Left Behind by Policy: A Case Study of the Influence of High Stakes Accountability Policy on Data-Based Decision Making in One Small, Rural New Hampshire School

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The high-stakes accountability policies that stemmed from NCLB and Race to the Top required minimum group sizes in order for school performance to be analyzed through state accountability formulas. Small rural schools have frequently been left out of this equation due to a lack of consistently reportable aggregate groups and sub-groups. The evidence of this has been seen through the lack of needed data-based decision making (DBDM) practices. In order to begin to understand the DBDM practices of small rural schools and the relationship to educational policy we engaged in case study research of a Pk-12 school of 100 students from 2014-2015. The school, located in New Hampshire, provided us with insights into the potential gaps that exist between policy and practice in small rural schools. In addition, questions of educational equity began to emerge as we considered the gaps between student achievement data and the professional development of educators.

During the 2014-15 school year, the researchers provided professional development to a small rural school, School A, in New Hampshire for the purpose of developing a school-wide data team. The professional development was part of a single case study that provided the foundation for a broader study on the influence and impact of educational policy in New Hampshire's small, rural schools. The goal of the current study was to begin to develop an understanding of the state of data-based decision making (DBDM) in one such school, and the relationship between high stakes accountability systems as they currently exist and the ability of small, rural schools make effective use of available data. To that end, the following research questions in the broad study framed our query:

1. To what extent is data being used for decision-making in small, rural schools in New Hampshire?
2. How do educators in small, rural schools in the state of New Hampshire perceive data and data usage in their practice?
3. How does the development of a school-wide system of data inquiry impact small, rural schools?

Our findings are offered as support for school leaders of small, rural schools as they address issues of data use in their schools, and to educational policy makers as they consider the issues of equity that emerge as a result of educational policy.

Related Literature

Educational reform policies of the early 21st century can be characterized as being grounded in data, specifically, the use of high-stakes testing[1] data for the use of determining school effectiveness. The increasing demand on educators to use data to make decisions about programming and instructional practices has been narrowly focused on the results of high stakes testing and the resulting policy-prescribed levels of school performance (NCLB, 2001; US Department of Education, 2009). Although the recently signed *Every Student Succeeds Act* provides some hope for how data is used in accountability, it remains to be seen how this hope will be realized in practice.

Despite the policy demand and expectation for DBDM of the past 15 years, the existing body of research in this area remains emergent and predominantly focused on how data is used in urban and large school settings. Noticeably missing from

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[1] The definition of high-stakes varies from state to state but always includes some kind of sanctioning or rewards for schools related to school-wide performance on the test.

the literature is a focus on data-based decision making in small, rural schools. The lack of available research on rural schools and specifically small, rural schools, although acknowledged, was not viewed as an absolute limitation, but was instead viewed as an opportunity to identify themes that could potentially be generalized across organizations of similar rural contexts.

Data-Based Decision-Making as a Process

Organizational routines and processes provide structures through which educators can look deeply at programs and practices (Feldman & Tung, 2003). Four groups of researchers looked critically at the data practices of successful schools that were participating in specific school turnaround programs (Feldman & Tung, 2001; Love, 2004; Noyce, Perda, & Traver, 2000; Rallis & MacMullen, 2000). Although each included schools that were involved in different reform models, each identified that the development of data-based decision-making (DBDM) as a school-wide process was key to engaging educators in looking deeply and consistently at issues of practice. The use of the term reform model is misleading, in that the assumption could be made that the schools in the sample had all been identified as under-performing. That was not the case, as schools that appeared to not have performance issues were found to also engage in DBDM as a process (Rallis & MacMullen, 2000). In these schools, the implementation of the DBDM process supported educators in looking beyond the surface of the data to identify areas that could be further developed in programming and professional practice. Critical to all of the four schools studied was the development of DBDM as a school-wide process that supported the embedding of DBDM into the professional culture of the school.

Beyond the overarching impact of developing a professional culture of inquiry, studies have found that the establishment of DBDM as a school wide-process has further impact on the organization through its effects on teachers and students. Through the heightened awareness and understanding of data and inquiry, teachers become more reflective about their practice and less accepting of initial answers (Noyce, Perda, & Traver, 2000; Robinson, Bursuck, & Sinclair, 2013). Simply, it is no longer considered adequate or sufficient in these schools to accept the surface-level explanation of data. Teachers in schools that have established DBDM processes readily ask the deeper questions that lead to rich and robust discourse about practice and educational programs. As a result of being better informed about programs and practices as a professional community, the teachers can then more strategically establish priorities (Noyce, Perda, & Traver, 2000), and subsequently, they have more positive influence on student achievement.

Given all the potential positive impacts of establishing a school-wide process of DBDM, it seemed necessary to ask, if schools aren't implementing a school-wide DBDM process, why? What common barriers exist that prevent them from doing so?

Barriers to Developing a School-Wide Data-Based Decision Making Process

Key barriers to the development of school-wide DBDM processes are the very policies that dictate the need for schools to be utilizing their data for program assessment and monitoring (Jimerson, 2005). As pointed out by Rallis and MacMullen (2000), "…most external accountability approaches have paid little attention to creating the internal capacities required to carry them out" (p.769). Although the reform policies of the early 21st century have included provisions for developing the instructional and leadership capacities of educators, they have not explicitly provided for the capacity of educators to engage in authentic processes of DBDM (NCLB, 2001; US Department of Education, 2009), a shortcoming that we consider unacceptable given the potential benefits of having a DBDM process.

The underlying philosophy of these policies is akin to a *carrot and stick* mentality, combining performance assessment with rewards or consequences in order to incite improvement in instructional practices and student achievement. This results in an external focus on accountability, a locus that is prohibitive to the deep and authentic development of school-wide DBDM processes, which flourishes in environments that are characterized by an internal focus (Love, 2004). Small, rural schools are provided an additional challenge by these policies as they are predominantly guided by population size; specifically, a defined group size must be achieved to trigger reporting. In small, rural schools this requirement often results in a lack of consistently available reporting of data through the accountability system, thus rendering the received data not as useful as a consistently available data point, and perhaps not as consistently used. Although it would be possible for educators to review

individual student results in such cases, it is not apparent to what extent that occurs. We believe the lack of consistently reported data indicates a need for policies and practice to move beyond a singular focus on state mandated testing data sources for assessing school effectiveness and become more inclusive of the wide variety of available data in schools.

