

## ABSTRACT

Title of Document: AN INVESTIGATION OF MIDDLE GRADE  
MATHEMATICS AND LANGUAGE ARTS  
TEACHERS' KNOWLEDGE AND BELIEFS OF  
STUDENT LEARNING OBJECTIVES

Zipporah A. Miller, Doctor of Education, 2017

Dissertation directed By: Professor Margaret McLaughlin  
Dr. John Norris,  
College of Education

Teacher evaluations in most school districts, until recently, have served as an exercise in compliance rather than a means to identify the strengths and weaknesses of each teacher in order to provide appropriate support to improve professional practice and increase student learning. Current federal legislation has stimulated districts to rethink their evaluation systems.

In Saint Lawrence School District (SLSD) we discovered a misalignment between middle grade student performance in mathematics and reading and teacher ratings in those schools. Although over 50% of the students failed to meet standards in mathematics and reading, the majority of teachers were rated as highly effective. The SLSD recently adopted a new evaluation system that includes multiple measures to indicate teacher strengths and weaknesses and identify the support needed. Student

Learning Objectives (SLOs) are a major component of the new system, added to measure the individual teacher's contribution to student learning.

This study investigated middle grade mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with the implementation of the Student Learning Objectives; the extent to which teachers report that student data from the SLO process have changed their instructional practices; and teacher perceptions regarding the value of SLOs in improving student learning and their own professional growth. Of the 315 middle school teachers invited to participate in the study, 232 teachers from the 19 comprehensive middle schools in SLSD submitted an anonymous electronic survey. The study incorporated exploratory design and used descriptive statistics, graphic presentations, and significant tests to examine patterns, behaviors, and viewpoints of those teachers.

The results indicate that participants understand the intent and process of SLOs, but perceive no noticeable changes in teacher practice as a result of SLO implementation. Although most teachers agree that professional development needs should be based on the needs of students, over 50% disagree with the SLO process as a means to improve their teaching. Teachers with fewer years at their current school reported they had a greater belief in the use of student data to improve instruction than their counterparts with over four years at their school.

AN INVESTIGATION OF MIDDLE GRADE MATHEMATICS AND LANGUAGE  
ARTS TEACHERS' KNOWLEDGE AND BELIEFS OF STUDENT LEARNING  
OBJECTIVES

by

Zipporah A. Miller

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Advisory Committee:

Professor Margaret McLaughlin, Chair  
Professor Helen Cohen  
Dr. Kathy Kubic  
Dr. John Norris  
Professor Olivia Saracho

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## **Dedication**

I dedicate this to my wonderful husband, Peter C. Miller, for his commitment and support throughout the process. Thank you for not complaining when you had to take over every weekend to get the children where they needed to be. Most importantly, at a time when you needed me the most, after losing your mother, you encouraged me to finish and said, “Mom would want you to finish on time.” Thank you and I love you.

David and Daniel, thank you for your understanding when I missed numerous games and track meets. You never complained or made me feel guilty for not being there. Mommy loves you.

Mommy, your strength as a professional woman, a mother, and a wife has been my inspiration. Thank you for being the best mother a daughter could ever ask for.

Ambassador Alfred I. Machayo, better known to me as Daddy, you always knew when to push and when to encourage me. You believed in me and would not let me settle for anything less than the best. This day is possible because you never gave up on me. I am who I am because of who you have been to me: my mentor; my coach; my advocate; and, most importantly, my daddy.

I also dedicate this to the late Major William James Miller, Jr. and Agnes Earle Miller.

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## **Section 1: Introduction**

According to the Small Business Encyclopedia, a performance review is defined as “an analysis of an employee's work habits undertaken at a fixed point in time to determine the degree to which stated objectives and expectations have been reached” (Entrepreneur, 2016). Whether in the corporate, non-profit, or public service arenas, every industry or organization invests time and resources to determine employee effectiveness. Corporations examine the employee's contributions to their profit margin (West, 2011); nonprofit organizations examine how well the employee is helping to move the organization's mission forward (Center for Non-Profits, 1997), and public service organizations examine how effectively the employee delivers services to the organization's constituents. To be of most value to the corporation or organization, employee review systems must be robust and must identify what is needed to improve productivity. Evidence indicates that most systems used by public school districts do not meet these requirements. Weisberg, Sexton, Mulhern and Keeling (2009) state that the performance review systems used by public schools nationwide fail to clearly identify ineffective teachers. They contend that “while teacher effectiveness is an important factor in improving student achievement, it is not measured, recorded or used to inform decision-making in a meaningful way” (p. 3).

The reauthorization of the Elementary Secondary Education Act (ESEA) that led to the Every Student Succeeds Act (ESSA) stimulated school districts to rethink their teacher evaluation systems. Prior to this legislation, teacher evaluations served as an exercise in compliance with administrators rating teachers at the end of each school year

to fulfill district mandated policy rather than to provide teachers with meaningful information meant to help them grow professionally (The New Teacher Project, 2010).

### **Purpose for Teacher Evaluations**

Charlotte Danielson (2000) observes a two-fold purpose for teacher evaluation systems: “quality assurance” and “professional development.” Danielson explains that different audiences value one purpose over the other. Legislators and policy makers have shown great interest in the use of teacher evaluations to differentiate “effective” teachers from “ineffective” teachers. Educators, on the other hand, place more value on using evaluations as a means to seek the appropriate support and professional learning experiences that will help teachers improve teaching and learning (Danielson & McGreal, 2000). In recent years, policy makers, while still considering the summative aspect of evaluations, have expressed a shift in focus from student achievement results at the school level to each individual teacher’s impact on student learning.

Others support the need for this shift in focus. Educational researcher Bill Sanders identifies the teacher as the most important factor impacting student learning at all achievement levels (Sanders & Horn, 1998; Tucker & Stronge, 2005). Marzano, Pickering, and Pollock emphasize the impact of the teacher on student learning and outline specific instructional strategies that positively affect student achievement (Marzano, Pickering, & Pollock, 2001). Teacher evaluation systems must assess the effectiveness of each teacher's impact. Furthermore, The New Teacher Project argues that evaluation systems should provide information to teachers that helps them grow professionally and to school leaders that helps them to identify the supports needed to

build teacher capacity (The New Teacher Project, 2010). As school districts strive to improve education, teacher evaluation systems need to continue to expand from those that just identify effective and ineffective teachers to systems that allow school and district officials to identify teacher strengths and weaknesses based on the students' needs, and offer teachers meaningful feedback and support to improve their professional practice(Kane, McCaffrey, Miller, & Staiger, 2013).

### **Student Learning Objectives**

In 2009, the United States Department of Education offered states the opportunity to apply for grants to support reforms in education that would result in raising student achievement for all students. One of the conditions of the grants was a requirement that states develop rigorous teacher evaluation systems that include student growth as a significant factor (U.S. Department of Education, 2009). Some states that were recipients of the grants opted to develop Student Learning Objectives (SLOs) as a component of their evaluation systems as a means to measure the teacher's individual contribution to student learning. Student Learning Objectives involve reviewing student data to identify student needs, setting goals for student achievement, selecting techniques for measuring that achievement, making instructional decisions based on the student needs, employing research-based instructional strategies, and identifying professional development needed by the teacher to successfully implement the process and meet the needs of the students (Maryland State Department of Education, 2014). Teachers already collaborate to use student data to make instructional decisions. This SLO process puts a formal structure in

place to allow all teachers to engage in data-driven decision making (Maryland State Department of Education, 2013).

### **Proposed Study**

Saint Lawrence School District (SLSD) is one of the school districts that has included student learning objectives (SLOs) in their teacher evaluation system, beginning implementation of SLOs in the 2013-2014 school year. The research reported in this study focused on the SLO process as used in SLSD and its effectiveness as perceived by the classroom teacher. For SLOs to promote improvement in teacher performance and student success, teachers and administrators must understand and value the process. In this study, I investigated middle grade mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with using SLOs; the extent to which they report the use of student data from the SLO process has changed their instructional practices; and their perceptions regarding the value of SLOs in improving student learning and their own professional growth.

Saint Lawrence School District (SLSD) is a large suburban school district located on the mid-Atlantic coast of Maryland. District student enrollment exceeds 80,000. The 19 middle schools in SLSD serve more than 17,000 of those students. Prior to 2014, the SLSD teacher evaluation process was primarily used for summative purposes, identifying effective and ineffective teachers and making personnel decisions. The redesigned teacher evaluation system including the SLO process places greater emphasis on the individual teacher's impact on student achievement and aims to help the teacher identify targets for personal professional growth and resources to support that growth.

However, when examining the 2014 and 2015 middle school student achievement data and the middle school teacher ratings for both academic years in SLSD, we discovered a misalignment between student performance on state-mandated standardized tests and final teacher ratings. This was more evident in schools that were monitored by the Executive Oversight Committee (EOC), schools that have not met their strategic goals in either or both academics and discipline. The mathematics and reading performance goals for middle schools are outlined in the SLSD strategic plan. The EOC is comprised of a team from central office who collaborates with the school principal to provide support and a monitoring system to help the school achieve the outlined academic and discipline goals. Over half of the middle schools in SLSD were identified to receive EOC support in the 2014 and 2015 school years.

In the 2014 school year in schools where students were underperforming, 90% of the teachers were classified as highly effective or effective on their end of year evaluation with over 50% of the teachers rated as highly effective (except one middle school with 87% highly effective or effective). According to the SLSD evaluation rubric, a teacher receiving a *highly effective* rating is defined as a teacher who employs lessons that go beyond the classroom and a teacher who receives an *effective* rating is one who is implementing strategies that are working for the students they serve (Saint Lawrence School District, 2015). Arguably, the high teacher ratings do not align with the low student test performance.

In the 2015 school year, 55.7% of middle grades students scored a 3 or below on the Partnership for Assessment of Readiness for College and Careers (PARCC) reading



assessment; 71.9% scored a level 3 or below on the PARCC mathematics assessment. A score of level 3 or below on the PARCC assessment is below expectations. Students scoring a level 3 on the PARCC assessment are approaching expectations, level 2 have partially met expectations, and level 1 did not meet expectations. In that same school year, 2015, 96.90% of middle grade teachers received a rating of highly effective or effective (72.2% highly effective; 24.7% effective).

### **Problem of Practice**

The final report of The Measures of Teacher Effectiveness (MET) Study released in 2013 indicates that one of the roles of teacher evaluations is to identify teacher strengths and weaknesses in an effort to provide the appropriate support for teachers, thus improving their practice and growing them in their profession (Kane et al., 2013). During the 2013-2014 school year, SLSD began implementation of a teacher evaluation system designed to formalize the link between teacher ratings and student performance. The inclusion of SLOs as part of the process requires that all teachers use data to inform instructional decisions and provides a process for identifying and addressing professional development needs of the teacher. The 2015 school year SLSD data suggest that implementing the new evaluation system including SLOs has not yet achieved the desired effects. A significant number of middle grade teachers were rated as highly effective or effective (see Figure 1), but high percentages of their students are not meeting standards set by the school district nor the Maryland State Department of Education. Although teacher instructional performance does not always align exactly with student performance,

the SLO process should support increased teacher effectiveness and increased student performance in targeted instructional areas.

