychologist or special education consortium as their source. Principals in the larger schools appeared to understand this differentiation as they listed the types of groups that typically provide assessment services directed toward assessment of learning and achievement. None of the principals from the two largest school size categories explicitly listed a psychologist or special education cooperative/service as the source of external assessment expertise. When this is taken into consideration, the number of small schools with access to external assessment specialists may have been over-reported by as much as 33%. These results also call into question whether the number of schools indicating internal assessment specialists has been over-reported.

Research question 3.

Do small schools report a lower level of access to these specialized staff? The results of the first two research questions were combined to determine the percentage of schools in each of the different size categories which had access to some form of specialist help. Schools which had both internal and external access, only internal access and only external access were considered to have access. Only schools which had no form of access to specialist staff were considered to not have access.

A majority of small schools do have access to assessment, curriculum development and staff development specialists. In all three areas questioned, the smallest two categories of schools had, at minimum, 72.5% of schools with some form of access.

Access to assessment specialists was the most prevalent, but this result is questionable due to the potential over-reporting addressed earlier. Small schools do not differ greatly in terms of total access to specialists from their large school counterparts. As with districts, this question did not make any assumptions in regards to potential difference in quality of access. All types of access were considered equal. As addressed in the district conclusions this may or may not be true.

Unlike the situation with districts, there did not appear to be a consistent pattern in terms of total access by access category across school size. The one interesting note is that the schools with 601-900 students always had the highest percentage of access to both internal and external specialists. When this is viewed in light of principals' perceptions of adequacy, the principals in schools with 601-900 students reported the highest levels of adequacy in all three specialist categories. Schools of this size also reported the highest levels of total access for both assessment and staff development specialists.

Research question 4.

Do small school administrators report having adequate access to assessment, curriculum development and staff development expertise to address improvement strategies and implementation? As with districts, administrators from the smallest categories of schools indicate that they do not have adequate access to specialist staff to meet school needs. The one exception would be schools in the 0-300 student category in reference to assessment specialists. Principals from these schools gave an average adequacy ranking of 2.7 which is above the scale mid-point of 2.5. It is worth noting, this

score is in question due to the misperception of many small school principals over the meaning of the term “assessment” within this survey. Many small school principals misperceived this term to be in regards to assessment for special education placement and services.

When compared with their larger counterparts, an interesting phenomenon occurs. The smallest two categories of schools, 0-300 students and 301-600 students, on average provided ratings of adequacy below the scale midpoint with the above noted exception. A similar pattern is also true of schools with 901 or more students. These schools rated their level of adequacy below the midpoint in two of the three categories with the one category above the midpoint being access to curriculum development specialists. This leaves the category of schools with 601-900 students. The administrators from these schools rated themselves above the midpoint of the adequacy scale in all three categories. This becomes particularly interesting when viewed by types of specialist access. Although the largest schools were more likely to have internal specialists, schools in the 601-900 student category were more likely to report the combination of both internal and external access to specialists.

Unfortunately, none of the results from the above paragraph proved to meet the criteria for statistical significance. It is unclear as to whether the relationship between types of access and perception of adequacy truly exist. Further research with larger samples may be able to provide insight as to whether this relationship is likely real or is merely an artifact of this particular sample. Also, providing a larger range of scale score options may allow for school administrators to provide greater differentiation in score.

This could potentially aid in determining the existence and significance of a relationship between access types and perceptions of adequacy.

Implications

An overwhelming majority of small districts and schools do not have access to internal staff explicitly dedicated to assessment, curriculum development and staff development. District size is a significant factor in determining whether or not a district will have internal specialists hired. Small districts are much less likely to have internal staff specialists. The results of this study do not confirm similar findings for schools based on size.

The findings listed in the above paragraph are not necessarily surprising. Districts serve as the local fiscal agents for schools in Minnesota. The ability to take advantage of economies of scale, or lack there of, would accrue at the district level. Within a district, educational leaders may choose to have fewer larger schools or many smaller schools. This fact can result in very large districts with many small schools. If economies of scale are primarily functions of district size and are only slightly altered by district choices of school size, one might expect to see a strong association with the ability to hire specialists based upon district size, but not school size.

Organizations do exist that are attempting to provide external assistance to many of these districts and schools to improve capacity for addressing assessment, curriculum development and staff development needs. Approximately half of all small districts and a majority of small schools within Minnesota do have some form of access to assessment, curriculum development and staff development expertise. This leaves the other half of

small districts and approximately one in five small schools without access to specialist assistance in their efforts to improve the quality of the education being provided to students. This finding places schools within smaller districts in a position that allows for little to no opportunity to seek assistance if desired. With the likelihood of these schools and districts being located in rural areas, it could lead to a form of intellectual poverty in our smaller out-state regions of Minnesota.

