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A Summer Science and Math Experience: Positively Impacting Students' Interest and Attitudes in Science

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For five years our university has collaborated with schools in southwestern Pennsylvania to facilitate a summer science and math program for students having finished middle school. In 2013 these students were surveyed before and after the program to determine their attitudes toward science and their images of scientists and elucidate the influence of the program on them. The students completed the program showing strong improvements in their interest in science, their attitudes towards the importance of science, and their belief that scientists have exciting jobs. Their experiences at the program led to an alleviation of some typical stereotypes that the students had held toward scientists when entering the program, although other stereotypes, such as the “scientists are men” typecast, were not lessened. A discussion of the program is given so that it may serve as an example for other universities and schools hoping to encourage young students' interests in science.

To inspire young students to pursue challenging and meaningful careers in science, we must find viable means of exciting students about science, because those who find science to be interesting are more likely to choose it as a career (Morgan, Isaac, & Sansone, 2001). For five years, our university has been facilitating a summer science and math program for students who have recently finished middle school, the express goal of which is to excite these students about science. In 2013 these students were surveyed before and after the program, through several different tools, to determine their attitudes toward science and their images of scientists, to elucidate the influence of the program on the students' attitudes.

Students who have just completed middle school are selected to participate in the program because this age is a critical period for students' attitudes about science. Elementary children usually find science exciting and fun and enjoy their science lessons. Unfortunately, somewhere between starting middle school and entering high school, many students begin to carry more negative attitudes toward science and toward doing science themselves (Bennett & Hogarth, 2009;

* The authors would like to thank these organizations for their support of SSME: The McFeely Rogers Foundation, The Eberly Foundation, The Grable Foundation, Chevron, The Greensburg Community Foundation of Westmoreland, Atlas Energy, Waste Management, and The Bridgestone/Firestone Trust. Additionally, we would like to thank Jodi Kraisinger for her input on SSME program details.

Osborne, Driver, & Simon, 1998; Toplis, 2011). Since achievement in science is correlated with attitude, this trend is discouraging (Neathery, 1997).

In addition to their attitudes about science, students' perceptions and images of scientists, and science teachers, can influence their interest in selecting a career in science (Buldu, 2006; Gottfredson, 1981; Kessels & Taconis, 2012; Zeldin & Pajares, 2000). Those who carry negative opinions and attitudes towards scientists and science teachers are less likely to pursue a career in science.

Research has shown that students are more likely to choose a career in science if they can identify with a role model already in the field (Buck, Plano Clark, Leslie-Pelecky, Lu, & Cerda-Lizarraga, 2007). Many students are limited in the number of scientists to whom they are exposed and thus form opinions of scientists based upon how scientists are presented in the popular media. Unfortunately, the media often portray scientists with classic stereotyping: white men who have goofy hair, wear lab coats, and are obsessed with science. The opinions that people have of scientists were explored in the groundbreaking study by Mead and Metraux (1957), who concluded that many people carried both positive and negative stereotypes of scientists. While Mead and Metraux found that people viewed scientists as hardworking and dedicated, making discoveries that improve the condition of humankind without concern for their own monetary gain, they also saw them as obsessed with their work, which was considered boring and time consuming. Many people further felt that scientists were in fact so obsessed with science that they were out of touch with society and had few friends (and any friends that they did have were also scientists). Further research has indicated that these opinions of scientists are still prevalent. For instance, Francl (2010) discussed how people still view scientists as so passionate about their work that they are not concerned with the activities and opinions of mainstream society. They are seen to have tedious and uninteresting jobs and are considered a bit odd themselves (Bennett & Hogarth, 2009), often with weird smiles and wild eyes (Huber & Burton, 1995). They are usually understood to be male, unlikely to be religious (Losh, 2009), and are competitive (Brickhouse, Lowery & Schultz, 2000).

The stereotype of scientists as men in lab coats obsessed with science is prevalent among the U.S. population, but it is also found in people around the world (Buck et al., 2007; Finson, 2003; Finson, Beaver, & Cramond, 1995; Francl, 2010; Leblebicioglu, Metin, Yardimci, & Cetin, 2011; Losh, 2009; Mead & Metraux, 1957; Song & Kwang-Suk, 1999; Walls, 2012). The presence of this stereotype starts in early elementary school and gets worse with age as children progress toward, and through, middle school (Chambers, 1983; Fung, 2002; Newton & Newton, 1998). By adulthood, most people in the United States, when asked to describe what a scientist looks like, will describe the scientist as a white man with goofy hair, wearing a lab coat.

In a seminal study by Chambers (1983), 4,000 children were asked to draw a scientist in what is called the Draw-A-Scientist-Test (DAST). Discouragingly, only 28 of those children drew a female scientist. Numerous subsequent studies using the DAST on different age groups, genders, races, ethnicities, socioeconomic classes, etc., have all found that people carry the same typical stereotype of a scientist: male chemist with goofy hair and a lab coat (Barman, 1999; Finson et al., 1995; Fralick, Kearns, Thompson, & Lyons, 2009; Rahm & Charbonneau, 1997; Scherz & Oren,

2006; Steinke et al., 2007). The prevalence of this stereotype among students is disturbing since their perceptions and images of scientists can influence their potential selection of a career in science. Students need to be able to visualize themselves as possible scientists to pursue a career in science, and if they have internalized this stereotype, many of them cannot choose this career option. The overwhelmingly common depiction of a chemist may also mean that many students do not understand the breadth of possible science careers available to them.

Interventions of various forms, such as scientists in the classrooms, science camps, and students in laboratories, have been shown to help alleviate stereotypes (Bodzin & Gehringer, 2001; Buck et al., 2007; Cakmakci et al., 2011; Farland-Smith, 2009; Finson et al., 1995; Leblebicioglu et al., 2011; Scherz & Oren, 2006;). However, other interventions of a similar nature have found that the typical stereotypes may not be easily discouraged, in particular the gender stereotype (Buck, Leslie-Pelecky, & Kirby, 2002; Simonneaux, Albe, Ducamp, & Simonneaux, 2005; Steinke et al., 2007). As has been reported by others, the present study found that intervention was successful in some respects and not successful in others.

The Summer Science and Math Experience (SSME)

The purpose of SSME is to positively change students' attitudes toward and increase their interest in science by dispelling stereotypes, and thus motivate students to consider STEM career choices. The program was also designed to broaden students' understandings of various types of science, and hence their possible career paths in science. A discussion of the program is provided here so that it may serve as an example for other institutions that are interested in encouraging young students' interest in science and motivation to pursuing STEM careers.

SSME completed its fifth year in 2013.¹ The program is a week-long, residential program that provides students with opportunities to participate in hands-on discovery learning experiences that are designed to excite students about science, technology, and math. SSME is a partnership between the university and surrounding school districts in southwestern Pennsylvania. External funding is found for the program, and the funding sources typically determine which school districts will participate. Each participating school selects the students who attend, with the selection process established by the school. To date, 138 students from five school districts have participated. Students have typically finished eighth grade and are scheduled to begin ninth grade in the following fall. The participants from 2013 were primarily selected because their teachers felt they performed strongly in school, not necessarily because they had an interest in science. (See Table 1.)

¹ The data reported here are only for the participants in 2013 program.

Table 1
2013 SSME Participants

Number of students	32
Female	20
Male	12
Schools represented	5

Participating students are placed into cohorts, and each cohort attends ten different major activities during the week. A typical schedule for one of the cohorts is shown in Table 2.

Table 2
SSME Schedule

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Morning		Chemistry	Computer Project	PSU Breazeale Nuclear Reactor Field Trip	Secrets of Science Toys	Morning of Math
Afternoon		Stream Analysis	DNA			Closing Ceremony
Evening		Opening Ceremony, Meet&Greet	Healthy Snacking		Movie Science	Astronomy

The activities are facilitated by university faculty and staff and have been designed to be inquiry-based and age-appropriate. A brief description of each of the activities is given below.

Chemistry (Facilitated by chemistry faculty)

Description: The students participate in activities that are designed to show different types of chemical reactions, including several oxidation reactions and oscillating reactions.

Stream Analysis (Facilitated by environmental science faculty)

Description: Students study the ecological health of a stream on campus. They measure the flow rate of the stream, collect water samples and measure chemicals within the stream, and gather benthic macroinvertebrates from the stream which are then examined and identified.

Healthy Snacking (Facilitated by education faculty and dining services)

Description: Participants learn basic food preparation skills as they prepare a variety of healthy snacks and discuss nutrition.

Computer Project (Facilitated by computer science faculty)

Description: Students are introduced to the components of a computer and then physically assemble a computer. They are also given the opportunity to disassemble a variety of items such as keyboards and CD drives to explore how those items work.

DNA (Facilitated by biology faculty)

Description: In this activity, the students take different DNA samples from a “crime scene” and then prepare and run their own electrophoresis gels. Participants also isolate their own DNA from cheek cells.

Movie Science (Facilitated by physics faculty)

Description: Students watch a movie in which science plays a critical role. A discussion follows on whether the movie did an accurate or poor job of portraying science.

Pennsylvania State University, Breazeale Nuclear Reactor Field Trip (Facilitated by physics faculty and reactor staff)

Description: This activity is a day-long field trip to the research reactor at Penn State. The reactor staff introduces the students to radiation and radioactivity through a set of hands-on activities. The participants then receive a tour of the reactor.

Secrets of Science Toys (Facilitated by chemistry faculty)

Description: In this activity, participants explore concepts such as density and polymers through toys. The students participate in experiments with dry ice, create homemade “Shrinky Dinks,” build Cartesian divers, and construct Alka-Seltzer rockets.

Astronomy (Facilitated by physics faculty)

Description: Students use a star map to find nighttime objects in the sky and then view various planets and stars with a telescope.

Morning of Math (Facilitated by mathematics faculty)

Description: Participants are introduced to ancient number systems (such as Egyptian and Mayan). They draw the Wheel of Theodorus and work with magic squares and Sudoku puzzles.

Of the scientists that are involved in the program, five are male and three are female. The staff at the Pennsylvania State University reactor that worked with the students in 2013 consisted of one male and one female. It should be noted that none of the faculty or staff that worked with the students has goofy hair.

Survey Instruments and Data Interpretation

On the first night of the program, before participating in any of the activities, the students were told that they would complete a survey and draw a picture of a scientist. They were informed that the researchers were using these tools to examine the students’ thoughts about science and scientists. They were also told that there were no right or wrong answers or drawings, and that their responses would be completely anonymous. Students completed both instruments again on the last day of the program.

DAST

Students were each given a handout with the instruction, “Draw a scientist doing science,” written on it. They were told that they could draw any type of scientist they wanted. The students

had crayons, pencils, and pens at their disposal and were not timed. On the back of the handout, they were asked, “Briefly describe what your scientist is doing.” Although the DAST-C (Finson et al., 1995), which involves a scoring of stereotypical elements, was used to score both the pre and post drawings, there were several features in the drawings that were examined independently: the type of scientist depicted in the drawings, the presence of goofy hair, the presence of a lab coat, and the gender of the scientist. The race of the scientist drawn was not considered because the individuals evaluating the DASTs were unable to discern race from the students’ drawings. The data collection yielded 32 drawings at the beginning of the program and 29 drawings at the close of the program. The three students who did not complete post-program drawings overslept on the last morning of the program.

Analyses of the drawings were performed to determine whether a difference in drawing behavior was observed after the program, compared to before. The presence of each of the four features described above was identified and analyzed to establish if there was statistically significant evidence of a change in drawing behavior. The analysis was performed using McNemar’s test, which examines differences in a nominal response when each subject is measured before and after intervention.

Attitudes Toward Science Measures (ASM)

The ASM, developed by Kind, Jones, and Barmby (2007), was the second instrument given to students. This survey was employed to examine attitudes in five different areas: laboratory experiments in science, importance of science, self-concept in science, interest in science, and general attitudes toward school. The developers of the instrument have established its reliability and validity (Barmby, Kind, & Jones, 2008; Kind et al., 2007; Osborne, Simon, & Tytler, 2009). The survey (Appendix A) consists of 44 statements that are answered on a 5-point Likert scale, from “strongly agree” to “strongly disagree,” where 3 is considered “undecided.” The five different areas of attitudes examined, and the questions involved in examining those attitudes, are shown in Table A1, also in Appendix A. It should be noted that the developers of the survey found that one statement (#34, “Scientists have exciting jobs.”) did not correspond with any of the five categories, so it was evaluated separately. To determine statistically significant differences between the pre and post surveys, paired t-tests were performed.

Results and Discussion

The most easily identifiable, and also the most common, stereotypes in the drawings were male gender, presence of a lab coat, and goofy hair. The pre and post findings for these four factors are shown in Table 3. Data are only included if the student completed both the pre and post drawing. In some of these cases, the students referred to their scientist as “he” when asked to describe what the scientist was doing. In those cases, the drawing was classified as male. All the drawings that depicted a female scientist (both pre and post) were drawn by female students. It should be noted that many of the students drew stick figures, and it was not possible to determine a gender from the drawings. In drawings where gender could not be determined from the drawing or the description, the scientist was classified as “neutral.”

Although all the features examined exhibited behavioral change, only the lab coat and goofy hair features showed a statistically significant change in behavior: The number of drawings that depicted scientists with goofy hair dropped significantly, as did the number of scientists portrayed with lab coats. However, the number of non-male scientists in the post drawings was not significantly different than the number of non-male scientists in the pre drawings.

Table 3
DAST Results

	Attribute of Drawn Scientist				
	Presence of Lab Coat*	Presence of Goofy Hair*	Male	Gender Female	Neutral
Pre-program DAST (n=29)	13	20	19	2	8
Post-program DAST (n=29)	2	3	13	3	13

* The difference between the pre-program and post-program results was statistically significant, $p \leq 0.05$.

A drawing that is typical of those completed before the program is shown in Figure 1. The scientist in this drawing was classified as a chemist because of the presence of glassware, and the use of the word “chemistry” in the student’s description of the drawing.

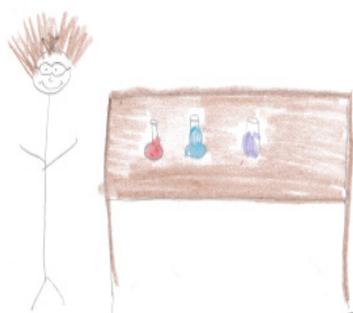


Figure 1. Typical drawing of a scientist doing science by a student entering SSME.

It is interesting to note that, both before and after the program, chemists were the most commonly drawn type of scientist, as can be seen in Table 4.

Table 4
Occupations in DASTs

	Type of Scientist Depicted				
	Chemist	Astronomer	Forensic Scientist	Biologist	Engineer
Pre-program DAST	24	3	1	1	0
Post-program DAST	19	2	1	5	2
Number of post-program drawings that reflected an activity from the program	9	0	1	4	2

Although the percentage of chemists drawn decreased between the pre- and post-program tests, the change was not found to be statistically significant. However, in the post drawings, the descriptions of the chemists were often more detailed and explicit. For example, one student who wrote “my scientist is doing chemistry” about her initial drawing, wrote “my scientist is creating a firework from powder and a gummy bear” in her subsequent drawing. The gummy bear that this student—and four others—mentioned in their drawings or descriptions referred to an experiment in the chemistry session of the program. The faculty member in that workshop illustrated oxidation reactions when sugar in a gummy bear reacted with potassium chlorate, producing a bright white light (i.e., a flaming gummy). In addition to the five students who mentioned this experiment in their drawings, another 11 students also referred in their description to, or clearly drew, something they had done in one of the week’s workshops. Overall, as seen in Table 4, 55% of students depicted in their post drawing something they had done in the program. For example, Figure 2a shows a student’s post drawing of a scientist who is running a nuclear reactor, and Figure 2b shows a student’s post drawing of a scientist who is collecting samples from a creek. It should be noted that in Figure 2b the student labeled the scientist as “me” and in the description of the scientist used the pronoun “I.”

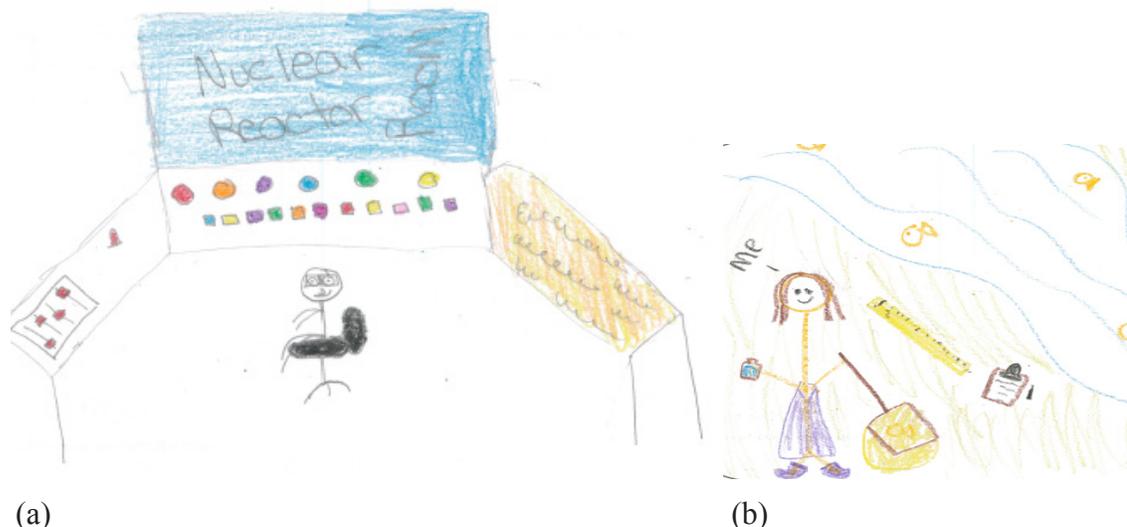


Figure 2. (a) A post DAST drawing depicting an operator at a nuclear reactor. (b) A post DAST drawing depicting an environmental scientist conducting research in a stream.

As noted above, the ASM survey was analyzed using paired t-tests; the results are shown in Table 5. The results for the Importance of Science and Interest in Science categories, as well as the results for Item #34 from the survey, showed a statistically significant improvement in the students' responses.

Results suggest that students had a marked increase in their overall interest of science and its importance. Furthermore, post survey results indicate students were more likely to find scientists' jobs to be more exciting once they had completed the program.

Table 5
ASM Results

	p-value for paired t-tests
General attitudes toward school	0.343
Laboratory experiments in science	0.880
Importance of science*	0.039
Self-concept in science	0.906
Interest in science*	0.022
Item #34*	0.026

* Indicates that the difference between the pre and post surveys in this category, or question, was statistically significant.

Concluding Remarks

As seen by others in their attempts at intervention (Buck et al., 2002; Simonneaux et al., 2005; Steinke et al., 2007), the present work found that the intervention's effect on the stereotypes carried by students was positive in some respects and less successful in others. As those authors

determined, it was also found here that the “scientist is a man” stereotype is particularly entrenched in the students. However, after attending the program, the students did seem to carry more realistic ideas about what scientists look like and did appear to have a better understanding that science covers a broad array of topics. The program was very successful in helping the students to see that scientists can have interesting, even exciting, jobs. The program participants had strong increases in their interest in science, and they also showed a marked improvement in their attitudes toward the importance of science. The program was successful in improving the students’ opinions of science as a possible future career.

Participants from the first year of SSME are now in college. These students were sent an informal survey by the administrative director of SSME in which they were asked about their chosen field of study and their motivations for that choice. Eighty percent of the respondents said they had chosen to study science, math, or a related field, and all these students reported that their participation in SSME had influenced this choice. While more rigorous data need to be collected and analyzed, this finding does seem to indicate that SSME continues to influence students who attended the program.

In conclusion, the findings presented here suggest that intervention programs of relatively short duration that are designed to immerse older middle school students in intensive science instruction, supervised closely by university science faculty, may positively impact interest, attitudes, and partially dispel stereotypes while broadening understanding of career choices in science. Furthermore, programs such as SSME may subsequently inspire young minds to pursue STEM careers thereby strengthening the future of our STEM professions.

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Appendix A

Attitudes Toward Science Measures

Statements in the Attitudes towards Science Measures (ASM):

1. We learn interesting things in science lessons.
2. I look forward to my science lessons.
3. Science lessons are exciting.
4. I would like to do more science at school.
5. I like Science better than most other subjects at school.
6. I learn Science quickly.
7. I get good grades in Science.
8. I am just not good at Science.
9. I find science difficult.
10. Science is boring.
11. Science is one of my best subjects.
12. I like experiments in science because I can decide what to do myself.
13. Experiments in science are good because I can work with my friends.
14. I like science experiments because you don't know what will happen.
15. Experiments in science are exciting.
16. I feel helpless when doing Science.
17. In my Science class, I understand everything.
18. I would like more experiments in my science lessons.
19. I would like to do more science activities outside school.
20. I like watching science programs on TV.
21. I would like to join a science club.
22. I like to visit science museums.
23. We learn science better when we do experiments.
24. I look forward to doing science experiments.
25. Experiments in science are boring.
26. I like reading science magazines and books.
27. I would like to become a scientist.
28. I would like to become a science teacher.
29. I would like to have a job working with science.
30. I would like to study science at university.
31. I would like to study more science in the future.
32. It is exciting to learn about new things happening in science.
33. Science and technology are important for society.
34. Scientists have exciting jobs.
35. There are many exciting things happening in science and technology.
36. Science and technology are helping the poor.
37. Science and technology make our lives easier and more comfortable.
38. The benefits of science are greater than the harmful effects.

- 39. I really like school.
- 40. I find school boring.
- 41. Most of the time I wish I wasn't in school at all.
- 42. I get along well with most of my teachers.
- 43. I am normally happy when I am in school.
- 44. I work as hard as I can in school.