Ideally, we need to unpack our teacher instruction – student performance challenge if we are to understand how to improve student performance on classroom and standardized assessments. The district’s decision to ask all teachers to choose two SLOs for implementation during each academic year was made to positively impact both teacher instruction and student learning. The problem of practice to be addressed with this research is the disconnect between the district’s rationale for selecting the SLO process to be used district-wide and the teachers’ understanding of this decision, the impact on specific instructional practices, and the value of the SLO process for teacher or student growth. Ultimately, the district needs to uncover and analyze any disconnects between teacher beliefs, perspectives, and actions related to the purpose and implementation of SLOs; teacher use of student performance data feedback to inform and impact instruction; and teacher insights regarding their own professional development needs, especially in middle school language arts and mathematics classrooms. If school districts, including SLSD, are to realize student performance growth via SLO mandates, teacher perspectives must be understood and considered.

### **Scope of the Problem**

The statewide 2014 teacher rating data show that 97.2% of the teachers in Maryland were rated effective or highly effective; only 2.8% were rated ineffective. The statewide data for middle schools showed that in the 2014 school year 97.6% of middle school teachers were rated highly effective or effective; approximately 2.5% were rated

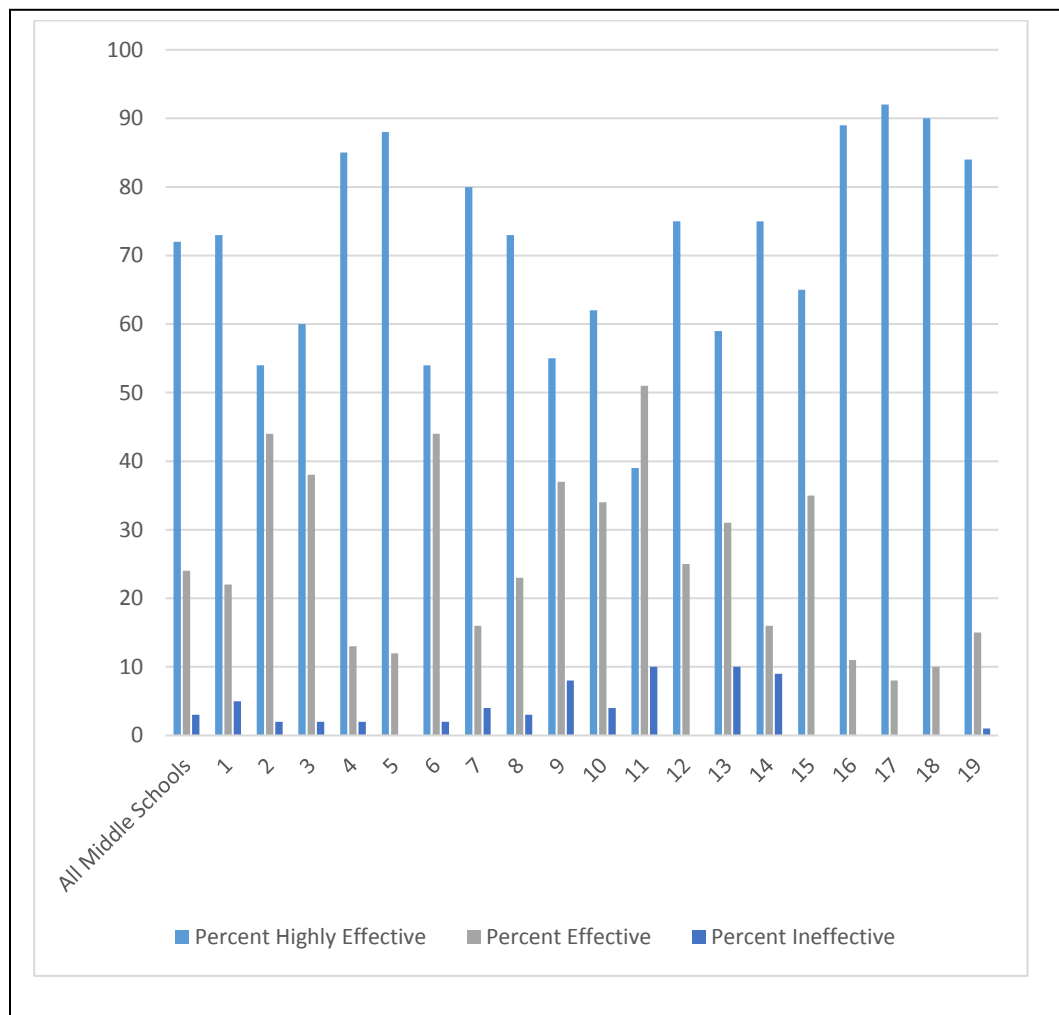
ineffective. The fourth largest LEA in the state, SLSD represented 11.4% of the teacher ratings in the state. The SLSD data that same academic year showed that less than 10% of the teachers were rated ineffective, approximately 15% were rated effective, and approximately 75% of the teachers in SLSD were rated highly effective (Saint Lawrence School District, 2014).

The SLSD teacher evaluation data for middle schools demonstrated during the 2014 school year that 75% of the middle school teachers were rated highly effective, 21% were rated effective, and 3% were rated ineffective. In the ten schools supported by the EOC, 87% or more of the teachers were rated highly effective or effective in each middle school. All but one of the middle schools receiving EOC support had over 50% of the teachers rated highly effective. This data raised some key questions: If students at these schools are underperforming in reading and mathematics, why were over 50% of the teaching staff rated highly effective? If a teacher received a highly effective rating, would it not be expected that his or her students show evidence of academic growth?

The problem is still evident the following school year. In the 2015 school year, 50% or more of the students in thirteen of the nineteen comprehensive middle schools scored level 3 or below on the PARCC reading assessment; and in eighteen of the nineteen schools, 50% or more of the students scored a level 3 or below on the PARCC mathematics assessment. Students who score a level 3 are considered approaching expectations, students at level 2 have partially met expectations, and students scoring level 1 have not met expectations.

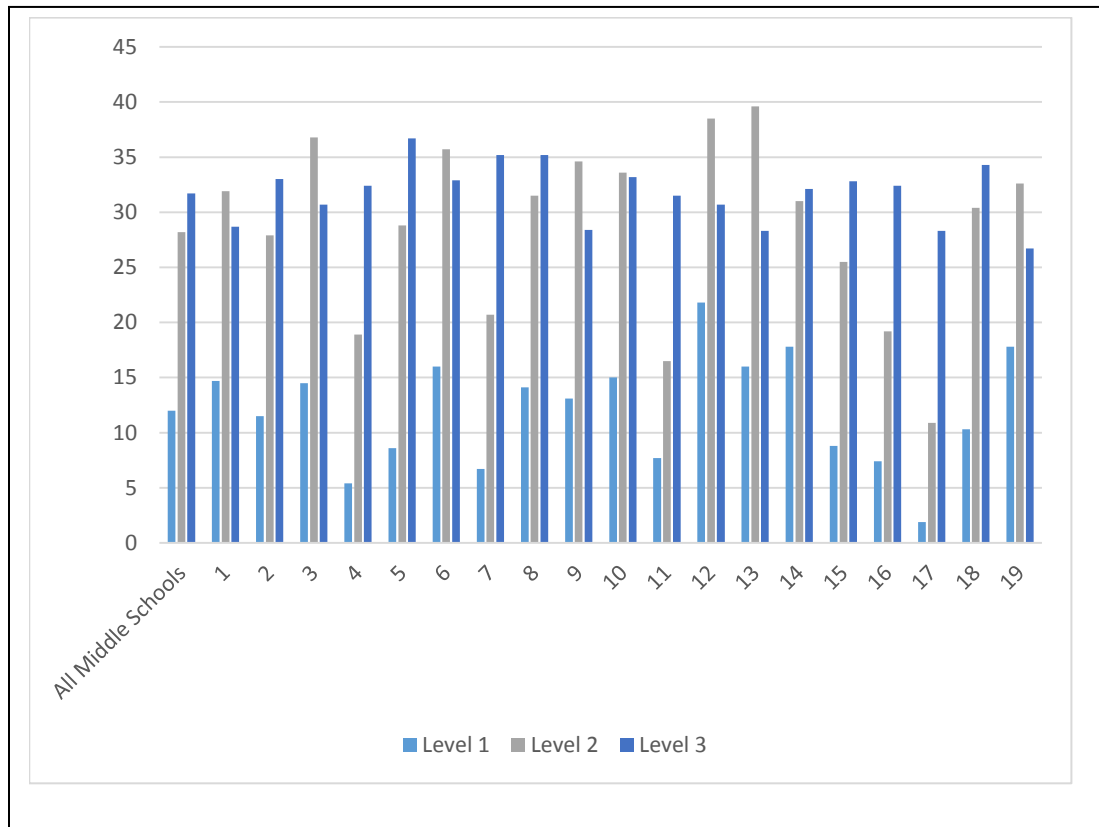
That same year, 72% of all students in SLSD middle schools scored a level 3 or below on the PARCC mathematics assessment (see Figure 2) and 56% of all students in the middle schools scored a 3 or below on the PARCC reading assessment (see Figure 3). In both mathematics and reading, over 50% of the middle grade students in SLSD are scoring a level 3 or below. When considering student performance by grade level, 66% of grade 6 students, 70% of grade 7, and 85% of grade 8 students scored a level 3 or below on the PARCC math. On the PARCC reading assessment, 60% of grade 6, 57% of grade 7, and 50% of grade 8 students scored a 3 or below.

*Figure 1:*2015 Middle School Final Teacher Ratings. Every middle school except school # 11 had majority of the teachers rated highly effective. School #11 had more teachers rated effective than highly effective.



*Figure 2:2015 SLSD Middle School Student Performance on Mathematics PARCC*

Assessments. 72% of all students in SLSD middle schools scored a level 3 or below on the PARCC mathematics assessment. 32% scored at level 3, 28% scored at level 2 and 12% scored at level 1.



*Figure 3: 2015 SLSD Middle School Student Performance on Reading PARCC*

Assessments. 56% of the students in all middle schools scored level 3 or below on the PARCC reading assessment. 27% scored a level 3, 18% scored a level 2 and 11% were at a level 1.

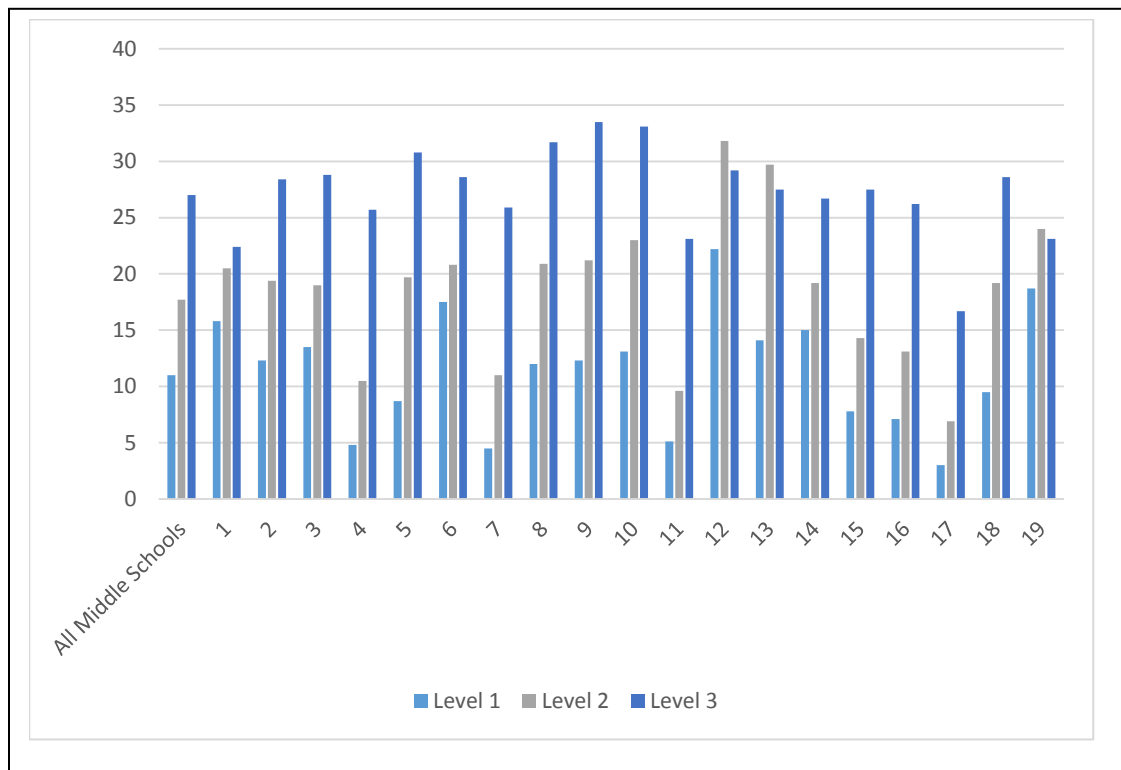


Figure 1 shows that for the 2015 school year, teachers were rated highly. The state assessment data in Figures 2 and 3 indicate that students were not doing well on these measures. This data lead us to investigate further by listening to teachers to find out what teachers believe will be required to meet the needs of students.