The lack of focus by policy makers on internal capacity has also resulted in confusion about how to engage in DBDM processes. The lack of specificity for *how to do it* adds to what is often experienced as resistance from educators, resistance grounded in their perceived sense of lack of competence with data use. Identifying that there's "no one right way" (p. 54), Noyce, Perda, and Traver (2000) described implementation of DBDM processes in both large and small school districts. The authors described the implementation in large districts as "driven by institutional research and development units" (Noyce, Perda, & Traver, 2000, p. 54), otherwise known as central office staff, while the implementation in small districts was described as often beginning at the grass roots level, with one person working with largely quantitative data, more specifically, summative testing results. This raises the issue of the need for schools to develop processes based on their individual context, and for policies to support their ability to do so.

Claiming "many teachers and administrators are resistant to change their practice and many do not see the need to look critically at data" (p.23), Feldman and Tung (2001) raised the idea of the mental models and sense of competency of educators as a barrier to the implementation of school-wide DBDM processes. Evidenced through Feldman and Tung's (2001) claims of "lack of time" (p. 23) and "lack of expertise" (p. 23), the negative mental models of educators present a substantial and often difficult challenge to overcome. Based on previous experience and feelings of potential lack of competence the negative mental models identified by (Fieldman and Tung, 2001) can result in a school culture that outwardly minimizes the value of data usage and subsequently does not make use of the data.

Research Design and Methodology

In order to both familiarize us with the possible realities of small, rural schools in the state of New Hampshire and to illustrate the practices, attitudes, and beliefs about DBDM in these schools, we engaged in case study research. In order to meet the needs of this study, the small, rural schools included in the sample pool were identified through a systematized process of elimination. For the purposes of this study, a small school was defined as total school enrollment of 200 students or less. In order to have access to the most schools that have non-reportable or inconsistently reportable subgroups, an elimination criterion was added that includes a minimum grade level of kindergarten or earlier and a maximum grade level of at least 8th grade included in the school (see Table 1). Through the inclusion of this criterion, more potentially reportable groups and sub-groups could exist, presenting a more challenging statistical environment for results reporting of state testing. The final criterion for inclusion included schools that received Title VI Rural Education and Program (REAP) Small Rural School Achievement Program (SRSA) funding for the 2014-15 school year.

The goal of sampling was to include all potential schools identified through the elimination criteria process. Any school with enrollment and grade level configuration that suggested the greatest issue with data reportability was identified and invited to participate in the project. School A was identified due to its population size of 100 and grade span configuration of pre-k through 12. Additionally, grant funding was available to support the provision of professional development at the school through the Center for Rural Partnerships at Plymouth State University. School A's administration was approached about participating in the study and agreed to include the school in this work. Participation was voluntary and consisted of the school engaging in a year-long professional development opportunity that was focused on developing school-wide DBDM practices.

Data for this case study was collected through observation of the professional development sessions, material culture of the school, informal interviews, pre- and post- training assessment of the school's educators, and field notes. These multiple points of data served to support the development of trustworthiness and supported the researchers in not accepting initial responses and ideas about data as truths. The researchers in this study were participant observers, as they facilitated the professional development. In order to account for any bias this could potentially create, the researchers debriefed with each other after each professional development

Table 1

Sampling elimination criteria

Total public grade schools of New Hampshire	200
Public grade schools of New Hampshire with total enrollments of 200 or less	42
Minimum grade level of at least Kindergarten and maximum grade level of at least 8th grade	16
Schools that received Title VI funding in the 2014-15 school year through the Small Rural Schools Achievement (SRSA) program	14

session and utilized member checking with the school's assistant principal, who was present at all training sessions, to confirm or dispute any and all emerging understandings (Rossman & Rallis, 1998).

Collected data in this study were catalogued into an Excel database by date of collection and source: review of material culture, survey, observation, pre- and post-assessment, interview, and field notes. The related literature, discussed earlier in this paper, was used to focus the initial coding of data. The final analysis has been organized by way of the study's research questions in order to provide the illustrative look at the DBDM practices of the school.

School A and the *Developing Data Teams* Training

In the spring of 2014, the researchers received a grant from the Center of Rural Partnerships at Plymouth State University to provide professional development to schools in New Hampshire's North Country region on developing data teams. The grant provided funding for the researchers to work with schools for the purpose of providing professional development on the topic of developing school data teams. During a conversation about the project with the assistant principal of School A, he simply said, "We want that here" (Field Notes, May 2014). His reasoning for wanting to participate was simple; he believed the school was a "good school" and that it could become a "great school" through the thoughtful and systemic use of data. Through discussion with him it was decided that the training would be scaled from developing a small team of teachers to provide data leadership within the school to developing the entire faculty as a school-wide data team.

Community Context

The community of School A (Community A) is a small, rural community in northern New Hampshire. As of the 2010 census, Community A's population was 869, making it the 42nd smallest community of the 234 in the state (US Census, 2015). Accessible by a single highway, the remote town is

governed by a Board of Selectmen. The town is protected by a volunteer fire department, a police department with a full-time chief and several part-time officers, and an emergency response team that is shared with other communities in northern Vermont and New Hampshire. The New Hampshire State Police, Fish and Game authorities, and Border Patrol all provide assistance when needed. There is a genuine ethos in the town that the locals support their community, as is evidenced by the commitment to maintaining their own pre-k through 12 school for the 100 school age children in the town and the overwhelming support for school fundraiser events (Assistant Principal, October 2014).