Table A1
ASM Categories

Categories	Items
General attitudes toward school	40, 41, 42, 43, 44
Laboratory experiments in science	12, 13, 14, 15, 18, 23, 24, 25
Importance of science	33, 35, 36, 37, 38
Self-concept in science	6, 7, 8, 9, 11, 16, 17
Interest in science	1, 2, 3, 4, 5, 10, 27, 28, 29, 30, 31, 19, 20, 21, 22, 26, 27, 32

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It's About Leaders Leading: Critical Features of Sustained School-Wide Positive Behavioral Interventions and Supports

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Positive Behavioral Interventions and Supports (PBIS) is a school reform model that builds layered supports to meet all students' needs. Little is known, however, about factors promoting sustained PBIS implementation. Fifteen PBIS schools in Pennsylvania participated in the study along with two schools trained in, but not implementing, PBIS. Seventy-four educators from PBIS schools and 12 educators from non-PBIS schools completed a research-validated measure to evaluate factors promoting sustained School-Wide PBIS (SWPBIS) implementation. Developing administrators' ability to value and actively support SWPBIS facilitates its installation as standard operating procedure within a building. Concurrently, the capacity of principals to mitigate barriers to implementation, such as competition from other initiatives for limited resources and high staff turnover, is important. Despite this emphasis on building administrator support, central administrative support was indicated as having the least important influence on SWPBIS sustainability.

Positive Behavioral Interventions and Supports (PBIS) is a tiered system of prevention and intervention in which support services are titrated for all students based on their needs. Similar to Response to Intervention (RTI) for behavior, PBIS is a framework for maximally assisting students with limited resources. The hallmark of PBIS is the creation of a safe school environment in which effective teaching occurs, promoting academic success for all students (Sugai & Horner, 2009). The universal tier 1 level of support, commonly referred to as School-Wide PBIS (SWPBIS) is delivered to all students in an effort to minimize psychological, behavioral, and social barriers to learning.

SWPBIS practices are typically based on the needs of the school and contextualized to match the unique characteristics of the school and local community. Some commonalities, however, are evident in all schools implementing SWPBIS. First, staff members and administration structure all school environments to increase supervision in locations where problem behaviors traditionally occur (e.g., hallways, stairwells). Second, staff members spend considerable time at the beginning of the academic year explicitly instructing all students on the behavioral rules and expectations for every setting, comparable to the explicit instruction students receive in academic areas. Third, staff members deliberately and frequently reinforce prosocial behaviors with a token economy system. Fourth, administrators ensure that reasonable disciplinary codes of conduct are consistently applied to students who misbehave. Fifth, teachers complete tri-annual screenings of all students for signs of psychological, behavioral, emotional, or social distress, and additional supports are

provided to those students identified by these screenings. Sixth, a core team, with membership of an administrator, regularly reviews data to evaluate fidelity of SWPBIS implementation, determines if the framework is producing the desired outcomes, and makes necessary adjustments to the model (Sugai & Horner, 2009).

SWPBIS is not sufficiently intensive to support the needs of some students. Sugai and Horner (2009) noted that approximately 20% of students continue to occasionally disrupt the learning environment despite exposure to the universal SWPBIS preventative instruction. Students who receive more than one office discipline referral (ODR) in an academic year are at-risk of developing learning and/or behavioral characteristics that might create barriers to school success. Many of these students will respond positively to SWPBIS plus an additional layer of supports, termed tier 2 interventions. Often these strategic interventions include supplemental behavior programs (March & Horner, 2002), small group psychoeducational counseling, or commercially available standard protocol interventions (i.e., Crone, Horner, & Hawken, 2010). At times, these tier 2 interventions are based on the context and needs of the local community. For example, one school may have an unusually high number of students whose parents are incarcerated, so a small psychoeducational support group for these students may be needed. In another school, a tier 2 support group may be created for students whose military parents are deployed overseas. Importantly, tier 2 supports will often be different from one school to the next. The goal of all these strategic interventions is to augment the SWPBIS prevention efforts, thus dramatically reducing student risk for school failure.

Typically, 2% to 8% of all students still do not favorably respond to the combination of SWPBIS and tier 2 interventions (Crone et al., 2010; Spaulding et al., 2010). These students often display chronic externalizing and/or internalizing problem behaviors. Many students with these challenges are frequently removed from classrooms and schools for extended periods of time due to their behavior. Other students exhibit symptoms of social isolation and depression, putting them at risk for academic failure. Ultimately, these students require highly individualized and intensive supports in conjunction with the tier 1 and 2 supports. This tertiary level of intervention (i.e., tier 3 intervention) is student-centered and family-oriented in that supports are implemented not only for the student, but also for the family, given that there are often significant needs that extend across all the student's ecologies (Eber, Sugai, Smith, & Scott, 2002).

SWPBIS, in tandem with tier 2 and 3 supports, creates the overarching structure of PBIS. A burgeoning number of schools have implemented PBIS, and in particular SWPBIS, since its original development in the 1990s. This phenomenon is due in part to the endorsement of PBIS by the Office of Special Education Programs' (OSEP) Technical Assistance Center on PBIS and a growing body of empirical evidence linking SWPBIS with numerous positive outcomes.

Efficacy of SWPBIS

The earliest studies of SWPBIS efficacy focused on decreasing disruptive classroom behaviors and their resultant ODRs. In fact, considerable evidence clearly validates the contention that high fidelity SWPBIS results in dramatic reductions in ODRs across multiple school settings, including classrooms and unstructured locations such as cafeterias and buses (e.g., Bradshaw, Mitchell, &

Leaf, 2010; Colvin, Kameenui, & Sugai, 1993, Franzen & Kamps, 2008). Research in recent years has extended the earliest literature to evaluate how SWPBIS affects other key indicators of student behavior. Studies confirm that high fidelity SWPBIS is associated with reductions in out-of-school suspensions (Muscott, Mann, & LeBrun, 2008), decreases in student tardies (Tyre, Feuerborn, & Pierce, 2011), increases in student attendance (Wells, Malloy, & Cormier, 2006), and reductions in school assaults (McCurdy, Mannella, Eldridge, 2003). SWPBIS is also linked with positive indicators of school culture and health. Notably, high fidelity SWPBIS creates more inclusive school cultures that are accepting of students with disabilities (Freeman et al., 2006; Medley, Little, & Akin-Little, 2008) and staff members report a stronger affiliation to their school (Bradshaw, Koth, Thornton, & Leaf, 2009). Teachers find themselves having considerably more time to plan and deliver instruction because there are fewer behavioral disruptions (Scott & Barrett, 2004), and staff members perceive themselves to be more effective as instructors (Ross & Horner, 2007).

The most compelling argument for implementing SWPBIS is the latest evidence suggesting that SWPBIS is associated with substantial gains in academic skills (Bradshaw et al., 2010; Eber, Lewandowski, Hyde, & Bohanon, 2008; Eber et al., 2010; Lassen, Steele, & Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; Muscott et al., 2008; Runge, Staszkiwicz, & O'Donnell, 2012; Simonsen et al., 2012). In particular, schools that implement SWPBIS tend to observe higher reading and math scores on No Child Left Behind (NCLB) accountability measures compared to control schools, and annual growth is steeper than in non-implementing schools. This latest line of evidence sends a strong message that SWPBIS ought to be a critical component to many schools' efforts at achieving federal NCLB mandates, including reading and mathematics proficiency for all students.

Further support for SWPBIS is found in the U.S. Department of Education's (2014) *Guiding Principles: A Resource Guide for Improving School Climate and Discipline*, which specifically mentions a multi-tiered system of support as the preferred approach for meeting the behavioral and mental health needs of students. In fact, links to this document were highlighted on the websites of many educational administrative associations, including the School Superintendents Association (AASA), National Association of Secondary School Principals (NASSP), and the National Association of Elementary School Principals (NAESP). The mounting and converging evidence, now endorsed as public education policy, warrants careful consideration by administrators regarding whether and how to implement SWPBIS to meet all students' needs.

Sustained SWPBIS implementation. OSEP's Technical Assistance Center on PBIS reports that 16,000 schools across the United States implement SWPBIS (Sugai & Simonsen, 2012). While this number is encouraging given outcomes associated with high fidelity implementation, related research reveals that many schools do not sustain implementation of evidenced-based practices long enough for outcomes to be realized (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). In fact, evidence from Pennsylvania suggests that initial implementation of SWPBIS occurs relatively frequently but wanes across multiple years for some schools. Runge et al. (2012) analyzed data from 33 schools trained in SWPBIS and found that implementation regressed in 4% of schools, and an additional third of the schools failed to submit required fidelity data after three years.

The latter group of schools suggests that either implementation ceased or, at a minimum, fidelity dropped slightly because the critical component of regularly reviewing implementation data obviously did not occur. This phenomenon is particularly troubling given what McGlinchey and Goodman (2008) summarized concerning the latency between implementing a large-scale school reform effort such as SWPBIS or RTI and the manifestation of positive outcomes. Those authors contend that, while some positive outcomes are observed in the initial years of implementation, other outcomes do not manifest for two to five years. Sadly, the latency of up to five years for some positive results to emerge is too long for some stakeholders interested in improving schools. For example, most schools implementing SWPBIS observe an immediate and dramatic decline in ODRs in the first year of implementation, but academic benefits do not materialize until a few years later (e.g., Bradshaw et al., 2010). While an evidence-based practice may initially be implemented with integrity, waning implementation and shortsightedness may ultimately be its death knell well before all desired positive outcomes become evident.

Enablers of sustained implementation. Implementation of any school reform effort that results in positive outcomes for students can, unfortunately, be a fleeting effort if the practices are not institutionalized as standard operating procedure. Vaughn, Klingner, and Hughes (2000) noted that science often provides the evidence to support practices, but implementation often fails to take root. Thus, the positive effects of innovations such as SWPBIS will only endure if practices are sustained. To that end, contemporary research has focused on how school reform initiatives such as SWPBIS are sustained over multiple years (Adelman & Taylor, 2003) so that positive effects are maintained.

McIntosh, Horner, and Sugai (2009) offered a seven-factor theoretical framework for sustaining school reform initiatives. They indicated that an innovative practice will sustain if it is effective for students (Effectiveness) and is an efficient use of staff and resources (Efficient). Any effort that is effective and efficient must also be recognized as a priority for school leadership (Priority). Frequent measurement of fidelity and valued outcomes (Continuous Measurement) requires the collection and analysis of data using a structured system of problem solving (Data-Based Problem Solving). Implementation of the initiative must be responsive to the data and, when appropriate, practices must be changed. This regeneration of the initiative (Continuous Regeneration) requires access to necessary data and expertise to advise schools on appropriate, empirically validated changes to make (Capacity Building).

The McIntosh, Horner, and Sugai (2009) model has utility for all school reform efforts, but it has been specifically linked to the SWPBIS literature since the mid-2000s. Efforts to understand what factors promote sustained implementation of SWPBIS are important given the bullish expansion of SWPBIS, concerns about schools failing to sustain for multiple years, and the length of time it takes for positive outcomes to manifest. Researchers and educators armed with knowledge of what characteristics facilitate sustained implementation can help schools and districts fully embrace SWPBIS as a model that eventually becomes standard operating procedure, as opposed to a bandwagon off of which the staff quickly fall.

Doolittle (2006) conducted the earliest known investigation of critical features facilitating sustained SWPBIS implementation. Using archived fidelity audit data from 285 schools, she concluded that systematized procedures related to teaching and reinforcing behaviors were most supportive of initial implementation, but sustained implementation required strong administrative leadership and staff buy-in. A case study review by Kincaid, Childs, Blasé, and Wallace (2007) concluded that schools that implemented SWPBIS perceived staff buy-in and use of data as critical to sustainability, while non-implementing schools reported a lack of buy-in and inconsistent implementation as barriers to implementation. While these two early studies shed initial light on enablers and barriers to implementation, methodological concerns limit generalizability of these findings.

Bambara, Nonnemacher, and Kern (2009) continued this line of research by conducting a survey of 293 educators who were implementing SWPBIS using an author-developed instrument. Results were very clear for the barriers to initial and sustained implementation. Staff resistance, staff preference for punishment-based strategies to deal with behavior, and endorsement of exclusionary classroom settings for students with behavioral needs were ranked as the highest barriers to implementation. Results were less conclusive for factors that enable sustained SWPBIS implementation. The most frequently endorsed response related to sustained SWPBIS implementation was a personal experience working successfully with students with behavioral challenges. Respondents indicated a number of other enablers, but no other factor received a majority endorsement.

With consistent findings offered in these early studies, Coffey and Horner (2012) endeavored to empirically establish a model of SWPBIS sustainability. To that end, data from 79 staff members who sustained SWPBIS and 39 staff members from non-sustaining schools completed a researcher-created survey. The model demonstrating the best fit to the data included administrative support, frequent and positive communication about SWPBIS, and systematic use of data to make changes to the SWPBIS framework as the chief enablers of sustainability. These findings were consistent with previous work and provided a stronger empirical basis to make claims regarding important sustainability factors.

While these early studies provided critical initial insight to sustained implementation, methodological concerns limit conclusions drawn from their results. Doolittle (2006) used archived fidelity data in her study, but these fidelity data were not originally intended to measure factors associated with sustained implementation. Kincaid et al. (2007) used a modified nominal group process aimed at reaching consensus among focus group participants. Such processes can minimize discussions, thus disallowing full and deep participation by all members (Delbecq & Van de Ven, 1971; Dunnette, Campbell, & Jaastad, 1963). Moreover, the use of a psychometrically unknown, researcher-designed survey in Bambara et al. (2009) resulted in inconclusive findings. Questions regarding the construct validity of the survey used by Coffey and Horner (2012) remain despite evidence of acceptable internal consistencies.

Therefore, considerably more work is needed to understand what factors are associated with sustained SWPBIS implementation. To that end, McIntosh et al. (2011) set out to validate an

instrument to assess how SWPBIS practices are sustained. The authors created the School-Wide Universal Behavior Sustainability Index: School Teams (SUBSIST) and subsequently established minimal standards of internal consistency and concurrent validity with a research-standard fidelity measure. The result of that work was the publication of a survey measuring areas known to facilitate sustained implementation of educational initiatives, with a particular focus on implementation of SWPBIS.

Purpose. It is reasonable to assume that a school reform effort requires the support of building-level administration. McIntosh, Horner, and Sugai (2009) embedded the importance of administrative leadership throughout the conceptual model of sustainability, specifically noting that initiatives must be designated as a high priority for the staff, and these practices must be incorporated into policy, mission statements, and improvement plans. Hence, the role of the administrator is tacitly endorsed. Without empirical validation of this relationship, however, it is not completely known just how important administrative leadership is to the sustained implementation of SWPBIS. The literature, to date, is relatively silent on this matter, thus providing purpose for the current study.

The current study builds on the nascent understandings of SWPBIS sustainability, and, in particular, provides an empirical validation of enablers and barriers of sustainability. Despite questions regarding the instrumentation used in previous studies, extant literature provides preliminary insight into conditions that enable sustained school reform. Specifically, Coffey and Horner (2012) and Doolittle (2006) suggested that one of the most important sustaining factors is administrative support for SWPBIS. The current study aims to validate the importance of administrative support and leadership to sustained SWPBIS implementation using psychometrically acceptable instrumentation that was not available at the time of the earlier work. Additionally, this study is an attempt to validate other conceptualized enablers of sustained SWPBIS implementation.

Three broad research questions provided the foundation for this study. First, we were interested in ranking staff perceptions of factors that enable sustained implementation. Second, we wanted to determine the perceived importance of building and central office leadership to sustained SWPBIS implementation. Third, we attempted to determine which factors were perceived to be the biggest barriers to implementation among a small sample of schools that were trained but failed to implement SWPBIS.

Methods

A quantitative descriptive study using a convenience sample was employed to further understand the factors that promoted and limited sustained implementation of SWPBIS. Previous work, notably the creation of a conceptual framework of sustained SWPBIS (McIntosh, Horner, & Sugai, 2009) and validation of a psychometrically-sound survey (Hume & McIntosh, 2013; McIntosh et al., 2011;), provided the foundation on which the present study was built.

Setting. Seventeen schools in Pennsylvania involved in the Pennsylvania Positive Behavior Support (PAPBS) Network agreed to participate in the study. Sample demographic data from the

participating schools is offered in Table 1. These data suggest that participating schools represent a range of student populations and academic performance levels.

Table 1
Demographic Constitution of Participating Schools

School	Grades	# Students	% Non-White	% Econ. Dis.	% Reading	% Math
SWPBIS						
A	PK-6	519	93.6%	93.1%	47.3%	55.9%
B	K	258	18.2%	18.2%	n/a	n/a
C	K-5	362	47.0%	48.1%	72.8%	86.1%
D	K-6	241	22.4%	54.8%	76.4%	85.9%
E	K-6	431	24.8%	50.8%	79.0%	89.2%
F	K-6	758	2.8%	44.5%	87.0%	92.4%
G	K-6	476	34.7%	48.7%	72.3%	82.2%
H	K-5	350	1.0%	50.8%	72.8%	82.2%
I	K-6	663	6.8%	17.9%	85.3%	93.9%
J	1-8	631	19.7%	36.3%	76.5%	90.2%
K	6-8	448	15.4%	20.5%	92.9%	95.1%
L	6-8	519	56.1%	46.8%	64.2%	62.1%
M	7-9	1,801	7.2%	52.5%	77.5%	80.8%
N	7-12	570	24.6%	42.3%	69.4%	54.1%
O	10-12	1,913	32.8%	14.8%	80.0%	78.1%
Non-SWPBIS						
Y	K-5	450	18.2%	80.9%	92.0%	94.2%
Z	K-5	383	2.6%	27.2%	87.7%	91.7%

Note. All school demographic data correspond to the 2010-2011 academic year; Econ. Dis. = economically disadvantaged per enrollment in free/reduced meal program; % Reading and % Math = percentage of students achieving proficient or advanced performance on the *Pennsylvania System of School Assessment*.

Table 2
SWPBIS Implementation Integrity Data for Participating Schools

School	Consecutive Years of Implementation	M BoQ	BoQ Range	SET (Year)
SWPBIS				
A	3	85%	78% – 92%	92% (Year 2)
B	2	94%	n/a	94% (Year 2)
C	5	86%	84% – 93%	n/a
D	4	88%	74% – 97%	94% (Year 4)
E	2	92%	n/a	93% (Year 2)
F	3	74%	71% – 76%	93% (Year 3)
G	1	72%	n/a	n/a
H	2	81%	n/a	97% (Year 2)
I	2	92%	n/a	88% (Year 2)
J	2	94%	n/a	n/a
K	7	94%	89% – 97%	100% (Years 1 and 4)
L	2	89%	n/a	n/a
M	3	86%	85% – 86%	n/a
N	4	85%	71% – 93%	88% (Year 4)
O	4	82%	72% – 92%	n/a
Non-SWPBIS				
Y	0	61%	55% – 66%	n/a
Z	0	68%	n/a	n/a

Note. BoQ = Benchmarks of Quality (Kincaid et al., 2010); SET = School-wide Evaluation Tool (Sugai et al., 2005). Threshold for designation as fully implementing is BoQ \geq 70% or SET \geq 80%. All BoQ and SET data are reported as rounded percentages of the total points on the instrument. BoQ Range indicates the lowest and highest BoQ scores across all years for that school. Parenthetical notation of year indicates the year in which a SET was completed instead of a BoQ. n/a = not applicable.

Evidence of SWPBIS implementation integrity for all schools across multiple years is indicated in Table 2. All participating schools, as members of the PAPBS Network, are required to complete annual fidelity checks using the Benchmarks of Quality (BoQ; Kincaid, Childs, & George, 2010). Many schools, but not all, also completed a School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2005) in lieu of a BoQ at any given point in time. Ranges of BoQ scores, when applicable, are provided as evidence that SWPBIS schools consistently achieved minimum criteria to be designated as fully implementing. Two schools designated as not achieving full implementation status are required to complete the BoQ given their membership in the PAPBS Network.

Fifteen schools were implementing SWPBIS from 1 to 7 consecutive years ($M = 3.1$ years; $SD = 1.5$ years). Grade level representation for SWPBIS schools included elementary ($n = 9$),

elementary/middle ($n = 1$), middle ($n = 2$), middle/high ($n = 2$), and high ($n = 1$) schools. SWPBIS schools represented urban, suburban, and rural settings from across the Commonwealth. Two elementary schools trained in SWPBIS but not achieving full implementation status were also included. Lack of SWPBIS fidelity was verified by a BoQ score below the minimum criteria (see Table 2). All schools were members of the PAPBS Network¹ and received similar training from PAPBS Network-approved consultants.

Participants. The authors approached school principals, seeking their willingness to participate in the study. Subsequent to agreement to participate, principals forwarded the electronic survey to their staff. Eighty-six educators voluntarily completed the SUBSIST via a Qualtrics web-based survey. All responses were anonymous at the individual-level, although data were identifiable by the name of the school at which the educator worked. Seventy-four participants (86.0% of total sample) were from SWPBIS schools. The majority of respondents (65.1%) were school staff but not SWPBIS team members. The next largest category of respondent was SWPBIS team member (20.9%) followed by school administrator (10.5%). No other demographic data about the respondents were collected to protect their anonymity.

The precise survey response rate is unknown given the method of recruitment, whereby the building principal served as the intermediary between the staff and the researchers. Using public data regarding the number of staff in each of the participating buildings, it is estimated that 10% of staff in SWPBIS schools completed the SUBSIST while approximately 16% of staff in non-implementing schools participated. Certainly this estimated response rate is not ideal, but it is typical of survey research conducted by researchers external to the organization and via a web-based platform (Nulty, 2008).

Instrumentation. Respondents completed the SUBSIST 1.1 (McIntosh, Doolittle, et al., 2009) to gauge what qualities and characteristics facilitated sustained implementation of SWPBIS over multiple years. The SUBSIST is comprised of 50 Likert-type questions answered on a scale of 1 (Not True) to 4 (Very True). McIntosh, Doolittle, et al. (2009) created the scale from a larger bank of items written after an exhaustive review of the literature on sustaining educational practices.²

The SUBSIST was constructed from the sustainability literature (Biglan, 2004) and rooted in the conceptual model proffered by McIntosh, Horner, and Sugai (2009). Specifically, the first SUBSIST factor, Priority, assesses whether there is a need, clear emphasis, and buy-in to implement SWPBIS. Recognizing that any practice must be supported by administration, the SUBSIST contains two factors related to different levels of support: Building Leadership and External (e.g., central administration) Leadership. The Effectiveness and Efficiency factors reflect what the theoretical literature suggested was important given that people do not wish to implement something that is ineffective or takes a considerable amount of time away from other responsibilities. Continuous regeneration is assessed by the Use of Data and Capacity Building factors on the SUBSIST. Finally, the Potential Barriers factor assesses whether other responsibilities or initiatives were competing

¹ See www.papbs.org for details on the Network.

