



Improving Student Learning in Maine: Central Aroostook Jr.-Sr. High School

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Central Aroostook Jr.-Sr. High School Case Study

Central Aroostook Jr.-Sr. High School is located in the town of Mars Hill, approximately 15 miles south of Presque Isle, near the Canadian border. It is part of Maine Administrative District Number 42, which has one elementary school in addition to the Jr.-Sr. high school.

The community is primarily agricultural. Some people travel to Presque Isle for work, but a significant portion of the population is unemployed. At one point, the community had a lot of small farms, but many of these have been bought and consolidated into fewer, larger farms, employing fewer people. Despite the economic conditions, most of the families in town are stable, remaining a part of the community. Those that do move—school staff estimate approximately 10% of students and their families—move in and out of Mars Hill and neighboring towns, often returning to the school.

After peak enrollments in the 90s, the district's enrollment has been just under 500 students for the last ten years. Central Aroostook Jr-HS's enrollment is just under 200, at 196 in grades 7-12. Forty-eight percent of students are eligible for free- or reduced-priced lunch, though this number likely underestimates the true poverty rate; staff report difficulty in convincing parents to complete and return the required forms. Seventeen percent of students are identified as requiring special education services and the school has not had an English Language Learner student in about ten years.

Student performance has improved significantly in several subject areas and grade levels in recent years. Table 1 provides performance data on the New England Common Assessment Program (NECAP) and the Maine High School Assessment (MHSA) from 2010 to 2012 in math, reading, science and writing. Percent Proficient/Advanced and percent Advanced exists for each subject area at different grade spans. Notable data in Table 1 includes:

- Performance in Reading 6-8 has increased from 60% to 75% Proficient/Advanced.
- Performance in Reading Grade 11 has more than doubled from 15% to 42% Proficient/Advanced.
- Performance in Math Grade 11 has doubled from 15% to 30% Proficient/Advanced.
- Performance in Writing Grade 11 has increased from 19% to 33% Proficient/Advanced.

Table 1
Central Aroostook Performance (2010-2012 NECAP and MHSA)
All Students

Subject and Performance Level	2010 NECAP/MHSA	2011 NECAP/MHSA	2012 NECAP/MHSA
Math			
Grade 6-8			
Proficient/Advanced	38%	36%	45%
Advanced	3%	4%	5%
Grade 11			
Proficient/Advanced	15%	22%	30%
Advanced	0%	0%	0%
Reading			
Grade 6-8			
Proficient/Advanced	60%	44%	75%
Advanced	10%	6%	8%
Grade 11			
Proficient/Advanced	15%	28%	42%
Advanced	0%	0%	6%
Science			
Grade 8			
Proficient/Advanced	65%	39%	57%
Advanced	4%	5%	23%
Writing			
Grade 11			
Proficient/Advanced	19%	36%	33%
Advanced	0%	0%	3%

Table 2 exhibits the same information for students identified as economically disadvantaged. These performance indicators exhibit significant gains in certain subcategories of the NECAP and MHSA. Table 2 gives details on the movement of performance scores for ED students from 2010 to 2012 and shows the following:

- Performance for ED students in Math Grades 6-8 has increased from 30% to 43% Proficient/Advanced.
- Performance for ED students in Reading Grades 6-8 has increased from 57% to 75% Proficient/Advanced.
- Performance for ED students in Reading Grade 11 has increased from 0% to 39% Proficient/Advanced.

The initial scores of ED students in Grade 11 were particularly low, starting at 0% Proficient/Advanced in both Reading and Writing and 8% in Science. Each of these has improved significantly by 2012.

Table 2
Central Aroostook Performance (2010-2012 NECAP and MHSA)
Economically Disadvantaged Students

Subject and Performance Level	2010 NECAP/MHSA	2011 NECAP/MHSA	2012 NECAP/MHSA
Math			
Grade 6-8			
Proficient/Advanced	30%	29%	43%
Advanced	3%	3%	4%
Grade 11			
Proficient/Advanced	17%	15%	28%
Advanced	0%	0%	0%
Reading			
Grade 6-8			
Proficient/Advanced	57%	41%	75%
Advanced	7%	3%	7%
Grade 11			
Proficient/Advanced	0%	30%	39%
Advanced	0%	0%	6%
Science			
Grade 8			
Proficient/Advanced	58%	40%	44%
Advanced	8%	8%	17%
Writing			
Grade 11			
Proficient/Advanced	0%	30%	22%
Advanced	0%	0%	6%

This case study provides information regarding how Central Aroostook Jr.-Sr. High School achieved such increases in academic performance. The case is based on written documents as well as fall 2013 interviews with the principal and key staff. The case is part of a study of the Maine school funding system being conducted for the Maine Legislature by Lawrence O. Picus & Associates. The case has the following eight sections: School Staff, Goals, School Schedule, Curriculum and Instruction Program, Assessments, Interventions, Professional Development, School Culture, and a Summary.