## **Prior Attempts to Address the Problem**

**National Level.** On a national level, teacher effectiveness as a means to increase student achievement remains a priority, particularly for children in poverty. The national initiative No Child Left Behind (NCLB) emphasized teacher quality. NCLB outlined the need to ensure that classrooms are staffed with highly qualified teachers, defining highly qualified teachers as teachers with the state outlined certificate to teach the grade or subject they are teaching. However, the definition focuses on teacher credentials rather than on the quality of instruction (U.S. Department of Education, 2006).

Particular attention was given to placing highly qualified teachers in schools that serve children of poverty. As a result of this mandate, numerous states created alternative paths to certification (U.S. Department of Education Policy and Program Studies Service Office of Planning, Evaluation, and Policy Development, 2015). These alternative paths included organizations such as Teach for America (TFA) who recruited students who had excelled in college in majors other than education and were then trained by TFA teams to serve as teachers, mainly in high-need schools. The TFA proposed that if they were able to train the best and brightest and place them in high needs classrooms, this would fill a void in the teaching profession and also improve student achievement in failing schools (Teach for America, 2016).

NCLB resulted in some positive consequences. More attention was given to the achievement gap which led to school districts learning more about all of the students in their districts and how they learn. Districts ensured closer alignment among standards, curriculum, instruction, and assessments so they were able to analyze student data to



move instruction. School districts are making greater efforts to confirm that teachers meet the state mandated requirements for them to teach the classes they are assigned (Center For Education Policy, 2006).

Some of the negative consequences of NCLB included more time spent on reading and mathematics leaving less time for other academic subjects; an increase in the number of assessments students must take to comply with the law; and low performing schools facing restructuring resulting in changes in school leadership, staffing, and curriculum (Center For Education Policy, 2006). NCLB attempted to address the need to increase student achievement by increasing teacher effectiveness; however, the emphasis on teacher credentials did not look at the individual impact teachers made on student achievement. The focus was on the collective academic achievement of students at the school level.

In 2009, the United States Department of Education offered grant opportunities known as Race to the Top Funds (RttTF) to states to enable them to implement reform efforts that would improve teaching and learning for all students demonstrated by an increase in student achievement scores. The focus shifted from merely looking at teacher credentials as outlined in the existing legislation (NCLB) to identifying effective teachers and principals through the development of rigorous teacher and principal evaluation systems. The emphasis in principal evaluation systems focused on effective school leadership. Teacher evaluations emphasized linking teacher performance to student achievement (U.S. Department of Education, 2014).

Prior to 2009 when RttTF grants were first offered, teacher evaluation systems in most states were not used for the purpose of improving teacher effectiveness, but to determine if teachers were to be retained or removed from the position. These evaluation tools gave little to no indication as to the teacher's impact on the students he or she was teaching (National Council on Teacher Quality, 2009-2011). Due to changes in federal and state policy, most districts have now focused on developing new evaluation systems that, in most cases, include multiple measures to determine teacher effectiveness and, at times, connections to student outcomes (Goe, Bell, & Little, 2008; Sartain, Stoelinga, & Brown, 2011; Shakman et al., 2012; Taylor & Tyler, 2012). The push to develop new evaluation systems that identify a teacher's strengths and weaknesses sought to provide meaningful feedback and the appropriate support to improve teacher practice and professional growth. In addition, the new evaluation systems intended to help school administrators better identify effective and ineffective teachers. Most states accepted the requirements of RttTF as a way to improve teaching and learning.

**State Level.** When Maryland was designated a recipient of the RttTF, the Maryland State Department of Education (MSDE) began developing models for an evaluation system that local education agencies (LEAs) could consider if they chose to accept the funds. The federal government did not give each state specific guidelines on the percentage of the evaluation that should be related to student data; however, they did emphasize the need to have a significant portion tied to student achievement data. The MSDE was more specific, and required 50% of the teacher evaluation be based on student academic growth (Maryland State Department of Education, 2012). MSDE

developed a teacher evaluation model that LEAs could choose to implement, then selected SLSD and two other LEAs in the state to field test the model (Maryland State Department of Education, 2014). After extensive discussions with stakeholders and thorough review of the state model, SLSD moved forward with the field test in the 2012-2013 school year; but, in the end, made the decision not to adopt the MSDE model. SLSD did not believe they should include the test scores from the existing state assessment in the current teacher evaluation, as was suggested by the state, because the state was transitioning to a new assessment (Maryland State Department of Education, 2012).

**District Level.** Saint Lawrence School District started revising their teacher evaluation instrument approximately seven years ago in an effort to improve teaching and learning district wide. The goal was to identify behaviors and best practices effective teachers utilize to meet student needs and to outline criteria that informed teachers of the effectiveness of their performance. Teacher evaluations in SLSD, prior to accepting RttTF, consisted of at least one formal observation by the principal or his or her designee, which included pre and post observation conferences; interactions with colleagues and students; participation in professional development opportunities; and other school improvement initiatives. Principals evaluated tenured teachers every two years and non-tenured teachers every year, but the frequency for any teacher could be increased if needed. The principal would perform the final rating at the end of the school year and give the teacher being evaluated a rating of outstanding, highly effective, satisfactory, needs improvement, or unsatisfactory. This evaluation tool determined the retention of

high-performing teachers or the removal of ineffective teachers with little indication of how they met student-learning needs.

The development of SLSD's new observation tool intended to help build teacher capacity was timely as it coincided with the granting of RttTF. SLSD was a recipient of the RttTF and used the new observation protocol as a part of the new teacher evaluation system. Even though it seemed like SLSD was ahead of the curve in implementing a portion of their evaluation system, the school district was faced with the challenge of adding professional practices to the current observation tool; developing another portion of the evaluation protocol, the Student Learning Objectives; in addition to implementing new state content standards. The SLO implementation impacted all teachers, but the implementation of new standards most significantly impacted mathematics and language arts teachers at all levels.

SLSD also took on the task of field testing the proposed MSDE teacher evaluation model. Although SLSD completed the field testing, part way through the testing, after thorough consideration, SLSD decided to develop a teacher evaluation model exclusively for SLSD. This was a challenging time because SLSD staff needed to collect adequate data to inform state officials of their evaluation system as well as field test and collect data on the proposed SLSD evaluation system and make the necessary changes to the SLSD evaluation system in time for full implementation (Employee SLSD, personal communication, July 10, 2014). The new SLSD teacher evaluation system was ready for full implementation by the 2013-2014 school year.

**SLSD new evaluation system.** The new evaluation system introduced in SLSD in 2013 consists of two parts. Fifty percent (50%) of the evaluation rating is based on professional practices; the other fifty percent (50%) is based on the score of two SLOs (25% for each SLO). The professional practice consists of six domains: (a) quality learning environment; (b) preparing for student learning; (c) instructional delivery; (d) student learning behaviors; (e) assessment and closure; and (f) professional behaviors. The observation process, aligned with the SLSD Teaching and Learning Cycle, assesses the first five domains. The last domain extends accountability beyond the classroom by looking at how the educators continue to grow and develop; how they communicate with colleagues, students' parents, and the community; and how they advocate for students. Teachers are rated as highly effective; effective; developing (for new teachers to the system or teachers teaching a new grade or subject); and ineffective. Teachers are observed by the principal or his or her designee and the feedback is used to provide guidance for improvement. At the end of the school year, the principal uses this information and other qualitative data sources to quantify the teacher's level of proficiency as it relates to professional practice. Using a "train the trainer" model, teachers, school-based administrators, and central office staff received training on how to support and evaluate teachers using the professional practice rubric (Saint Lawrence School District, 2013).

The second part of the new evaluation system requires each teacher to develop two SLOs during the academic year. Fifty percent (50%) of the teacher's rating is based on how well the teacher's students meet the set academic targets for each SLO over a

specific period of time (Center on Great Teachers and Leaders, 2015). SLSD uses the students' successful completion of the SLO targets as a measure of student growth on the teacher evaluation model, thus meeting one of the guidelines set by MSDE.

To develop an SLO, a teacher identifies critical content in his or her content area and the necessary data to demonstrate that students have not yet mastered that content. Historical data and current data are used to develop a growth target for the students who will be identified for the SLO. Teachers then outline research-based strategies they plan to employ to meet the needs of the identified student population. The SLSD short form describes these strategies as follows, "These strategies should be beyond the normal scope of work typically utilized to teach this content"(Saint Lawrence School District, 2017).Once teachers identify the key strategies, they then consider the professional development experiences and or resources they need to successfully implement those strategies. Teachers then designate a specific timeframe for the beginning and completion of the SLO.

It is the responsibility of the principal or principal's designee to review and approve the two SLOs before teachers begin implementation. Trained school system staff provide ongoing training for teachers, school administrators, and central office staff regarding how to write SLOs and how to evaluate them. SLSD also trained a team of teachers from every school who serve as SLO experts at their schools. SLO experts assist teachers as they develop the SLOs and help principals review the SLOs. The SLSD Division of Curriculum and Instruction staff developed sample SLOs in each content area. These sample SLOs are housed on the SLSD internal electronic portal known as the

SLSD Intranet. Other resources such as webinars and sample forms are also housed on this portal.

The school-based administrator holds two or three conferences with the teacher: an initial conference to review and approve the SLO, a mid-interval conference at the discretion of the administrator, and a final conference to review the evidence of student growth and discuss whether the SLO targets were met.

### **Consequences of Not Addressing the Problem**

The major goal of the SLSD strategic plan is for all students to achieve at high levels. The plan outlines that at high school the evidence of high levels of achievement should be the number of students taking Advanced Placement and International Baccalaureate courses as well as students' passing scores on the corresponding assessments. At the elementary and middle school levels, the evidence is student performance at advanced levels on standardized tests. SLSD is striving to eliminate the achievement gap that exists with minority students and children of poverty when compared to their Caucasian and non-poverty counterparts. SLSD data show that the achievement gap widens when students are in middle school.

Although there are numerous factors that impact student achievement, teachers play a major role in positively impacting student academic performance (RAND Corporation, 2012). Eric Hanushek (2010) explains the best way to identify an effective teacher is by the teacher's performance in the classroom and what the students learn. If SLSD does not continue to align teacher evaluation with student performance and does not continue to identify teacher needs and support teacher professional development, the

district will not meet the goals of their strategic plan. All teachers should be equipped with the necessary skills and knowledge to move all students forward.