² A copy of the instrument is available at http://www.pbis.org/common/cms/documents/Forum12/A7_SUBSIST_Checklist.pdf

for limited hard and soft resources and whether staff or administrator turnover negatively affected implementation. Items on this scale were reverse scored to compare against the other factors.

McIntosh et al. (2011) and Hume and McIntosh (2013) offered compelling evidence to conclude that the instrument is psychometrically sound for its intended purpose. All internal consistency, inter-rater reliability, test-retest reliability, content validity, and concurrent validity evidence provided met or exceeded standards for use as a measure of staff perceptions.

Findings

Descriptive statistics for ratings on the eight SUBSIST factors are presented in Table 3, disaggregated by SWPBIS and non-SWPBIS schools. Measures of normality, including skewness and kurtosis, revealed that some of the factor-score data were not normally distributed. Using recommendations by Breakwell (2006) and Greer, Dunlap, Hunter, and Berman (2006) that skewness statistics should not exceed $|1|$, all but the Priority and External Leadership factors for the respondents from SWPBIS schools were negatively skewed. Likewise, two of the factors from respondents at non-SWPBIS schools failed to meet this assumption of normality (i.e., External Leadership and Barriers). Anastasi (1982) and Gaur and Gaur (2006) suggested that kurtosis statistics should be within $|3|$ to conclude that data distribution matches the Gaussian distribution. Using this standard, two factors from the respondents from SWPBIS schools (i.e., Building Leadership and Barriers) and two factors from respondents from non-SWPBIS schools (i.e., External Leadership and Barriers) were leptokurtic.

Non-parametric procedures were chosen over parametric procedures due to the negatively skewed and leptokurtic distribution of many factor scores and the small number of respondents from non-SWPBIS schools. A series of Mann-Whitney U tests were performed to determine if there were statistically significant differences on factor scores between staff from SWPBIS and non-SWPBIS schools. Significant differences were found between respondents from SWPBIS and non-SWPBIS schools on the following factors: Effectiveness ($z = -2.26, p = .02$), Efficiency ($z = -2.07, p = .04$), and Capacity ($z = -2.44, p = .02$). In each case, the ratings by respondents from SWPBIS schools were statistically higher than ratings by respondents from non-SWPBIS schools. Respondents from both groups of schools similarly rated all other factors.

Given theory and prior research, additional analyses were completed to determine if data for the SWPBIS schools needed to be disaggregated by participant role and length of sustained SWPBIS implementation (Hume & McIntosh, 2013). Independent-samples Kruskal-Wallis tests were non-significant across all factor scores confirming that SUBSIST scores were comparable across staff role (e.g., principal, SWPBIS team member, staff member not on SWPBIS team, external coach), thus data were aggregated across respondent roles. Similarly, non-significant differences were found on the SUBSIST by the number of consecutive years of SWPBIS implementation.

Table 3
Descriptive Statistics for Eight SUBSIST Factors

Factor	M	SD	SEM	Skewness	Kurtosis
SWPBIS Staff (n = 74)					
Priority	3.32	0.40	0.05	-0.90	0.79
Building Leadership	3.75	0.46	0.05	-3.37	14.36
External Leadership	3.03	0.69	0.08	-0.73	-0.15
Effectiveness	3.53	0.40	0.05	-1.03	0.79
Efficiency	3.59	0.40	0.05	-1.47	2.82
Use of Data	3.34	0.66	0.08	-1.38	2.19
Capacity	3.50	0.47	0.05	-1.03	0.70
Barriers	3.67	0.48	0.06	-3.16	14.06
Non-SWPBIS Staff (n = 12)					
Priority	3.18	0.26	0.08	-0.99	-1.35
Building Leadership	3.86	0.16	0.05	-0.54	-1.29
External Leadership	3.06	0.82	0.24	-1.44	3.02
Effectiveness	3.33*	0.28	0.08	-0.13	-0.86
Efficiency	3.37*	0.40	0.12	-0.32	0.11
Use of Data	3.09	0.95	0.28	-0.81	-0.31
Capacity	3.13*	0.49	0.14	-0.05	0.19
Barriers	3.61	0.52	0.15	-2.00	4.86

Note. Range of factor scores = 1-4.

* $p < 0.05$ compared to respondents from SWPBIS schools

In general, all SUBSIST factors received a positive endorsement from respondents, regardless of SWPBIS implementation status. The average score on each factor was minimally Mostly True (3). Again, given the lack of normally distributed mean factor scores, caution is warranted when making sweeping generalizations. Further examination of average factor scores were conducted to highlight any distinctions among respondents regarding which factors were more important than others to sustained SWPBIS implementation.

Factor scores were compared within each group (SWPBIS and non-SWPBIS schools) to determine the relative ranking of each factor. These analyses were disaggregated by group given statistically significant factor differences reported in Table 3. Moreover, the non-parametric Wilcoxon signed-rank test was employed over its parametric equivalent given that the data violated assumptions of normality necessary to conduct traditional paired sample t-tests. Results of these analyses are found in Tables 4 and 5 for respondents from SWPBIS and non-SWPBIS schools, respectively.

Table 4
Mean Differences Among the SUBSIST Factor Scores for Respondents from SWPBIS Schools

Factors	z	p
Priority – Building Leadership*	-6.20	.000
Priority – External Leadership*	-4.05	.000
Priority – Effectiveness*	-4.45	.000
Priority – Efficiency*	-5.49	.000
Priority – Use of Data	-0.94	.350
Priority – Capacity	-3.08	.002
Priority – Barriers*	-5.97	.000
Building Leadership – External Leadership*	-6.90	.000
Building Leadership – Effectiveness*	-4.81	.000
Building Leadership – Efficiency	-3.47	.001
Building Leadership – Use of Data*	-5.37	.000
Building Leadership – Capacity*	-4.45	.000
Building Leadership – Barriers	-1.75	.080
External Leadership – Effectiveness*	-6.11	.000
External Leadership – Efficiency*	-6.54	.000
External Leadership – Use of Data	-3.45	.001
External Leadership – Capacity*	-5.58	.000
External Leadership – Barriers*	-5.93	.000
Effectiveness – Efficiency	-2.02	.043
Effectiveness – Use of Data	-2.35	.019
Effectiveness – Capacity	-0.82	.411
Effectiveness – Barriers	-3.16	.002
Efficiency – Use of Data	-2.88	.004
Efficiency – Capacity	-2.00	.045
Efficiency – Barriers	-1.74	.082
Use of Data – Capacity	-1.75	.080
Use of Data – Barriers*	-3.98	.000
Capacity – Barriers	-2.69	.007

Note. $n = 74$.

** $p < .001$

Table 5
Mean Differences Among the SUBSIST Factor Scores for Respondents from Non-SWPBIS Schools

Factors	z	p
Priority – Building Leadership	-3.07	.002
Priority – External Leadership	-0.27	.789
Priority – Effectiveness	-1.33	.182
Priority – Efficiency	-1.38	.168
Priority – Use of Data	-0.12	.906
Priority – Capacity	-0.05	.959
Priority – Barriers	-2.08	.037
Building Leadership – External Leadership	-2.75	.006
Building Leadership – Effectiveness	-3.06	.002
Building Leadership – Efficiency	-2.94	.003
Building Leadership – Use of Data	-2.29	.022
Building Leadership – Capacity	-2.85	.004
Building Leadership – Barriers	-1.82	.068
External Leadership – Effectiveness	-1.42	.155
External Leadership – Efficiency	-0.86	.388
External Leadership – Use of Data	-0.46	.646
External Leadership – Capacity	-0.04	.965
External Leadership – Barriers	-2.67	.008
Effectiveness – Efficiency	-0.55	.583
Effectiveness – Use of Data	-0.53	.594
Effectiveness – Capacity	-1.51	.131
Effectiveness – Barriers	-2.04	.041
Efficiency – Use of Data	-1.02	.306
Efficiency – Capacity	-1.27	.203
Efficiency – Barriers	-1.33	.182
Use of Data – Capacity	-0.09	.929
Use of Data – Barriers	-1.54	.123
Capacity – Barriers	-2.18	.029

Note. $n = 12$.

Statistically significant mean differences between factors were set at $p < .001$ to account for family-wise error rates. A number of significant factor score differences emerged among staff members from schools implementing SWPBIS with integrity for one or more years. For example, the External Leadership factor was rated statistically lower than all other SUBSIST factors. On average, this factor was rated as being Mostly True. Contrarily, Building Leadership and Barriers received the strongest endorsements, with these factor scores being statistically higher than most

other factors. Average ratings of these two factors were close to Very True. The Effectiveness and Efficiency factors were, on average, similarly endorsed. Likewise, the Capacity, Use of Data, and Priority factors received similar ratings. A rank ordering of importance of SWPBIS sustainability factors for respondents from SWPBIS schools is presented in Table 6.

The results of factor ratings on the SUBSIST by respondents from non-SWPBIS schools were far less clear. In fact, the a priori criterion for statistically significant mean differences resulted in non-significant findings across all factors. This means that respondents did not distinguish between any of the sustainability factors as being more important than any other factor. Consequently, the ranking of factors, found in Table 6, reflects no statistically significant difference between any of the SUBSIST factors when completed by staff from non-SWPBIS schools. Despite using non-parametric procedures, which are appropriate with small sample sizes, these results must still be cautiously interpreted given the limited sample.

Table 6
Rank Order of Enablers and Barriers to Sustained SWPBIS Implementation

SWPBIS Schools		Non-SWPBIS Schools	
Rank	Factor	Rank	Factor
T-1	Building Leadership	T-1	Building Leadership
T-1	Barriers	T-1	Barriers
T-3	Efficiency	T-1	Efficiency
T-3	Effectiveness	T-1	Effectiveness
T-5	Capacity	T-1	Priority
T-5	Use of Data	T-1	Capacity
T-5	Priority	T-1	Use of Data
8	External Leadership	T-1	External Leadership

Conclusions

A strong building administrator is necessary to lead a school and its staff, and to ensure a high quality education for all students. Additionally, it is clear that effective, supportive, and active building administration is needed to lead evidence-based school reform efforts like RTI and PBIS. Building administrators, for example, should conduct evaluations of the extent to which teachers integrate PBIS principles into their daily practice. As necessary, building administrators can provide avenues for teachers to gain professional development or mentoring opportunities to further integrate PBIS into their instruction and interactions with students. It is less known, however, just how importantly educators value building leadership and what other factors are essential for school reform to take root and become the typical operating procedure of schools.

Data from the present study reveal compelling support for strong building administration and the capacity for staff and administrators to overcome barriers to successful implementation of school reform efforts. While 10.5% of the respondents were administrators themselves, this small minority likely did not skew the data. Further, there were no significant group differences

by role of respondent. Staff members from schools implementing SWPBIS overwhelmingly rated building leadership and the effective management of obstacles to implementation as the leading factors associated with sustained SWPBIS implementation. In contrast, support from central administrators was rated as being the least important factor for sustained implementation, but a moderately strong endorsement of the importance of central administrative support was still observed. Ensuring that SWPBIS efforts are efficient and result in desired outcomes were rated as being moderately important to sustained implementation. Likewise, developing internal capacity and expertise, regularly using data to evaluate and monitor efforts, and making SWPBIS a priority among all educational initiatives were moderately endorsed as important to sustained implementation.

It is not clear what to make of the data from non-SWPBIS implementing schools, especially given that data from only two such schools were included in this analysis. Given that the SUBSIST is intended to assess staff perceptions of enablers of sustainability once a school is fully implementing, perhaps results from non-implementing schools is clouded by the fact that these schools never achieved full implementation in the first place let alone sustained it for multiple years. Clearly the low response rate hinders the capacity to generalize these data, but given the absence of any study investigating barriers to implementation from staff in non-implementing schools, these results, while interpreted with caution, shed initial light on what may prevent schools from implementing SWPBIS: There are likely a host of barriers to high fidelity implementation.

Since mean factor scores between respondents from SWPBIS and non-SWPBIS were, largely, statistically different, it is reasonable to conclude that the SUBSIST is measuring sustainability from two very different perspectives. On the one hand, respondents from buildings that are implementing SWPBIS who complete the SUBSIST are, in effect, describing the factors that enable the school to sustain implementation over multiple years. So these respondents' endorsements seem to reflect positive qualities that promote sustained implementation.

On the other hand, respondents from buildings that were not implementing SWPBIS may be describing the factors perceived as barriers to implementation. Remember that these respondents received training in SWPBIS implementation, yet their schools never achieved full implementation status. So for these respondents, the SUBSIST may reflect educators' perceptions of barriers to implementation—perspectives diametrically opposite to enabling factors.

Limitations

The estimated response rate, while typical of online surveys conducted by researchers external to an organization (Nulty, 2008), likely represents a biased sample of staff at SWPBIS and non-SWPBIS schools. Future research should capitalize on increasing response rates in general and for specific roles (e.g., principals, central administrators, SWPBIS team members, faculty members who are not part of the SWPBIS team) to more thoroughly understand if perceptions of sustainability vary by educational role. No significant differences by role were observed in the present study, but a larger sample is needed to confirm these preliminary findings.

Hume and McIntosh (2013) suggested that there may be a difference on SUBSIST scores between schools that initially adopt SWPBIS ($M = 3.99$ years) compared to those that implement for a considerably longer period of time ($M = 6.23$ years). Their data indicated a significant, positive relationship between years of implementation and frequency of team meetings, sharing data with all school staff, and use of consultants. Importantly, however, was their acknowledgment of a “moderate degree of relation” (p. 1009) between schools categorized as newly implementing compared to veteran schools despite the statistically significant differences observed. In essence, the SUBSIST score differences were statistically significant, but interpretation is confounded by the relationship between the two groups of schools. Moreover, the relationship between years of SWPBIS implementation and SUBSIST scores accounted for only 14% of the variance. So there may be statistical differences on SUBSIST scores as a function of consecutive years of SWPBIS, although that relationship is likely moderate at best. Our results, hampered by a distribution of schools skewed toward those that would be categorized as initially adopting schools, are somewhat disparate from their work. Minimally, additional research is needed to clarify whether newly-adopting school staff members perceive different enabling conditions for sustaining SWPBIS compared to staff at veteran SWPBIS schools.

A robust voice is needed from schools that are trained but fail to implement SWPBIS and from those schools that initially achieved full implementation but witnessed a precipitous decline of integrity in subsequent years. Our sample of 12 respondents from non-SWPBIS schools makes it difficult to generalize barriers to implementation beyond these two schools. However, statistically significant ratings on the SUBSIST between SWPBIS and non-SWPBIS schools suggest that staff perceptions from non-implementing schools are, nonetheless, important to consider. More research is needed to provide a comprehensive understanding of the barriers to adoption and sustained SWPBIS implementation.

Discussion and Recommendations

School reform efforts such as SWPBIS require considerable effort and resources to implement with integrity. Some initial benefits are quickly realized (e.g., ODRs), although other positive student and organizational outcomes do not manifest until sustained implementation has occurred for multiple years (Bradshaw et al., 2010; Fixsen et al., 2005; McGlinchey & Goodman, 2008; Runge et al., 2012). Therefore, it is important to understand what characteristics promote sustained implementation of any school reform effort. Surveying staff perceptions of enabling factors and barriers is the first step in gaining an operationalized and insightful understanding of these critical components. Once perceptions are fully understood, empirical validation of these perceptions can occur via more direct observation of processes and policies that truly engender sustained school reform efforts.

Results from this survey revealed that building-level leadership is one of the most critical aspects of sustained implementation. Therefore, one recommendation is that building administrators need to visibly and actively support SWPBIS, recognize it as a valued framework that systematically and effectively addresses issues related to classroom and student management of behavior, and meaningfully participate in its design and implementation. Failure to secure the support of

building administrators will likely portend a short-lived period of SWPBIS implementation. As such, building administrators must fully engage themselves in the design and implementation of SWPBIS. Moreover, central administrators interested in sustaining SWPBIS in buildings should prioritize the skill set necessary for sustaining implementation when selecting a building-level administrator. It makes sense to hire administrators who are familiar with and have a history of supporting SWPBIS when filling building-level leadership positions.

Our results confirm the importance of building-level leadership to the sustained implementation of SWPBIS providing empirical support for McIntosh, Horner, and Sugai's (2009) assertion that leadership is embedded in all core features of sustainability. Recommendations for administrators related to the principles of sustainability would be to make SWPBIS an explicit part of the school's mission and integrated into procedural policy in the building. As the instructional leaders in the building, principals should incorporate evidence of SWPBIS practices in the supervision of teachers and action plans that help teachers implement the core features (DiPaola & Hoy, 2007; Theoharis & Brooks, 2012).

Equally as important to sustaining a school reform effort such as SWPBIS is the foresight to prevent the myriad barriers to implementation. While it is important to recognize these potential factors, it is just as critical to plan for and mitigate these barriers. McIntosh, Horner, and Sugai (2009) cited numerous barriers to implementation, many of which are assessed on the SUBSIST used in the present study. For example, high turnover among administrators, general school staff, and key leaders within the PBIS team can wreak havoc on sustainability. Additionally, competition for limited resources (e.g., time, money) can derail SWPBIS in favor of other large-scale priorities in a school. Respondents in the present study strongly indicated that explicit efforts to mitigate high turnover or its effects and consideration of SWPBIS within the context of other school-wide initiatives are very important to sustainability. Thus, school administrators are encouraged to consider the findings in the present study as a crystal ball through which potential barriers can be identified early on and thoroughly addressed.

McIntosh, Horner, and Sugai (2009) recommended internal capacity building efforts so that the knowledge and skills remain, even if turnover among staff and PBIS team membership occurs. Principals are encouraged to develop rotation policies whereby large percentages of the school staff serve two to three years on the core PBIS team before rotating out in favor of another staff member so that local capacity will likely develop. Some research also suggests that implementation of SWPBIS and local capacity building in this manner results in teachers having a strong sense of self-efficacy. In turn these staff members are more likely to continue working in that building as opposed to leaving for another position (Kelm & McIntosh, 2011; Rentz, 2007). So merely implementing SWPBIS may assist in staving off the very turnover that is often viewed as a barrier to sustainability. Finally, given that building leadership was ranked the highest in this study, it would be prudent for central administrators and school boards to judiciously hire principals familiar with SWPBIS when vacancies in building-level leadership occur. Again, this practice by central administrators can help schools weather the storm of multiple principals over a short period of time.

An additional barrier to sustained implementation endorsed by study participants dealt with competition for limited resources (McIntosh, Horner, & Sugai, 2009). Principals can creatively budget by braiding and blending resources as a means to sustain implementation, garnering political support from central office and school boards to do so (Odden, 2012), and collaborating with staff about budget decisions (Lochmiller, 2012). Additionally, Odden (2012) advised that principals advocate for policies and appropriations at the local, state, and federal level that are supportive of PBIS. While some of these activities may not be under the purview of staff and local administrators, results of this study indicate the collective efforts of school staff, administrators, and advocates for scaling-up efforts make a considerable difference in supporting SWPBIS implementation over multiple years.

Data indicate that other factors of sustainability remain important to educators, albeit not as important as building leadership and combating potential barriers to implementation. Staff must view their efforts as being effective at achieving common goals and that a culture of using data to inform decisions is important. Likewise, staff must observe that their efforts are not redundant or counterintuitive with other policies and processes. Principals can lead this cause by regularly sharing outcome data with the building staff, central office, and the larger community, thus reinforcing the efforts of teachers to all stakeholders.

A surprising finding of the present study is that sustained SWPBIS implementation was least attributable to the External Leadership factor. So while endorsement of the SWPBIS model by central administrators is helpful, it is not viewed as an essential enabling factor. Perhaps this perception is counterbalanced by the dominant perception that building leadership is the most critical facilitator of sustainability. It appears that the practices and supports provided within and by the individual school itself are most influential in determining whether a school sustains high fidelity implementation.

In the context of the extant literature on sustaining SWPBIS and the present study, we advise future lines of research in the following areas. First, our study should be replicated with a larger sample of schools, complete with sufficient representation of elementary, middle, and high school staff members. SWPBIS is implemented in far more elementary schools compared to secondary schools (Sugai & Simonsen, 2012), and this disparity may be because the elements of SWPBIS tend to be more consistent with elementary educational practices, such as explicit instruction of rules and expectations or the use of a token economy system, often absent from secondary schools not implementing SWPBIS. Thus, it will be necessary to empirically determine if sustaining factors for SWPBIS vary by building level.

A second area of needed research is to determine whether sustainability factors do, in fact, vary between newly adopting and veteran SWPBIS schools. Perhaps sustainability of SWPBIS can be conceptualized along a developmental continuum from early adoption to veteran status. Hume and McIntosh (2013) suggested that there may be differences in perceptions of sustaining factors attributable to the duration with which the school has implemented SWPBIS, although our findings did not reveal these same differences. Despite these inconclusive results, it is reasonable to believe that the relative influence of sustaining factors may change over time as schools transition from

newly adopting to veteran SWPBIS schools. Factors that facilitate initial adoption of SWPBIS may be very different than the characteristics that help it maintain as standard operating procedure. For example, it is possible that use of expansive amounts of data is not important in the very beginning stages of SWPBIS adoption but is critical in later years when efficacy data are needed to adapt and prioritize SWPBIS over other, competing initiatives. Similarly, continuous regeneration is likely not as critical in the early stages of adoption when a core team is highly motivated and afforded resources to design and implement SWPBIS. Years later, however, increasing internal capacity to sustain implementation is needed as staff cycle off the core team and administrators leave.

A methodologically sound approach to validation of a developmental model to sustainability would be to analyze SUBSIST data from respondents from schools adopting SWPBIS for under three years and another group of schools adopting SWPBIS for ten or more years. Given that statewide scale-ups of SWPBIS have occurred for over a decade in a few states (i.e., Illinois, Oregon, Maryland, Florida), it is possible to conduct a study comparing perceptions of sustainability between two groups of schools representing very disparate years of implementation.

Our study, a complement to previous work, suggests converging evidence regarding staff perceptions of the essentials to sustainability. A third area for future research is to operationalize and observe the enabling factors identified via these early studies of staff perceptions. This line of inquiry should include systematic and direct observations of these sustainability factors to determine the fidelity with which they are institutionalized and how well each predicts sustained implementation. Therefore, future research must extend the extant literature on staff perceptions to direct measurement of these sustainability factors.