School Staff

Central Aroostook employs 21.5 full time certified staff, 5.3 paraprofessionals (2 of whom are special education technicians), and 5.0 classified staff. Staff FTE are listed below:

- 1.0 Principal
- 0.3 Athletic Director (contracted)
- 12.0 Core Classroom Teachers, including foreign language (for an overall class size average of 16)
- 3.7 Specialist Teachers
 - 1.7 Music
 - 1.0 Art
 - 1.0 Physical Education/Health
- 1.0 Career and Technical Education
- 0.2 Math Coach (contracted)
- 1.0 Pupil Support
 - 1.0 Guidance Counselor
- 2.0 Special Education Certified Staff
 - 2.0 Special Education Teacher (self-contained)
- 2.0 Special Education Technicians
- 2.0 Education Technician
 - 1.0 Education Technician for CTE
 - 1.0 Education Technician for Apex Learning
- 1.0 Library Technician
- 0.3 Information Technology
- 1.5 Secretary
- 2.0 Cafeteria staff
- 1.5 Custodians

The school makes a concerted effort to have no more than 15 students in a classroom, though there are some classes that are larger, like PE. The school makes use of contracted services for a couple of positions that it cannot support full time. Both the Athletic Director and the Math Coach are contracted for a set number of hours during the course of the school year. The school also takes advantage of staff member's strengths, where possible. One position—the band teacher—is also the IT support for the school.

The school has 2 instructional aides, but they are specific to the vocational classroom and to APEX, an online curriculum for credit recovery.

The school lost a full time position in 2013-14. The teacher taught economics, accounting and a class on the use of the Microsoft Office suite. Enrollment in these classes was very small and the school realized that students were arriving at school already knowledgeable about computers and Microsoft Office so the position was eliminated.

School Goals

The school is currently working on a draft of school-specific goals. In the meantime, the school's goals are the same as those of the district. The district goals are:

1. Continue building foundational knowledge for transition to proficiency-based, customized-learning system.
2. Continue refining consistent grading framework and practices.

The district also has a comprehensive school improvement plan that includes the following reform strategies:

1. Use data to identify and implement programs that are aligned with the state learning results and common core standards.
2. Promote continuous use of student data to inform and differentiate instruction in order to meet the academic needs of individual students.
3. Implement a school-wide response to intervention model.
4. Provide professional development opportunities to support/train staff.
5. Use technology-based interventions as part of the instructional program.
6. Facilitate a smooth transition from middle to high school.

School Schedule

All students start the day at 7:58 a.m. and end at 2:32 pm, with 30 minutes for lunch in the middle of the day.

Grades 7 and 8 have a seven-period day, though the number of minutes varies by period. For example, periods 1, 2, 3, and 5 are 60 minutes, and periods 6 and 7 are 47 and 42 minutes, respectively. Period 4 is a 30-minute Intervention/Homeroom, where students receive additional instruction based on data from assessments. English, Math, Social Studies, and Science all take place during the 60-minute periods, with electives during the shorter 6th and 7th periods. The school allocates more instructional time to the foundation or core subjects. The schedule also insures that there is time in every day for struggling students receive extra help, and makes provision of this extra help a priority.

The high school grades (9-12) have an eight-period day, with all periods at 42-44 minutes each. There is no specific period set aside for intervention for all students in the high school grades, but the school has set aside time for struggling high school students to receive extra help during three periods for RTI Math and RTI Language in the class schedule. There are also two Enrichment classes for those students not needing intervention.

The placement of RTI/Intervention blocks in the class schedule for both the junior and high school grades is a clear signal that the school prioritizes additional instructional time in the core subjects for those students struggling to achieve proficiency.

Curriculum and Instructional Program

There is some consistency in the curriculum and instructional materials used in English and math, but for all other subject areas teachers are free to choose what they use in the classroom. The school uses the *Glencoe* series of textbooks and materials for math in all grades 7-12. For English, teachers use a combination of textbooks and literature series published by Houghton Mifflin. In science, the one subject where performance has declined from 2010 to 2012, the curriculum varies as individual teachers use what they determine is best for the specific field of science. All other area teachers choose curriculum materials based on what they feel will best serve the needs of students.

The school does not have a self-contained special education classroom. Students are mainstreamed as much as possible and the special education resource room is used as a resource—with students going in and out of the resource room for additional support when needed. In some cases, depending on the subject, some students receive their primary instruction in the resource room.