Although small in population, Community A is the largest township by land area in New England (US Census, 2015). Settled as a northern outpost in the early 1800s, the town's remote quality and large land area attract a variety of outdoor enthusiasts. As a source of recreation, the land mass provides a substantial source of revenue to the local economy, attracting hunters, anglers, hikers, campers, and snowmobilers from across the country. Housing in the town is predominantly rental, with 1276 of the 1715 existing housing units being used for seasonal, recreational, and occasional usage (US Census, 2015). Boasting a larger population of moose than people, Community A can truly be described as an outdoor enthusiast's paradise. Despite the revenue generated from the recreational industry, the median income of the population is only $36,109, 44% lower than the statewide median, and 11.7% of the town's population is living below the state's poverty level (US Census, 2015).

The population of Community A is predominantly white (98.6%) and the median age is 57.8 years old (US Census, 2015). The 896-person population can be further described through its military veterans, who comprise 19% of the total population, more than twice the statewide average of 8.5 percent (US Census, 2015). Additionally, 89.8% of Community A's population has a high school

degree or higher, only slightly behind the 91.8% of the state (US Census, 2015). These statistics are suggestive that the concept of *college and career readiness* is important in this community.

School Context

School A is the town's only school and provides educational programming for 100 students in grades pk-12. Located on the 30-mile-long main road of the town, the school is a centerpiece of the community, further establishing the importance of education for the town's children. A classic New England brick structure provides the main façade to the road and links the school to Community A's past with a more modern addition, providing a connection to its present. Marking the end of a town of multiple smaller schools, the current school was constructed in the early 1900s. As part of a larger School Administrative Unit (SAU) educational system, instead of closing the doors of the school and sending students to sister schools in the SAU or across the border to Vermont, through the state's system of local control the citizens of the town continue to choose to maintain the town as a separate district within the SAU by keeping the pre-k through 12 in operation (Assistant Principal, May 2014); a choice with substantial financial implications for the small town.

Entrance to the school is through the addition. Visitors are greeted by what has become standard operating procedures for schools: a buzzer system and a secretary that releases the lock and ensures that guests sign in and receive a visitor's badge. Once inside the pride in the school's history becomes evident, with trophies and other plaques commemorating the accomplishments of current and past students. Student work is not readily evident beyond occasional pieces of artwork.

Staffed by a school principal, an assistant principal that also has teaching responsibilities, and 19 teachers, the faculty to student ratio of five students to every teacher provides abundant opportunity for every child to be well known and to receive individualized instruction. The school has experienced a great deal of instability in the principalship, with seven principals in 14 years. Due to the size of the school, staffing presents a challenge, with 25% of classes during the 2013-14 school year being taught by teachers that were not highly qualified for their assignments (New Hampshire Department of Education [NH DOE], 2015). That percentage dropped in the 2014-15 school year to 10.2% (NH DOE, 2015). Additionally, during the 2014-15 school year 23.4% of the educators in the building had degrees above a Bachelor's and none had degrees beyond a Master's (see Table 2). In speaking with faculty during the *Developing Data Teams* training conducted during the 2014-15 school year, it became clear that there was a deficit in professional development. This was evidenced by a lack of awareness or understanding of the Next Generation Science Standards, State Educator Evaluation Model, differentiated instructional practices, response to intervention, and rubrics (Field Notes, October 2014, March 2015, and April 2015).

The student population of School A, although representative of Community A in terms of race, substantially differs from the population in terms of the percentage of students from low- income families. With a low-income population of 41.9 percent, the school exceeds the town average by 30.7 percentage points (see Table 3). As a result, students in the elementary grades receive Title 1 reading services from a full-time reading specialist. Evidenced through the types of community service projects that are completed as part of their school experience, School A's students are as committed to their community as their community is to them (Assistant Principal, April 2015).

Table 2

2013-15 School A Educator Demographics (NH DOE, 2015)

	School A (2013-14)	State (2013-14)	School A (2014-15)	State (2014-15)
Total Teachers	16	14,826	19	14,726
%Core Classes taught by Non-Highly Qualified Teachers	25.1	4.3	10.2	7.6
%Teachers with Bachelor's Degree	77.9	42.2	76.6	40.9
%Teacher's with Master's Degree	22.1	56.5	23.4	57.7
%Teachers with degrees beyond Master's Degree	0.0	1.0	0.0	1.1

Table 3

2013-14 School A Student Demographics (NH DOE, 2015)

	School A School	New Hampshire
Total Enrollment	100	185,320
%White	99	88
% Hispanic	1	4.9
% Limited English Proficient	0	1.9
% Low Income	41.9	28.3

Described in our initial meeting by the assistant principal as a "good" school that needs to become "great," School A loses students at the high school level to a neighboring community, due to a perception that more opportunities for students are provided (Assistant Principal, May 2014). This exiting of students results in a lack of available funding due to the need to pay tuition to the receiving district. Limited funding, a long history of short-term principals, and a lack of teacher professional development provide a significant challenge to the school community and suggest a student population that can be described as *at risk*.

Developing Data Teams Training

The *Developing Data Teams* training was designed as an embedded professional development activity for representative teams of teachers, the goal of which was to develop data leadership teams that could facilitate and guide the use of data for decision-making in a school. The training is delivered over four half-day sessions, with administrators and faculty being given specific and relevant school specific tasks to complete between sessions. The goal of the trainings was to develop a professional culture of data usage. The training is research-based and rooted in the work of Victoria Bernhardt (2003), Nancy Love (2004), and Rick and Rebecca Dufour and Robert Eaker (2008). Through the blending of these bodies of work, a system of data inquiry was developed that is structured and supported through the development of a professional learning community.

The four sessions at School A were scheduled between October of 2014 and April of 2015 on scheduled professional development days. In response to the local context, the training was modified to develop the entire faculty as a school-wide data team. The first session began as had our initial conversation with the assistant principal-ascertaining the perception of the faculty about the school. Posed with the question, "do you believe this an *okay school*, *good school*, or *great school*?" the faculty placed post-it notes on the classroom whiteboard to cast votes for their belief. Nineteen teachers including the assistant principal were present for the beginning of the session; 10% indicated it was an okay school, 17% indicated the schools was okay/good, 73% reported they felt that School A was a good school, and 0% of teachers indicated they believed it was a great school. As the trainers[2] and participants[3] continued to discuss what being an okay, good, or great school meant to the group, issues of instructional practices and student learning were only mentioned twice in comparison to issues of interpersonal dynamics and climate, which were mentioned eight times. It became clear in that conversation that the faculty did not view student achievement or instructional practices as factors preventing the school from being great, but that they viewed issues of interpersonal dynamics and climate as prohibitive factors (see Table 4).

