

Research at a Glance

The purpose of this feature of In Transition is to provide a succinct research reference for middle level practitioners. Topics will reflect timely issues and best practices. To suggest a topic for a future Research at a Glance, send your suggestion to craig@nysmsa.org. As always, you can find dozens of resources about the Essential Elements at the Middle Level Essentials section of nysmsa.org. This month's extended column is another excerpt from my dissertation in which I explored the relationship between Essential Elements implementation and student achievement. There were two parts to the research: 1) to what extent have the essential elements been implemented, and 2) what is the relationship between the degree of implementation of the essential elements and student achievement. In this issue of In Transition I answer the second part. The first part will be explained in the previous issue.

Essential Elements of Standards-Focused Middle-Level Schools and Programs and Student Achievement

This research study was designed to explore the extent of the extent of implementation of middle-level practices as defined in the *Essential Elements of Standards-Focused Middle-Level Schools and Programs* and identify relationships between the extent of implementation of the essential elements and student achievement. The *Essential Elements of Standards-Focused Middle-Level Schools and Programs* is the official construct for middle-level schooling in New York State. Through a survey of middle-level principals across the state and a comparison of the resulting data with student achievement data, the questions about middle-level practices and student achievement were investigated.

Measures of student achievement, for this study, were the scores from the New York State Testing Program. Specifically, the aggregated eighth-grade Mathematics and eighth-grade English Language Arts scores were downloaded from the New York State Education Department. Because these tests are the de facto measures of student achievement in the state

and form the basis of the accountability systems used in the state, these measures were selected as the measures of student achievement.

For this study, a narrow definition of student achievement was employed; student achievement was measured by the New York State Assessments in English Language Arts (ELA) and mathematics. Achievement measures had to be readily available for all of the middle-level schools and programs in the state in order to be able to make the comparisons of the study. This limited possibilities to the 3-8 ELA and math tests and the 4th and 8th grade science tests. All public schools have to administer those tests and they have to submit the results to the State Education Department for accountability purposes.

The decision to use only the ELA and math results was a practical decision that was made because those are the measures that New York State primarily uses to make accountability decisions about schools and districts. The Commissioner referred only to ELA and math in his test scores press release. The official presentations about 2007 student achievement refer only to ELA and math . ELA and math data are the only data that the State Education Department releases in bulk files. The State Education Department does not release the science test results in a similar manner. Science data can be obtained school by school via School Report Cards, but not in bulk files which permit a more efficient analysis of data. Because using ELA and math achievement as measured on a state test is such a narrow definition of achievement, a future study could shed greater light on the relationship of *Essential Elements* implementation and student achievement. Science data, high school completion rates, and other measures could be used in another study. For practical purposes, however, this study employed only the ELA and math achievement data.

Findings

In addition to the student achievement data (percentage of students scoring a 3 or higher) that was gathered for each of the schools participating in the study, data about the socioeconomic status of schools was collected. Rates of free and reduced lunch were compared with student achievement data, and it was determined that there is a very high—statistically significant at the .001 level (2-tailed)—negative correlation between free and reduced lunch status and student achievement. For ELA achievement, as measured by the New York State Assessment Program, the correlation was $-.765$. For math, also according to the New York State Assessment Program, the correlation was $-.712$. Student achievement was lower where the number of students on free and reduced lunch was higher.

The relationship between socioeconomic status and student achievement dwarfed the relationship between the essential elements, taken as a whole or individually, thus suggesting that it would be necessary to control for socioeconomic status in order to be able to discern any relationships between the essential elements and student achievement.

At the time of the study, student achievement data were available from the 2007, 2008, and 2009 NYS ELA and mathematics tests. Tables 1 and 2 summarize the data for ELA and math, respectively. The calculation of the coefficient of determination, R^2 , for the overall measures of the essential elements with the measures of student achievement employed in this study identified the amount of variation that can be explained by these measures.