The teacher evaluation system should be used both as a formative and summative tool. When an evaluation is used as a formative instrument, the teacher evaluation data are used to inform teachers of their needs and also inform school based administrators and central office staff of those needs so they can appropriately support teacher development. This study is significant because it informs SLSD stakeholders of middle grade mathematics and language arts teachers' knowledge and understanding of the SLO intent and process. Additionally, the survey data gathered from this study give central office staff information to support discussions of how to better align the SLO process to help school based administrators use the process to assist in developing teachers' capacity to meet the needs of the students they are serving.

### **Literature Review**

This literature review focuses on teacher quality, which is sometimes used interchangeably with teacher effectiveness, but is different from highly qualified as defined in the NCLB act. The beginning portion will highlight the policies impacting teacher evaluations. Discussion will then encompass how researchers define teacher effectiveness, a summary of developments in evaluation systems in recent years, and characteristics of the newer evaluation systems. The final section will examine studies surrounding the link between teacher evaluations and student achievement, the use of student data to improve teaching, and Student Learning Objectives as a component of the evaluation system.



## **Policy**

In an effort to ensure all students, particularly children of poverty, are taught by a qualified teacher, the No Child Left Behind Act (NCLB) of 2001 defined the highly qualified teacher by focusing on the teacher's credentials (DiGiulio, 2004). The NCLB delineated the minimum requirements to be considered highly qualified as follows: the candidates must possess a bachelor's degree, be fully certified by the state, and be competent in the subject they teach. When the law was written, the policy makers stated that in order to close the achievement gap, students must be taught by a highly qualified teacher (U.S. Department of Education, 2006). Research shows that the teacher's content knowledge as a factor in influencing student learning is powerful; however, strong content knowledge alone will not result in increased student learning (DiGiulio, 2004). There are multiple skills and qualities teachers should possess in order to impact student achievement.

In 2009, NCLB was due for reauthorization, the same time that the United States suffered an economical downfall. In an effort to stimulate the economy and also support states in meeting the mandates of NCLB, the United States Department of Education offered grants known as Race to the Top Funds (RttTF) to states to enable them to implement reform efforts that would improve teaching and learning in all classrooms. The evidence of effective implementation would be increased student achievement scores. The focus shifted from merely looking at teacher credentials to identifying effective teachers and principals through the development of rigorous teacher and principal evaluation systems. The emphasis in principal evaluation systems focused on effective

school leadership; teacher evaluations linked teacher performance to student achievement (U.S. Department of Education, 2014).

Prior to the Race to the Top initiative, teacher evaluation systems in most states were not used for the purpose of improving teacher effectiveness, but rather for identifying teachers as satisfactory or unsatisfactory and making personnel decisions based on that determination. Due to changes in federal and state policy, many districts have now focused on developing new evaluation systems. Most of these systems include multiple measures to determine teacher effectiveness and some include connections to student outcomes (Goe, Bell, & Little, 2008; Sartain, Stoelinga, & Brown, 2011; Shakman et al., 2012; Taylor & Tyler, 2012). The push to develop new evaluation systems to identify strengths and weaknesses in teachers aspires to offer meaningful feedback and provide appropriate support so that teachers can improve teaching practices, grow professionally, and have greater positive impact on student performance. Additionally, the new evaluation systems are intended to help school administrators better identify effective and ineffective teachers. “Federal, state and local policy makers are advocating for evaluation systems as a solution to improve teacher quality” (Minnici, 2014, p. 22).

### **Characteristics of Effective Teachers**

For many years, educators have sought to identify characteristics of effective teachers. In 1895, Daniel Putnam proposed that effective teachers must be well versed in the content knowledge they teach, understand and be able to apply teaching methods, and have a genuine personality (DiGiulio, 2004). Nearly a century later, in 1996, Charlotte

Danielson identified characteristics of effective teaching through her Framework for Teaching (FfT). The FfT outlines teacher responsibilities that result in student learning. Danielson organized these responsibilities into four major domains: planning and preparation, classroom environment, instruction, and professional responsibilities (DiGiulio, 2004). Over twenty states have adopted Danielson's FfT as a resource for developing their teacher evaluation systems (Pritchett, 2013).

Linda Darling-Hammond (2010) offers a definition of teacher quality: "Teacher quality might be thought of as the bundle of personal traits, skills, and understandings an individual brings to teaching, including dispositions to behave in certain ways" (p. 2). Darling-Hammond also outlined research on the characteristics of effective teachers. The research does point out that teachers must be well versed in the content they teach; however, the research also indicates other qualities that must be apparent in teachers in order to impact student learning. These qualities are the ability to instruct others in that content area (pedagogy), especially being able to develop higher order thinking skills; understanding how children learn; and knowing how to scaffold the learning to meet the needs of all students. Additional qualities include an understanding of student needs; the ability to make decisions regarding the strategies that will be most effective for their students; effective communication skills; and the ability to assess students and make necessary adjustments as they teach. Bandura's (2010) work on self efficacy adds that people who believe they are able to produce certain outcomes are likely to undertake difficult tasks and persevere through challenges. Based on Bandura's work, Goddard and

Hoy (2000) argue that a teacher's belief could influence student achievement and play a role in the teacher's impact on student learning.

### **Developing New Evaluation Systems**

The Bill and Melinda Gates Foundation conducted a three year study in an effort to determine how to identify and promote effective teaching. One of the implications highlighted from the study was that the purpose of evaluations should be twofold: identifying teacher strengths and weaknesses and offering meaningful feedback and support to improve teachers' practice. In addition, the evaluation should be a tool to identify effective and ineffective teachers (Bill and Melinda Gates Foundation, 2010). Weisberg, Sexton, Mulhern, and Keeling (2009) maintain that since teachers play an integral role in improving student achievement, teacher evaluations should provide accurate and meaningful information about individual teacher performance.

The focus on teacher evaluations as a means to improve teaching continues to increase. Danielson (2010) states that the public have a right to expect quality teaching because schools receive public money. Additionally, school and district leadership should be able to report to the school board and the public the quality of teachers in each classroom and the evidence they have to support their claim. The evaluation system by itself should not be the predicting factor used to determine teacher quality. When looking to improve student learning in schools and across the district, there needs to be an alignment between preparation, recruitment, support, evaluation, and compensation (Minnici, 2014). The development and implementation process of any evaluation system should be clearly communicated to parents, teachers, administrators, and the public

(Minnici, 2014). In the past few years, states and districts have committed resources to developing evaluation systems that support teachers' growth resulting in increased student learning (Bill and Melinda Gates Foundation, 2013). Advisors who participated in the Measures of Effective Teaching (MET) Project agreed that teaching practice could improve if effective measures were in place to inform teachers of the areas in which they are succeeding and the areas in which they need improvement (Bill and Melinda Gates Foundation-MET Project, 2013).

Evaluation systems prior to Race to the Top did very little to inform teachers, administrators, or the public about the quality of teaching. The evaluation systems did not help teachers improve their practice or even distinguish between a good teacher and a teacher who needed support (Darling-Hammond, 2014). Darling-Hammond (2014) posits that if the purpose of the evaluation system is to improve teaching and learning, then the system should include the following criteria: "The evaluation system should be based on professional teaching standards and should be able to assess the continuum of development from novice to expert. Evaluation should include evidence of teacher practice, student learning and professional contributions" (Darling-Hammond, 2014, p. 12). Evaluation systems should include multiple measures so as to better inform the evaluator about the teacher's practice. One data point is not sufficient to clearly inform the evaluator or the teacher of the efficacy of the teacher's practice. Additionally, the evaluation system should allow teachers to access meaningful professional learning opportunities that will help them grow (Minnici, 2014).

## **Characteristics of New Teacher Evaluation Systems**

In a three-year study conducted by the Bill and Melinda Gates Foundation, researchers found that a well-designed student survey and accurate observations conducted by different observers coupled with meaningful feedback and using student test scores could help in identifying effective teachers. Careful consideration should be given to the weight placed on each measure when creating an evaluation system (Bill and Melinda Gates Foundation, 2013). “The evaluators should be well trained on the instrument and have a deep understanding of instruction” (Darling-Hammond, 2014, p. 12). The MET Study conducted by the Bill and Melinda Gates Foundation found that in order to increase accuracy and decrease mistakes when using observations as a part of the evaluation system, observers not only need training on how to use the instrument, but also need to demonstrate competency in using the instrument by observing classrooms or watching a video with a master observer (Bill and Melinda Gates Foundation, 2013). Evaluators should be knowledgeable regarding how to provide meaningful feedback and offer appropriate professional learning opportunities to support the teacher (Darling-Hammond, 2014).

In most school districts the building administrators (principal and assistant principal) assume the full responsibility for the evaluation process. This process, however, should be collaborative. Although principals are known as the instructional leaders, they should rely on experts within the school and in central office to be part of the evaluation process. The new evaluation systems are more rigorous, take up more time, and require additional skills. School districts should consider using teacher leaders

as a part of the process as a means to tap into the specific expertise they offer, especially in content knowledge (Minnici, 2014). District partners who participated in the MET Project, found feedback was a key factor in developing better teachers. Districts need an evaluation system that provides feedback to all levels of the school system (teachers, school leaders, central office staff, coaching and professional development ...). Such a system is more likely to lead to aligned efforts in supporting teaching and learning (Bill and Melinda Gates Foundation-MET Project, 2013). “The evaluation should value and encourage teacher collaboration....Teacher experts should be included in the review and assistance process” (Darling-Hammond, 2014, p. 12).

Stakeholders in the evaluation process should include not only teachers and administrators, but a broad cross section of educators from the school, district, and state level. Districts often have numerous competing initiatives that aim at improving instruction. Broad representation from across the district allows the stakeholders to see how the initiatives may or may not fit with the goals of the district. Clear alignment between the evaluation system and the teacher support initiatives helps to produce a smoother implementation process (Minnici, 2014). “Teachers and administrators should play a key role in the developing, implementation, and monitoring of the evaluation system” (Darling-Hammond, 2014, p. 12). Representation of numerous stakeholders helps build trust among the teachers. Teachers need to know and believe that the primary purpose of the evaluation tool is to help them grow as professionals with fulfilling union agreements and district policy as secondary (Minnici, 2014). An effective evaluation system should be able to serve the dual roles of determining the professional learning

needs of the teacher and fulfilling accountability purposes (Bill and Melinda Gates Foundation-MET Project, 2013).

The National Comprehensive Center for Teacher Quality conducted a research synthesis in an effort to inform regional and national decision makers of the various measures used to evaluate teacher effectiveness and to point out the advantages and disadvantages of using those measures. In addition, the study outlined what constitutes effective teaching to help address the debate regarding what effective teaching looks like in classrooms (Goe, Bell, & Little, 2008). The goal was to assist decision makers as they worked to develop improved evaluation systems to help increase teacher effectiveness in their districts. For this study, the authors limited the definition of teacher effectiveness solely to impact on student achievement. One strength of this study is that all authors served as reviewers for every article and consulted with each other when there was uncertainty about the content (Goe, Bell, & Little, 2008). Decisions about the articles were made by consensus. Another strength of this study is that the authors reviewed several tools used to measure teacher effectiveness including

- classroom observations,
- principal evaluations,
- analysis of classroom artifacts,
- teaching portfolios,
- teacher self-reports of practice,
- surveys,



- teaching logs,
- interviews,
- student ratings of teaching performance, and
- value-added strategies.