Even with half of all small districts and approximately 80% of small schools with some form of access to specialists, it is apparent that the types of access available to these organizations are not the same as with their larger counterparts. Small districts and their associated schools are much less likely to have internal specialists or a mix of access. If types of access, internal vs. external, equate to quality of access, this paints an even bleaker picture for schools that are situated within small districts.

Superintendents from districts of all sizes believe, on average, that they lack the capacity necessary to adequately address the assessment, curriculum development and staff development needs within their districts to assist with improvement. This is also true of principals in regards to most of the areas surveyed with the exception of principals in schools with 601-900 students. These perceptions of inadequacy are a sign that many of Minnesota's school leaders may not feel they have the resource to properly lead school improvement initiatives.

This study did not attempt to discern the impact a lack of access may have on the ability of districts and schools to provide a quality education to students. Future study could address whether student learning is impacted by the ability to access specialist

assistance and whether this varies based upon the types of access available. Results of such a study would assist in determining whether students from small districts and schools are at a disadvantage in comparison to students attending their larger counterparts. This information could be particularly useful for informing policy and funding decisions to insure that students across the state are able to access a uniformly high quality of education.

While I have focused on identifying differences between schools based upon size, it is important to highlight that the percentages of schools reporting access to internal specialists are at or below 50% for all specialist categories and school size categories. If studies are emphasizing the importance of these skills in creating change to better schools and meet government mandates, it will be critical to determine if the low rates of schools reporting internal specialists is a matter of inability to fund these types of positions or because schools are addressing these needs through other mechanisms. There is however a third rationale as to why schools may not be making the decision to hire internal specialists. School leaders may not be aware that they are needed. I find this last rationale, although plausible, to be unlikely. The survey instrument allowed for school leaders to make comments upon completion. A number of these individuals expressed the need to be able to take advantage of assessment, curriculum and staff development to improve schooling and the lack of resource to do so.

Understanding the drivers behind the lack of specialists, especially internal specialists, and the impact this lack has on student learning will be critical in determining which steps, if any, need be taken to insure Minnesota students are able to access a

consistently high quality and continually improving education regardless of the school they may attend.

References

- Barker, B. O. (1986, February). Small schools: the advantages of small schools. *Clearinghouse on Rural Education and Small Schools*, 1-12. Retrieved from ERIC database (ED265988).
- Barton, R. (2003, June). Challenges and opportunities of NCLB for small, rural and isolated schools. *Northwest Regional Educational Laboratory*, 1-14. Retrieved from ERIC (ED482267).
- Bickel, R., Howley, C., Williams, T., & Glascock, C. (2000). *High school size, achievement equity, and cost: Robust interaction effects and tentative results*. 1-49. Retrieved from ERIC database (ED450991).
- Bingler, S., Diamond, B. M., Hill, B., Hoffman, J. L., Howley, C. B., Lawrence, B. K., et al. (2002). Dollars and sense: the cost effectiveness of small schools. *KnowledgeWorks Foundation*, 1-42. Retrieved from ERIC database (ED473168).
- Darling-Hammond, L. (2007). Standards and accountability movements need to push not punish. *Journal of Staff Development* 28(4). 47-50.
- Faus, D.C., & Clark, T.M. (2009). Built to last: Survival lessons from small schools. *Independent School*, 68(4), 80-84, 86, 88.
- Fraenkel, J. R., & Wallen, N. E. (1996). *How to design and evaluate research in education* (3rd ed.). New York: McGraw-Hill, Inc.