Assessments

Table 3 shows the core elements of the reading and math programs at Central Aroostook, including assessments used throughout the year. The primary summative assessments used are the state assessments, NECAP and MHSA. In addition to the state assessment, Central Aroostook uses the Northwest Evaluation Association’s *Measure of Academic Progress (MAP)*, a set of online computer adaptive tests, as benchmark assessments to monitor progress over the course of the year.

Table 3
Core Elements of the Reading and Math Programs, Interventions, and Assessments

	Reading Program	Math Program
Core Curriculum/Program	Houghton Mifflin	Glencoe
Core Program Augmentation	RTI/Enrichment	RTI/Enrichment
	Apex Learning	Apex Learning
Assessments	NECAP	NECAP
	NWEA’s MAP	NWEA’s MAP
	SAT for all juniors	SAT for all juniors
	PSAT for all sophomores	PSAT for all sophomores
	Accuplacer for all juniors at the end of the junior year for remediation for senior year	Accuplacer for all juniors at the end of the junior year for remediation for senior year

Central Aroostook also administers NWEA's *MAP* in science. As part of the Maine High School Assessment system, all juniors take the SAT. All sophomores at the school take the PSAT, although it is not part of the MHSA.

The school uses *Accuplacer*, a computer-adaptive set of assessments in reading, writing, math and computer skills, typically used to properly place students in college courses and to diagnose for interventions. It is administered to all juniors at the end of the school year in order to identify any additional interventions needed in the senior year. Seniors working on the interventions are retested every quarter, using *Accuplacer*, to monitor progress. This test can then be used for local college entrance.

Though not officially an "assessment," the school also requires that all students in English Language Arts, grades 9-12, complete a portfolio with examples of their work compiled throughout the school year. The portfolio is a requirement for course completion.

Interventions

One of the biggest changes Central Aroostook has made in recent years is to look at student data and let the data inform instruction and intervention strategies. When they relied only on state assessments, results were available too late in the year to be useful for intervention. Now, they administer the *MAP* in the fall and spring of each year and say that this has made a huge difference. Along with *MAP*, they've instituted the RTI block in grades 7 and 8, as well as provide RTI classes for high school students needing extra instruction in English and math. Students who are doing well can take an enrichment class during these intervention time blocks.

The school's faculty now also has the ability to look at longitudinal data to see performance from year to year for individual students. Currently, they are focused on addressing gaps they have identified in the transition from grade 6 to 7.

Study halls are used at all grades levels to provide, for students who need it, extra time to work on challenging assignments or catch up. They want all students to be caught up in class and not missing homework.

In addition to providing a rich array of extra help for students struggling in their classes, the school uses Apex Learning, a self-paced online curriculum for students who are behind on credits or who have failed a course. Students can retake the course and catch up to their peers. The district has been using Apex Learning for four years and "it's paid for itself." It offers a wide array of courses and in addition to credit recovery it has been used to provide foreign language instruction and accelerated instruction for some of the elementary gifted students. All teachers have access to Apex Learning and some use components of it (i.e., chapters or units) in their classrooms.

Some students, typically those failing a class, are required to attend an academic after school program. Three to four teachers work with small groups one hour every day Monday through

Thursday. Students who are struggling but not failing have the option to attend and those that do by choice do not have to attend all four days. Teachers are paid a stipend of \$750 for the school year. Teachers admit they do it for the students, as the stipend is minimal. Some individual teachers offer their own before and after school help, but that time varies.

Summer school is required of any student that has failed two or more classes and any other student that has failed a class and where both the teacher and parents decide summer school is needed. This year, summer school was comprised of a half-day, 4 days a week for 3 weeks. There were two teachers and 5 students.

Another option for students behind on credits is for them to take summer classes in neighboring districts. Transportation and class fees are the parents' responsibility. Jr. high students do not pay for summer school, but high schools students do have to pay. The cost is about \$120 per class.

In short, Central Aroostook Jr.-Sr. High School provides a multiplicity of extra help strategies for students struggling to learn to proficiency, including a combination of interventions during the regular school day, academic help after school and summer school.

Professional Development

Table 4 shows the time allocated to different professional development activities in Central Aroostook.

Table 4
Professional Development for Teachers at Central Aroostook

Type	Time Allocated
Individual planning	1 43-minute period per day
Collaborative Work with other teachers	5 workshop days a year
Pupil-free days for PD	6-7 early release days during the year, 2 hours

Junior high teachers teach six out of the seven periods and high school teachers teach seven out of eight periods. Each teacher is scheduled to have a period of planning and prep each day and this time is closely adhered to, except in the rare instances where a substitute teacher is not available for a class. The five workshop days during the year are used for collaborative work with other teachers in the school or the region. The workshops can be either subject and/or grade-span specific.

The school has a contracted part-time math coach. The coach is a former district employee and a highly respected and successful math teacher. She offers guidance to math teachers in areas such

as pacing, instruction, strategies, and data analysis. She also does some classroom observations and is a resource for teachers when they have questions or need guidance.