The result of the research synthesis pointed out that there are many tools used to measure teacher effectiveness, but even an effective teacher is not solely responsible for increases in student learning. The authors also pointed out that the validity of the tool is determined by the evaluators first establishing what information they want to collect and why. The evaluator can then decide if the tool accurately measures what was intended to be measured (Goe et al., 2008).

### **Impact of Evaluation Systems on Student Learning**

Several studies have shown that measuring the relationship between teacher evaluation systems and students learning is complex and involves numerous variables. Using a quasi-experimental analysis research design, Taylor and Tyler (2012) examined the use of the classroom observation tool and its impact on teaching practices in the Cincinnati Public School System attempting to show a link between the use of the new classroom observation tool and student achievement. Teachers were observed by experienced teachers and administrators who had been trained on the observation protocol and rubric of the Danielson Framework for Teaching. The study reports that students taught by teachers who had been observed using the new observation tool showed gains on the end of year math scores. Additionally, the study suggests that

teachers who were observed using the new evaluation tool showed lasting gains in student achievement. Taylor and Tyler (2012) acknowledge that the gains may be influenced by the experience level of the teachers and their willingness to receive and use the feedback to improve their teaching practices. The authors suggests that with less experienced teachers, the gains may be minor.

In the Chicago Public Schools, Sartain, Stoelinga, and Brown (2011) conducted a study also focused on whether the use of classroom observation is a valid measure of teacher practice. The researchers attempted to determine if a relationship exists between teacher ratings and student outcomes. The study in Chicago was different from the one in Cincinnati in that the researchers looked at teacher and principal perceptions of the use of the new evaluation tool and the conferences that are part of the evaluation process. Furthermore, the study tested the validity and reliability of the instrument. The Chicago study was conducted as a case study and did not limit the teacher participants to experienced teachers only. The schools in the study were randomly selected from four elementary school areas in the Chicago Public School System. Both Cincinnati and Chicago trained their evaluators using the observation protocol in the Danielson Framework for Teaching. Growth in student test scores was found in classrooms where teachers received high ratings. The least growth in student test scores was observed in the classrooms of teachers with low ratings. The study showed a strong relationship between teacher evaluations and value added measures. The reliability showed some differences at the high end where the principal showed more leniency when the external observer rated the teacher proficient; however, there was consistency in ratings between

the principal and the external observer at the low end. Teachers reported they found the conversations during the conferences more meaningful when the principals used the Danielson framework. The study found that the principals could use additional support in coaching conversations when discussing the observations with teachers (Sartain et al., 2011). This finding is supported in the research synthesis conducted by Goe et al. (2008) indicating the need to train the raters.

Use of classroom observations as a part of the evaluation system is a common thread in studies conducted by Taylor and Tyler (2012) and Sartain et al. (2011). Goe et al. (2008) demonstrated that the use of certain classroom observation protocols showed modest links to student achievement; however, Taylor and Tyler (2012) and Sartain et al. (2011) showed that students taught by teachers with high ratings achieved the most gains. Goe et al. (2008) also pointed out that the classroom observation protocols provide useful information to inform the teacher as a means to improve practice and can also be used for summative purposes. Researchers agreed that training of the individuals using the tool and the type of instrument used determines the validity of the tool.

A formative evaluation of the Financial Incentives Reward for Supervisors and Teachers (FIRST) was conducted in Prince Georges County, Maryland. The goal of the FIRST program was to increase teacher effectiveness in low performing schools in order to increase student achievement. Principals and teachers voluntarily participated in the program. The Danielson Framework for Teaching was adopted as an evaluation tool to measure teacher effectiveness in classrooms. Although principals were trained on the use of the observation protocol, delays occurred in scheduling training and providing support

to teachers. The study results indicated that administrators received limited coaching support. In addition, the administrators reported they were faced with multiple competing demands. The school staff, the central office staff, and the unions viewed the Framework for Teaching as a more effective tool than the previous observation tool; however, the district used student performance as well as standard-based evaluations to measure teacher effectiveness, making it difficult to attribute any changes solely to the use of the observation protocol. One of the challenges in this process emerged when a few teachers reported teaching a mediocre lesson for the first lesson, then improving it for the follow-up observation, thus earning the incentive for improvement (Rice et al, 2012).

Although classroom teacher observations may assist in providing teachers with meaningful information, a study by Goe et al. (2008) suggests there is a lack of research on observation protocols used in the context of teacher evaluations. Additionally, these researchers argue that the teacher is not solely responsible for improving student learning. In order to gain a clear indication of teacher effectiveness, they recommend that multiple measures be used in order to measure different aspects of teacher practice. Goe et al. (2008) devised a five-point definition of teacher effectiveness as a result of conducting the research synthesis. This definition intends to help guide districts as they develop their evaluation systems. The definition reinforces the need to use multiple measures to measure teacher effectiveness. Goe et al. (2008) define effective teachers as those who

- have high expectations for all students and help students learn, as measured by value-added or other test-based growth measures, or by alternative measures;

- contribute to positive academic, attitudinal, and social outcomes for students such as regular attendance, on-time promotion to the next grade, on-time graduation, self-efficacy, and cooperative behavior;
- use diverse resources to plan and structure engaging learning opportunities, monitor student progress formatively, adapt instruction as needed, and evaluate learning using multiple sources of evidence;
- contribute to the development of classrooms and schools that value diversity and civic-mindedness; and
- collaborate with other teachers, administrators, parents, and education professionals to ensure student success, particularly the success of students with special needs and those at high risk for failure.

### **Student Learning Objectives**

Student Learning Objectives (SLOs) are among the tools that school districts are incorporating into new evaluation systems. In their Teacher Principal Evaluation Manual, Saint Lawrence School District (SLSD) states, “A Student Learning Objective is a long-term measurable academic goal that is collaboratively developed by educators for all students or a subset of students” (Saint Lawrence School District, 2015, p. 36). The manual explains that the SLO process is a collaborative effort, closely aligned to the School Improvement planning process, and intended to advance student learning. As outlined in the manual, the SLO development process involves the following actions:

- identifying learning content using the SLSD approved curriculum for the grade and subject;
- diagnosing student learning needs through analysis of current and historical student data related to the learning content identified as critical content and establishing a baseline;
- selecting the target student population, an entire class or a small group, based on their performance related to the critical content;
- determining the timeframe (start and end date) for implementation of the SLO;
- setting the performance target for the student population;
- specifying the formative and summative assessments that will be used to monitor growth;
- identifying research based instructional strategies or best practices the teacher plans to employ specifically for the identified student population; and
- identifying professional learning needs and resources that will help the practitioner develop or enhance the knowledge and skills needed to implement the instructional strategies described.

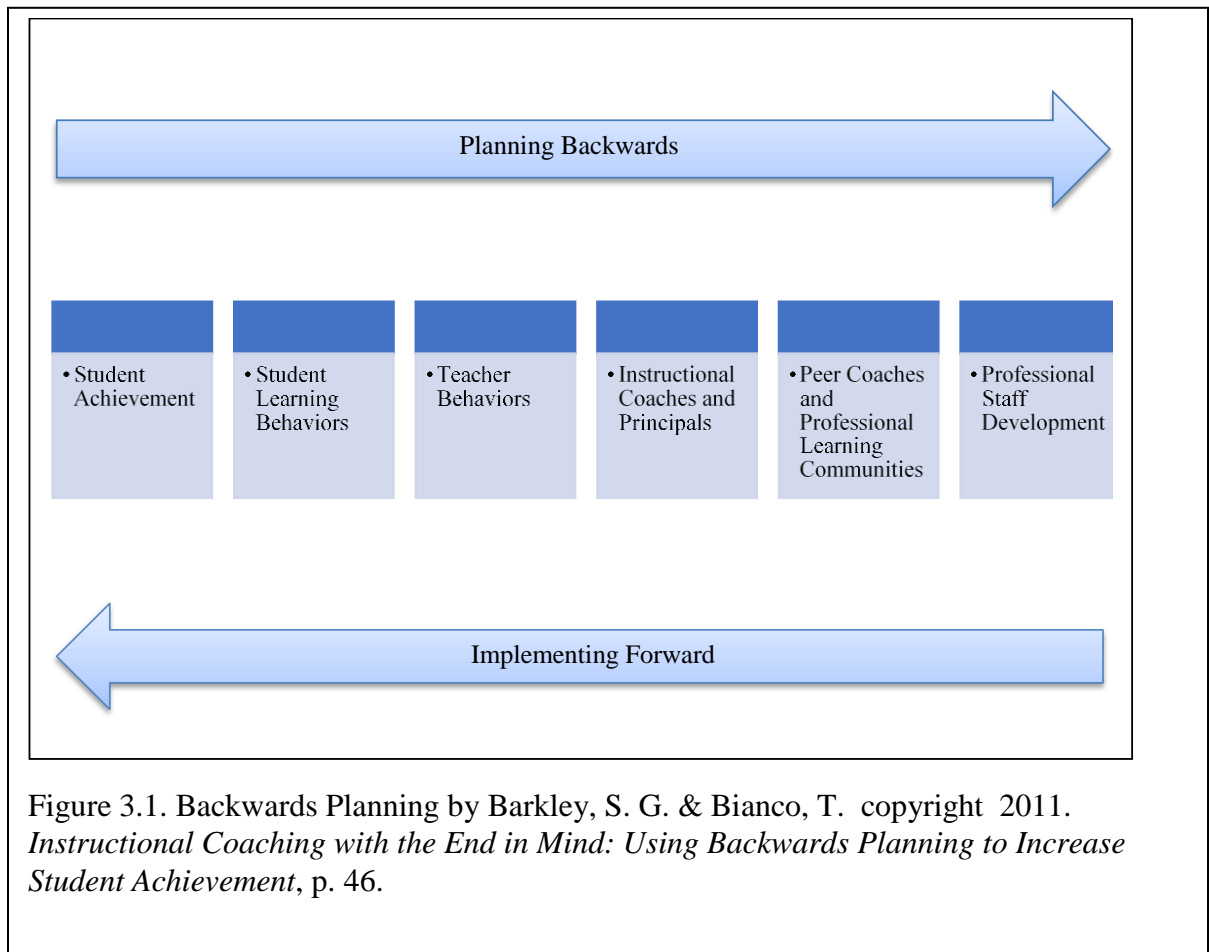
This model aligns with Steve Barkley's Backward Planning Model, Figure 4, as student data are used to drive student achievement and is linked to professional development (Barkley & Bianco, 2011).

## **Using Student Data to Inform Professional Learning**

SLOs use student performance data as the main indicator of the effectiveness of the teacher's performance and as a means to identify the professional needs of the teacher. Students are the key stakeholders in school districts. Decisions regarding teacher development should be centered on the needs of the students. The Standards for Professional Learning outlined by Learning Forward: The Professional Learning Association (2017), designate the use of data as one of the key components to consider when planning professional development stating, "Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning." The importance of student data is reinforced by Rentfro (2007) who advocates that Professional Learning Communities where teachers focus on improving student learning should serve as a mechanism for building teacher capacity.

The need to use student data to drive professional development is further supported by the Backward Planning Model for improving student achievement proposed by Steve Barkley, shown in Figure 4 (Barkley & Bianco, 2011). Barkley argues that students are the centerpiece for the teaching profession, and that no teacher development session or program will make a difference if student needs are not driving the planning.