Over the remainder of the first session the participants, facilitated by the trainers, established common goals for the work to be accomplished through the training, established a set of essential questions to guide the data inquiry process, and began to conduct a data and assessment inventory. While it was clear the faculty was aware of a variety of assessments, the majority only identified the formal assessments[4] given at the school, and all identified that they did not have access to the data

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[2] Trainers are defined as the primary and secondary authors of this study.

[3] Participants are defined as all those present in the training session who were not one of the trainers.

[4] NACAP, NWEA, AIMSWEB, Smarter Balance

Table 4

School A Associations with OK, Good & Great School Performance

OK	Good	Great
• Getting by • Just doing your job	• Dedicated staff and community • PreK-12 Dynamics • Faculty going the *extra mile* • Small class size	• Collaboration between the school and parents; teachers; and, teachers and administration. • No walls between administration and teachers • Trust • Modeling behavior for students and the community • Communication • Relationships • Positive Culture and Climate • Respect • School Promotion • No RTI • Increased opportunity for students

these assessments provided. The teachers present in the training shared a sense of frustration that they were asked to take time away from instruction to give assessments and not get back meaningful data, with the grade four teacher summarizing it for this group: "NWEA is a waste of time. We get back a number but we don't know what it means" (October, 2014).

The lack of access to meaningful data from assessments resulted in teachers expressing frustration with the idea of spending their time learning how to use data, with the fourth grade teacher saying, "I don't see the point of this if we can't access the data" (Grade 4 teacher, October 2014). A small group of the more veteran faculty listed summative and formative classroom assessments[5], but none identified these data points as useful or used them beyond their individual classrooms.

Session two of the training facilitated the faculty in applying the data inquiry process to the school's New England Comprehensive Assessment Program[6] (NECAP) test data, the assessment required by state policy, which has been identified as the tool to determine student achievement against state curriculum standards and to describe school effectiveness. Because of its use as a tool for determining school effectiveness, NECAP is considered to be high stakes for schools. Reported through scaled score, proficiency levels are also reported[7] and determined based on the location of scaled scores on a defined continuum of proficiency. Noticeably missing from the session were six members of the faculty who had been excused for various reasons by the principal. Notably, the principal entered the session late, as she had done in session one. During her entrance, the climate of the room changed to one that could best be described as tense. The trainers later found out that there were emerging interpersonal issues between the principal and the faculty members present.

The decision to begin from this mile-high view of the data through the NECAP was made by way of providing an entry point to student achievement at the school. After sharing their predictions about the data, which indicated a belief that student achievement would be very good, the faculty was shown two visual displays of the mean scores in grades 3-11 over a seven- year time span. Beginning with mathematics, the first visual included the grade code for mean scores (see Figure 1), and the second removed the grade code and only showed the mean score for the grade level (see Figure 2). Scaled scores are reported by the New Hampshire Department of Education with the grade code intact, and the grade

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[5] Classroom tests and quizzes, Teacher Observation, Performance Assessment Products, Journals, and Research

[6] NECAP is the high stakes assessment given by New Hampshire, Vermont, Rhode Island, and Maine.

[7] Level 1 is the lowest level of proficiency and level 4 the highest

code is the first digit in the score. When displayed graphically, the illusion is provided that scores increase over time. Predictably, the initial response by the educators present for the training to Figure 1 was that students were doing well and that there was growth from grades 3-11. Removal of the grade code reveals a truer picture of score development over time. After seeing Figure 2, an audible gasp was heard and the mood of the room became very serious. The Title 1 reading specialist, a veteran teacher with another year before retirement, quietly said, "That's not very good." A member of the elementary school faculty said, "We have to do better." Other faculty began to nod their heads in the affirmative.

A key issue in the data was a lack of consistently available reportable groups (indicated by zero in data tables of Figures 1 and 2) and subsequently a lack of reportable sub-groups. In order to be included in reporting, a group must have a membership of 10 students. Subsequently, the discussion focused on the need to redefine the sub-groups of the school and the need to consider those students that scored proficient or above on the assessment[8], versus those that did not, as sub-groups. By capturing this data as the aggregate of grades 3-8, teachers were able to see a more consistent reporting of data and subsequently have the opportunity to observe trends over time (see Figure 3) and across cohorts of students (see Figure 4).

After refocusing on the essential questions of the data inquiry process, the faculty was divided into two groups to make observations of math and reading/writing data, respectively. Facilitated through the process of staying focused on making observations and avoiding justifications or explanations, the two groups shared their observations and began to identify commonalities across the disciplines. They then identified questions they had as a result of their observations and identified individuals and teams who would research the data needed to find the answers to those questions. By the end of the session the group had become cohesive in their mission to address the issue of low growth and proficiency in mathematics and reading and writing at the school, and the group was visibly energized by that unified mission.

Session three continued the energy that had been witnessed at the end of session two. Prior to the session beginning, a member of the faculty commented that the principal had been ordered to stay away from a member of the student body as well as members of the faculty because of accusations of harassment. Noticeably missing were the same six teachers who had been previously excused. The principal did attend but did not participate in the discussion. Faculty members in attendance came to the session prepared with their various assignments and eagerly shared what they had learned with the group; the conversation was collegial and focused on understanding the issues they observed in the data so that they could affect a difference.

Most notable in the reporting out was the guidance counselor. In the previous session, she had questioned if the time and location that the NECAP was administered affected the scores. At the end of that session she expressed that she believed she would find that was true. However, in session three she reported that the location and scheduling of the assessment did not make a difference and recommended they eliminate that as a potential cause of low achievement. The faculty did identify through their research that the cause of low growth and achievement was the result of instructional practices and the lack of consistent behavioral expectations in the building. They identified a need to develop both a building-wide practice of differentiated instruction and a need for a building-wide behavior plan. Again, the session ended with an energized faculty who openly expressed they felt like they were headed in the right direction for the students and the school. Session four, the final planned session, was focused on developing action plans for the two areas of focus established in session three. Noticeably, the six members of the faculty who had been excused previously returned to this session; however, the principal did not attend as she had tendered her resignation and was planning to end her tenure at the school at the end of the school year. As the members of the faculty who had been at all the sessions began to work through the development of the action plans, the participants who had not attended those sessions began to express negativity about the focus of the plans and the action steps that were being suggested.