Table 1

R and R² for Essential Elements and ELA NYS Test Scores (sig. .01)

	2007	2008	2009
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R	.328	.298	.268
R ²	.108	.089	.072

Table 2

R and R² for Essential Elements and Mathematics NYS Test Scores (sig. .01)

	2007	2008	2009
R	.304	.312	.298
R ²	.092	.097	.089

These values indicated that the extent of implementation of the essential elements, as measured by the survey, can explain approximately 10% of the student achievement as measured on the NYS ELA and mathematics tests. For ELA, specifically, 11% of the variation in achievement can be explained for the 2007 data. For mathematics, 9% of the variation in achievement is explained (for 2007 data). This means that the implementation of the essential elements makes a difference in the achievement of students in middle-level schools. Ten percent of the achievement is connected to implementation.

Although the data about the extent of *Essential Elements* implementation was gathered in 2007, the survey results were compared to student achievement, as measured by the NYS assessments, in subsequent years. As might be expected, the relationship weakens in the years after 2007, suggesting that intervening variables and changes in schools interfere with the relationship and lessen it. As personnel and programs change in schools there might be changes in the schools relating to essential elements implementation.

In any case, the predictive power of essential elements implementation pales in comparison to the impact of socioeconomic status on student achievement. Nonetheless, the implementation of the essential elements does have a measurable and statistically significant impact on the primary indicator of student achievement in New York State: the state tests. The approximately 10% that can be attributed to essential elements implementation can be the difference between being on one of the state's accountability lists or off of it. For students, it can be the difference between needing academic intervention or not.

Implications

Middle-level schools should begin to, or continue to, fully implement the construct presented in *Essential Elements of Standards-Focused Middle-Level Schools and Programs*. The implementation could have a clear, demonstrable impact on student achievement, which is important not only for individual students but also for schools and districts. Because implementation of the essential elements can explain more than 10% of the variability in student achievement, the difference in student achievement is too great to ignore. For a student, it could mean the difference between meeting and not meeting grade-level expectations.

When students are not able to demonstrate achievement of the learning standards, as reflected by their scores on NYS assessments, they are required to receive Academic Intervention Services. The provision of Academic Intervention Services costs money, because districts must hire staff specifically tasked to provide these supplemental services. Districts must also purchase additional instructional resources to be deployed in the academic intervention classrooms. If, as the data in this study suggest, a school more completely implements the essential elements, student achievement will most likely increase and the need for academic intervention will decrease. Furthermore, if students do not require supplemental academic

intervention, they will have more time to take advantage of elective opportunities. The school will also have greater flexibility in scheduling.

To begin with, middle-level schools should examine their mission and vision to ensure that they reflect a commitment to academic and personal achievement for each student. Of course, academic learning is important. But the first essential element includes deliberate attention to physical, social, emotional, and ethical development in addition to academic development: “Every young adolescent deserves a school that values academic achievement and personal development and provides a supportive environment” (New York State Education Department, 2003a). The first essential element specifically states that goals for all students must be included in such a mission and vision for schools and that schools must commit to “ensur[ing] that all students achieve at high levels.” The first essential element also emphasizes effective transition programs between elementary, middle-level, and high school, as well as effective partnerships between school and the educational community. Schools that attend to these aspects of their mission and vision can expect successful implementation to have some impact on the achievement of their students as well as an impact on their overall well-being. Schools and their educational community should periodically review their mission and vision to ensure that a common understanding exists and to ensure that all new staff members and members of the community understand what is important to the school.

When schools attend to their educational program, according to essential element two, they implement a “challenging, standards-based course of study that is comprehensive, integrated, and relevant” (New York State Education Department, 2003a). Schools should have a vertically and horizontally articulated program that includes all of the state’s learning standards as well as explicit standards for skills, personal responsibility, community activities, and

citizenship. The data collected in this study suggest that this type of comprehensive and coherent educational program is not widely implemented in New York State. Schools that deliberately attend to their complete educational program, encompassing the learning standards but not limited to them, can expect to see a positive impact on their students' achievement.

The educational program, described and detailed according to the second essential element, is delivered through an organization and structure that is described in essential element three. The basic premise of the third essential element is that “young adolescents learn and develop best in a school that is organized and structured to promote academic achievement and personal development” (New York State Education Department, 2003a). This means that schools have to organize the building and schedule time in a way that is based on the needs of the students and the educational program rather than based on the traditional school schedule or based on the needs of the adults. Essential element three includes a detailed to-do list for middle-level schools and programs (see Appendix A), including components that are not all implemented in schools that serve early adolescents at this time: shared responsibility for student learning, common planning time for teachers, flexible schedules, opportunities for students to participate in community service, active parent involvement, students with disabilities included, integrated technology, and others (New York State Education Department, 2003). Though some of these components may be found in some middle-level schools, the data suggest that comprehensive implementation of all of these components is not common. Schools that want to see increased student achievement should plan for the systematic and deliberate implementation of these components, some of which might be difficult to implement because they run counter to the status quo of adult-centered and discipline-centered organizational structures. Nonetheless,

data about interdisciplinary organization suggest that schools that effectively implement these components can expect to see gains in student achievement.