- Funk, P. E., & Bailey, J. (1999, September). Small schools, big results: Nebraska high school completion and postsecondary enrollment rates by size of school district. *Nebraska Alliance for Rural Education*. Retrieved from ERIC database (ED441633).
- Haas, T. (2000, October). Balance due: Increasing financial resources for small rural schools. *Eric Clearinghouse on Rural Education and Small Schools*, 1-7. Retrieved from ERIC database (ED447991).
- Howley, C. B. (2000). School district size and school performance. *Rural Education Issue Digest*, 1-39. Retrieved from ERIC database (ED448961).
- Howley, C. B., & Bickel, R. (2000, February). When it comes to schooling...small works: School size, poverty and achievement. *Rural School and Community Trust*, 1-24. Retrieved from ERIC database (ED447973).
- Howley, C., Strange, M., & Bickel, R. (2000, December). Research about school size and school performance in impoverished communities. *ERIC Clearinghouse on Rural Education*, 1-4. Retrieved from ERIC database (ED448968).
- Irmsher, K. (1997, July). School size. *Eric Clearinghouse on Educational Management*, 1-6. Retrieved from ERIC database (ED414615).
- Jennings, J., & Rentner, D. S. (2006). How public schools are impacted by "No Child Left Behind". *Education Digest: Essential Reading Condensed for Quick Review*, 72(4), 4-9.
- Jennings, J., & Rentner, D. S. (2006). Ten big effects of the No Child Left Behind Act on public schools. *Phi Delta Kappan*, 88(2), 110-113.

- Lee, M. & Friedrich, T. (2007). The 'smaller' the school, the better? The Smaller Learning Communities (SLC) program in US high schools. *Improving Schools*, 261-282.
- Lee, V. E., & Smith, J. B. (1997). High school size: Which works best and for whom? *Educational Evaluation and Policy Analysis*, 19(3), 205-227.
- Le Floch, K. C., Taylor, J. E., & Thomsen, K. (2006). Implications of NCLB accountability for Comprehensive School Reform. *Journal of Education for Students Placed at Risk*, 11(3&4), 353-366.
- Litwin, M. S. (1995). *How to measure survey reliability and validity*. Thousand Oaks, CA: Sage Publications, Inc.
- Mathis, W. J. (2003, March). Equity and adequacy challenges in rural schools and communities. *Rural School and Community Trust*, 1-17. Retrieved from ERIC database (ED478057).
- McComb, J. (2000, March). *Small schools: Issue Brief*. 1-7. Retrieved from ERIC database (ED448525).
- Melcher, T. (2005, September). *Minnesota School Finance History*, 1-11. Retrieved from http://education.state.mn.us/MDE/Accountability_Programs/Program_Finance/General_Information/School_Finance_Overviews-History/index.html.
- Minnesota Department of Education. (2007, November). *K-12 Education Finance Overview 2007-2008*. doi:K-12 Education Finance Overview 2007-2008

- Minnesota Department of Education. (2008, October). *Overview of Minnesota Property Tax System and School District Levy Process*. Retrieved from http://education.state.mn.us/MDE/Accountability_Programs/Program_Finance/General_Information/School_Finance_Overviews-History/index.html.
- Nardi, P. M. (2003). *Doing survey research: A guide to quantitative methods*. Boston: Allyn and Bacon.
- Nathan, J., & Hare, D. (2001). Small by design: Resizing America's high schools. *North Central Regional Education Laboratory*, 1-39. Retrieved from ERIC database (ED466010).
- NASBE (2002). No Child Left Behind: A guide for small and rural districts. *National Association of State Boards of Education*, 1-69. Retrieved from ERIC database (ED478378).
- Raywid, M. A. (1999, January). Current literature on small schools. *ERIC Clearinghouse on Rural Education and Small Schools*, 1-8. Retrieved from ERIC database (ED425049).
- Reeves, C. (2003, January). Implementing the No Child Left Behind Act: Implications for rural schools and districts. *Educational Policy Publications*, 1-20. Retrieved from ERIC (ED475037).
- Schwahn, C. J., & Spady, W. G. (1998). *Total leaders: Applying the best future-focused change strategies to education*. Lanham, MD: ScarecrowEducation.
- Stewart, L. (2009). Achievement difference between large and small schools in Texas. *The Rural Educator*, 30 (2), 20-28.

- Stiefel, L., Iatarola, P., Fruchter, N., & Berne, R. (1998, April). The effects of size of student body on school costs and performance in New York City high schools. *Institute for Education and Social Policy*, 1-28. Retrieved from ERIC database (ED420464).
- Streifel, J. S., Foldes, G., & Holman, D. M. (1991). The financial effects of consolidation. *Journal of Research in Rural Education*, 7(2), 13-20.
- Strike, K.A. (2008). Small Schools: Size or Community? *American Journal of Education* 114, 169-190.
- Thorson, G. R., & Edmondson, J. (2000, January). *Making difficult times worse: The impact of per pupil funding formulas on rural Minnesota schools*. 1-28. Retrieved from ERIC database (ED460808).
- Thorson, G. R., & Maxwell, N. J. (2002, July). *Small schools under siege: Evidence of resource inequality in Minnesota public schools*. 1-34. Retrieved from ERIC database (ED468840).
- Vander Ark, T. (2002). The case for small high schools. *Educational Leadership*, 59(5), 55-59.
- Wasley, P. A., & Lear, R. J. (2001). Small school, real gains. *Educational Leadership*, 58(6), 22-27.
- Wong, K.K. (2008). Federalism revised: The promise of the No Child Left Behind Act. *Public Administration Review* 68, S175-185.