[8] In New Hampshire this would require a student achieving a level 3 or 4 proficiency level

NECAP Mean Scores With Grade Codes
Math Aggregate
Note: 0 = no score reported

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 11
2013-14	0	0	0	0	0	842	1137
2012-13	0	0	0	0	744	841	0
2011-12	0	0	0	643	741	842	1137
2010-11	0	0	537	638	0	838	0
2009-10	0	436	537	0	739	842	1138
2008-09	340	441	0	639	743	843	0
2007-08	343	0	537	643	743	0	0
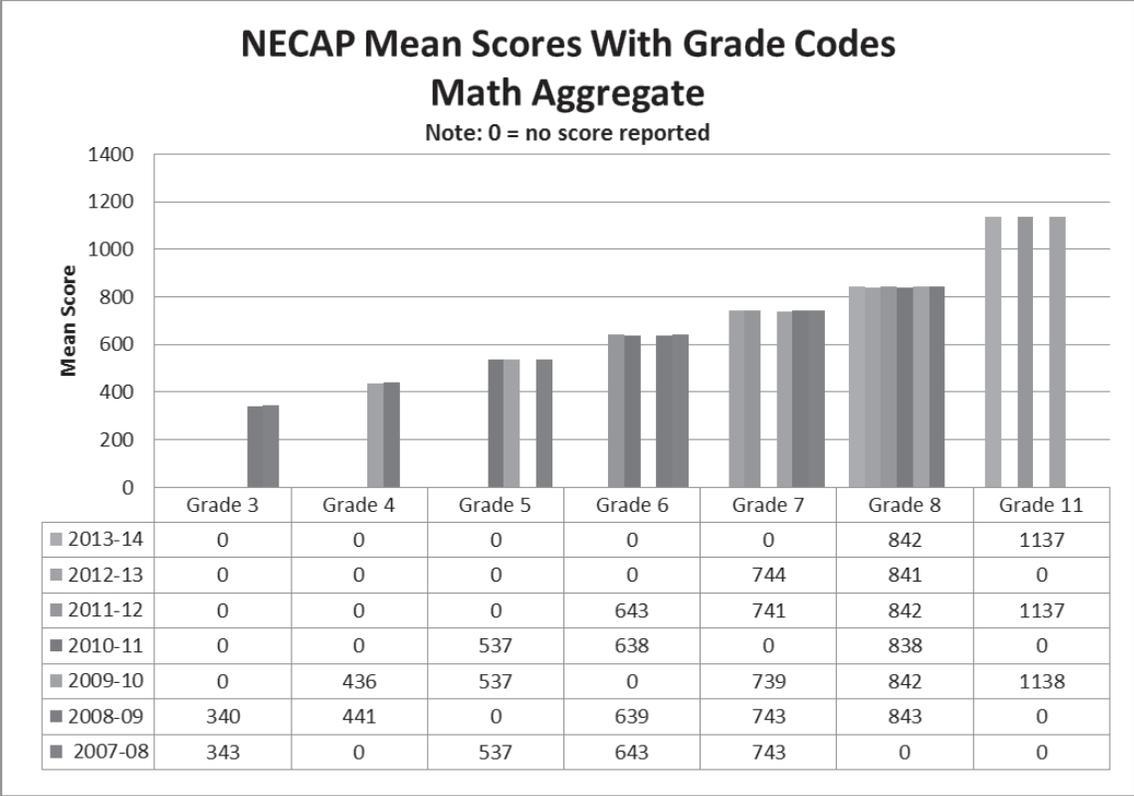
Figure 1. School A NECAP Math Mean Scores with Grade Codes

NECAP Mean Scores Without Grade Level Coding
Math Aggregate
Note: 0 = no score reported

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 11
2013-14	0	0	0	0	0	42	37
2012-13	0	0	0	0	44	41	0
2011-12	0	0	0	43	41	42	37
2010-11	0	0	37	38	0	38	0
2009-10	0	36	37	0	39	42	38
2008-09	40	41	0	39	43	43	0
2007-08	43	0	37	43	43	0	0
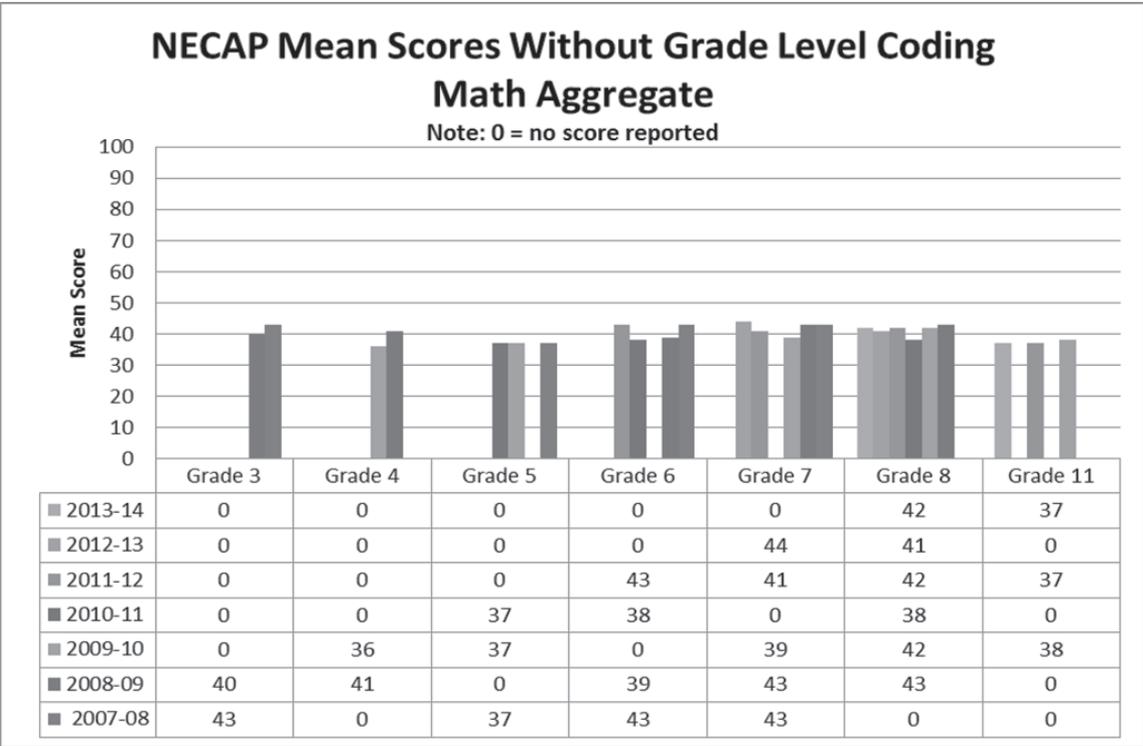
Figure 2. School A NECAP Math Mean Scores without Grade Codes