Figure 4: Steve Barkley's Backward Planning Model



The model illustrates how student learning is aligned to teacher practice and professional development. Barkley suggests when planning, educators must begin by considering student performance. Student performance then drives a discussion around what behaviors must student possess in order to achieve the desired learning outcomes. The student behaviors drive the teacher behaviors. If current teacher behaviors are not achieving the desired student outcomes, school leaders should provide support through



instructional coaching, peer coaching, professional learning communities, or staff development. If the goal is to impact student performance, the process must be aligned.

### **Implementation of Student Learning Objectives**

The Mid-Atlantic Comprehensive Center conducted an evaluation of the use of Student Learning Objectives (SLOs) as a part of the teacher and principal evaluations in Maryland. One objective of this evaluation was to examine the use of SLOs as a means to increase student achievement by improving educator effectiveness. The evaluators conducted interviews, focus groups, and surveys using different stakeholders in the state. The stakeholders involved in the evaluation were superintendents, teacher association leaders, central administration personnel, principals, and teachers. From the 24 school districts in Maryland, 16,407 educators responded. The final analysis of the survey was based on 16,314 responses. Of the individuals who responded, 86% had participated in SLO training. The overall perceptions of the use of SLOs were positive; however, many teachers said the ratings would not change much with the addition of the SLOs. The evaluation also revealed that teachers in districts where SLOs were a part of the instructional system were not worried about their ratings, but teachers in districts where ratings were more used for compliance were worried about poor ratings. An issue that emerged in the evaluation was the district's struggle to make connections among the use of SLOs, the observations, and the new standards. There was also a concern among educators regarding the ability of principals to devote time to instruction, the skill and capacity of principals to use observations to accurately assess teachers, and the readiness for principals to lead the SLO implementation in their schools. Teachers and principals

differ in their perceptions of the training received on the SLO process. Teachers reported they did not receive sufficient training. The study which was used to inform MSDE how to support districts in the use of SLOs as a part of the evaluation system, highlights the positive impact of high quality SLOs on student learning (Maryland State Department of Education, 2014).

Another study examined implementation of a pay for performance program in the Denver Public Schools. The Denver initiative involved teachers implementing two teacher objectives based on student achievement and approved by the principal. Teachers received compensation if they met their objectives. One of the factors examined in the study of this initiative was the quality of the teacher objectives and their relationship to student achievement. The study found at all levels (elementary, middle, and high school) that students with teachers with the highest quality objectives, based on a rubric, achieved higher mean scores than students with teachers who received lower scores on their objectives. Researchers also determined that as the length of time the teacher participated in the pilot increased, student achievement increased. Teachers reported they had greater access to and used student data more effectively. Teachers also observed that the use of data allowed them to focus on students who needed assistance and monitor the students' progress (Community Training and Assistance Center, 2004).

To motivate schools to develop new evaluation systems, New Hampshire offered School Improvement grants to schools in the state. The schools developed and piloted the new systems between 2011 and 2013. A study then compared these new evaluation systems. The new evaluation systems consisted of multiple measures which included

SLOs. The study looked at the different components of each evaluation system, the extent to which schools implemented as intended, and factors affecting implementation. The study found that implementing SLOs was the most challenging aspect of the new evaluation systems. Only 53% of the teachers reported they felt prepared to write or review SLOs. All of these studies indicate the complexity of determining the impact of SLOs and the need for future research to understand how to use SLOs more effectively (Riordan, Lacireno-Paquet, Shakman, Bocala, & Chang, 2015).

### **Summary and Purpose of the Study**

In recent years, to improve teacher quality, policy makers at the federal, state and local levels have pushed for the development of rigorous teacher evaluation systems with multiple measures of teacher effectiveness, including connections to student outcomes (Minnici, 2014). The Measures of Teacher Effectiveness Study (MET) emphasizes that the purpose of teacher evaluations systems is not only to identify effective and ineffective teachers; but, more importantly, to identify the strengths and weaknesses of teachers, to provide meaningful feedback and appropriate support to improve teacher practice, and to encourage teacher professional growth (Kane, McCaffrey, Miller, & Staiger, 2013). Linda Darling-Hammond asserts that existing evaluation systems do not provide teachers with timely and accurate information that contributes to improving their teaching (Darling-Hammond, 2014). Darling-Hammond; Goe, Bell, and Little; and findings from the MET study agree that in order to determine teacher effectiveness, the teacher evaluation system should include multiple measures addressing different aspects of teacher practice that influence student progress. These measures might include

observations conducted by well trained evaluators, student surveys, and connections to student outcomes;

Student Learning Objectives (SLOs) have been implemented in several states as a portion of their new teacher evaluation systems. Saint Lawrence School District (SLSD), after rigorous study and input from key stakeholders, included SLOs in their redesigned teacher evaluation system. SLOs were chosen as one means to advance student learning in the school district. Implementing SLOs is a collaborative process that uses data to diagnose student needs, inform instructional planning, and identify teacher professional development needs. The process is supported by Barkley and Bianco(2011) who propose that in order for teacher professional development experiences to impact student achievement, the planning process must align teacher needs with the needs of students.

Much of the body of literature on teacher evaluation systems focus on implementation, effectiveness, reliability, and validity. There is a paucity of research on the use of Student Learning Objectives as a means to increase teacher capacity to impact student achievement. Therefore, the purpose of this study was to investigate middle grade mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with the implementation of Student Learning Objectives (SLO); the extent to which teachers report that student data from the SLO process have changed their instructional practices; and teacher perceptions regarding the value of SLOs in improving student learning and their own professional growth.

## **Section II: Study Design**

### **Research Questions and Hypothesis**

As noted in Section 1, the purpose of this study was to investigate middle grade mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with the implementation of the Student Learning Objectives (SLO) process; the extent to which teachers report that student data from the SLO process have changed their instructional practices; and their perceptions regarding the value of SLOs in improving student learning and their own professional growth. This study was guided by the following research questions:

1. What is the level of knowledge and understanding among middle grade mathematics and language arts teachers of the intent and processes associated with the implementation of SLOs?
2. To what extent do middle grade mathematics and language arts teachers report that the use of student data from the SLO process has changed their specific instructional practices?
3. What are the perceptions of middle grade mathematics and language arts teachers regarding the value of SLOs as a means to improve student learning?
4. What are the perceptions of middle grade mathematics and language arts teachers regarding the value of SLOs to their own professional growth?

My hypotheses were as follows:

- Middle grade mathematics and language arts teachers will report positive agreement regarding their knowledge and understanding of the intent and processes associated with the implementation of SLOs.
- Middle grade mathematics and language arts teachers will report changes in specific instructional practices as a result of the implementation of SLOs.
- Middle grade mathematics and language arts teachers will report that they view SLOs as a valuable practice as a means to improving student learning.
- Middle grade mathematics and language arts teachers will report that they view SLOs as a valuable mechanism for targeting their professional growth.

### **Overview of the Study**

This study was designed as a quantitative exploratory study using a web-based survey. Responses were analyzed using descriptive statistics, visual data displays, and tests of significance. The subjects in this study were 315 middle school (grades 6, 7, and 8) mathematics and language arts teachers from the 19 comprehensive middle schools in SLSD. Middle grade mathematics and language arts teachers were chosen because the largest gap in SLSD between teacher ratings of effectiveness and student performance in mathematics and language arts exists in the middle grade levels (6, 7, and 8).

### **Survey Instrument**

An anonymous self-administered web-based survey was used to gather quantitative data regarding attitudes, viewpoints, and perceptions of classroom teachers about the Student Learning Objectives (SLO) process established by SLSD based on

federal education guidelines. The survey instrument was developed after consultation with staff members in the Instructional Data Division who were instrumental in the development of the SLO document. I presented a set of questions that I proposed and we brainstormed how to restructure the questions. After the first draft, we crafted 64 questions. Realizing that this was a long survey and the number of questions might deter teachers from participating in the survey, we reduced and rewrote the questions with guidance from my University of Maryland advisors. The survey questions were also organized into categories that aligned with the research questions. A final section was added after consultation with school system staff in order to gather data on the choices teacher have at their schools when selecting their SLO. Table 1 provides the categories of the survey questions.

Table 1

Survey Questions Categories

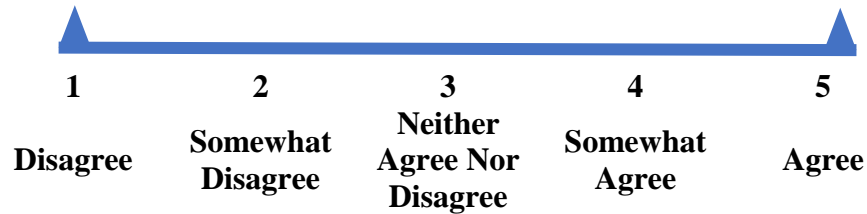
<u>Section</u>	<u>Section Title</u>	<u>Response Type</u>	<u>Number of Questions</u>
A	Knowledge and Understanding about Student Learning Objectives	5 Point Likert Scale	7
B	Instructional Practices	5 Point Likert Scale	2 (set of 6 practices)
C	Beliefs about Student Learning Objectives	5 Point Likert Scale	10
D	Teacher Choice	Yes/No	9
E	Background Information	Multiple Choice	6
Total			35

**Survey items.** The survey contained 35 items organized into five sections:

- Section A: Knowledge and Understanding about Student Learning Objectives consisted of seven items. The purpose of this section was to gather data from teachers regarding their understanding of the SLO process and the overall intent of SLOs. The responses in this section were on a 5 point Likert scale, based on the participant's level of agreement. Figure 5 contains a representation of the 5 point scale used for this section. Additionally in this section, there was one question asking participants to rank the top 3 resources they found to be most helpful.

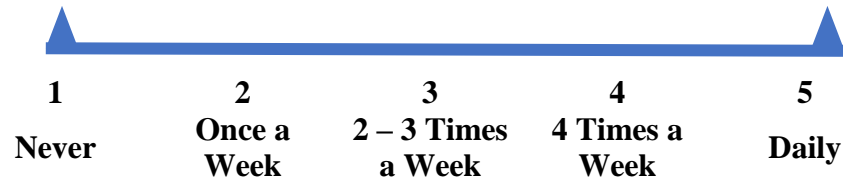


*Figure 5: Agreement Response Scale. 5 point Likert scale, based on the participant's level of agreement.*



- Section B: Instructional Practices consisted of two groups of six questions. The questions in this section were to capture any changes in teacher practice as a result of SLO implementation. The first six questions asked teachers to report the frequency of engagement in a particular practice prior to SLO implementation. The second set of six questions were identical to the first set and asked teachers to report the frequency of engagement in the same practice after SLO implementation (Post-SLO Implementation). A five point Likert scale based on the frequency of each teacher's engagement in that practice, was used to record teacher responses (see Figure 6).

*Figure 6: Response Scale for Instructional Practice. 5 point Likert scale based on the frequency of each teacher's engagement in a particular practice.*



- Section C: Beliefs about Student Learning Objectives consisted of ten items that focused on capturing the participants' beliefs about the SLO process and their perceived values regarding the process and intent of SLOs. These question responses were reported using a 5 point Likert scale based on the participants' level of agreement.
- Section D: Teacher Choice section was included to gather data on whether teachers have a choice in selecting their SLOs, or must comply with administrator assigned SLOs. The responses for this section were reported as either yes or no.
- Section E: Background Information section included information that categorized the teacher's tenure as an educator, teaching middle grades, in the school system and the content area they teach (see Appendix A for complete survey).