Finally, a comprehensive endeavor to understand what prevents schools from implementing SWPBIS is needed, using data from schools that were trained but failed to implement. Our work provides minimal insight into this topic, but it will be important to understand the obstacles that are so intense or substantial that SWPBIS fails to be adopted with integrity. Knowing the barriers to implementation will help newly-trained schools to prevent vain efforts at implementing with integrity.

SWPBIS continues to gain momentum across public education. The outcomes associated with high fidelity implementation are difficult to ignore. As schools either attempt to initiate or sustain SWPBIS, it will be important to adopt practices and policies that are most likely to predict long-lasting implementation. While the extant literature and present study provide some initial empirical insight regarding the factors that facilitate sustainability, considerably more work remains.

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The Principal's Role in Fostering (or Hindering) the Motivational Processes of Teachers

Tricia S. Britton

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The purpose of teaching is to produce learning, which is assessed by way of standardized tests. Test scores influence the way principals directly interact with the teachers in their buildings and indirectly interact with their students through their interactions with teachers. Principals' interaction with teachers can help or hinder teacher motivation. Motivated teachers design more interesting lesson plans, exhibit more patience with students who have learning differences, and are not easily discouraged. In turn, their students have higher achievement. Principals can foster motivation by practicing transformational leadership and creating an autonomy-supportive environment. Such an environment is achieved by giving teachers a voice in the decision-making processes; providing material and financial support; encouraging collaboration through professional learning communities or teams; providing frequent, constructive feedback; communicating clearly; setting common goals; eliminating or decreasing unnecessary paperwork, redundancy, and inefficient use of time; and eliminating or reducing top-down decisions.

Children are sent to school to receive a high-quality education (Paige & Hickok, 2004), to achieve and leave school proficient in achievement standards. In other words, the bottom line is LEARNING! Schools are held accountable for student learning through student performance and standardized test results. Therefore, school leaders' focus becomes improving or maintaining the test scores that are indicators of student achievement. While the classroom teacher plans and executes the lessons that result in the learning that is assessed by standardized tests, it is the principal who is charged with ensuring that the students meet the standards.

The Pennsylvania System of School Assessment (PSSA) measures the adequate yearly progress (AYP) of students in math, language arts, reading, and science. The science assessment is a recent addition to the battery of tests and is administered to students in third, fifth, and eighth grades. The purpose of this study was to examine the impact of the science PSSA on the curricular and instructional practices of public school eighth-grade science teachers who are expected to implement mandated curricular changes and strengthen instructional practices to improve or maintain PSSA scores and attain AYP.

Both principals and teachers are affected by student test scores. Principals do not directly work with students to affect a change in or maintain student achievement results; they encourage improvement in student performance through supervision of teachers. Teachers interact directly with students, adjusting instructional practices to enhance learning in ways that will improve

or maintain test scores. Ideally, the interaction between teacher and principal is a positive one, contributing to student success. (See Figure 1.)

Principals, Teachers, and Motivation

Student achievement should be the driving force behind instructional practices. The purpose of this article is to discuss how principals can help or hinder motivational processes of their teachers, thereby indirectly helping students to achieve. The findings here are supported by the results of a doctoral study, which involved a small sample of teachers from south-central Pennsylvania. This study was significant because its findings of this study, in conjunction with other studies, may aid principals in performing their roles as supervisors by providing knowledge of what is necessary to motivate teachers to develop more efficacious practices.

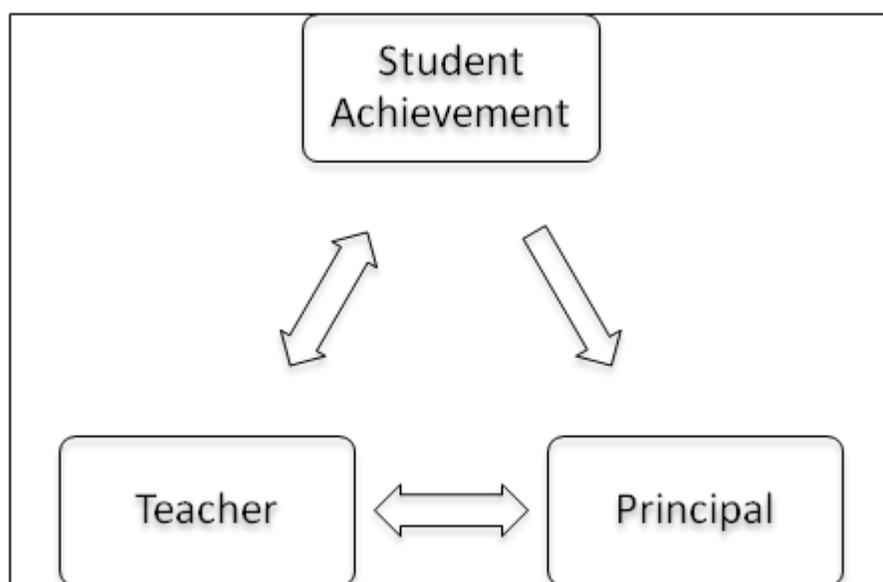


Figure 1. Graphic representation of the interactions among student achievement scores, teachers, and principals.

Focusing solely on test scores can lead to a narrowed curriculum, decreased motivation, and teacher burnout (Fullan, 2001). Principals, in working with teachers, need to consider ways to initiate and sustain motivation. Motivation is defined as a process by which behavior is initiated, directed, and maintained toward attaining meaningful goals (McClelland, 1989). Motivation strengthens and demotivation weakens instructional practices.

The Importance of Motivation

A number of reasons explain why teacher motivation is important to student success. If changes in instructional practices become necessary to improve student achievement, several things need to happen. Teachers must be motivated to make needed changes, hold strong efficacy beliefs, believe they have control over the changes that they are implementing (Eyal & Roth, 2011; Ignat & Clipa,

2010), and expect a high probability for success (McClelland, 1989). Self- and collective efficacy beliefs establish the academic climate of a school. Efficacy is defined as the extent to which a teacher or group of teachers feels capable to help students learn. Efficacy beliefs influence both job performance and commitment to the teaching profession (Tschannen-Moran & Woolfolk Hoy, 2001), which is related to teacher motivation (Ware & Kitsantas, 2007). Finnegan (2010) reported a positive correlation between teacher efficacy and expectancy to impact student achievement. Davis and Wilson (2000) found that principal-empowering behaviors directly influenced teacher motivation in that teachers believed they had positive impact on student learning. Generally, achievement levels are higher for students with highly efficacious teachers (Hines & Kristonis, 2010).

Teachers with strong beliefs in their capabilities are motivated to tackle challenging tasks rather than avoid them (Hines & Kristonis, 2010; Leithwood, Harris, & Hopkins, 2008). Highly efficacious teachers have a stronger commitment to teaching (Hines & Kristonis, 2010), possess positive attitudes toward low-achieving students, build friendly relationships with their students, and set higher academic standards for them than do those taught by low-efficacy teachers. They are less critical of student struggles and mistakes. They have a stronger commitment to teaching than their colleagues with weak self-efficacy beliefs (Hines & Kristonis, 2010) and their students experience higher achievement (Ware & Kitsantas, 2007).

Cultivating and Eroding Motivation

To cultivate high self- and collective beliefs, factors that motivate teachers must receive attention. Allowing teachers some autonomy in decision-making processes and providing them with positive, constructive feedback give teachers a sense of control over what they are doing. Teachers who believe that they exert control in their work do not experience the same anxiety as those who believe they exert little control in their work over their situation (Leithwood et al., 2008; Tschannen-Moran & Woolfolk Hoy, 2001). They are more intrinsically motivated and experience feelings of competence (Deci & Ryan, 1985; Eyal & Roth, 2011; Ryan & Deci, 2002). They become more engaged and more satisfied in their work, increasing their effectiveness (Fernet, Senécal, Guay, Marsh, & Dowson, 2008). When teachers are empowered and feel that their involvement will produce positive change, it is easier to affect their beliefs and attitudes and maintain their motivation (DuFour & Mattos, 2013). They strive to gain knowledge of how to become better practitioners and are better able to implement change. They believe that their success is a result of their efforts (Ignat & Clipa, 2010).

Another factor affecting motivation of teachers is context beliefs. Context beliefs are defined as perceptions about the likelihood of receiving professional, financial, and material supports necessary for effective instruction (Ford, 1992). Motivation levels are strong when beliefs about receiving support are positive and weak when beliefs are negative (Finnegan, 2010; Haney, Lumpe, Czerniak, & Egan, 2002).

Transformational leadership, characterized by a well-communicated shared vision and empowerment, contributes to teacher efficacy beliefs and enhances motivation, especially when

teachers diligently apply professional development ideas in their classrooms (Eyal & Roth, 2011; Nir & Hameiri, 2014; Finnegan, 2010; Ross & Bruce, 2007). Conversely, transactional leadership, exhibited as excessive control by principals, threats, frequent surveillance, deadlines, negative or harsh evaluations, and a compete-to-win atmosphere detracts from the enjoyment of teaching, erodes motivation and efficacy beliefs, and distracts teachers from doing their best work (Akin, 2010; Eyal & Roth, 2011; Nir & Hameiri, 2014; Ryan & Weinstein, 2009). Top-down decisions do not motivate (Guskey, 2007). Excluding teachers from the pedagogical decision-making process leads to a decline in motivation, as does the enforcement of frequent changes with a lack of professional support (Finnegan, 2010; Müller, Alliata, & Benninghoff, 2009).

There is a link between effective instruction and student achievement (Pennsylvania Department of Education, 2010) in that students of effective teachers have better scores on standardized tests (Hines & Kristonis, 2010). Effective teachers are motivated and hold high efficacy beliefs. The study was designed to answer the following research questions.

1. What is the impact of the science PSSA on the eighth-grade science curriculum?
2. What is the impact of the science PSSA on the instructional practices of eighth-grade science teachers?
3. How does teaching science in a PSSA environment affect teacher motivation?
4. How does teaching science in a PSSA environment affect teacher efficacy beliefs (both self- and collective)?

Method

A mixed-methods approach was used to answer research questions not easily answered by using a single method. Likert-type surveys provided data about eighth-grade teachers' self-determined behaviors and context beliefs. Since these data only provided the breadth of information to inform this study, a focus group discussion and interviews were also conducted to strengthen the quality of the analyses.

Participants

Participants were eighth-grade teachers from 17 middle schools in nine public school districts in five counties in south-central Pennsylvania. These districts provided a convenience sample, having been chosen because of their familiarity to the researcher as well as their geographical proximity for ease of organizing a focus group at a central location. The study focused on eighth-grade science teachers because the researcher is a middle school science teacher who is indirectly affected by the science PSSA. Six participants were male; five were female. The age of the participants ranged from 22 to 65 years.

The number of eighth-grade teachers to whom the survey was sent was limited first by the number of districts granting site approval, and second by the number of eighth-grade teachers in each middle school within those districts. Within the nine districts that provided site approvals, 29 eighth-grade science teachers were invited to participate in this study. Weekly requests for participation, with a link to the online survey, were e-mailed to potential participants. After a

two-month period of time, the survey was closed. Of the 29 teachers who invited to participate, 11 (38%) completed surveys for data analysis. Four participants reported 1-5 years of teaching experience teaching science, and seven reported 11-15 years of teaching experience.

Two of the 11 survey participants volunteered to participate in a focus group discussion for the purpose of elaborating on the answers to the survey and to provide a depth of explanation to the survey responses. Additionally, three individuals who could not attend the focus group participated in individual interviews. (See Table 1 for a summary of participant information for the five individuals who completed the survey and participated in the focus group or an interview. Due to the anonymous nature of the survey, details are not available for individuals who only participated in the survey.)

Table 1
Summary of Teacher Information

Name	Participant Role	Years of Eighth-Grade Teaching Experience	School District Type and Size
Emily	Focus group	11	Small rural
Heather	Focus group	4	Midsized suburban
Daniel	Interview	5.5	Midsized suburban
Natalie	Interview	12	Small rural
Seth	Interview	17	Large suburban

Note. All participants were assigned pseudonyms to protect their identity.

Instrumentation

The online survey was developed by assembling these modified individual instruments: (a) the Self-Determination Scale (SDS; Deci & Ryan, 1985), (b) the Context Beliefs About Teaching Science survey (CBATS; Lumpe, Haney, & Czerniak, 2000), (c) the Science Teachers' Efficacy Beliefs Instrument (STEBI; Riggs & Enochs, 1989), and (d) the Collective Teachers Beliefs Scale (CTBS; Tschannen-Moran & Barr, 2004). Participants responded to general yes-or-no questions regarding a change in science curriculum and an expectation of change in instructional methods. They also had the opportunity to provide explanations of their answers. (See Appendices A through D for survey instruments.)

The SDS is a short, 10-item survey consisting of two five-item subscales. One subscale examines feelings of self; the other subscale examines perception of control over choices. Each subscale can be used individually, and the latter was used in this study (Deci & Ryan, n.d.). The modified CBATS was used to identify the personal agency beliefs that are strong motivating factors for science teachers (Haney et al., 2002). The modified STEBI and the CTBS provided data about both self and collective efficacy beliefs both of which contribute to teacher motivation.

Results

Of the 29 eighth-grade science teachers who were invited to participate in this study, 11 completed surveys for data analysis. While this 38% return is an acceptable return figure, the sample size was too small to be representative of the general population of public school eighth-grade science teachers in Pennsylvania. However, the findings of this study do provide a snapshot of how motivational factors affect a small group of eighth-grade science teachers in south-central Pennsylvania.

SDS Results

The Self-Determination Scale (SDS; Deci & Ryan, 1985) was used to assess how much of teachers' behavior was self-determined regarding curricular choices and their instructional practices. Participant scores for self-determined behavior ranged from one point below neutral to one point above neutral. (See Table 2.)

Table 2
Means and Eta-Squared Values of Each Group for Each Component of the Survey

Survey Component	Statistic	Group 1		Group 2	
		Since implementation of the PSSA has there been a change in the curriculum you are expected to teach?		Since the implementation of the PSSA have you been expected to change instructional practices?	
		Yes	No	Yes	No
		N = 9	N = 2	N = 7	N = 4
SDS	Mean	2.96	3.4	2.80	3.45
	Eta squared	.06			
CBATS rec	Mean	3.56	3.90	3.37	4.05
	Eta squared	.03		.18	
CBATS en	Mean	4.38	4.90	4.34	4.70
	Eta squared	.16		.08	
STEBI	Mean	3.54	3.67	3.52	3.63
	Eta squared	.05			
CTBS	Mean	7.20	8.70	7.20	7.95
	Eta squared	.16		.18	

The mean for those who reported a change in curriculum (n = 9) was slightly below the neutral point of self-determined behavior. That is, they had a slightly higher tendency to believe that behavior was not self-determined. For the two who did not experience the same change of curriculum, the mean of the SDS was 3.40 or slightly above neutral. That is, they believed that their behaviors were self-determined, but only slightly. Eta-squared calculations indicated that the change in curriculum had a moderate effect on self-determined behavior. This finding was supported by data collected from the focus group discussion and interviews. Science curriculum was determined by the state so these teachers reported having no control in choosing what was to be taught in their classrooms. This finding parallels the findings of MacDonald's (2009) study that concluded top-down mandates and external controls do little to cause authentic change because they negatively affect motivated behavior.

The mean for those who reported an expectation of change to their instructional practices change in curriculum (n = 7) was slightly below the neutral point of self-determined behavior: They had a slightly higher tendency to believe that behavior was not self-determined. For the four who did not experience the same expectation of change, the mean of the SDS was slightly above neutral. They believed that their behaviors were self-determined, if only slightly. Eta-squared calculations could not be run for the measure of self-determined behavior in this group because the criteria were not met. The effect of the expectation of change on the perception of self-determined behavior could not be ascertained.

The SDS scores were not indicative of self-determined behavior. An explanation provided by focus group and interview participants was that curriculum was one aspect of education over which they exercised no control. For example, they reported that teachers "were allowed to tweak curriculum and make changes on their own" but they were subjected to "lots of micromanagement." This contradiction led to the conclusion that, for all the work and discussion of teacher committees, and regardless of the committee recommendations, decisions are made through a top-down process. When the committee made recommendations of which the administration approved, the appearance of autonomy was maintained; if not, then top-down decision-making occurred.

Although statistically it could not be determined if an expectation of change in instructional practices (n = 7) had a significant effect on perceptions of self-determined behaviors, anecdotal data were used to provide support for these findings.

Participants expressed fear that a change in curriculum would eventually be accompanied by the expectation to change instructional practices. A few reported feeling pressure to conform their practices to match methodologies such as Learning Focused Schools (LFS) or Understanding by Design so that their students demonstrated AYP. The pressure to meet AYP status had shifted the focus from developing effective instructional practices for learning and narrowed it to the scores of the PSSA themselves.

Comments made during the focus group meeting added depth to the data analysis. According to participants, content and curriculum were completely driven by the state. Teaching methods were still a matter of choice even if the content taught was not. Emily also noted that choosing

methods may not be an option once the Common Core is in place. She reasoned that, if the state dictates what is taught, to some degree, they would dictate how it is to be taught.

Heather explained that her department was a subject of a case study being done by her principal, and she and the other eight-grade science teacher were “polar opposites.” Although she felt she was not expected to change her instructional practices, she reported being frequently questioned about her practices if she and her colleague were not teaching the same thing on the same day during observation. “That uniformity is starting to kick in. Uniformity deflates creativity.” She felt pressure to “better not be teaching something not a part of the standards when principals come through” for an observation. She explained,

There’s definitely a push to make sure that every eighth-grade student going through this school district has the same experience and so we’re losing team identities. Currently, the PSSA is what drives our assessments which drive instruction. The natural consequence of this is that methodologies may become more uniform.

Both Daniel and Natalie reported they have control in the choices they make regarding their instructional processes. There were some similarities as well as differences in their methodologies compared with their colleagues. Unlike Heather, they were not questioned about these differences. Natalie was required to use the Learning Focused Classroom (LFC) model, and as long as she adhered to that program, she had the freedom to tweak the curriculum.

Seth reported being restricted to the curriculum that was in place. Seth was not able to participate actively in making any changes to the curriculum but he was permitted to contribute his ideas by way of postings on his district’s shared drive. Despite these limitations on curriculum, Seth did not feel restricted in his instructional practices.

CBATS Results

Context beliefs constitute the variable in Ford’s Motivational Systems Theory (MST; 1992) motivation equation that factors in the external supports that contribute to an individual’s motivation. The CBATS survey (Lumpe et al., 2000) was used to measure participants’ context beliefs of the participants. The Likert-type survey consisted of two overarching statements:

1. The following factors would enable me to be an effective teacher.
2. How likely is it that these factors will occur in your school?

Each component of this survey is discussed individually in the paragraphs that follow.

As was the case for the SDS, there were no significant differences between the means for the CBATS that measured to which degree the participants felt that financial, administrative, and professional supports would enable them to be effective teachers. Individual scores were high for this part of the survey. Participants, with one exception, believed that receiving financial, administrative, and professional supports would enable them to be effective teachers. Eta-squared calculations indicated that a change in curriculum accounted for a large effect on the belief that

receiving these supports would enable the participants to be effective teachers. The expectation of change in instructional practices accounted for a moderate effect on this belief.

The second part of the CBATS assessed teachers' belief in the likelihood of receiving the financial, administrative, and professional supports enabled them to be effective teachers. Eta-squared calculations revealed that a change in the curriculum ($n = 2$) had a small effect on this measure while the expectation of change in instructional practices ($n = 7$) exerted a large effect on this belief.

Focus group participants and interviewees reported that while there was no extra money for wish-list items, each teacher received the materials needed to do lab activities and teach science effectively. Heather shared that her science department enjoys a "great relationship with our [school] board." She indicated that, despite budget cuts in the district, money had never been taken from the science budget. She taught in a new building with a fully equipped laboratory for 24 students. As long as teachers provided a solid rationale for what was needed, their requests were filled. Daniel indicated he always received everything he needed to teach his students as long as he placed his order on time. Natalie stated now that adequate yearly progress in science has become part of the district's report card, financial support has been moved back into the science department and she received what she needed without question. Since it was only recently added to the battery of PSSA tests, the overall feeling that science was not considered as important a subject as language arts and math remained.

Experiences in other districts also appeared to have an effect on science spending in participants' districts. After an unfortunate laboratory accident in another middle school in the area, Emily's request for updated safety equipment was promptly filled. This same accident instigated questions about Natalie's lab safety procedures: "There were lots of questions about what I do lab-wise and why did I need this? You seem to know what you're talking about so okay."

For many of these teachers, off-site professional development opportunities, including conference attendance, were extremely limited due to budget constraints. Instead, many in-service opportunities for the faculty were held in district schools. Daniel reported one exception to the no-conference trend. He was reimbursed his entry fee to attend a National Science Teachers Association (NSTA) conference, but he attended on a Saturday, which eliminated the need for a substitute, and he did not submit an expense report.

Efficacy Beliefs Results

Since efficacy beliefs are related to motivation, the results of self- and collective efficacy beliefs surveys were included in the study. Self-efficacy beliefs were assessed using the Science Teachers' Efficacy Beliefs Instrument (STEBI; Riggs & Enochs, 1989). Collective efficacy beliefs were assessed using the Collective Teachers Beliefs Scale (CTBS; Tschannen-Moran & Barr, 2004).

There was no statistical difference between the means for STEBI scores in either Group 1 or Group 2. The eta-squared calculations revealed that a change in curriculum ($n = 9$) exerted a small

effect on self-efficacy beliefs. Eta-squared calculations were not done for Group 2; the data did not meet the criteria for this test.

The focus group and interview participants, while they expressed high self-efficacy beliefs, seemed reluctant to give themselves all the credit for student success. While they strove to make lessons interesting, thus engaging students in the learning process, they would not accept all the credit for student success. They acknowledged their students as also responsible for their success.

The CTBS was the only measure to show a significant difference in the means of the scores for those who had to change the curriculum ($n = 9$) as opposed to those who saw no change in curriculum. The change in curriculum had a significant effect on the collective efficacy beliefs of teachers. Eta-squared calculations revealed that the effect of the expectation of change in instructional practices ($n = 7$) on collective efficacy beliefs was large.

Conversation with the focus group participants and the interviewees provided insight into the reasons for these results. Though reluctant to take credit for their individual contribution to student success and willing to recognize students' own contributions to their success, these teachers consistently credited their collective efficacy as a reason for student success. They felt they were stronger as a group rather than as individuals and credited their efforts as a group as the stronger contributor to student success. High expectations for their students, regular team meetings, common planning time, and regular analysis of student data were used to create meaningful lesson plans, which created positive learning experiences for their students. These practices are akin to a professional learning community, which has been credited with fostering motivation (Eyal & Roth, 2011).