Central Aroostook is a member of the recently formed Northern Maine Educational Collaborative. Modeled after the Western Maine Educational Collaborative, it was established to help rural schools transition to proficiency based education. All schools in Aroostook County are participating in the ongoing professional development offerings provided. PD is centered on analyzing data, aligning curriculum, and identifying gaps in learning. The transition to the Common Core has also been a focus. Teachers have an opportunity to work with other teachers across the county as well as within the district, including opportunities to visit each other's classrooms for observation. Curriculum directors, principals and superintendents also meet with each other as part of the Collaborative.

The district has allocated money for substitutes so that teachers can participate. This is not new, as the district has traditionally supported teachers who want to participate in professional development or enroll in graduate courses. For teachers who have been with the district for at least three years and who include getting a Masters degree in their action plans, the district will reimburse the cost for courses. Money for PD was temporarily frozen during the last school year due to dissolution of the Alternative Organization Structure of which the district was a part, but the PD money has been reinstated this year.

Although the school does not formally have Professional Learning Communities in place, the junior high teachers have created their own. The school hired three new junior high teachers three years ago and they wanted to create an instructional team so they brought in Dr. Jody Capelluti, a professor at the University of Southern Maine, as a consultant to help them do this. Working with the principal, the team was able to carve out a common planning time once a week and they regularly meet after school on their own. Now including a veteran teacher, the middle school team has become a close-knit group that has created a middle school model within the larger school. This has had a positive effect on students, providing a smoother transition to high school. The principal hopes to be able to expand this team model to the high school in the future.

School Culture

School culture has been a challenge at Central Aroostook, but that is rapidly changing. Recently, the school board took steps to address concerns over morale and interviewed every staff member in the building—from leadership to teachers to custodians. Several themes emerged as common among staff members. The superintendent met with the building administrator, guidance counselor, and curriculum coordinator to discuss the common themes and articulate a plan of attack. The former principal resigned at the end of year and the new principal has made school culture one of her top priorities. The other is spending time in the classroom. She spends about two hours a day doing classroom observations, unless she has to deal with something unexpected. This has had a positive impact on teachers and students, as they now feel supported.

That improvements in achievement still occurred during this time speaks to the leadership of the former curriculum director and the school's guidance counselor. They provided the instructional leadership that was needed in the school.

Teaching staff has turned over in the last three years, mainly due to retirement. Aside from five staff members, everyone is relatively new. This has re-energized the teaching staff—now described as “upbeat,” “focused on instructional practice,” and “they want kids to succeed.”

Summary

Central Aroostook has a promising set of practices in place that are yielding improvements in student achievement and will continue to do so if these remain in place and expand. Teachers are making use of multiple assessment data to identify students for interventions. The schedule has a built-in time for these interventions as well additional instructional time during the after school and summer school opportunities provided. This mixture of extra help strategies mirrors provisions in the Evidence-Based model.

The use of data, in particular, has been a significant change in the school's approach to instructional improvement. The low achievement of ED students, 0% Proficient in 2010, was due to a variety of factors, and successful interventions for these students were not identified and sustained until the school began to focus on multiple sources of data.

The school uses an online program for both high school credit recovery as well as additional classes in subjects where student enrollment is small, thus maximizing the impact of its computer and related technologies. The use of Apex Learning for students who are behind on credits has had the unexpected benefit of providing additional course offerings for all students at Central Aroostook and accelerated instruction for elementary students in the district.

Ingeniously, the school and its neighbors have found a way to engage teachers in collaborate work outside of the school setting, as there are often insufficient teachers in small schools for the in depth collaboration that is needed to improve the ongoing instructional program. These cross-district collaborative activities also focus on using student data to enhance instructional practice, a core goal of the school itself. We believe that a strategy for networking teachers in rural schools should not be overlooked. The fact that this cross-district collaboration is now focusing on the Common Core curriculum should provide optimism that the school can meet the rigorous expectations of this new curriculum.

We conclude that the school has been implementing an improvement strategy that closely matches the strategies of the Evidence-Based model. At its core, the EB model, and this school, has teachers working in collaborative groups using student data, including data acquired more often than the state summative tests, to continuously improve the core instructional program and to identify and monitor the progress of students who need extra help. The major difference between the improvement strategy of this school and the EB model is that the school has class sizes around 15, much smaller than the EB model provides. Otherwise all other elements are strongly aligned.

With the new Northern Maine Educational Collaborative and the success of the middle school team, the school is focusing on professional development for teachers and is supported by the district in these efforts. With a school principal that is focused on instruction and building a strong school culture, the future is looking even brighter for students at Central Aroostook Jr.-Sr. High School.