While it might seem obvious that student achievement is dependent upon good teaching, as described in essential element four, the data suggest that widespread application of the most effective teaching strategies has not yet been realized in our middle-level schools and programs. Essential element four declares that “every young adolescent requires skilled and caring teachers who have a thorough understanding of their subject(s) and of the students they teach.” Because the data from this study suggest that not all teachers know their students, know their content, and know and employ good pedagogy, schools and districts should redouble their efforts to ensure that the teachers in middle-level schools are well-trained and effective educators.

A good first step would be to make sure that teachers know the New York State Learning Standards, as the findings of this study indicate that all or almost all the teaching staff is knowledgeable about these standards in less than a third of middle-levels schools. The second natural step would be to ensure that teachers are knowledgeable about the New York State Teaching Standards. Although the New York State Teaching Standards were not yet codified at the time these data were gathered from schools, they are available now and teachers are, in fact, evaluated on these teaching standards. Now that teachers are being evaluated on the extent to which they know and effectively use the New York State Teaching Standards, leaders will know upon which areas to focus when it comes time to plan professional development and training for their staff. Better teaching would result in more learning and greater student achievement. This study suggests that there would be a demonstrable impact on student achievement if the essential elements, including essential element four, Classroom Instruction, were more completely implemented.

Essential element five of *Essential Elements of Standards-Focused Middle-Level Schools and Programs* declares that “every young adolescent should be educated in schools that have knowledgeable, effective, and caring leaders.” The data from this study suggest that effective leadership can make a difference because there is a positive and significant correlation between leadership and student achievement. Districts should work to ensure that every middle-level program has effective leadership, both administrative leadership and distributed teacher leadership. This study’s survey asked principals to identify the source of their learning. In most cases, principals reported that they acquired their administrative and leadership knowledge by experience and, to a lesser extent, by reading. While both experience and professional literature can be good sources of information about effective leadership, it would pay student achievement dividends if districts were more deliberate about the training and professional development they provided to their leaders. Administrator preparation programs and institutions of higher education should ensure that their programs provide future administrators with a thorough knowledge of the essential elements and their potential impact on student achievement.

As for teachers, there are now codified expectations for principals: the Educational Leadership Policy Standards: ISLLC 2008. Principals are evaluated according to these standards; and district officials can use the evaluation results to identify the leadership needs of their principals. School districts, when hiring new principals for their middle-level schools and programs, should ensure that their new hires are knowledgeable about the essential elements and what they can do.

Essential element five also recommends that middle-level schools leverage teacher leadership. Although this study did not collect information specific enough to ascertain the level of implementation of distributed leadership, it is another area to which districts should attend.

Another important focus of essential element five is community and parent relationships. These, too, should be monitored and improved as warranted. This study identified a positive and significant correlation between the essential element and student achievement.

The sixth essential element states that every middle-level student “needs access to a system that supports both academic achievement and personal development.” There are eight details contained in this essential element, but there are two fundamentals that all students should receive: systematic supports for all students and student-specific supports that students require based on their individual needs and situations. All students, according to essential element 6, should be afforded adult role models, advice, guidance, and youth development services. An important delivery mechanism for many of the systematic supports could be an advisory program for its students, also known as an advisor-advisee program. Yet, as this study discovered, survey respondents report that such programs exist in less than one-third of all middle-levels schools and programs in New York State. One of the first things that a school should consider is the establishment of an advisory program. In addition to systematic supports provided to all students, essential element six also describes the individual support that should be provided to students. This does not mean that schools should react when students need support; it means that schools should develop deliberate systems to make sure that necessary supports are ready and waiting when needed.