Recommendations

The recommendation related to the findings of this study is that principals employ a transformational leadership style (Eyal & Roth, 2011; Nir & Hameiri, 2014) to create autonomy-supportive environments. This practice creates an environment that encourages independence, competence, and relatedness (Roth, Assor, Kanat-Maymon, & Kaplan, 2007) and increases motivation. Furthermore, an autonomy-supportive environment is marked by involvement in the decision-making process (Deci, 2009) and the establishment of professional learning communities to promote collaboration (DuFour & Mattos, 2013; Fullan, 2006). This environment is further supported by clear communications, common goals, positive and frequent feedback (Fazio & Melville, 2008), and distribution of the materials needed to teach effectively (Leithwood et al., 2008).

Conclusion

The purpose of teaching is to produce learning. Learning is assessed by way of standardized tests. Test scores influence the way principals directly interact with the teachers in their buildings and indirectly interact with the students in their buildings. Teachers interact directly with their students and their principals. They monitor student progress and adjust instructional practices accordingly. Principals' interaction with teachers can help or hinder teacher motivation. As there is a direct

relationship between principals' empowering behaviors and teacher motivation (Davis & Wilson, 2000), principals can foster motivation by using a transformational leadership style and creating an autonomy-supportive environment. Specifically, they can give teachers a voice in decision-making processes; provide material and financial support; allow collaboration through professional learning communities or teams; provide frequent, constructive feedback; communicate clearly; set common goals; eliminate or decrease unnecessary paperwork, redundancy, and inefficient use of time; and eliminate or reduce top-down decisions.

Teachers who are provided with an autonomy-supportive environment provide the same type of environment for their students, which in turn offers them a greater chance of success (Roth et al., 2007). Additionally, motivated teachers hold high self-efficacy beliefs and they hold high expectations for their students and provide greater academic focus in their classrooms. Their students experience higher achievement than students who are taught by teachers with low-efficacy beliefs (Ware & Kitsantas, 2007). Clearly, putting all these recommendations into practice would result in a win-win situation for all.

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Appendix B

Suppose your goal is to be the most effective science teacher possible during the next school year. Listed below are a number of school environmental support factors that may have an impact on this goal. In the first column, please indicate the degree to which you believe each factor will enable you to be an effective science teacher. In the second column, indicate the likelihood that these factors will occur (or be available to you) during the next school year. Circle the corresponding descriptor that matches your belief.

	The following factors would enable me to be an effective teacher. Only A feels true SA= strongly agree; A= agree; UN= undecided; D=disagree; SD= strongly disagree	How likely is it that these factors will occur in your school? VL= very likely; SL= somewhat likely; N= neither; SU= somewhat unlikely; VU= very unlikely								
	SA	A	UN	D	SD	VL	SL	N	SU	VU
1. Support from administration: Professional staff development on teaching (workshops, conferences, etc.), allowing teacher-input for decision making process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Support from other teachers (coaching, advice, mentoring, modeling, informal discussions, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Planning time, both individual and planning time with other teachers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Hands-on science kits (activities and equipment), permanent science equipment and consumable science supplies, classroom physical environment, and technology (computers, software, Internet).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Adoption of an official school science curriculum (goals, objectives, topics, etc.) and corresponding curriculum materials (textbooks, lab manuals, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Context Beliefs About Teaching Science Survey (Lumpe, Czerniak, & Haney, 2000)

Appendix C

Please indicate the degree to which you agree or disagree with each statement below by circling the appropriate letters to the right of the statement.

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. I am continually finding better ways to teach science.	<input type="radio"/>				
2. Student achievement in science is directly related to their teacher's effectiveness in science teaching.	<input type="radio"/>				
3. I know the steps necessary to teach science concepts effectively.	<input type="radio"/>				
4. When a student has difficulty understanding a concept, I am usually at a loss as to how to help the student understand it better.	<input type="radio"/>				
5. I understand science concepts well enough to be effective in teaching science.	<input type="radio"/>				
6. If students are underachieving in science, it is usually due to ineffective teaching methods.	<input type="radio"/>				

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Science Teaching Efficacy Beliefs Instrument (Riggs & Enochs, 1990)

Appendix D

Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A great deal" as each response represents a degree on the continuum.

Please respond to each of the questions by considering the current ability, resources, and opportunity of the teaching staff in your school to do each of the following.

	None at all 1	2	Very Little 3	4	Some degree 5	6	Quite a bit 7	8	A great deal 9
1. How much can teachers in your school do to produce meaningful student learning?	<input type="radio"/>								
2. How much can your school do to get students to believe they can do well in schoolwork?	<input type="radio"/>								
3. To what extent can school personnel in your school establish rules and procedures that facilitate learning?	<input type="radio"/>								
4. How much can teachers in your school do to help students master complex content?	<input type="radio"/>								
5. How much can teachers in your school do to promote deep understanding of academic concepts?	<input type="radio"/>								

Collective Teacher Beliefs Scale (Tschannen-Moran & Barr, 1994)

About the Author

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Decision-Making Experiences of Rural Superintendents in Northeastern Pennsylvania During Economic Distress: A Multicase Study

Matthew Barrett
Western Wayne School District

Since the Great Recession of 2007, school districts have been struggling to adequately fund their daily operations. Federal funding for public schools was diminished as a result of the recession, forcing local districts to rely on their own sources of income for continued operation. Rural school districts in particular struggled to adequately fund their schools due to factors such as low enrollment and low tax bases. In northeastern Pennsylvania, rural districts were no exception. As a result of these economic conditions, superintendents were faced with difficult decisions to reduce personnel and programming in their districts. This multicase study was designed to describe and understand the decision-making experiences of superintendents in rural school districts in the Marcellus Shale region of northeastern Pennsylvania who have made personnel or programming reductions. This research provides insight and informs those seeking leadership positions in the field of rural educational into the decision-making responsibilities of rural superintendents during difficult economic times.

As a result of one of the worst economic crises since the Great Depression of 1929, the recent national recession of 2007 has resulted in budget reductions at the federal, state, and local levels of government in the United States (Ellerson, 2010). According to Oliff, Mai, and Palacios (2012), the Great Recession of 2007 has caused the most significant decline of state revenue on record. Although revenue has actually increased since 2011, states across the country have continued to face negative differences in educational funding from prerecession budgets (Oliff et al., 2012). In over two-thirds of the states in the nation, 2014 per-pupil funding levels are less than 2008 per-pupil funds (Leachman & Mai, 2014). At the same time as states were losing revenue, public educational costs and other public service costs continued to rise. Many states decided to reduce spending and limit resources to combat the increasing budgetary gaps (Oliff et al., 2012). Educationally based funds became a target for reductions.

According to a 2012 report by the Pennsylvania Association of School Business Officials (PASBO) and the Pennsylvania Association of School Administrators (PASA), the loss of Accountability Block Grant funding, stagnant local tax revenue, and a continued increase in operating costs have produced dire financial situations for many school districts (PASBO & PASA, 2012). Many school districts have resorted to depleting their fund balances to make up the difference in the lack of funding. Other school districts have already exhausted their fund balances or reduced personnel and programming.

Nearly half, or 48%, of the 281 school district respondents to the PASBO and PASA (2012) Budget Survey said that their school district will be in financial distress in three years if state funding and local revenues do not improve. The PASBO and PASA survey also reported the following statistics regarding school districts' measures to balance their budgets.

- Seventy-five percent will furlough staff or plan to leave vacant positions unfilled.
- Forty-six percent will reduce or eliminate extracurricular activities, including sports.
- Forty-two percent will delay capital building maintenance.
- Twenty-two percent will delay new construction or renovation of existing buildings.
- Eighteen percent plan to close one or more school buildings.

In rural school districts across the Commonwealth of Pennsylvania, the economic situation has been compromised by the loss of Basic Education Funding appropriations (Hatten, 2011). These funds had been the largest sources of annual state revenue that rural, low-income school districts received (Hatten, 2011). Federal funds have not been able to compensate for the loss of these dollars, and local tax bases cannot fulfill the need for funds due to Act 1 of 2006, also known as the Taxpayer Relief Act (Hatten, 2011). Act 1 limits the amount a school board may raise taxes in a given year based upon an inflation index established by the Pennsylvania Department of Education (PDE, 2012). The lack of revenue and increasing costs for healthcare benefits, staff salaries, and operating costs have created financial difficulties in many low-income, rural areas.

On June 30, 2011, Governor Tom Corbett of Pennsylvania signed into effect the state budget for the 2011-2012 fiscal year. This budget made significant reductions to educational funding for public school districts across the Commonwealth (Pennsylvania Office of the Budget, 2011). According to the Pennsylvania State Education Association (PSEA, 2013), nearly \$1 billion was eliminated from the education budget across the Commonwealth. State education funding is used by districts to support necessary resources for basic education programs, before and after school tutoring, early childhood interventions, special education services, and numerous other programs (PDE, 2011). This loss of revenue has had a major negative impact on local school districts' academic services and personnel. In July 2012, the Commonwealth again limited funds for school districts across Pennsylvania. Once again, school districts had to address the funding gaps for operational and educational services. In the 2013-2014 education budget, approximately \$130 million was restored, but a funding gap of nearly \$726 million from 2010-2011 funding levels remained for school districts to subsidize (PSEA, 2013).

Pennsylvania's 50 poorest school districts were affected by these cuts much more significantly than were the 50 wealthiest school districts (PSBA, 2013). According to PSBA (2013), the average per-student funding cut for the 50 poorest school districts was five times higher than that of the 50 wealthiest school districts: The average per-student funding cuts were \$532.49 in the 50 poorest school districts compared to \$113.13 in the 50 wealthiest school districts (PSBA, 2013). As a result of the budget reductions, school districts in rural areas of Pennsylvania were greatly impacted by the lack of funding due to their low tax bases and loss of much needed state funding. Rural superintendents in Pennsylvania were forced to make critical decisions that reduced district

programming and personnel. This study focused on the experience of superintendents in rural northeastern Pennsylvania.

In recent years, the Marcellus Shale natural gas industry has grown considerably in Pennsylvania, predominantly in rural areas. In 2009, an estimated 23,000 to 24,000 jobs were created and over \$3 billion was added to the Pennsylvania economy (Kelsey, Shields, Ladee, & Ward, 2011). However, the growth of the industry has had negative impacts on the physical and social infrastructure of many rural communities, with no economic benefit to local schools (Schafft, Glenna, Borlu, & Greene, 2012). Roads and bridges were damaged, housing and rental markets tightened, costs soared, and homelessness rose in these communities (Kelsey et al., 2011). School districts reported congestion on bus routes, requiring alternative routes and schedules (Kelsey et al., 2011). Other concerns of school districts in the Marcellus Shale region have included demographic changes, curricular modifications, workforce development, communication with gas companies, community services, well water quality, communication with families of transient students, transition programs for new students, and resource availability (Kelsey et al., 2011). Superintendents in the Marcellus Shale region were faced with a new dynamic to consider when making decisions that affected the sustainability of their school districts. These external forces and the micropolitics that coincide with interest groups add another dimension to superintendents' potential ethical dilemmas when determining personnel or programming reductions.

Purpose and Research Questions

The purpose of this study was to describe and understand the decision-making experiences of superintendents from rural school districts in the Marcellus Shale region of northeastern Pennsylvania who have been forced to make difficult decisions during an extended period of economic hardship. In this study, the difficult decisions of the superintendents were generally defined as situations of personnel or programming reductions. Specifically, this study explored these questions:

- What decisions have been made by the superintendents regarding personnel and programming as a result of the financial conditions of the district?
- What external influences and internal ethical dilemmas have the superintendents experienced during their decision-making situations?
- How have the superintendents managed the internal ethical dilemmas, micropolitics, and external influences in their decision-making situations to come to a final decision?
- How has the external influence of the Marcellus Shale natural gas industry affected the decision making of superintendents in this study?

Conceptual Framework

The role of superintendents has evolved over time as a consequence of internal needs and external influences. Starratt (2003) claimed that a school leader's job has shifted from a general managerial position of authority to a blend of educationally focused concerns such as curriculum, student achievement, and teacher development. New and different challenges are presented

due to cultural, ideological, economic, or political shifts in the current system. No Child Left Behind (NCLB) and the Individuals with Disabilities Education Action (IDEA) placed additional responsibilities on school districts to meet the needs of all students (Parents Reaching Out, 2009). Mandates such as NCLB and IDEA required school districts to support an appropriate education for public school students despite a lack of federal funding for the mandates. Special interest groups such as collective bargaining units have placed additional financial pressures on school districts because of rising healthcare costs and salaries and increased pension fund contributions.

The political influences that superintendents confront seem to increase by the day (Starratt, 2003). Educational leaders must therefore make decisions that reflect the values of the school community balanced with knowledge of external factors that impact the district. Successful leaders understand this balance and move their districts through transformational change despite possible undesirable consequences of their decisions (Palestini, 1999).

Since superintendents are the highest-ranking administrators in school districts, they face many decision-making situations on a daily basis. These decisions may involve a moral dilemma because they can affect the lives of individuals in the school district and the greater school community (Foster, 1986). Therefore, a superintendent must make ethical choices based upon the needs of the district and the impact on the people within it. As a result of cultural experiences in school and personal lives, educational leaders ascribe a “meaning” to their experiences (Starratt, 2003). Starratt (2003) defined meaning as “cultural or personal meanings that are attached to or embedded in events, circumstances, information, and symbols” (p. 28). A leader’s decision making becomes grounded in the meaning of a situation in relation to his or her personal and professional interpretations. Additionally, various internal and external components influence decisions when facts of an event are presented and gathered (Starratt, 2003). For example, the micropolitics of a school district become a critical force that superintendents must face in a decision-making situation (Malen, 1995). Malen (1995) described micropolitics as the “overt and covert processes” through which individuals and groups in the organization’s immediate environment gain and employ power (p. 147). Each interested group or individual exerts its power through private and public relations to manage conflict and build consensus (Malen, 1995). While some of the influences are uncontrollable and the facts of the event undesirable, a leader’s decisions should remain focused on the organizational vision and contain elements of the leader’s ascribed meaning of the situation.

Significance of the Study

This study analyzed various components of the decision-making process of school leaders who have made personnel or programming reductions as a result of financial distress. The themes that emerged from the research were used to offer an in-depth understanding of the decision-making experiences of participating superintendents in economically distressed rural school districts of the Marcellus Shale region of northeastern Pennsylvania. The study was designed to discern and describe the superintendents’ reasoning throughout their experiences. Specifically, the effects of internal and external influences on the decisions of the superintendents were analyzed. The study also provided insight into the decision-making experiences that a superintendent must assume in the field of educational leadership.

Researchers such as Jenkins (2007) and Shapiro and Stefkovich (2005) identified how school leaders have to balance multiple influences in their decision making, such as collective bargaining agreements or community values. Other studies highlighted the ethical and moral components of school leaders (e.g., Langlois, 2004; Pardini, 2004; Starratt, 2004). Hatten (2011) examined how Pennsylvania districts have responded to fiscal restraints, although this study did not seek to understand how superintendents made these choices. However, there is a paucity of literature on the impact of the decision-making process of superintendents from rural school districts in northeastern Pennsylvania who are confronted with making personnel and programming reductions. While literature does exist about the decision-making process of school leaders, this current and specific situation has yet to be analyzed. This study sought to address this gap in the existing literature.

Methods

This qualitative case study included three superintendents from rural districts in the Marcellus Shale region who have made programming or personnel cuts in response to economic distress. Multiple sources of evidence were collected through interviews and documents related to the superintendents' decision-making experiences. The researcher used inductive and deductive logic to build patterns and themes from the data to understand the superintendents' meaning (Creswell, 2013). After the data were collected and analyzed, the researcher created case descriptions. A detailed description of the context of the cases was written, and themes were extracted to understand superintendents' experiences. Naturalistic generalizations and conclusions about the cases were developed by the researcher (Stake, 1995). An emergent design provided an opportunity to analyze hypotheses, interpret new findings, and determine the significance of the findings to the professional field (Creswell, 2013).

Findings

Case 1: John Smith, Bluestone Area School District¹

Bluestone Area School District is a small, rural school district in northeastern Pennsylvania. It educates approximately 850 students from a 100 square mile area. It is comprised of an elementary school (K-4² through sixth grade) and a junior-senior high school (seventh through twelfth grades). The administrative structure consists of a superintendent, two building principals, and a special education coordinator. The school district lies in an economically depressed region and receives over 70% of its funding through the Commonwealth of Pennsylvania. The school district operates on a \$13 million budget and has a fund balance of approximately \$6 million.

Bluestone is currently in a “good position” in regard to its financial status, according to Superintendent John Smith. Smith attributes this position to savvy administrative decision making and being “very frugal.” Smith stated that the “mantra” at Bluestone is “save money by wearing many hats.” For example, Smith adopted the role of disciplinarian at the junior-senior high school when the assistant principal position was eliminated. Although Smith believes that the

¹ Pseudonyms have been used to protect the identities of all superintendents and school districts in this study.

² K-4 is a Kindergarten program for four-year-olds that Smith initiated at Bluestone during his tenure.

current financial status of Bluestone is stable, the potential impact of rising healthcare costs and contributions to the Public School Employees' Retirement System (PSERS) by the school district create major concerns for the future sustainability of Bluestone.

Decision making. Smith has been superintendent of Bluestone for 11 years and also worked in the district for seven years prior to becoming superintendent. He is a graduate of Bluestone and currently resides in the community with his family. Since the Great Recession of 2007, Smith has been forced to make decisions that changed the daily operations of the district as a result of budgetary constraints. During his tenure, the school district sought a gas lease for the district's property that brought in \$200,000 from a natural gas company. This money was put into the school district's capital reserve. The district recently refinanced two school district bonds that totaled \$3 million and resulted in an \$86,000 savings. Smith also analyzed the district's ability to run more efficiently. As a result, the school district changed the type of lighting from T-12 ballasts to T-8 ballasts and purchased a new boiler with electronic controls instead of pneumatic controls. The decisions to switch the lighting and boiler have saved the district approximately \$30,000 in energy costs annually.

Other decisions had directly affected the personnel, programming, and student body in the district. Smith stated that "personnel and programming were everything" when making financial decisions. Over the past six years, five teachers, four support staff, and one administrator have not been replaced once the positions were vacated. The driver's education program was eliminated during the school year. The program now only operates during the summer months, and students must pay a fee to cover the expenses of fuel and part of the teacher's stipend. The high school no longer has a full-time art teacher because the art teacher now teaches math for half of the day. The school district combined American History I and American History II to form one course: American History. It eliminated department head positions in the high school and grade-span leaders in the elementary school. The students now have to pay for summer school courses, and language courses are now provided via online. In addition, the school district reduced its K-4 program from a full day of instruction to a half day of instruction.

Internal ethical dilemmas. According to Smith, the most difficult decision he made was reducing the K-4 program that he helped establish at Bluestone. Prior to the cutback of full-day instruction, results of the program were "phenomenal" according to Smith. He made the decision to reduce the program in response to decreased state funding of the Accountability Block Grant (ABG) that the Commonwealth provided to school districts. The district previously received \$225,000 in ABG funds, but the state reduced this amount to \$86,000. Consequently, Bluestone could no longer afford to maintain the full-day program. The money and services taken away from the students in the K-4 program disappointed Smith greatly. He stated, "It leaves a sour taste in my mouth." The teacher and teacher's aide both lost their jobs. The students, some of whom had an hour commute to school, were now only able to receive 3.5 hours of instruction. Smith was able to find consolation in the fact that Bluestone was able to maintain a portion of this and other reduced programs that it once fully provided. "We were able to cut things where we were able to still leave parts of programs," he stated.

While the school district saved portions of academic programs, it reduced the administrative staff and spread various responsibilities among the remaining administrators. As mentioned previously, Smith assumed disciplinary responsibilities in addition to his superintendent duties with the elimination of the assistant principal position. The high school principal's work load also increased. Along with the loss of the assistant principal, the removal of department heads enlarged the obligations of the high school principal. He held meetings with each department directly, and the departments lost the benefit of a liaison between the teachers and administration. The principal managed the budgetary obligations of the department head in addition to his regular workload. "Everybody stepped up to the plate," claimed Smith.

Smith reinforced that prior to making a final decision he asks himself, "Who doesn't have a voice, and who has a voice?" If he needs to eliminate a teaching position, he does not worry too much because teachers have a "very strong voice [the teachers' union] that will come back and fight for them." However, Smith battled with the dilemma to reduce the K-4 program. He allowed the school district's budget to influence his decision making despite his belief that these children are the most vulnerable and require the most attention due to their young age. This decision haunted Smith because he was unable to protect defenseless students. As the educational leader of a school district, he believes his decisions must advocate for all students, especially the voiceless students. When reflecting on his decisions, however, Smith stated, "You have to keep the ship floating." He also indicated that he was able to "bargain" to keep parts of programs, mainly the K-4. "It was necessary ... because some is better than none," he added.

Smith stressed the importance of leading by example. He returned \$36,000 worth of salary during a three-year period to help the school district balance its budget. His salary is currently less than both the elementary and secondary building principals' salaries, respectively, and is \$40,000 less than the average superintendent salary in the Commonwealth. He stated, "So, how did I balance the dilemma? I saw people had to suffer, and kids had to suffer, so I said, 'I am going to suffer a little bit, too.'" Smith believes his decision to lead by example was imperative, and he admits that his bond with the school board and building administrators were significantly strengthened as a result of this decision.

Micropolitics. Smith believes that the morale of the staff remained relatively optimistic despite major changes to the duties and responsibilities of many personnel. However, some staff members feared for their jobs, especially in the arts, music, and consumer sciences. Teachers in these departments became outspoken critics of teacher furloughs when they realized that their positions may be on the "chopping block." Some would even attempt to persuade other faculty and school board members to speak on their behalf and support them. Smith admitted that the micropolitics within the school district caused turmoil and confrontation among members of the teachers' union. He stated, "The internal politics were interesting to observe but had no outcome on the decision making." Smith believes that the teachers' union understood the severity of the budgetary crisis and realized the situation called for drastic measures. He attributed this understanding to his efforts to communicate effectively with all stakeholders.