Grades 3-8 Math Aggregate Proficiency on NECAP

	2011-12	2010-11	2009-10	2008-09	2007-08
■ Percentage of Students Achieving Level 2 or Lower	24	38	57	52	42
■ Percentage of Students Achieving Level 3 or Higher	75	63	43	48	58

Y-axis: Percentage of Tested Students
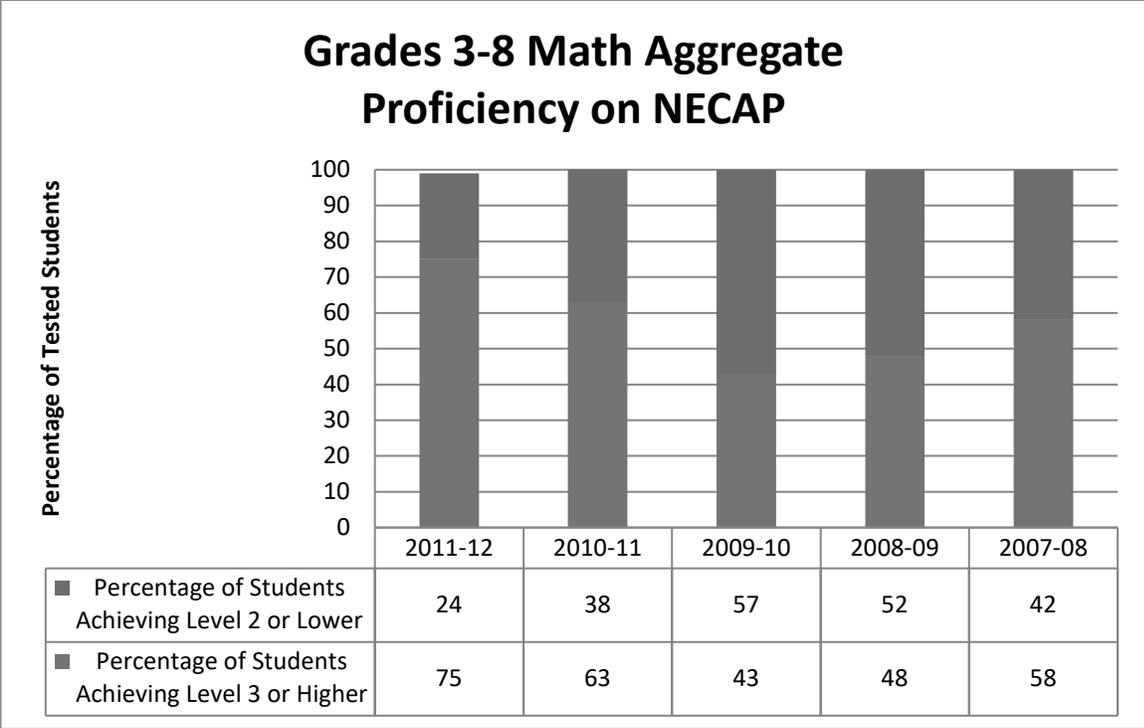
Figure 3. School A Grades 3-8 NECAP Math Aggregate Proficiency[9]

Math Aggregate: 2013-14 8th Grade Cohort Proficiency on NECAP

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
■ Percentage of Students Achieveing Level 2 or lower	43	62	46	26	28	36
■ Percentage of Students Achieving Level 3 or higher	57	38	53	73	71	64

*Y-axis: Percentage of STudents Tested*
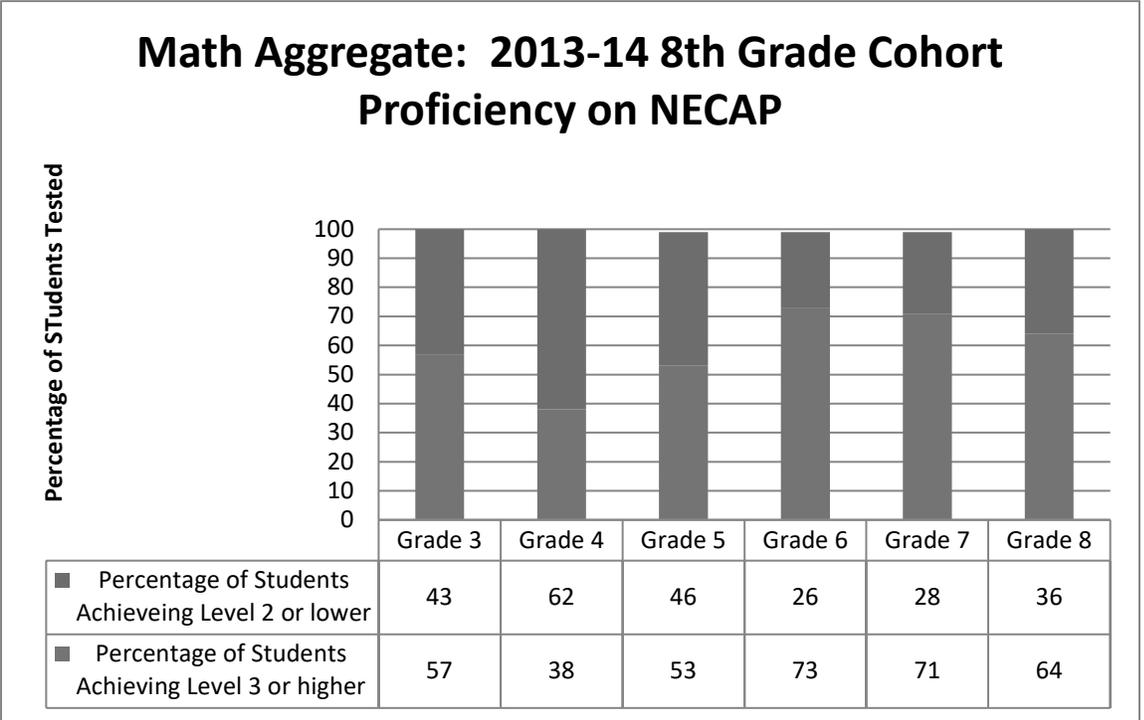
Figure 4. School A NECAP Math Aggregate 8th Grade Cohort Proficiency