The last of the essential elements, essential element seven, says that middle-level schools and programs should be an environment “that values continuous improvement and ongoing professional learning.” The gist of this essential element is that all of the individuals, and the school itself, should be continuously engaged in the process of learning and getting better—that maintaining the status quo is not an option for middle-level schools and programs. For schools

and districts this means targeted professional development, but it also means that school communities should be engaged in collaborative analysis and application of data to the classroom and school decision-making process. It would be prudent for schools and districts to introduce such data analysis and use if they are not already in place.

Essential Elements is a comprehensive document that reaches into almost every aspect of a middle-level school. To tackle all of them at the same time might exceed the capacity of the staff and educational community. This study was not designed to rank the importance of the different essential elements, so it is inappropriate to recommend a particular roadmap or course of action for a school based on these data. Schools, armed with the knowledge that implementation of all of the essential elements will have a positive impact on student achievement, would be well served to conduct a thorough self-study to identify which areas are in most need of attention. There are a number of tools available to schools to use to accomplish a thorough self-study, including the *Protocols for Using the Essential Elements of Standards-Focused Middle-Level Schools and Programs*.

It can be argued that because the correlation of the essential elements with each other is more powerful than the correlation between any one essential element and student achievement, comprehensive implementation is important. Student achievement would be more likely to increase significantly with implementation of all of the essential elements, but schools not in a position to implement every detail of the essential elements should not fail to take any action because of an inability to take complete action. A district could stage the implementation of essential elements, if that makes the implementation more manageable, understanding that the impacts on student achievement will be less than they would be with complete implementation.

The analysis of the data collected in this study reveals that implementation of the construct presented in *Essential Elements of Standards-Focused Middle-Level Schools and Programs* made a significant difference in student achievement, explaining approximately 10% of student achievement as measured by the NYS ELA and mathematics tests. On this basis, it appears that student achievement can be positively impacted by implementation of the essential elements. The 10% of student achievement that can be explained by the extent of essential element implementation is far less, though, than the amount of variation in student achievement that is explained by the economic circumstance of the school.

Socioeconomic status, gauged in this study by the free and reduced lunch rate, explains 65% of the variation in student performance. Clearly, and quite significantly, the relationship between socioeconomic status and student achievement is strong and negative. It might be argued that because socioeconomic influences are so much greater than the influence of the essential elements that the impact schools can have on student achievement is slight. On the contrary, not only will implementation of the essential elements make a significant difference, as described in this study, but the emphasis in *Essential Elements* on supporting all aspects of student development, academic and personal, will likely address some of the challenges that economically disadvantaged students face. Though the data collected in this study are not intended to quantify this potential impact, there surely is face validity to the supposition that the *Essential Elements* components of the schools and programs that address high quality instruction and a network of support will benefit economically disadvantaged populations. This is another reason why schools should more completely implement the essential elements.

If the leaders of the New York State Education Department are truly interested in increasing student achievement, they should be espousing the importance of essential elements

implementation. Each time state leaders present to groups across the state they ought to include reminders about the potential impact of essential elements implementation as well as reminders that the essential elements are, in fact, a requirement of all middle-level schools and programs. State Education Department communications to teachers, administrators, school boards, and other groups could include this information.

Accountability for implementation of element from *Essential Elements of Standards-Focused Middle-Level Schools and Programs* is needed in the state. New York has many accountability mechanisms—mechanisms that sort schools (and districts) in different categories, labeling some schools as “priority” or “focus” schools. Now, schools are identified as “reward” schools if their student achievement is consistently high enough for their overall population as well as their disaggregated subgroups. There is no accountability system, though, for implementation of the essential elements. If schools and districts were held accountable for the implementation of the essential elements then more schools and districts would implement them, and, in turn, student achievement at those schools would most likely increase. Student achievement, aggregated at a state level, would also increase. By this logic, it makes sense to implement such a state-wide accountability measure.

It is important to note that this study refers to implementation of *Essential Elements of Standards-Focused Middle-Level Schools and Programs* it does not mean the process of implementation of *Essential Elements*. Rather, it refers to the extent to which the essential elements have been implemented. It was not the intent of this study to consider the implementation process. The survey did not gather data about the act of implementing the essential elements and a different body of literature would have to be considered. While challenges of implementing any changes in systems such as schools has considerable effects on

all aspects of the organization, a different approach would have to have been employed to be able to make any conclusions or recommendations about the implementation process. Literature about the change process would have had to have been considered in such a study, as well as literature about school reform. That is outside the scope of this study. Certainly, schools who are attempting to follow the conclusions of this study and implement the essential elements in order to raise student achievement will have implementation challenges. This study offers little guidance in this regard, other than the fact that comprehensive implementation will have a greater impact on student achievement than would piecemeal implementation.