**Pilot test.** Prior to sending out the email with a link to the survey. The completed survey was duplicated to be used as a pilot. An email went out to thirteen

educators requesting feedback on the survey. The educators served in different roles in the school system: teachers, administrators, and central office staff. The email specifically asked them to inform me if the link worked, if the survey took ten minutes or less, and if they had any additional feedback to offer. Initially I received one response stating the survey worked and took less than ten minutes. That same day, I received three additional emails informing me the link was not working. After investigating by making calls to the platform service provider, I was informed that the entire network was down and they were working to restore the system. The customer service representatives assured me none of my work would be lost. A few days later, the link was restored and I requested my colleagues try accessing the link again. I received 5 responses. All the responses confirmed the link worked and it took about ten minutes. Two individuals gave me additional feedback regarding the wording of certain questions and the flow of the survey. Based on the recommendations from colleagues, a few changes were made to the electronic survey.

The survey was distributed via email to the 315 mathematics or language arts teachers in 19 middle schools that served students enrolled in grades six, seven, and eight. As teachers opened the survey, they were first taken to an Informed Consent Form (see Appendix B) which indicated that participation in the survey was voluntary and that their responses would be confidential. The online data-collection system allowed each teacher to complete the survey at his or her own pacing. Participants were allowed to pause their online sessions at any point and to resume the process without any data loss. Moreover,

the online software allowed for participants to review and change responses as desired. Once the nine-day data collection period ended, all digital responses from participants were compiled into a single database for analysis.

### **Methods/Procedures**

After receiving approval from the University of Maryland Institutional Review Board (IRB) and the SLSD Instructional Data Division, I collaborated with school district executive level staff who then sent an email to inform middle school principals about the study. The email to principals (see Appendix C) went out first, so principals were aware that I would be contacting all mathematics and language arts teachers in their schools. The email sent to principals outlined the purpose of the study, benefits to the district if their teachers participated, and the timeline for administration of the survey.

Approximately one day after the principal email was sent, I sent an email to each of the 38 middle grade mathematics and language arts department chairs (see Appendix D). Each comprehensive middle school has a named department chair for mathematics and for language arts who serves as a liaison between central office and the school. My email to the department chairs asked them to please forward the invitation to participate in the survey to all the teachers in their department. The email that the department chairs received also contained information about the purpose of the study and the link to the survey. The email invitation sent to every teacher through the department chairs outlined the purpose of the study, the potential benefits to the school district, and the timeframe in

which the survey was to be completed. Also included in the email was a link to the online anonymous survey (see Appendix A).

At the district level, there is one coordinator for middle school mathematics and one for middle school language arts who are responsible for overseeing the entire district curriculum and implementation for their content areas and grade levels. Department chair meetings take place throughout the school year, so after receiving approval from the University of Maryland IRB and the SLSD Instructional Data Division, I reached out to both coordinators to ask for an opportunity to speak to the middle school department chairs during one of their scheduled meetings. I attended a middle school mathematics department chair meeting a few days before the email was sent to principals and the language arts meeting after the email had been sent out to both principals and department chairs. At each meeting, I spent approximately 10 minutes explaining the purpose and value of the study and asking the department chairs to encourage the teachers at their schools to complete the survey.

The survey was administered over a nine-day period in the month of March. A reminder email (see Appendix E) was sent to middle school mathematics and language arts department chairs one day before the survey closed reminding them to encourage the teachers to complete the survey if they had not already done so. The purpose for limiting the number of reminders, was to avoid inundating the department chairs with numerous emails.

## **Human Subjects Review**

I completed the appropriate district documents and submitted them to the Instructional Data Division to obtain permission at a district level (see Appendix G). Simultaneously, I completed and submitted the IRB documentation (see Appendix F) to the University of Maryland Research and Compliance Office. The Instructional Data Division received a copy of the approval from the University of Maryland Research and Compliance Office; likewise, the University of Maryland Compliance Office received a copy of the approval from the SLSD Instructional Data Division. I contacted executive level district personnel to ensure they would support the survey being sent out to teachers. District-level personnel notified all middle school principals before I contacted the middle grade language arts and mathematics teachers.

Participant consent was embedded within the survey. The first question asked participants for their consent and they were not able to proceed until they completed the first question. If participants responded "yes," they were able to proceed with the survey. If participants responded "no" to the consent question, the survey ended with a note thanking them for considering participation.

## **Analyses**

Based on the exploratory research design and psychometric characteristics of the data, a two-stage analysis strategy was used to address the research questions. Initially, descriptive statistics (frequencies) were generated for all items from each section of the survey instrument. These descriptive statistics were augmented with visual displays to reflect score distributions and aggregations of sample characteristics.

In order to examine in greater depth the responses including whether the responses differed among different groups of respondents, the individual survey items were transformed to a score for each of the following sections: Knowledge and Understanding about Student Learning Objectives, Instructional Practices Prior to SLO Implementation, Instructional Practices After SLO Implementation, and General Beliefs about Student Learning Objectives;

A two-step process was used to generate a score from the Likert-type items for each of the four subscales (Knowledge and Understanding, Instructional Practices Prior to SLO Implementation, Instructional Practices After SLO Implementation, and General Beliefs about SLOs). First an average response value was generated for all the items included in the subscale. This was done as follows:

- The Likert scale item responses were assigned a value of 1 to 5. The value of 1 (the lowest) was assigned to “Disagree” and the value of 5 (the highest) was assigned to “Agree” (See Figure 5).
- If teachers selected agree for one of their responses, they were assigned a value of 5 for that response on that question; if teachers chose somewhat agree for the next, they were assigned a value of 4. Each participant's score was then added for the section. (For example if a participant chose agree for the entire section, and the section had seven items, the total score for the section after adding the responses would be 35.)

- The average response was calculated by dividing the total score by the number of items in that section. (In the example listed above, the participant's average would be calculated as follows  $35/7 = 5$ . The average response for this section for this participant would be 5.)

The second step of the procedure involved multiplying the average response by ten to create uniform scores for all the participants in order to conduct further analyses as well as discuss and represent graphically. Resulting scores for each of the sections fall between 10 and 50. To illustrate, in the example listed above, the participant's average score of 5 would be multiplied by ten ( $5 \times 10 = 50$ ) and the participant's average response would be reported as 50.

In order to determine if scores differed by selected respondent characteristics, I conducted additional statistical analyses. I examined scores by teaching experience, by subject area taught using the t-test, and by grade level using a one-way analysis of variance (ANOVA).



### **Section III: Results and Conclusions**

The purpose of this study was to gather from teachers reports of their knowledge and understanding of the intent and processes associated with the implementation of the Student Learning Objectives (SLO) process; their beliefs about the extent student data from the SLO process have changed their instructional practices; and their perceptions regarding the value of SLOs in improving student learning and their own professional growth.

A comprehensive survey instrument was administered to the sample of teachers selected from Saint Lawrence School District (SLSD). Items within the survey were designed to explore four research questions focused on knowledge, values, perceptions, and professional growth associated with implementation of SLOs within the district. Ultimately, the study seeks to provide insight into the influences of the SLO process on instructional practice.

The presentation of the results of the survey begins with the analyses of item reliability for the survey followed by the response rate and characteristics of the respondents. I then provide results that respond to each of my research questions. Following the presentation of results, I offer conclusions, and implications based on trends revealed in the data. The final section in this chapter focuses on future research opportunities.

**Characteristics of respondents.** Of the original 315 teachers to whom surveys were administered, 247 or 78.4 % responded. However, 15 surveys were not useable due

to missing data on one or more items. Therefore, the number of respondents included in the actual analyses was 232 or 73.7% of the original responses<sup>2</sup> presents a partial summary of the participants who responded to the survey organized by grade level and subject area taught. While the data show that the majority of teachers, 91 (39.8%), taught eighth graders, the distribution of respondents by grade and subject area taught was nearly even.

Table 2

Descriptive Profile of Participants by Grade Level and Subject Area Taught (N = 232)<sup>1</sup>

<b>Characteristic</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>Grade Level of Teaching</b>			
Grade 6	66	29.1%	29.1%
Grade 7	70	30.2%	59.9%
Grade 8	91	39.8%	100.0%
<b>Content Area of Teaching</b>			
Language Arts	116	51.1%	51.1%
Mathematics	101	44.5%	95.6%
Other	10	4.4%	100.0%

<sup>1</sup>Note that table values reflect actual responses from teachers

Regarding teaching experience within the SLSD, Table 3 shows that a majority of the teachers who responded had “11 to 20 years” overall teaching experience, in the

county and in middle school. Although the majority of teachers have extensive experience, 112 (49.3%) have only been in their current school for “1 to 3 years.”

Table 3

Descriptive Profile of Participants (N = 232)<sup>1</sup>

Characteristic	Frequency	Percent	Cumulative Percent
Total Years of Teaching			
1 to 3 Years	32	14.1%	14.1%
4 to 6 Years	35	15.4%	29.5%
7 to 10 Years	24	10.6%	40.1%
11 to 20 Years	85	37.4%	77.5%
Over 20 Years	51	22.5%	100.0%
Years of Teaching in County			
1 to 3 Years	53	23.3%	23.3%
4 to 6 Years	37	16.3%	39.6%
7 to 10 Years	30	13.2%	52.9%
11 to 20 Years	79	34.8%	87.7%
Over 20 Years	28	12.3%	100.0%
Years of Teaching in Middle School.			
1 to 3 Years	55	24.2%	24.2%
4 to 6 Years	48	21.1%	45.4%
7 to 10 Years	31	13.7%	59.0%
11 to 20 Years	78	34.4%	93.4%
Over 20 Years	15	6.6%	100.0%

Total Years in Current School

1 to 3 Years	112	49.3%	49.3%
4 to 6 Years	50	22.0%	71.4%
7 to 10 Years	25	11.0%	82.4%
11 to 20 Years	34	15.0%	97.4%
Over 20 Years	6	2.6%	100.0%

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<sup>1</sup>Note that table values reflect actual responses from teachers

**Teacher choice.** Teachers were asked to respond to a series of questions to determine if they had some autonomy in selecting their SLO, the learning content, the target population, the SLO window, and the growth target. Table 4 presents descriptive statistics for responses to questions from Section D of the survey. When asked if they were able to select “at least one” SLO, a very high majority of the subjects gave affirmative responses. As shown in the table, a frequency of 209 (92.1%) was found for the “Yes” response, with the converse of 18 (7.9%) responses found for the “No” response. For the item questioning requirements to use SLOs selected exclusively by “the school administrator,” a majority of the subjects, 204 (89.9%), provided a “No” response which supported the view that most teachers did maintain some level of professional responsibility for planning SLO learning activities. The contrasting response frequency for this second key item was 23 (10.1%) for subjects giving a “Yes” response (refer to Table 4).

Table 4

Responses to “Teacher Choice of SLOs” Survey Items (N = 232)<sup>1</sup>

Survey Item	Yes		No	
	<i>f</i>	%	<i>f</i>	%
I am able to select my SLOs based on my analysis of historical student data.	187	82.4%	40	17.6%
I participate in one school-wide SLO.	131	57.7%	96	42.3%
I am able to select at least one of my SLOs.	209	92.1%	18	7.9%
Both of my SLOs are selected by the school administration.	23	10.1%	204	89.9%
Outside of a school school-wide SLO, my school administration allows me to select my target population(s).	205	90.3%	22	9.7%
Outside of a school focused SLO, my school administration allows me to select the learning content for my SLO(s).	202	89%	25	11%
Outside of a school school-wide SLO, my school administration allows me to select my SLO growth target(s).	195	85.9%	32	14.1%
Outside of a school school-wide SLO, my school administration allows me to determine my SLO window.	142	62.6%	85	37.4%
The learning content I select is aligned with the curriculum document for my course and grade level.	221	97.4%	6	2.6%

<sup>1</sup>Note that table values reflect actual responses from teachers

**Item reliability.** An analyses was conducted for each of the four sections that contained Likert-type items to measure scale reliability and internal consistency (Gay, Mills, & Airasian, 2009). Table 5 presents the results of the reliability analysis. A high alpha indicates response patterns are internally consistent. High reliability coefficients were found for each index, with the ten-item “General Beliefs About SLO Process” subscale generating the highest value of .93, followed by the “Post SLO Instructional Practices” subscale with a coefficient of .88 for six items. An alpha reliability coefficient of .85 was found for the six-item “Pre SLO Instructional Practices” subscale, and a coefficient of .82 was generated for the “Knowledge & Understanding of SLOs” subscale. The number of cases included in the reliability analyses varied from 227 to 229 depending on the availability of complete responses for subjects included in the database.