Once a personnel or programming change became a reality, Smith immediately held faculty meetings to address any misconceptions about school district decisions and provided them with copies of supporting documents. He also developed a blog so that interested stakeholders could follow what was happening in the school district. He believes that “direct communication” from the superintendent is the best method to disseminate accurate information instead of letting it “filter down” through other channels. Smith emphasized that open communication regarding teaching or staff positions that the district could eliminate, vs. what the school district ultimately “decided to do,” encouraged stable morale among district employees.

Smith claimed his direct approach may have actually prevented other potential micropolitical factors from influencing his decisions, such as from the teachers’ union during the employee reductions or community members during K-4 cuts. He believes that his straightforwardness also assisted the collaboration between the teachers’ union and school board during contract negotiations. The teachers’ union agreed to take a pay freeze during the 2011-2012 school year in a compromise that extended the current contract and did not tamper with teachers’ healthcare benefits. The result of the compromise was a \$350,000 cost savings to the school district. He stressed that the employees were to be given credit for saving positions that could have potentially been eliminated.

External influences. State and federal mandates played a significant role in Smith’s decision-making processes. Special education and employee retirement mandates dictated his options and limited Bluestone’s ability to reduce costs. The increasing presence of the natural gas industry added another dynamic to consider. Smith needed to analyze each external influence and the impact these factors imposed upon Bluestone prior to making any final decision.

Mandates. Despite the measures that Bluestone School District took to stabilize its budget, federal and state mandates limited the district’s ability to make necessary changes that would alleviate some financial obligations. For example, the PDE sets a limit on the number of students that can constitute a teacher’s case load. Hence, the district could not reduce the number of teachers in the special education department. Smith thought that he would be able to eliminate a position through attrition because a special education teacher in the district had retired. “That was a big frustration because it was a \$100,000 swing.” Smith explained that for every employee his school district does not replace, it can save approximately \$100,000 as a result of not having to pay salary and benefits to a new employee.

Another mandate of the Commonwealth that has become increasingly difficult to manage financially for Bluestone is PSERS. The school district must contribute a designated percentage of an employee’s salary into the PSERS fund. This percentage is set by the Commonwealth and is expected to increase from 16.93% in the 2013-2014 school year to 21.40% in the 2014-2015 school year (PSERS, 2014). “I am really afraid to give raises, and I am really afraid to replace people because I know it means more [money] for PSERS,” claimed Smith. Smith also warned that once the PSERS contribution rate by employers reaches 28%, “We’re done. Even though we have a good fund balance, we are done. Unless something happens in the next two or three years, I think every district is done. I know we will be definitively done.”

Bluestone's K-4 program also carried mandates from PDE. According to Smith, PDE designates that a K-4 classroom cannot have more than 17 students per teacher. Therefore, he devised an idea to put two teacher's aides in the K-4 program classroom and place more students in the classroom. The PDE mandate prohibited Bluestone from placing two aides in the classroom to educate the students because there would have been more than 17 students per certified teacher. If Bluestone placed two teacher's aides in the classroom, the school district could have saved the difference in cost of the additional teacher, as opposed to the teacher's aide. Additionally, the full-day K-4 program could have continued.

The external influences of state mandates played a critical role in Mr. Smith's decision-making process. PDE and PSERS limited the available options to minimize expenses. In fact, they increased costs to the school district without recourse. These mandates barred seemingly logical decisions and forced Bluestone to look elsewhere for cost savings. However, the school district recently found one external influence that generated revenue: Marcellus Shale.

Marcellus Shale impact. Bluestone School District lies in the Marcellus Shale region of Pennsylvania. Bluestone, like other school districts in the region, signed a lease with a natural gas company for use of its land. Smith believed that although drilling is not currently happening, "It's coming." The school district owns 87 acres of land and agreed to lease the property to a natural gas company for \$2,800 per acre. Bluestone received an initial payment of approximately \$200,000 for the leasing rights. The lease contained a "no drilling clause" so that no gas wells will be drilled on school property. However, if a company drills within one mile of the school district, Bluestone will receive 15% royalty payments in addition to the lease money. The school district used the \$200,000 for capital improvements, which assisted the school district in updating its own energy consumption, including the new boiler and lighting systems.

The financial impact of the natural gas industry is well known in the Marcellus Shale region. However, the industry has affected other facets of the region. Smith claimed that the industry has compromised the structural and logistical infrastructures of the local community. For example, more heavy-equipment trucks travel the roads causing damage, the river near town has become a major source of water for the gas companies to perform the hydraulic fracturing process or "fracking," and road traffic and traffic jams have increased due to the quantity of water trucks. "Traffic is a nightmare downtown. Dismissals are a pain in the neck because we have buses backed up almost a mile from the stop sign ... and they are just starting to drill," Smith said. He anticipated that in the year 2014 the Bluestone community will see the "big boom of the gas industry." In May 2013, a Houston-based company purchased \$93,000,000 in natural gas rights in northeastern Pennsylvania. Smith stated that this company plans to begin drilling "within a mile or two from here," and that is when Bluestone will see the "real impact."

Despite the transportation issues, Smith expressed a sincere appreciation for the generosity of many gas company workers who have made donations to the district. He reported a situation in which a group of workers filled a classroom with bikes and toys for families in need during Christmas. "They gave these families the nicest Christmas you could ever imagine—really, really touching." Smith also mentioned that another company donated welding equipment for the Bluestone's shop

class and sponsored the lighting system so that the football team could play a nighttime game. “It’s been very, very positive, but because there has been no drilling yet. . . . We haven’t had anything here yet in terms of lobbyists or ‘anti-frackers’ [a term for protesters of hydraulic fracturing],” he added. Mr. Smith also conveyed that while political influences have not been a major concern, “it may come next year.” However, because many residents in the area have been “in a state of economic depression for so long,” he believes the community is eagerly anticipating the commencement of natural gas well drilling. According to Smith, the number of “drill, baby, drill” bumper stickers far outnumber the “no fracking” signs. “It’s 100 to 1. . . . Everybody wants it,” he declared.

Smith believes, to this point, that the district has been “relatively immune” to external influences from the gas companies related to decision making for the school district. He stressed that the natural gas companies did not make any attempt to affect any of the school district’s decisions, but in the next few years, he envisions that many local school districts’ decisions will revolve around the natural gas industry’s structural and logistical effects on the region. He does not, however, foresee an impact on decision making as a result of the natural gas company’s lobbying efforts.

Decision-making process. Smith credits one of his graduate program’s professors for the way he has processed decisions. The professor told him, “There is always going to be a problem, and there are going to be many, many solutions. Once you have all of your solutions, find the problems with them.” Smith claimed that he analyzes each problem by finding problems with all of the potential solutions before making a final decision. He presents to the school board “all of the things we can do,” and then they work together to “tear them [potential solutions] apart. We have to find the greatest benefit with the least risk.” Smith confesses to using an “old school method” of problem analysis. He creates a graphic organizer on a piece of paper by circling the problem he is experiencing and then draws arrows to potential solutions. From those potential solutions, he creates lists of risks and rewards for each one. Through a process he calls “risk evaluation,” he asks, “What is the risk of everything you do? The counterplays? The interactions?” He believes that his risk evaluation process has allowed him to see what decisions have produced the least amount of risk to the school district while still generating the “exact result we wanted.”

Compromises. According to Smith, decision-making situations require compromises, and one must find a balance before making any final decision. “You give up greater gain, sometimes, for less risk. You give up potential for a known reality that you can accept.” While in administrative meetings, Smith reminds his fellow administrators, “We can never take away from the institution. Every decision we make has to be positive in nature. It can’t detract . . . and have negative consequences.” He referenced the Hippocratic Oath that doctors accept and a “do no harm” philosophy. “We have to have that ‘do no harm’ mantra.” “If we change, will it maintain the level we currently have [in the district]? If the answer is ‘no,’ then we are not doing it.” Recently, the district sought to change math programs, but the idea of change caused Smith to hesitate because the students in Bluestone experienced success in math using the old program. After tedious research by himself and other administrators, he made the final decision to change math programs.

Smith acknowledged that he has to make very difficult compromises when reducing personnel and programs, especially highlighting the reduction of the K-4 program and staff members.

However, he believes his decisions have reflected the best interest of the school district. “I can sleep at night,” he stated.

I think I always act as a steward of the taxpayer and the school district. I have made thousands of decisions in the last 11 years. The only one that haunts me is ... I feel guilty that I didn't give a voice to those four-year-olds. Nobody did. Honestly, I know it may seem odd, but that one bothers me because I know I will never get it back.

Upon reflection, Smith identified an area for improvement in his decision-making process. He wants to develop and use a diverse stakeholder group separate from the school board to act as a “sounding board” for future decision-making situations. Additionally, he wishes to slow the process as much as possible to prevent rushing to conclusions. He believes that each stakeholder group holds different interests and focuses. For example, the school board focuses on the district needs, the teachers focus on their needs, and Smith focuses on “what’s good for the students.” Therefore, he wants to collect information and hear the interests of local business leaders, community members, healthcare providers, and various other stakeholders to get a more complete picture of a problem or issue before making a final decision.

Finally, Smith feels that the balance between his professional and personal life has become difficult during his superintendency. “It takes its toll on you. Although many days you feel good because you are doing something that is making a positive change,” he stated. “It doesn’t always go as planned. That’s for sure. But whatever you do, you have to act.” Smith is also appreciative for his family’s understanding and patience through his turbulent decision-making experiences. “You need a confidant,” he stated.

Case 2: Jack Ryan, Greenfield School District

Greenfield School District is situated in the mountains of northeastern Pennsylvania. Greenfield is a small, rural school district that encompasses approximately 200 square miles and educates just over 1,200 students. The student population is 95% White (not Hispanic). Almost half the student population is economically disadvantaged, and almost 15% of students receive special education services. According to Superintendent Jack Ryan, the number of economically disadvantaged students in the school district “has grown over the past several years.” The administrative structure of Greenfield consists of superintendent, senior high school principal, junior high school principal, elementary principal, special education director, and career and technology director. The entire school district is located on one campus. This campus houses the junior-senior high school and the elementary school.

According to Ryan, Greenfield School District’s financial status is bleak “like most districts over the past several years.” The school district’s reserve balance is healthy, but Greenfield confronts depleting funds from the Commonwealth, increases in healthcare and pension costs, and a tax base that cannot fully support the entire operating budget. Greenfield has acted accordingly in response. Over the past three years, the school district has reduced numerous personnel and student programs in an attempt to balance its budget.

Decision making. Ryan has worked as Superintendent of Greenfield School District for the past 16 years and has been in the school district for a total of 23 years in various other roles. According to Ryan, for most of his tenure, Greenfield operated efficiently, and the administration used caution when it made decisions for the school district. Finances were always a concern, but money did not necessarily dictate the final choice for an administrator. However, as a result of the most recent economic downturn, “every decision now you come across, you are thinking finances.” “Whether it’s academics, textbooks, technology, staffing, or extracurricular activities..., everything has come down to finances.” Ryan remarked that every situation must be scrutinized to determine the expense of the decision vs. the amount of revenue the school district may generate. For the 2013-2014 school year, Greenfield decided to use \$1.5 million dollars of its reserve fund to compensate for budget shortfalls. In previous school years, Greenfield eliminated 33 teaching and support staff positions as a way to save approximately \$1.3 million. While the school district eliminated most positions through attrition, Greenfield removed six teaching positions and eight support staff positions as a result of furloughs.

The decrease in personnel affected many aspects of the school district. Greenfield cut tutoring services for students, increased class sizes, and reduced extracurricular activities. Also, the number of games the basketball team played decreased from 25 to 20. The decision to limit the number of games saved on transportation costs and allowed the junior-high program to remain in existence. Three years ago, the soccer program did not field a team because the school district did not have enough players, and the tennis program did not compete during the 2013-2014 school year because of low student interest--with both saving the school district money.

Internal ethical dilemmas. Upon reflection, Ryan would not change the decisions he has made. He admitted that the decision to furlough staff was stressful from a personal perspective, although he understood the reality of the situation. “I don’t look back and say, ‘I feel bad we furloughed.’ I feel bad that we furloughed for the individuals, but for the organization, we had no choice,” said Ryan. “I am comfortable with that. I don’t lose sleep over that, but it certainly bothers me about the people.” Ryan remarked that when a person leaves the school district for any reason, the situation affects him personally. “When you tell somebody that they no longer have a job, it wasn’t a pleasant task,” he stated. “It’s a loss to me. So, do you ever get over it? I don’t think so, because that’s the human part of it. You get into the business because you like kids and you like people.” He added, “When you lose people, it hurts.” Ryan then spoke of the role of a superintendent and the responsibility an individual assumes when making a decision. “Whoever makes a decision is just going to have to roll with it. At the end of the day, you just have to make some hard decisions. It’s your responsibility.”

Micropolitics. News of a budgetary shortfall caused residents of the Greenfield district to grow concerned about their taxes following the 2011-2012 school year. Since 2007-2008, the millage rate remained relatively stable and only increased 0.5% until 2012-2013. In the 2012-2013 school year, residents faced the first real threat of a tax increase. This notion did not “sit well” with many residents. Working class families inhabit most of Greenfield district. The average per capita income is \$23,000, and the average household earns \$46,000. In contrast, individual teachers’ salaries in

Greenfield average over \$57,000. The drastic comparison of income produced animosity among members of the community as the school district weighed the possibility of a local tax increase. Ryan indicated that some residents placed blame on the teachers for the school district's budgetary crisis due to their relatively high incomes and benefits. Since these residents already paid into the teachers' salaries, they believed they should not contribute more money to benefit Greenfield employees. When teacher furloughs occurred in Greenfield, many residents agreed with the school district's resolution. "There was really no sympathy from the public," Ryan stated.

Despite the furloughs and attrition of staff, Greenfield raised taxes in 2012-2013 and 2013-2014 to balance the budget. The increase in healthcare costs, greater pension contributions, and stagnant funding from the Commonwealth forced the school district to place more financial obligations on the residents and deplete funds from its own reserve balance. "It [the school district's fiscal position] all changed," Ryan said. The taxpayers were upset over the taxes even though Act 1 limited the amount Greenfield could raise the rates. Still, many residents felt the burden.

The teachers also became frustrated. Their anger was fueled by furloughs and more responsibilities in the classroom due to increased class sizes. "There was staff furor, uproar," he said. Some teachers approached school board members in an attempt to influence decision making. Others held the perception that Greenfield was financially sound and did not understand why furloughs needed to occur. According to Ryan, teachers believed that natural gas wells on school district property produced enough funds to make the school district financially solvent. He remarked that teachers made comments such as, "Oh, you are getting all of that gas money, so, that's just extra!" However, this mindset was not accurate. Ryan noted that the natural gas revenue could not compensate for the increases in costs in other budgetary expenses. The deficit remained, and teachers lobbied for their positions.

Administrators in Greenfield also grew frustrated by the proposed furloughs. Ryan admitted that the principals debated over which resources and staff they felt were necessary to maintain or reduce. They argued over which teachers to furlough, which departments or programs to condense, and how to maintain consistency of educational services to students. "Even though they [principals] were trying to be supportive," he stated, "at some points, I thought it would turn to fisticuffs." Ryan tried to diffuse the quarreling among the administrative staff members, although he recognized that the decisions to furlough created discord for many stakeholders. He also mentioned that his decisions to furlough and reduce programs made school board members unhappy. "I pretty much pissed off everybody—nobody was happy," he stated.

External influences. In 1998, Greenfield School District enrolled approximately 1,500 students. Currently, the school district educates about 1,200 students. Ryan attributed the enrollment decline to the closing and "cutbacks" of major local businesses over the past several years. Families left the area, and local property tax revenue waned. The number of delinquent taxes increased as well. Greenfield experienced financial difficulties, and the decision to reduce the number of personnel ensued. The school district initially reduced personnel through the attrition of positions following employee retirements, but a decline in student enrollment over several years eventually forced Greenfield to furlough teachers. According to PDE (2014), the four reasons a school district may

furlough employees include a substantial decrease in school district enrollment, a substantial decline in class or course enrollment or to conform with standards of organization, a consolidation of schools, or the creation of a new school district.

Since there was a decrease in student enrollment, Greenfield was legally allowed to furlough, and Ryan did so in the 2011-2012 school year. However, Ryan admitted that he “made a mistake” by not furloughing enough teachers during this initial reduction, and the district could not furlough more teachers in consecutive years because the student population stabilized. “If the [school] district were to lose another 100 to 200 students, the [school] district could furlough again,” he explained. Given the economic status of Greenfield, furloughs could benefit the school district in balancing future budgets, but as Ryan lamented, “We have extinguished that option.”

Mandates. Special education is consistently factor that affects the financial status of Greenfield. The special education population dictates the number of staff and resources that the school district must provide based upon students’ Individualized Education Programs (IEPs). The financial obligations may change on a yearly basis, and the school district must continually evaluate staffing and resources based upon current student needs. However, Greenfield must distribute additional costs other than the mandated staffing and special education resources. According to Ryan, lawsuits by parents of special education students are now more common. He remarked, “Parents want you to do everything to make their kids perfect or ‘normal’... and the next thing you know, you have an advocate or an attorney across the table from you.” Ryan indicated that once a lawsuit is brought against a school district, attorneys’ fees begin to accumulate along with the potential costs for settlements. He expressed frustration with special education lawsuits but recognized that they may be unavoidable. Special education lawsuits are realities that continue to affect his decision making.

Act 1 also complicated issues for Greenfield. The school district needed to raise taxes in 2012-2013, but Act 1 limited the amount by which it could increase taxpayer contributions without a voter referendum. After nearly a decade of stationary millage rates, Greenfield sought additional revenue from taxpayers in the school district. However, the school district could not raise taxes to the level it desired because the Commonwealth dictated that a tax increase may only reach 2.1% of the current level. Greenfield opted to apply for additional exemptions to this mandate. As a result, the school district raised local property taxes by 2.9% in 2012 -2013. The increase assisted in generating revenue, but Greenfield still fell short of a balanced budget. “The index doesn’t even come close to our retirement increase each year. It doesn’t even cover it,” said Ryan. He continued, “Throw that on top of a teacher contract and medical cost increases—you are really behind the eight ball. We can’t raise enough revenue. So, then you are looking at furloughs.” Despite all of the financial setbacks and limitations at Greenfield, the school district eventually acquired an economic boost which provided much needed revenue: the natural gas industry.

Marcellus Shale impact. In 2007, Greenfield School District received an initial payment of \$135,000 from a natural gas company to lease 180 acres of school district property. Each year since 2009, Greenfield has received royalty payments for the amount of natural gas the company collects from the wells. From the 2009-2010 school year to the 2012-2013 school year, the school district received an average of \$345,000 from natural gas royalty payments. For the 2013-2014 school year,

the school district anticipated receiving approximately \$275,000. The revenue generated from the wells has provided the school district with much needed funds to compensate for increasing costs in other budgetary areas such as pensions and healthcare. Without the additional funds from the gas lease, Ryan estimated that the amount of financially driven decisions he would have had to make would have increased by 25% or 50%. “It was a godsend,” said Ryan. He also credited the natural gas industry for an increase in the amount of available jobs for local residents.

Greenfield School District receives financial benefits from the natural gas industry beyond revenue from production on its property. Ryan claimed that the natural gas company that holds the lease has also been extremely generous in donating materials to the school district and providing educational resources for the students. “They have been very supportive. They have been unbelievably supportive,” he stressed. “We have an outstanding relationship with our gas company. I can’t say enough about the gas industry and their support for our school district.” Ryan jokingly admitted the school district wanted to “hold out longer” for a more lucrative contract with the natural gas company. “Obviously, we would have wanted the \$6,000 per acre lease rather than the \$750 [the per acre lease Greenfield currently receives].” However, the financial status of Greenfield was so dire that the school district could not afford to hold out for a higher lease rate.

According to Ryan, the community also perceives the natural gas industry very positively. “Everybody sees the gas as a life-blood to the community and school district.” The only exception to the favorable view of the natural gas industry has come from factions outside of the Greenfield community. As Ryan indicated, “The only people who don’t like it are the people who don’t like gas to begin with because it’s an environmental issue.” He explained how pro- and anti-gas industry groups have divergent mottos. “It’s that dichotomy of ‘drill, baby, drill’ or ‘get them out of here.’” Ryan firmly believes that while some interest groups may not favor the natural gas industry due to environmental concerns, these groups have acknowledged the economic benefit to the region.

According to Ryan, one adverse impact of the natural gas industry was its effect on housing costs in the area. He alleged that housing demand grew in response to the number of workers moving into the area. The increased demand for housing raised the cost of available houses and apartments in Greenfield School District. Ryan stated, “People couldn’t afford to live in the [school] district. When housing is going from \$350 or \$400 per month to \$1,000 or even \$1,200—who can afford that?” However, he asserted that the rising cost of houses and apartments will “level off” as employment in the natural gas industry and gas production in the region stabilizes. “It can’t continue on. As the gas industry kind of winds down a bit; they aren’t hiring as much.”

Ryan also expressed concern that the current cost of housing has negatively impacted the student enrollment at Greenfield. The student enrollment at Greenfield has decreased by approximately 250 students over the past decade. He argued that lower-income families could no longer afford to live in the school district because of the increased cost to reside there. Although the natural gas industry brought more job opportunities to the region, its effect on the housing market in Greenfield has not been as favorable as the amount of work available to residents. While Ryan did not attribute the decline in student enrollment solely to the increased cost of living, he did believe housing costs have been one factor in the decrease of students in the school district.

Decision-making process. Ryan prefers to “weigh the pros and cons” before coming to a decision. He stated, “I put together a little rubric and weigh out the decision-making process.... What are the pluses and what are the negatives? Does it fit?” Ryan has also designed a point system that corresponds with his rubric to assist in making a difficult decision. The point system assigns a number to each topic, idea, or concept so that these items can be calculated and compared. The items with more points offer greater justification to make a particular decision. “It is objective, and it gives you a thought process to follow and to make some sense [of the situation].”

The biggest factors that Ryan considers during a difficult decision-making situation are the effects of the decision on the students and also on the taxpayers. “Here it’s always been what’s good for kids and what’s good for taxpayers.” He explained there must be a balance between the students’ needs and what taxpayers can afford. A superintendent’s decisions should keep both interests in mind. “You can do a lot of things for kids that would be good for them, but not good for the taxpayers. At the same point, the taxpayers need to know that there are going to be tax increases.” He continued, “You do everything you can do as superintendent and as an administrator to keep costs down.” Ryan referenced the stable millage rates from 2008 to 2012; the 2013 increase was inevitable to make ends meet. However, “at some point,” Ryan said, “you need compromise.”