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[9] Level 3 indicates proficient. Level 2 indicates not proficient

Because of the clear lack of mutual respect for colleagues that was being presented, the focus of the action plans shifted to the behavior plan and the need for faculty to model what they expect of the students. After taking the needed time for the consistently present faculty members to share what they had learned from the process and the data, the group was able to move on with their work and ended the session armed with the work to be done in the spring, summer, and beginning of the next school year. At the conclusion of the session the faculty invited the researchers back for the 2015-16 school-year, stating that "We need to continue this", "This can't go away like everything else", and, "We need help to keep this going next year." Sadly, with the change in principal that was not able to happen. Follow-up with faculty during the 2015-16 school year revealed that while they continued working with data as individuals, they felt the volume of initiatives that were being infused to close gaps in instruction prohibited them from working as a school-wide data team.

Pre-assessment and post assessment

In order to appropriately plan the training and provide an entry point to the *Developing Data Team*s training a pre-assessment was given to all educators in the building. The pre-assessment provided insight into attitudes about data and data usage as well as current data practices and understandings. At the conclusion of the school year a post assessment was given to all educators in the building to ascertain changes of attitudes and usage and to gather data for future planning of professional development and support needs at the school. The post-assessment was given approximately one month after the final session of the training. This time allowed for the participants to be distant enough from the training sessions to minimize any emotional responses to the training in their responses.

The data gathered from the 19-member faculty of School A revealed a largely negative mindset about data and using data prior to the year-long professional development, with a more positive mindset evidenced in the post-assessment (see Table 5). This shift in attitude was reflective of the attitudes expressed during the final session of the training.

Findings

In order to aid in making meaning from the data gathered over the course of this case study, the questions used to frame the study have been used to frame the findings that were revealed through the analysis of data.

To what extent is data being used for decision making in small, rural schools in New Hampshire?

Based on our experience with School A, it is our hypothesis that DBDM may not have become a consistent part of the professional practice of small, rural schools in New Hampshire. As we considered the data from the professional development sessions, School A NECAP data, and School A's contextual data it became clear to us that the lack of consistent reporting of NECAP data had contributed to the lack of usage of data at the school. As a result of the lack of consistent reporting, low achievement growth at the school was never captured by the accountability formula. The urgency observed in larger schools with similar low growth did not occur, and subsequently it was assumed that the school was doing well in terms of student achievement. This finding is consistent with the literature that identifies policies as a barrier to developing DBDM processes (Jimerson, 2005; Rallis & MacMullen, 2000). In this case, the lack of attention paid to low growth in student achievement at the school was not provided through the lens of high-stakes accountability policy because the school didn't meet the population threshold for reporting included in the policy.

How do educators in small, rural schools in the state of New Hampshire perceive data and data usage in their practice?

Through the pre-assessment of School A we noted that attitudes about data and data usage leaned predominantly to the negative. This was additionally evidenced during the first training session with teachers, during which they shared they did not have access to meaningful data from the formal school-wide assessments that were given. Subsequently, they did not see the value in spending time learning about how to use the data. As we considered the data gathered during professional development sessions, School A NECAP data, and School A contextual data it became clear to us that lack of access included

Table 5

DBDM Training Pre- and Post Assessment of School A

Question	Percentage of Respondents Answering in the Negative	
	Pre-Assessment	Post-Assessment
I use data as a regular part of my teaching/administrative practice to.....	50	30
When you think about using data. What is your initial thought?	66	40
Our school's / district's data is easily accessible and understandable.	84	50
The members of my team /colleagues in my school are predominantly....	65	20

both physical access and access due to issues with data reportability. Both had been exacerbated by school leadership challenges.

It was evident to us during the assessment inventory process that physical access not only applied to NECAP data, but to the school's AIMSWEB and NWEA data. Teachers explicitly shared with us, both in the pre-assessment and during professional development, that they did not know where or how to access data from NECAP, AIMSWEB, and NWEA testing. They additionally shared with us, frustration that was grounded in the time taken to give assessments and the lack of meaningful data that was provided. The noted issue with data reporting for the NECAP was a result of the small N size of the school. During the seven-year time span that was included in the provided professional development, grades three and four only had two years with reportable aggregate data, grade five and eleven had three, grade six had four, grade seven had five, and grade eight had six. In no year were sub-groups reported for any grade. As a result of the lack of consistently reported data, NECAP results were not shared with the faculty and it does not appear that results were ever analyzed by the school's principals.