If implementation was easy it could be concluded that more schools would have implemented more of the essential elements than the data collected in this study indicate. Inconsistent and changing leadership, the difficulty of the change process, competing priorities, and the lack of accountability all might account for the less-than-complete degree of implementation.

Limitations and Implications for Further Research

Since the data in this study were collected, the English Language Arts and mathematics standards have changed in New York State; the Common Core Learning Standards have replaced the previous standards. The learning standards that are referenced in *Essential Elements of Standards-Focused Middle-Level Schools and Programs* are not the Common Core Learning Standards. While the Common Core has not yet been specifically written into *Essential Elements*, they are generally considered to be implicit in references to the NYS Learning Standards. For example, essential element 2.7 emphasizes the importance of literacy and numeracy, in harmony with the Common Core. Another example is essential element 2.6, which identifies specific learning skills, including how to conduct research, how to read for

understanding, and others—all in complete alignment with the Common Core. The New York State Middle-Level Liaisons conducted a crosswalk between *Essential Elements* and the Common Core Learning Standards after their adoption in New York and concluded that no substantive changes needed to be made.

The instructional practices that are detailed in essential element four are congruent with the instructional practices that the Common Core State Standards identify as important. For example, the Common Core State Standards begin with the premise that instruction should be standards-based. Similarly, the fundamental premise of *Essential Elements of Standards-Based Middle-Level Schools and Programs*, as indicated in the title as well as in essential elements 2 and 4, is that instruction should be standards-based: “Every young adolescent needs a challenging, standards-based course of study that is comprehensive, integrated, and relevant.” Another example expresses the same, congruent relationship between the Common Core State Standards and *Essential Elements*. *Essential Elements* require that teachers, “Focus instruction on thinking, reasoning, and problem solving and, at the same time ensure that students acquire necessary content and subject matter.” This is an objective of the Common Core State Standards, too.

The Common Core State Standards are the latest version of standards in New York. New York State has had standards since 1996. *Essential Elements* called for a standards-based education but did not detail the particular standards to a level of specificity greater than requiring a standards-based approach: “embracing and encompassing all of the State's 28 learning standards (New York State Education Department).

As the Common Core is being implemented in New York, the New York State 3–8 Assessment System is also changing. The research conducted in this study compared the extent

of implementation of the essential elements with student achievement in the previous assessment scheme that was based on the previous, pre-Common Core version of English language arts and mathematics standards. A replication of this study with the Common Core-aligned versions of the New York State assessments could confirm the impact of essential elements implementation and student achievement. Though replication of this study after the Common Core Learning Standards have been implemented in schools, using data from the revised assessment system, would be worthwhile, it would not be wise to suspend implementation of the essential elements until the results of this study were confirmed. The New York State Learning Standards and the Common Core Learning Standards overlap in many ways, and, in fact, 26 out of 28 other New York State Learning Standards remain unchanged from their previous versions at this time. Integrated implementation of the essential elements and the Common Core makes sense; standards-based education and high expectations for all students are central themes of both of these constructs.

Closing Comments

Elements of Standards-Focused Middle-Level School and Programs is far from complete.

This study concludes that implementation of the construct outlined in *Essential Elements of Standards-Focused Middle-Level Schools and Programs* does have a significant impact on student achievement. Comprehensive implementation has a greater impact than incremental implementation. Quite simply, schools should work to more completely implement the essential elements. Schools should revise their mission and vision for their school and then proceed to revise their program, structure, network of supports, and professional development scheme.

Data about the implementation of the essential elements clearly show that implementation is far from complete. Although that might seem like bad news, it actually signals

an opportunity for increasing student achievement in New York State. Schools can use *Essential Elements* to guide structural and programmatic decisions in schools and have confidence that the decisions that are based on effective and more complete implementation of the essential elements will have a positive and significant impact on the achievement of their students.