Compromises. Ryan revealed that the taxpayers can sometimes be the “ultimate compromise” between what the school district provides for the students and what the tax base allows. Since taxpayers, specifically through real estate taxes, provide the main source of funding for school districts in Pennsylvania, school districts’ budgets vary greatly. In rural, low-income school districts such as Greenfield, the tax base is relatively small compared to more affluent, populated school districts. “You have to be realistic. I don’t think anyone thinks you can have a budget that is unlimited.” According to Ryan, Greenfield’s 14 Advanced Placement (AP) courses are necessary for students if they desire to attend a four-year university and succeed in intensive collegiate courses. However, he also remarked that the AP courses may no longer be sustained for only 12 to 15 students; he determined a more realistic classroom setting is 22 to 25 students. The decision to reduce a teaching position and consolidate classes was a compromise not to lose the AP courses all together. Now, students may still take the AP courses, although they no longer benefit from smaller class sizes that traditionally accompanied them.

Ryan believes that the decisions and compromises he has made over the past several years have been in the best interests of the students and taxpayers. “We have great kids here, and we have had a lot of success with academics, with employment, and we kept the taxes down. So, I think we have done a good job for both sides of the equation.”

Case 3: Daniel Johnson, Hope Area School District

The Hope Area School District educates over 1,300 students from a 270 square mile region in rural northern Pennsylvania. The per capita income of school district residents is approximately \$17,000, and the median family income is \$38,000. The per capita and median family income levels are relatively low compared to the Commonwealth’s average income levels of \$28,000 (per capita) and \$52,000 (median family) according to the U.S. Census Bureau (2014). In the 2012-2013

school year, 40% of the school district's students were identified as economically disadvantaged. The student population is 95% White (not Hispanic). Hope Area School District employs over 100 teachers and 10 administrators in one elementary building, one junior-senior high school building, and one administrative building.

Hope Area currently operates on a \$20,000,000 budget, which has increased over \$5,000,000 since the 2006-2007 school year. For the 2011-2012 school year, the school district faced a budgetary shortfall of over \$2,000,000 and needed to make decisions that would reduce costs and generate revenue. Superintendent Daniel Johnson was hired at Hope Area just prior to the start of the 2011-2012 school year and began the process of balancing the school district's budget. He is not native to Hope Area or northern Pennsylvania; the school board found his administrative experience valuable to its ambitions of balancing their budget.

When he arrived, Johnson stated that the school district was "drawing from the fund balance to cover the bills" and compensate for rising costs and limited funding from the Commonwealth. The school district was unable maintain a balanced budget solely through fund balance withdrawals, so reductions in staff and programs began in the 2012-2013 school year. Johnson remarked that while reductions were made for the 2012-2013 school year, the school district "was not as aggressive and we should have been, probably. And in this past year, we were a little bit more aggressive. But we still don't have a completely balanced budget.... We are getting close." He is hopeful that funding from the Commonwealth will increase in the future, but he realizes the possibility of more funding may not be a reality. As a result, Hope Area School District continues to seek ways of becoming financially solvent.

Decision making. Johnson has been superintendent of Hope Area School District for three years. During his short tenure, he has been tasked with various complex decision-making challenges. His decisions in Hope Area have been primarily concentrated on finance-oriented goals. While pension and healthcare costs have continued to increase in the school district, funding from the Commonwealth has remained stagnant. Finances have been "priority number one," he admitted. "It [finance] has played a big role. One of the tasks that the [school] board gave me when I came here was to balance the budget." He compared the school district's financial situation to a business and explained, "Even though we don't operate just like a business, we have to look at the bottom line, and we have to balance the budget." He continued, "We are still not quite there.... I am hoping in one more year, we can make that happen."

Johnson and the school board have been working together to get the school district's \$2,000,000 deficit eliminated over the past three years. "They understand it. Obviously, they have been a part of it as we make our decisions." "We want to get it [the budget] under control, get the bleeding stopped, so to speak, and then start rebuilding again," he said. "So, we haven't really added any new programs; or if we did add something, we pulled something out in exchange for it." For example, Johnson and the school board decided to eliminate German classes, but they replaced German classes with French classes. While this decision was not a cost-saving measure, the school district was able to revamp its curriculum as a result of school district restructuring.

In other areas of the school district's budget, there have been reductions in personnel and programming that have not been replaced to date. Under Johnson's leadership, during the 2012-2013 school year, five teaching positions were eliminated through furloughs, and in the 2013-2014 school year, eight teaching and staff positions were eliminated through attrition or furloughs. In addition to the elimination of district personnel, programs such as dental hygiene, on-the-road driver education, and General Educational Development (GED) testing services were outsourced to agencies outside the district. As a result of the dental hygiene program transfer to an external provider, the school district saved over \$65,000. The driver education program was still taught in the classroom, although the school district was able to condense the position and no longer offer on-the-road training. The driver education teacher position was collapsed when a physical education teacher retired. The driver education teacher also possessed a physical education certification and was then required to teach both subjects. The cost of a vehicle for driver education, the liability insurance to use the vehicle, and a physical education position were all saved as a result of this decision. The elimination of GED testing services saved the school district about \$1,500. Johnson admitted, "There wasn't a lot of money there to save ... but the reality was that we only had about two people there to come and take the test." Since Hope Area did not provide classes for the GED, the decision was made to discontinue testing services.

Johnson's decision to reduce teaching positions caused an increase in class size and a shift in some of the duties teachers that assumed on a daily basis. For example, the largest classes in the elementary school now contain 28 students. The increase is "larger than we would like, but it is working right now," Johnson claimed. Teachers were once used to monitor the Alternative Learning Center proctor (ALC), otherwise known as In-School Suspension (ISS), but Johnson assigned the athletic director (AD) to serve as proctor. Since teachers had more classes to teach as furloughs and attrition occurred, the ALC needed a person to manage the students. Johnson believed that the AD could perform the duties of both positions adequately. "We made it part of his duties and were able to save a position there," he stated.

Internal ethical dilemmas. Hope Area reduced several faculty positions when teachers retired. The attrition of positions was a reality that Johnson was willing to confront. However, the decisions to furlough teachers had a much greater impact on Johnson than he anticipated. He felt a personal sense of responsibility when teachers were furloughed. Among the decisions that Johnson has made at Hope Area, the most difficult decisions were "the ones that impacted people." Yet he remained focused on his initial task to correct the school district's monetary deficit.

Throughout his decision-making experiences in Hope Area School District, Johnson believes he acted in the best interest of the students and the taxpayers. The mission and vision of the school district were not compromised despite his decision to furlough employees and restructure school district programming. "I didn't lose any sleep over my decisions, because I knew it was the right thing to do," he expressed. Johnson reflected on the positions that were eliminated and his role in the school district's dynamics. He acknowledged that his limited awareness of local politics may have been beneficial in his decision making. Since he was not a native resident of Hope Area, having lived there only two years, he was not privy to knowledge of relationships among

employees or school board members. “I think being new to the district and not knowing all of the family connections probably made it easier for me,” he admitted.

Johnson realized that his decisions to furlough teachers and staff were not popular among many faculty members, students, and parents. The impact of furloughs on the school district’s music department, for example, unsettled many school and community members. “I think at one point I was demonized,” Johnson recalled. “There were some parents who just saw this outsider coming in and tearing apart the music program. Certainly that wasn’t the intent.” Many people associated with the music program at Hope Area found the change process difficult. “It has been a change for the three teachers . . . but I think in due time, once they get used to it, it’s going to be fine. They are still a quality program.” Since his decision to furlough faculty, he feels the music department has reorganized and stabilized.

Johnson believes while some faculty members, students, and community members needed time to cope with the furloughs and program adjustments, others realized that Johnson’s decisions were essential if Hope Area School District was to become financially solvent. For example, local business members and chamber of commerce representatives approached Johnson to let him know they understood his decision-making situation to furlough. “I have had people come to me and say, ‘I know you had to do what needed to be done. It wasn’t anything personal,’” he remembered. While Johnson found these sentiments consoling, he knew many people were negatively affected by his decisions to furlough faculty and staff. He acknowledged his resolutions were difficult, but believes they were prudent. Johnson felt confident that the furloughs were justified and in the best interest of Hope Area.

Micropolitics. Johnson thinks the teachers’ union has been vaguely aware of the financial concerns in Hope Area School District, although he is not sure it has understood the severity of the situation. “We kept telling them that we are in a deficit,” he stated. The teachers’ union, however, was under the impression that the school district was still in a relatively stable financial condition. According to Johnson, both he and the school board attempted to warn faculty members of the severe financial status in Hope Area. The teachers’ union assumed “It was the same old thing—we hear it every year kind-of-thing.” Hence, the teachers’ union did not completely trust Johnson’s and the school board’s notices of budgetary shortages that could result in personnel reductions. When teacher furloughs became a reality, the teachers’ union was not fully prepared for the severity or extent of the furloughs. “As you know, in a school system all of your money is tied up in either programs or people—very little in supplies and utilities. Eighty-some percent of the budget is in salaries, benefits, and programs,” Johnson stated. Consequently, the main area of focus for budgetary reductions came from personnel-related expenses. Although the teachers’ union had notice of the potential faculty reductions, it was caught off guard when it realized teacher positions were the main focus for cost saving measures. As a result, the morale of the teachers’ union suffered and Johnson faced criticism.

Johnson acknowledged he could have conducted more informational sessions with the faculty and staff. He held meetings with the teachers and staff whose jobs were in jeopardy and with those individuals who were going to be furloughed, but he did not hold district-wide meetings with

the entire faculty. He believes informational sessions may have alleviated some of the criticism from the faculty regarding the decision to furlough employees. Johnson was reluctant to hold district-wide meetings because there was a “flip side” to divulging too much information at once. He did not want to cause more panic among the rest of the employees and limit the school district’s potential to complete necessary operations. “There is an educational piece, but if you get them upset too soon, you don’t get the mission accomplished either.” Hence, when the furloughs were made, the faculty’s morale was damaged, and Johnson was criticized. “I was the outside guy who came in . . . and they knew things had to be fixed, but . . . everyone is OK with change as long as it doesn’t affect them.” He continued, “As you know, no one really likes change unless it’s a baby with a wet diaper. Even some of them don’t like it.”

Marcellus Shale influence. As Cases 1 and 2 indicated, many school districts in the Marcellus Shale region have been approached by natural gas companies to lease their land and even place wells on school district property. Like Cases 1 and 2, Hope Area School District has signed a lease with a natural gas company and has experienced changes in various aspects of community and school district operations as a result of the industry’s presence. For instance, Hope Area witnessed an increase in the number of transient students, many of whom have special education needs; a decrease in student enrollment; an increase in housing costs in the community; and an increase in revenue for many local businesses.

Johnson recognized the benefits of the natural gas industry in the greater community. He mentioned that the natural gas company’s lease with the school district has provided Hope Area with financial assistance to improve facilities and educational resources. The natural gas lease has generated revenue for the school district from royalty payments, as well. While the royalty payments have not been significant, money has been allocated to the school district. Johnson stated, “The district does have oil, gas, and mineral rights. Haven’t realized a lot of gains from that yet . . . but hopefully that’s going to come.” He mentioned that Hope Area received a “couple checks for about \$6,000” from one of the leases on school district property. Other leases on Hope Area’s land have not generated any revenue to date. The school district has six properties with natural gas leases, and Johnson is hopeful those leases will produce more revenue in the future. “It is not anything we are banking on,” he declared. “If we get it—it’s gravy, so to speak, but we haven’t budgeted based on *we think we’ll get this much*. We’re just not that close yet.” If the school district does happen to receive more revenue from the natural gas leases, Johnson believes it may be possible to add programs, such as a golf team, and improve facilities, such as the gymnasium. He does not believe that Hope Area will add staff members with an increase in revenue from the natural gas leases. “Once you put staff in, that’s a reoccurring cost,” he stated. Johnson revealed a limited number of circumstances in which the school district would add faculty or staff positions. “I think the staffing is going to have to come through (1) enrollment growth and (2) either the state sending more money or we eventually get to the point of increasing the taxes to the Act 1 maximum.” Johnson is not optimistic about either option.

Although the natural gas industry has benefited many facets of the local community and Hope Area School District, there have some negative side effects. Similar to surrounding school districts

and communities with natural gas leases, traffic has increased, roads and highways have been damaged from the transportation of heavy machinery and materials, and housing prices have risen. Local residents with low income, who were once able to rent a home or apartment, could no longer afford the higher prices. Some of these families were forced to leave the school district to find more affordable housing, thereby decreasing student enrollment. This decreasing enrollment was a contributing factor to the furloughs enacted in the school district.

Johnson maintained that the natural gas industry has not had a direct impact on decision making in the Hope Area School District. However, secondary effects such as transportation concerns and student enrollment may have played a role in decisions regarding logistical matters. Still, Johnson believes the natural gas industry has had a positive impact on Hope Area and the greater community. He cited instances in which a natural gas company provided tree seedlings to the student body for planting, and the same company gave informational lectures to the students on natural gas drilling and its impact on the environment. “I wouldn’t say they [the gas company] tried to influence anything we’ve tried to do educationally,” he stated, but he acknowledged the efforts of the natural gas company to make Hope Area “a good neighbor.”

Decision-making process. When Johnson was faced with the difficult decision to furlough employees in the Hope Area School District, he did not take this task lightly. According to Johnson, multiple constituents were consulted throughout the process. He specified:

First of all, we solicited budget input from every department and all stakeholders. We asked every principal and supervisor to ask everyone in their department for input on the budget. We asked the elementary principals to solicit information and feedback from the PTO [Parent Teacher Organization]. And, of course, none of those people are going to recommend cutting a position. I didn’t think they would go that far. But, once we got that back, one of the things we did was an audit of the staffing of every department in each building. Just to get a sense of whether or not we were over staffed, or if we had to furlough people—where would we do that?

Johnson took responsibility for “a bulk” of the staffing analysis. He examined each building’s master schedule, the individual teacher schedules, and student enrollment in every class. He identified classes with very small student-to-teacher ratios that he was able to condense or eliminate. He acknowledged that low student numbers in a classroom may be convenient, but the district could no longer sustain that type of classroom setting. “It was nice,” he stated, “but we just couldn’t afford it anymore.” After the audit of every building schedule, teacher schedule, and class size was concluded, Johnson made a formal recommendation to the school board to eliminate designated teaching positions. Johnson also educated the school board on classes that were mandatory vs. classes that were provided due to local (school board) decisions. “The key,” he said, “was that the school board needed to be on board, and be willing to make the tough decisions that we did.”

Johnson stated that the biggest influence on his and the school board’s decisions was the budget. “We were focused on correcting the deficit and getting that down towards a balanced budget,” he stated. “Knowing that the most dollars are in people and programs—and primarily people, and

benefits—that’s where we had to look.” Johnson reinforced that he and the school board had exhausted other areas of the school budget to save money and minimize costs. Personnel expenses remained as the only area left through which the school district could reduce expenditures. “We looked at some other things, but already in the year before we went through everything else, too. So we had to look at people.”

Compromises. Johnson believes that his decision making throughout the financial crisis reflected the mission and vision of Hope Area School District. He consistently looked to find the balance between fiscal responsibility and providing students in the school district with the necessary resources for academic and social development. Johnson recalled an example of his internal rationale to increase class sizes because the school district needed reduce the number of teachers through attrition and furloughs. “Certainly we wanted to keep class sizes reasonable,” he stated. “But looking at the reality of the budget, first we had to get it under control, and get it to where it’s balanced so we are not bleeding. Then try to work on getting the class sizes down.” He added, “It was reflective of the mission and vision.”

After reflecting on his decisions and the impact that his decisions have had on the school district, Johnson suggested that he would change two aspects of his decision-making process, both revolving around the timing of his decisions. “One thing I would change, if I could do it over, would be to have a community forum in advance,” he claimed. Johnson believed he would have been able avoid some of the uproar from the community concerning the teacher furloughs and program reductions if he had conducted an informational session. While he spoke with the individual teachers to be furloughed, he did not provide this information to the public until the school board meeting at which the furloughs were scheduled for the agenda. He felt that if the community had known about the potential for furloughs and program reductions prior to the school board meeting, there would have been less tumult at that moment. “We really should have done it about a month earlier,” he said. “The people would have had time to digest it, and the paper [newspaper] could have played their part. So the timing wasn’t good there.”

The second decision-making experience that Johnson felt he improperly timed was the unveiling of a new fitness center in the school district. Hope Area School District raised \$500,000 to match a \$500,000 donation from a local family to build the new facility. “We were doing a \$1 million dollar capital campaign to add a fitness center to the side of our high school,” he recalled. “It took a while to get everything together, and committees working to get a design together. Long story short, it was about February or March when we were ready to roll this out.” Johnson recollected, “So we roll this out and then, of course, a week or two later we do the eliminations—terrible timing.” As a result of the timing mishap, the community held the perception that the school district furloughed teachers so it could finance the fitness center.

Summary

The data collected in this study revealed that superintendents made financially motivated decisions as a result of budgetary constraints in their school districts. The superintendents condensed departments, slashed programs such as the K-4 program in Bluestone, and reduced

personnel through attrition and furloughs. The decisions to furlough employees followed various other cost saving attempts, although salaries and benefits comprise a majority of a school district's budget. The superintendents had no alternative but to reduce costs associated with personnel. Smith at Bluestone reduced the administrative staff and took a decrease in his salary—decisions that set a precedent for the teachers' union to follow. The teachers' union agreed to a pay freeze in an effort to save the Bluestone money. Ryan at Greenfield eliminated 33 teaching and support staff positions which saved the district \$1.3 million. Johnson removed 13 teaching and staff positions in Hope Area.

The Challenge of the Rural Superintendency

These decisions reflect a current reality of rural superintendents in Pennsylvania. Low-income areas suffer from limited tax revenue and are overburdened with meeting the obligations of state and federal mandates. Without the ability to generate significant revenue, rural school districts are at the mercy of state and federal funding, which have been curtailed over the past several years. Rural superintendents have few alternatives to personnel and programming reductions in their school districts. The superintendents in this study were no exceptions. They made the difficult decisions to furlough teachers and staff and condense programs.

The superintendents in this study confronted external influences from state and federal mandates and school district-level micropolitical forces. All three superintendents were affected by inadequate state funding to cover the cost of increased PSERS and healthcare contributions for school district employees. Superintendents are forced to comply with state and federal mandates, but their job is complicated by insufficient funding to manage these external influences. Their decisions must reflect a balance between what the school district can afford to implement and what the mandates require the school district to provide.

At the school district level, the superintendents faced micropolitical influences from teachers' unions, community members, and students. Once information about teacher and staff furloughs was evident, factions of interested parties petitioned school board members and the superintendents in an attempt to sway their decision making. These petitions caused turmoil among the teachers' unions in all three school district. However, the micropolitics did little to change the decisions of the superintendents because their decisions were most heavily influenced by the severity of the financial crises in each school district.

The experiences of the superintendents during economic hardships produced opportunities for ethical consideration when making decisions to furlough employees and reduce programs. The superintendents' dilemmas occurred as a result of their difficult decision-making experiences. As a superintendent of a rural school district, these dilemmas are intensified because of the cultural context and political interests of the school community in part because of the "tight-knit, supportive relationships [that rural schools create] between students, teachers, and staff and community members" (Brown & Schafft, 2011, p. 63). A rural superintendent must consider how his or her decisions impact the dynamic of the school environment. Additionally, the superintendent must be able to manage the various interests and influences of the school district's stakeholders within

the organization and the broader rural community (Malen, 1995). The superintendents' ability to communicate their thoughts and ideas to necessary stakeholders provided the superintendents with an opportunity to enact their decisions.

With a confluence of forces attempting to influence their decisions, each superintendent engaged in rational processes to make their decision making as objective as possible. In each case, superintendents realized their decisions would negatively influence some individuals in the school district, whether it was staff or students. Each superintendent used his rational decision-making process to manage the various influences and justify difficult decisions that affected multiple stakeholder groups.

All three school district have collected money from leasing agreements on their properties. In an era of financial distress, the superintendents were grateful to receive this revenue for their school districts. With the exception of Greenfield, the school districts have not received any substantial royalty payments from natural gas production. Without the royalty payments, Greenfield would be in an even worse economic situation. There were negative effects of the natural gas industry such as increased traffic, road damage, alternate bus routes, increased housing costs, and decreased student enrollment. Still, each superintendent believed that the natural gas industry's presence was a positive influence in their communities.

Implications

Recommendations for future research. This study aimed to describe and understand the decision-making experiences of rural superintendents in a financial crisis. Future research to determine the effects of personnel and program reductions on student achievement in rural Pennsylvania school districts would benefit the administrative field of educators and provide legislatures with an awareness of how their decisions may impact students. Additionally, research that analyzes student graduation rates and postsecondary education attainment of the students from rural school districts that reduced personnel and programs would benefit the field of education, current practitioners, and institutions of higher learning.

Another area for future research branches from the natural gas industry's presence in northeastern Pennsylvania. While each superintendent in this study was thankful for the donations and contributions by the natural gas companies to their school districts, the effects of the industry on infrastructure and logistics were evident. The superintendents and community members recognized the positive financial impact and seemed to tolerate the negative effects of damaged roads and traffic jams. Since the presence of the natural gas industry is relatively new to these school districts, future research to determine the industry's impact on school district resources would become a point of comparison to the findings of this study.

A final topic for future research would be the analysis of the superintendents' professional experiences following the difficult decisions to reduce personnel and programming in a school district. This study sought to describe and understand their experiences; research that documents future interactions with stakeholders would shed light on how the stakeholders reacted to the

superintendents' decision following the initial impact of the difficult decisions. A detailed account of each superintendent's future decision-making experiences would assist current and aspiring superintendents in managing similar situations. It would also benefit the field of education to determine if the respective school boards renewed the superintendents' contracts upon completion of the current term.