In combination the lack of consistent reporting of NECAP data, high principal turnover, and lack of physical access to student assessment data, an environment at the school was created through which the perceived value of the data was negative. These findings are consistent with the existing literature. As Rallis and MacMullen (2000) and Jimerson (2005) pointed out, policies themselves have contributed to the issues noted in this finding. Accountability policies in the state of New Hampshire require that groups reach an N size of 10

in order to be included in the reporting of NECAP data. This presents a unique challenge for small, rural schools in the state that may not consistently meet the required minimum group size. The issue of policy is additionally recognized as a contributing factor as it relates to the development of capacity-building in schools. Without physical access, or the training necessary to understand and make meaning of the available data educators will be unlikely to develop effective data usage practices. Finally, the effect of lack of support from the school principal for the development of data use at the school is consistent with the literature (Marzano, Waters, & McNulty, 2005). In the case of School A, this has been amplified through the frequent turnover of principals.

How does the development of a school-wide system of data inquiry impact small, rural schools?

In the case of School A, we found that the development of a school-wide system of data inquiry had a positive impact on the school. This was evidenced in two key ways: the development of a focus on the development of professional practice, and the development of a professional culture of inquiry.

During the professional development, the focus of educators in attendance for all sessions shifted from taking an external focus on climate and interpersonal issues to the development of an internal focus on professional practice. Simply said, instead of viewing weaknesses as out of their control and caused by external influencers the group began to take ownership and reflect on professional practices and their own role as influencers. This was evidenced most strongly from the shift in perspective from the first session of training, during which teachers were

asked to identify what it would take to become a great school, to the third session during which teachers identified issues of professional practice that needed to be addressed in order to improve student achievement. This shift in perspective is similar to the findings of Love (2004), in which she identified that the development of DBDM shifted a school from a focus of accountability that is external to the school to one that is internal. This element of our findings expands her finding to include a shift in focus from non-practice related phenomenon to phenomenon specifically focused on professional practice.

The second way in which the development of a school-wide system of data inquiry positively impacted the school was observed through the development of a professional culture of inquiry. This was evidenced in the post-assessment, through which it was observed that teacher attitudes about data use were more positive after the year-long professional development experience. This was additionally observed during the second, third, and final professional development sessions. Over the course of these three sessions teachers overtly moved from the development of a sense of urgency to address the issue of low achievement growth, to the authentic development of a sense of unified mission. This was evidenced during sessions three and four through the commitment and follow through to research potential causes of low growth, to identify causes, and develop focused plans to influence change. While we believe that facilitating a process and structure (Feldman & Tung, 2001) for the use of data contributed to this phenomenon, we also believe that the development of teacher leadership in the building was positively impactful. Through the development of a school-wide data leadership team, the necessary leadership to establish the foundation for a professional culture of inquiry in the school began to evolve.

Conclusion

The literature and this case study, begin to suggest that the development of school-wide DBDM processes is not only necessary for small rural schools to increase their overall effectiveness, but that they facilitate and support the development of a professional culture that is focused by a collective sense of responsibility for results, internal accountability, and is motivated to be reflective on practices for the purpose of continued growth and development. However, the barriers to developing these processes can be substantial and daunting.

These obstacles can be especially true in small rural schools which not only lack the sense of urgency for implementation provided by high stakes accountability systems, but often lack the leadership capacity necessary to develop and sustain a DBDM process.

As is true in all school processes, leadership is a defining element of successful implementation and sustainability (Marzano, Waters, & McNulty, 2005). Through the collaborative development of a shared vision and mission for the work, allocation of resources, and active participation in the process, leaders communicate both the importance of the work and their commitment to support it (Feldman & Tung, 2001). Although the tenure of principals has become a challenge for all schools, it has become particularly challenging for small rural schools where financial compensation and other socio-economic challenges contribute to the turnover rate of school leaders (Winn, Erwin, Gentry, & Cauble, 2009). This is not to say that the concept of leadership resides solely at the principal's desk, and that without a consistent individual in the role of principal sustainability of initiatives cannot happen. In fact, in the case of DBDM processes the leadership of the principal requires augmentation from teacher leaders in the building (Feldman & Tung, 2001, Love, 2004). Through the development and support of teacher leaders, the DBDM process is able to become more deeply embedded in the professional culture of the school and is more likely to sustain beyond the tenure of any individual or group of educators.

An essential support for the development of DBDM in schools, with frequent turnover of principal leadership, is the development of a system of technical support (Robinson, Bursuck, & Sinclair, 2013). Often overlooked or avoided due to budgetary restrictions, the need for technical support is substantial and necessary for the development and continued support of school-wide DBDM processes. Initially taking the form of external consultants (Feldman & Tung, 2001) to provide training and implementation support through the development of increased organizational capacity, technical support can and should shift to internal sources (Love, 2004). Through the use of external consultants, organizations are able to develop the expertise and sense of competency they need to move forward with the work. As recommended by Love (2004), the goal of technical support should include the development of data facilitators. In this way, a gradual release from the external consultant to data facilitator can

happen and the school can continue to support the work over time.

Although the current study is limited by virtue of being a single case study design, we believe it provides valuable insights into DBDM practices in small, rural schools of similar contexts and specifically to small, rural schools in the state of New Hampshire. As a result of our experience in School A, we have begun to question if an unintended consequence of high stakes accountability policies has been that small, rural schools like School A and their students were *left behind.* Based on our experience, we hypothesize that the lack of consistently reportable groups and the lack of reportable sub-groups created an environment in which data was not utilized to assess program strengths and weaknesses as they relate to student achievement, and that did not enable the use of data as a tool for the type of professional growth that is needed to effect student achievement (Feldman & Tung, 2001; Love, 2004; Noyce, Perda, & Traver, 2000; Rallis & MacMullen, 2000). As a result, has

the real issue that's been created by accountability policies been a lack of equity of educational opportunity for students in small, rural schools? Have students in small, rural schools been provided a lesser educational opportunity than their peers in larger schools because issues of student achievement went un-noticed by virtue of accountability formulas?

While the findings in this case study suggest that small rural, schools with similar contexts can mitigate the policy issue through the development of school-wide data teams, we feel strongly that in order to ensure that every child has equitable access to the educational programs they need to ensure growth in achievement, we must carefully consider the potential unintended consequences of educational policies. In particular, if we are to ensure that small rural schools are not left behind by policy, legislators and other policy makers must carefully consider the potential unintended consequences on schools, teachers, and students, of policies that are focused by population size.

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