Appendix A. Survey Notice

CONSENT FORM
**Prevalence of Assessment, Curriculum and Staff
Development Specialists in Small School Districts of
Minnesota**

You are invited to participate in a research study of Minnesota schools and districts. The study is attempting to identify the prevalence of specialist staff based upon school and district size. You were selected as a potential participant due to your role within the district as a head superintendent or building level principal. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by:

Michael Cary, in candidacy for the degree of Ed.D.
Department of Educational Policy and Administration
University of Minnesota

Background Information

The purpose of this study is to assess the prevalence of assessment, staff development and curriculum development specialists in Minnesota public schools and districts with special focus on school/district size.

Procedures:

If you agree to be in this study, we would ask you to do the following things:

Access the internet and navigate to www.d.umn.edu/~mcary/survey.pdf. Once there, click on the link which corresponds to your role within the district. You will be prompted to enter a log in and password (provided below) to access a short online survey. The passwords are listed below.

Once you have accessed the survey answer the questions as accurately as possible (the survey will focus on the number and FTE of specialist staff within your school or district).

Superintendents (log in and username are case sensitive)

Log in: superintendent
Password: Super2009

Building Principals (log in and username are case sensitive)

Log in: principal
Password: Prin2010

****Please be sure to limit response to this survey to one superintendent per district and/or one principal per school to prevent duplication of data.**

Risks and Benefits of being in the Study

There are no direct risks or benefits for participants related to this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Michael Cary. If you have questions, **you are encouraged** to contact Mr. Cary at 604 N Washington Ave., Detroit Lakes, MN 56501, (218) 310-1547, mcary@umn.edu. You may also contact Dr. Frank Guldbrandsen at 10 University Dr, Duluth, MN 55812, (218) 726-8172, fguldbra@d.umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

Please keep a copy of this information for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. By accessing and completing the online survey, I consent to participate in the study.

Appendix B. Survey Instrument

1. How many students attend your district/school?
2. Does your district/school have an individual(s) hired specifically for the purpose of assisting with district/school assessment needs? Yes/No (If yes answer sub-questions a & b)
 - a. If yes, how many individuals are hired for this purpose? Enter Number
 - b. If yes, what portion of the individual(s) FTE is dedicated to district/school assessment? 0.1 to 1.0 FTE in 0.1 increments
3. Does your district/school have access to assessment services/expertise?
Yes/No
4. Does your district/school have an individual(s) hired specifically for the purpose of assisting with district/school curriculum development needs?
Yes/No (If yes answer sub-questions a & b)
 - a. If yes, how many individuals are hired for this purpose? Enter Number
 - b. If yes, what portion of the individual(s) FTE is dedicated to district/school curriculum development? 0.1 to 1.0 FTE in 0.1 increments
5. Does your district/school have access to curriculum development services/expertise? Yes/No
6. Does your district/school have an individual(s) hired specifically for the purpose of assisting with district/school staff development needs? Yes/No (If yes answer sub-questions a & b)
 - a. If yes, how many individuals are hired for this purpose? Enter Number
 - b. If yes, what portion of the individual(s) FTE is dedicated to district/school staff development? 0.1 to 1.0 FTE in 0.1 increments
7. Does your district/school have access to staff development services/expertise?
Yes/No
8. Please rank the adequacy of access to assessment staff or services within your district/school to assist in educational program improvements. (1 = low, 4 = high)
9. Please rank the adequacy of access to curriculum development staff or services within your district/school to assist in educational program improvements. (1 = low, 4 = high)
10. Please rank the adequacy of access to curriculum development staff or services within your district/school to assist in educational program improvements. (1 = low, 4 = high)

11. Please rank the adequacy of access to assessment staff or services within your district/school relative to other districts within the state. (1 = low, 4 = high)
12. Please rank the adequacy of access to curriculum development staff or services within your district/school relative to other districts within the state. (1 = low, 4 = high)
13. Please rank the adequacy of access to staff development staff or services within your district/school relative to other districts within the state. (1 = low, 4 = high)