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Practitioner’s Page: Artifact-Based Learning: Uncovering the Treasures of the Past

John Russell
City of Burlington School District



Think back to your high school history classes. Most were largely based on verbal and auditory learning styles—students reading from textbooks, listening to a teacher lecture, and learning by answering questions or possibly discussing the topic at hand. Now, imagine this scenario: You enter class as usual, but instead of sitting down in your assigned seat and opening your textbook for today’s learning “activity,” there is another scene awaiting you. As you enter the room, you see desks set up in small pods, with each one surrounding a medium-sized wooden chest. Although you are pretty sure you are not going to learn about pirates or sunken treasures in U.S. history class, you are about to experience a priceless gem nonetheless. To be truly effective, teachers must acknowledge the reality that some students may find the topic boring without the proper motivation. They must embrace student engagement as the central component of their role as a teacher and seek out ways to hook students into learning.

Despite the seemingly dry term, *artifact-based learning*, students will likely be fascinated by the prospect of using artifacts to unravel a story of the past when offered it in this manner. In general, students are naturally intrigued when they are presented with a noticeable lack of information. Curiosity may have killed the cat, but it fuels the classroom. If you suggest to students that they will read several primary and secondary documents to learn about the controversy surrounding President Richard Nixon’s administration, chances are many will respond with minimal enthusiasm. However, when you make the documents appear old, ragged, and authentic; censor out key portions as “classified” to imply that the authorities are intentionally keeping certain information from them; and challenge students to piece everything together and construct meaning from the various excerpts, students will react differently. Then, they will jump at the chance to engage in this Sherlock Holmes-like experimental approach.

Case in Point: The Essex

Let us now return to our initial example, where the central focus of the day's learning activity (notice that it is not even referred to as a lesson) is a wooden chest containing... Well, the whole point is that no one knows what might be inside in the beginning. In this activity, students enter the room to find four different investigative stations, each consisting of one unique treasure-type chest containing multiple artifacts, clues, and excerpts of primary documents and related literature, all offering hints and evidence related to the mystery of the whale ship *Essex*. Each station also supplies guided exploration sheets for each student to use throughout the inquiry-based activity.



In randomly selected groups, students explore the contents of the crate. As a team, students work together to analyze each item individually and attempt to determine what the artifacts might signify in the process of solving this “history mystery.” After approximately 15 minutes in these groups, teams separate so that two members remain to share the information in their chest while the others set out to examine the other three stations to collect new evidence. Students then return to their original groups to communicate and synthesize this newly acquired information with their original assumptions and finalize their thoughts regarding the mystery of the chests’ contents. A brief whole class discussion acts as closure to this portion of the activity and allows groups to share their findings with their peers before students are assigned an extension task that requires them to independently research the true history behind their group hypothesis. Using both evidence gathered in class and additional Internet research completed on their own, each student writes a one-page report on his or her final conclusion, including historical justification, on the mystery of the *Essex* and the events suggested in the investigation activity. Through this process, students begin to analyze the growth and evolution of the economy of Colonial and Antebellum America from the perspective of the whaling industry and the extraordinary events surrounding the ill-fated whale ship *Essex*.



Theory

Engaging? Definitely. However, the fact that this activity is interesting to students is only the hook. The true value is embedded in the learning that takes place because of the engagement and strategies employed. First and foremost, the use of artifacts with some information missing, torn off “from age and wear” or intentionally blacked out to pique interest, plays on the fact that people are innately inquisitive about topics they do not know or understand, especially when it seems to be purposefully kept secret. Research that supports this tactic refers back to a mixture of clozentropy, a language testing procedure in which people automatically fill in the missing words that make the most sense, and components of cybernetic theory, which implies that human beings try to minimize the discrepancy between what they predict and what actually happens.

Studies suggest that the interaction of these two phenomena causes people to react strongly to situations that “pose missing information that the human mind has a hard time ignoring” (Marzano, 2007, p. 101).

In addition to drawing on curiosity to spark learning, the use of artifacts can increase the likelihood that students will forge connections with the topic because it provides them with a tangible starting point. When students work with artifacts in this manner, they can “practice the processes of a historian, learning to perceive the remote as relevant, the complex as simple, and the abstract as concrete” (Morris, 2000, p.32). Finally, artifact-based activities incorporate opportunities to access multiple learning styles, thereby allowing more students to participate and achieve. Whereas traditional learning in the typical history classroom is predominantly verbal and auditory, the use of artifacts permits students to visualize the past while exploring it with their own hands and examining it with peers—drawing on visual, kinesthetic, and interpersonal strengths. Ultimately, students bring their own personal learning style to the table, and teams work together to use individual skill sets to facilitate group success.

Along with the many reasons why artifact-based learning explorations are more effective than traditional instruction in terms of content mastery and acquisition of teamwork and leadership skills, they also help develop several 21st-century skills. It has already been noted that collaboration is needed to succeed in the team inquiry project. In addition, the need to think critically when

building history from a pile of artifacts is understood. However, this type of learning goes even beyond those two benefits. Unlike the notion of information acquisition and literacy skills aimed for in days past, today’s public education system focuses on the information literacy associated with 21st-century learning. Rather than center instruction primarily on how well students can process, read, or write information from a given text or lecture, it is more important to teach students how to access information efficiently and effectively and then evaluate that information critically and competently.

Without abandoning the importance of reading and writing, this lesson aims much higher, asking students to do all of the above. They must first access the provided documents, process the given information, evaluate its merit, and connect it to the central theme. Then, after the in-class exploration of physical artifacts, students are prompted to research to complete the puzzle and solve the mystery. This task requires information literacy skills to find valuable information and synthesize it in context with the in-class material before one can compose a final conclusion that is supported with historical fact and evidence. With struggling learners, traditional research projects can often be unsuccessful, but having implemented some variation of this activity in my own classroom for several years now, the research is completed and conclusions are written by every student, every time.

In the end, no one method of learning will suffice, regardless of its value or effectiveness, as students need variety in order to maintain high levels of interest. However, in addition to more traditional methods, game-based activities, projects, and performance-based tasks, this artifact-based approach to inquiry learning should be a staple in every teacher’s arsenal of instructional strategies.

Once the question *why* is answered sufficiently, the next natural concern is *how*. Clearly, the type of activity described above is extensive, detailed, and creative. In addition to several aged “documents,” the chests also contain such items as a whale’s tooth, a broken harpoon, a spear tip, a piece of driftwood from a boat, a stove pipe, a torn sail cloth, a compass, a sextant, and a section of the wharf log book. One might ask how this project can be done. The answer is simple: Start small, build over time, and know where to look. Starting small is important because it allows teachers to see success without feeling overly pressured to develop something extravagant. Long before I created the *Essex* activity, I facilitated CSI-style “History Mystery” activities that were far more two-dimensional and still highly effective. Rather than centering on a treasure chest of artifacts, these activities start with a “confidential” folder of items—namely records, images, maps, letters, and other documents. Even without any three-dimensional aspects, the process and the rewards are still essentially the same. Starting small also means not trying to make every lesson artifact-based in the beginning. Not only is this difficult for the teacher, but it could lose its novelty for the students. Instead, teachers should aim to create a few each year and build over time—both in quantity and quality. Each year, I expand a little on previously developed artifact-based activities by adding new and improved items and moving into the three-dimensional level.

How can teachers acquire whale teeth, pipes, compasses, and more for their “treasure chests of learning”? There are several ways to find, fashion, and/or fund the artifacts for these activities. In

A How-To Guide: Simple Beginnings



reality, only a few of my artifacts are genuine historical evidence; instead they are replicas that were made, bought, or found. Making them can take time and usually involves a visit to the local craft store. Teachers can use distress ink to make paper look old and worn or like parchment, depending on the type used, and can use modeling clay to create bones, whale teeth, ancient medallions, and much more. Once the artifact surpasses one's creative ability, teachers may search online, in dollar stores, and around town to find things that can be used or modified for evidence. Personally, I visit the local outdoor market, and yard sales if needed, to seek out historical-looking items. I find that walking the flea market rows serpentine style can be largely inspirational, and the more I use that location for my treasure hunt, the more I see on the tables there to spark student interest in history.



Concluding Thoughts

Ultimately, inspiration can come from a variety of places. This *Essex* activity was inspired by Nathaniel Philbrick's (2000) book, *In the Heart of the Sea: The Tragedy of the Whale Ship Essex*, a non-fiction book detailing the true story unlocked in the chest of artifacts. It follows the ill-fated story of the crew of an American whale ship that sank in the Pacific Ocean in November 1820 after it was attacked by a sperm whale during a whaling expedition—the tale that inspired Herman Melville's classic, *Moby Dick*. I first heard of the haunting manuscript at a history teaching workshop several years back and was captivated by the gripping nature of the crew's struggle to survive, knowing immediately it would capture my students' attention. Reading the book entranced me further, and I began to work on the history mystery almost immediately, expanding out of CSI-like folders into wooden chests that one might find on the ship.

The artifact-based lesson, in addition to teaching myriad skills and content, can also show us that educational inspiration can come in the most unexpected times and manners. As educators, we have to be constantly on the lookout for great ideas or they may pass us by. I truly believe that there is a certain level of openness and awareness that comes with time and practice. Over 50 people left that workshop and likely were not similarly motivated to integrate Philbrick's book into their curriculum as I was. The more I do that, the more I see opportunities at every turn. It has, in fact, become a mindset to see potential learning hooks and activities wherever they may appear—at a workshop, on TV, or even at the local flea market.



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About the Author

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Practitioner’s Page: Self-Reflection for Improved Teaching Effectiveness

Lori J. Stollar

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With Act 82 of 2012, Pennsylvania added multiple measures of data, including student performance information, and placed a renewed emphasis on the Danielson Framework for Teaching (Danielson, 2007) as parts of a teacher’s summative rating. Commonly known as “Educator Effectiveness,” the goal of the new state-wide effectiveness system is “to develop educator effectiveness models that will reform the way we evaluate school professional as well as the critical components of training and professional growth” (Pennsylvania Department of Education, 2014a). The professional growth of teachers is vital to continued teaching effectiveness.

Teaching Effectiveness

The definition of effective teaching has evolved over the past 25 years. In 1989, Bain, Nintz, and Word released a study of effective teachers in which they identified common practices among teachers who were shown to promote learning in reading and mathematics. Among these teachers, commonly identified instructional planning activities and teaching strategies included the following practices.

- They had high expectations for student learning.
- They provided clear and focused instruction.
- They closely monitored student learning progress.
- They retaught using alternative strategies when students didn’t learn.
- They used incentives and rewards to promote learning.
- They were highly efficient in their classroom routines.
- They set and enforced high standards for classroom behavior.
- They maintained excellent personal interactions with their students. (p. 1)

In 1995, the Northwest Regional Educational Laboratory (NWREL) synthesized and updated a plethora of school effectiveness research, pointing to behaviors and actions of effective teachers and the ways in which schools could support these practices. Cited were topics such as teachers’ use of preplanned curriculum to guide instruction, teachers’ formation of instructional groups that fit students’ academic and affective needs, and teachers’ use effective questioning strategies (Cotton, 1995).

As researchers attempted to link effective teaching to student achievement, research from the University of Tennessee demonstrated that teacher effects are central influences on student academic gain. Sanders and his colleagues used data from the Tennessee Value Added Assessment

System (TVAAS), a statistical mixed-methods system to enable a multivariate, longitudinal analysis of student achievement data, to demonstrate the relationship between teacher behavior and student performance. The results established that teacher effectiveness is both “additive and cumulative” regarding student achievement (Sanders & Rivers, 1996). Further research by Wright, Horn, and Sanders (1997) verified that “the most important factor affecting student learning is the teacher” (p. 63).

Recent research agrees that teacher effectiveness is measured by student learning (Barry, 2010; Cantrell & Kane, 2013; Coggshall, Rasmussen, Colton, Milton, & Jacques 2012; Seidel & Shavelson, 2007). The research report *Teaching Effectiveness and Why It Matters* (Barry, 2010) explains the behaviors incorporated into an effective teacher’s professional practice.

These involve a deep understanding of subject matter, learning differences, planning, classroom instructional strategies, knowing individual student, and assessment of student understanding and proficiency with learning outcomes. They also include a teacher’s ability to reflect, collaborate with colleagues and continue ongoing professional development. (pp. 3-4)

Today, Race to the Top (RTTT), a \$4.5 billion federal grant program, couples teaching effectiveness and student learning to create and implement rigorous teacher evaluation systems. The purpose of such a policy is to use teacher evaluation systems for the “continuous improvement of teaching effectiveness through the provision of evidence-based feedback to teachers” (Coggshall et al., 2012, p. 2).

One such framework for teacher evaluation is Danielson’s Framework for Teaching (2007). Danielson’s framework categorizes effective teaching practices into four domains including planning and preparation, the classroom environment, instruction, and professional responsibilities. Contained within these four domains are 22 components and 76 indicators that identify “those aspects of a teacher’s responsibilities that have been documented by empirical studies and theoretical research as promoting improved student learning,” (Danielson, 2007, p. 1).

The research and policy brief *Generating Teaching Effectiveness: The Role of Job-Embedded Professional Learning in Teacher Evaluation* (Coggshall et al., 2012) cites three possible ways in which teacher evaluation could impact teacher effectiveness:

- Help teachers and school leaders develop a common understanding of the contours of effective practice and what the expectations are for their performance.
- Provide sufficient evidence-based feedback to teacher to help them reflect on and improve their practice.
- Measure and account for teachers’ learning and collaboration. (p. 6)

At the core of impacting teacher effectiveness is self-reflection that supports teacher learning throughout the evaluation process. Danielson (2007) categorizes reflecting on teaching as one component of the professional responsibilities domain. Reflection encompasses thinking about one’s teaching practice and the decisions made from planning to lesson implementation (Danielson,

2013). When teachers regularly engage in such deep analysis, it can lead to improvements in teaching and learning.

Implications for Practice

As a district administrator, my goal is to assist teachers in self-reflection to impact student learning positively. Self-reflection is about growth and development. Critical to this task is asking the right questions. Questions can evoke discovery or insight; open-ended questions can elicit clarity, possibilities, or new learnings (Aguilar, 2013).

Two resources that I have found helpful to promote teacher self-reflection are the Pennsylvania Department of Education's (2014b) *Possible Guiding Questions: Strategic Discussions between Principal and Teachers* and *PVAAS Teacher Specific Reporting: A Process for Self-Reflection and Resources/Supports* (PVAAS Statewide Team for PDE, 2014). Both documents include possible questions and lines of inquiry aligned to the domains of Danielson's Framework for Teaching (2007).

Danielson (2009) recognizes that professional learning is fueled by teacher self-assessment and reflection on practice. Professional conversations can jumpstart thinking around professional practice. Implemented strategically, professional dialogue promotes a positive culture of inquiry and teacher growth. The *Possible Guiding Questions* document (Pennsylvania Department of Education, 2014b) is a starting point for administrators to reflect upon the lines of inquiry for purposeful conversations with teachers.

The release of *PVAAS Teacher Specific Reporting* (PVAAS Statewide Team for PDE, 2014) provided an opportunity for teachers to reflect on their teaching practices to impact on student learning. The following questions from the PVAAS self-reflection document serve to encourage deeper thought regarding teacher practice.

- How strong is my content knowledge?
- How am I sure I am teaching the big ideas and the important concepts?
- How do I ensure I am clearly communicating the purpose of the lesson?
- Does my instruction reflect the "I DO, WE DO, YOU DO" gradual release of responsibility?
- Am I sure that I am teaching (input/modeling), providing sufficient guided practice, and independent practice for each learning target?
- What formative assessment strategies am I using to assess ALL student levels?
- Am I using the allocated time efficiently?
- Are my routines and procedures intact so as to minimize transition time? (PVAAS Statewide Team for PDE, 2014, p. 3)

Teachers began by navigating the PVAAS reports and reviewing the data during a faculty meeting. The above questions were posed rhetorically as teachers pondered their own data. Building administrators followed up with grade level teams or individual teachers to dig more deeply into the data.

The self-reflection document also includes questions organized by the themes of curriculum, instruction, assessment, and organization or school processes. These questions allowed teacher teams to investigate these areas to identify gaps existing at the school or district level. Sample lines of inquiry include:

- Curriculum—Do I use the [district’s] written curriculum to determine pre-requisite learning targets and/or enrichment learning targets?
- Instruction—Are assignments and tasks at appropriate levels of rigor, including text complexity?
- Assessment—Are common assessments in place across teachers for specific subjects/courses/grades?
- Organization—Are opportunities for collaboration with colleagues sought and/or created?

Providing teachers with an avenue for self-reflection is the first step in continuous improvement toward teaching effectiveness. It is important to create a safe environment for reflection. This approach allows for openness to explore one’s instructional practice and to make connections between current practice and new ideas for continuous improvement. Using student data allows the conversation to focus on positive results and performance gaps rather than solely on a teacher’s practice (Lipton & Wellman, 2007). Providing opportunities for self-reflection encourages professional growth leading to improved teaching effectiveness.

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About the Author

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Call for Submissions and Submission Guidelines

A peer-reviewed journal, PEL is typically published two times per year. Manuscripts are accepted year round (check PASCSD website for due dates). Topics address the interests and concerns of Pennsylvania educators at all levels. We welcome a wide variety of manuscripts including (but not limited to) single study inquiries, qualitative and quantitative research, theoretical and conceptual pieces, historical analyses, literature reviews, action research, and first-person narratives. Beginning spring 2014, the journal began including a Practitioners Page highlighting the voices, thoughts, and opinions of educators in the field. Submissions for the Practitioners Page can take a variety of formats including (but not limited to) book reviews, policy reviews, and critical reflections on current educational issues and trends. Individuals choosing to submit to the Practitioners Page should follow the same submission guidelines as those submitting manuscripts with the exception of the Abstract. Authors must also indicate that the submission is intended for the Practitioners Page on the cover sheet.

Manuscripts should be emailed to the co-editors, Erin McHenry-Sorber (West Virginia University) and Kathleen Provinzano (Drexel University) at editor@peljournal.org. All submissions are reviewed by at least one of the editors. Submissions evaluated as appropriate for review are then sent to three readers for blind review. Manuscripts should follow the guidelines set forth by the American Psychological Association.

Before submitting a manuscript to PEL, please consider the following guidelines carefully:

Your manuscript should be submitted as a single Word document and include a cover sheet, abstract, body/text, tables, charts, and figures (if applicable), and references list. If possible, please include the Digital Object Identifiers (DOI) for all electronic sources. The manuscript should be typed in 12-point font, Times New Roman, with one-inch margins. The text should be double-spaced.

The cover sheet should include the title and author information, including contact information for the primary author, including mailing address, email address, and phone number. On this page, the author should indicate that the manuscript has not been submitted elsewhere for publication. If the manuscript involves the use of human subjects, the author should indicate whether Institutional Review Board approval has been granted unless deemed exempt.

The second page of the submitted manuscript is the abstract page. The abstract should be 150 words or fewer. The abstract should include the purpose of the manuscript and essential findings or discussion points.

The author(s) should remove any references that might be self-identifying from the body of the text to ensure blind review of the manuscript.

The references page will follow the body of the text and any tables, charts, or figures. Please be sure to check that all in-text citations match references in the list and that the list is properly formatted using the APA guidelines. Please include the DOI for electronic sources.

The deadline for submitting manuscripts for the spring 2015 edition of PEL is Monday, February 16, 2015. Questions regarding a possible submission, submissions under review, or submissions requiring revision can be directed to the editors via the PEL email address. Authors can also contact Kathleen Provinzano at ktp37@drexel.edu or Erin McHenry-Sorber at ecmchenrysorber@mail.wvu.edu.

Summer 2015 Special Edition of PEL: Teacher Evaluation

Call for Submissions and Submission Guidelines

Years of research suggests that nothing is more important to students' success than the quality of their teachers. As such, federal and state policymakers, school districts, teacher unions, and nonprofit educational organizations have been grappling with identifying which teacher traits are best at predicting student success and the measures by which these teachers should be evaluated. How policymakers at the state level approach teacher evaluation varies from the degree of flexibility given to individual school districts in the evaluation process to the weight given to various performance measures. Regardless of location one thing is clear; the changing nature of the teacher evaluation process is an issue that merits in-depth, continued coverage. Due to the critical nature of this topic, the PASCD Executive Board has commissioned a special edition of PEL focusing on teacher evaluation. Manuscripts or practitioner pieces should focus on:

- Best practices in teacher evaluation
- Frameworks for teacher evaluation
- Performance measures and other sources of data in teacher evaluation
- Critical analysis of current teacher evaluation policies and procedures
- Historical analyses of teacher evaluation policies and procedures
- The changing nature of teacher evaluation
- Voices from the field; administrators and teachers
- Other topics related to teacher evaluation

Authors interested in submitting to this special edition should consider the following:

We are interested in hearing from public and private educators at all levels, including higher education students and professionals. Additionally, individuals working in the nonprofit education policy realm are also encouraged to submit. We welcome a wide variety of manuscripts including (but not limited to) single study inquiries, qualitative and quantitative research, theoretical and conceptual pieces, historical analyses, literature reviews, action research, and first-person narratives. Beginning spring 2014, the journal began including a Practitioners Page highlighting the voices, thoughts, and opinions of educators in the field. Submissions for the Practitioners Page can take a variety of formats including (but not limited to) book reviews, policy reviews, and critical reflections on current educational issues and trends. Individuals choosing to submit to the Practitioners Page should follow the same submission guidelines as those submitting manuscripts with the exception of the Abstract. Authors must also indicate that the submission is intended for the Practitioners Page on the cover sheet.

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- The e-mail should indicate that the submission is intended for the summer 2015 special edition of PEL. Also, if submitting to the Practitioner Page please state that in the e-mail.
- Your manuscript should be submitted as a single Word document and include a cover sheet, abstract, body/text, tables, charts, and figures (if applicable), and references list. If possible, please include the Digital Object Identifiers (DOI) for all electronic sources. The manuscript should be typed in 12-point font, Times New Roman, with one-inch margins. The text should be double-spaced.
- The cover sheet should include the title and author information, including contact information for the primary author, including mailing address, e-mail address, and phone number. On this page, the author should indicate that the manuscript has not been submitted elsewhere for publication. If the manuscript involves the use of human subjects, the author should indicate whether Institutional Review Board approval has been granted unless deemed exempt.
- The second page of the submitted manuscript is the abstract page. The abstract should be 150 words or fewer. The abstract should include the purpose of the manuscript and essential findings or discussion points.
- The author(s) should remove any references that might be self-identifying from the body of the text to ensure blind review of the manuscript.
- The references page will follow the body of the text and any tables, charts, or figures. Please be sure to check that all in-text citations match references in the list and that the list is properly formatted using the APA guidelines. Please include the DOI for electronic sources.

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