Table 5

Reliability Coefficients for Teacher Perceptions of SLO Survey Subscales

Subscale	Number of Items	Alpha Coefficient
Knowledge & Understanding of SLOs (n = 229)	7	.82
Instructional Practices Prior to SLO Implementation (n = 229)	6	.85
Instructional Practices After SLO Implementation (n = 227)	6	.88
General Beliefs About SLOs (n = 227)	10	.93

Table 6 presents average responses for each of the four sections included in the survey instrument. The number of cases included in these analyses ranged from 227 to 229 based on the responses for each item. Further discussion of this data will be presented later in this section.

Table 6

Descriptive Statistics for Teacher Perceptions of SLO Survey Subscale

Subscale	Mean <sup>1</sup>	Standard Deviation	Range
Knowledge & Understanding of SLOs	41.05 (n = 229)	7.78	12.9 - 50.0
Instructional Practices Prior to SLO Implementation	31.35 (n=229)	8.75	10.0 – 50.0
Instructional Practices After SLO Implementation	30.84 (n=227)	9.17	10.0 – 50.0
General Beliefs About SLO	28.70 (N=229)	10.58	10.0 – 50.0

<sup>1</sup>The subscale n reflect the number of subjects with non-missing data on individual section items.

### Analyses for Research Question 1

Research Question 1 focused on perceptions of middle-school teachers from SLSD regarding the implementation of the Student Learning Objectives (SLO) process. The research question was stated as follows: What is the level of knowledge and understanding among middle grade mathematics and language arts teachers of the intent and processes associated with the implementation of SLOs? The associated hypothesis

was expressed as Middle grade mathematics and language arts teachers will report positive agreement regarding their knowledge and understanding of the intent and processes associated with the implementation of SLOs. Table 7 presents descriptive statistics from the questions in Section A of the survey.

Teachers reported a high level of agreement on the first five questions that focused on their knowledge and understanding of the SLO process. For the first five questions, over 80% of the 232 teachers reported they either agreed or somewhat agreed to having a clear understanding of the processes described. Questions 6 and 7 on the survey focused on the teacher's knowledge and understanding of the intent associated with the implementation of SLOs. The data revealed a decrease in the percentage of teachers who reported they agreed or somewhat agreed to understanding why they are writing SLOs, and how the SLO process is intended to improve student learning. The number of teachers who reported agreement to understanding why they are writing SLOs was 135(58.9%). The number of teachers who reported they understand how implementing SLOs is intended to improve student learning was 142 (62%). The data also show that the largest proportion of respondents neither agreed nor disagreed with items 6 and 7.



Table 7: Responses to “SLO Knowledge and Understanding” Survey Items (N = 232)<sup>1</sup>

Survey Item	Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Agree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
I have a clear understanding of how Student Learning Objectives (SLOs) are factored into my final rating.	6	2.6%	8	3.5%	6	2.6%	64	27.9%	145	63.3%
I have a clear understanding of the steps of the SLO process.	5	2.2%	7	3.1%	7	3.1%	62	27.1%	148	64.6%
I have a clear understanding of how to write an effective SLO.	6	2.6%	9	3.9%	15	6.6%	78	34.2%	120	52.6%
I am comfortable obtaining historical data on current students for the learning content I have chosen.	6	2.6%	26	11.4%	17	7.4%	69	30.1%	111	48.5%
I am comfortable analyzing student data to determine each student's level of mastery of the essential content.	1	0.4%	8	3.5%	10	4.4%	62	27.1%	148	64.6%
Beyond the evaluation process, I have a clear understanding of why I am writing SLOs.	48	21.0%	25	10.9%	21	9.2%	63	27.5%	72	31.4%
Beyond the evaluation process, I have a clear understanding of how implementing the SLO process is intended to improve student learning.	38	16.6%	27	11.8%	22	9.6%	69	30.1%	73	31.9%

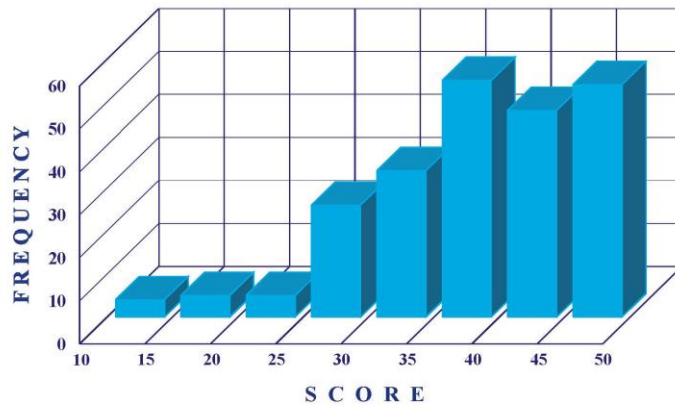
<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

As discussed in the analyses in Section II, the seven Likert-type items within Section A of the survey instrument were combined into a subscale defined as Knowledge & Understanding of Student Learning Objectives. A robust reliability coefficient of .82 was found for this section. Scores for the subscale on Knowledge & Understanding of Student Learning Objectives ranged from 10 to 50, with higher values indicating that teachers generally felt knowledgeable about the SLO process and the intent of SLO implementation.

Figure 7 shows the distribution of scores displayed in a bar graph. The figure reveals that most subjects scored above 30 points on the subscale, suggesting that teachers reported having an overall strong sense of knowledge relative to the process and purpose of SLOs for enhancing student learning.

*Figure 7: Frequency Distribution of “SLO Knowledge and Understanding”*

Subscale Scores. Majority of the teachers scored above 30 points, reporting having an overall string sense of agreement.



In order to determine if scores differed by selected respondent characteristics, I conducted two additional statistical analyses. First, I examined scores by teaching experience and subject area taught. Table 8 presents the results of five separate t-tests that examined teaching experience and subject area taught. The five response options for teaching characteristics were collapsed into two categories: 1-10 years and more than 10 years for overall years of teaching and 1-3 years and more than 4 years for years teaching in current school. Table 8 shows there were significant differences in the scores for overall teaching experience and years taught in the county. Generally, findings from these statistical tests suggest that teachers with ten years or more teaching experience, overall and in the county reported a greater sense of confidence with understanding the process and purpose of SLO implementation.

Table 8

Summary of t-Tests on “Knowledge &amp; Understanding of Student Learning Objectives”

Subgroup	Subgroup Values			<i>t-ratio</i>
	<i>n</i>	$\bar{X}$	$\sigma$	
Overall Teaching Experience				
1-10 Years	91	39.6	8.1	-2.10*
10 > Years	136	42.0	7.5	
Teaching in County				
1-10 Years	120	39.8	8.9	-2.62**
10 > Years	107	42.4	6.9	
Teaching in Middle School				
1-10 Years	103	40.0	8.2	-1.78
10 > Years	124	41.8	7.4	
Teaching in Current School				
1-3 Years	112	40.6	8.6	-.86
4 > Years	115	41.4	6.9	
Teaching Subject Area				
Language Arts	101	40.7	7.6	-.36
Mathematics	116	41.0	8.1	

Subscale Scores based on Recodings of Background Variables (N = 232)<sup>1</sup><sup>1</sup>Note that values reflect actual responses from sampled teachers.

\*p &lt; .05; \*\*p &lt; .01

To examine differences in scores by the main grade level taught, a one-way ANOVA (grade level x score) was performed. Table 9 shows no significant differences were found.

Table 9

Analysis of Variance Summary "Knowledge & Understanding of Student Learning Objectives" *Subscale Scores based on Teaching Grade Level (N = 232)*<sup>1</sup>

Subgroup	Subgroup Values			F-ratio
	n	$\bar{X}$	$\sigma$	
Teaching Grade Level				
Grade 6	66	39.6	8.1	1.65
Grade 7	70	42.0	7.5	
Grade 8	91	39.8	8.9	

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

A final dimension of the analysis for Research Question 1 focused on ranking three of the most helpful resources and supports for writing and implementing SLOs. Table 10 presents the results of the rankings and identifies the three highest ranked resources and supports. As shown in the table, teachers ranked the colleagues in their department at their school as the most useful resource followed by the model SLOs provided on the district's intranet and the administrators at their school.

Table 10

Top Three Ranked Resources and Supports Selected as Helpful with Implementing SLOs  
(N = 232)<sup>1</sup>

Characteristic	Rank	Frequency	Percent
“Colleagues in My Department at My School”	1 <sup>st</sup>	206	88.8%
“The Model SLOs on the School System’s Intranet”	2 <sup>nd</sup>	115	49.6%
“The Administrators within my School”	3 <sup>rd</sup>	105	45.3%

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

## Analyses for Research Question 2

Research Question 2, focused on the perceptions of subjects regarding the influences of the SLO process on their instructional practices. The research question was specifically stated as: To what extent do middle-school mathematics and language arts teachers report that student data from the SLO process have changed their specific instructional practice? The associated hypothesis was expressed as Middle school mathematics and language arts teachers will report changes in specific instructional practices as a result of the implementation of SLOs. Table 11 presents descriptive statistics of the questions from Section B of the survey. It is important to note that there were two groups of items in Section B of the survey, each of which contained six individual items rated on a common five-point scale. The two sets of items were identical in wording, except that the first set focused on instructional practices prior to

SLO implementation, while the second set of items focused on instructional practices after SLO Implementation.

The data show that the majority of teachers report engaging in five out of six practices two to three times a week before and after SLO implementation. The largest increase in frequency of use reported by teachers was using data to plan instruction customized to specific student needs. Before SLO implementation, 81 (35.4%) of respondents indicated that they used data to plan instruction customized to student needs. Those numbers rose to 91 (40.1%) after SLO implementation. The data also show the number of teachers who reported engaging in conversations with their colleagues decreased in the categories of daily and two to three times a week, and increased in the once a week and never categories for this question. In the Before SLO section, the majority of the teachers, 87(38%), reported never engaging in conversations with administrators regarding student data to plan learning experiences for students. The number of teachers who reported never engaging in conversations with administrators after SLO implementation only decreased by two, 85(37.4%). The number of teachers who reported using student data to inform and plan professional learning needs 2 to three times a week decreased from 73(31.9%) to 64(28.2%). For this same question after SLO implementation, the number of teachers who reported using data to plan professional learning needs daily also decreased, but the number who reported once a week and never increased.



Table 11

Responses to “Instructional Practices” Before and After SLO Implementation Survey Items (N = 232)

Survey Item	Daily		4 Times a Week		2 to 3 Times a Week		Once a Week		Never	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Use student data to identify students who have not mastered essential content.										
Before SLO Implementation	63	27.5%	28	12.2%	85	37.1%	51	22.3%	2	0.9%
After SLO Implementation	65	28.6%	24	10.6%	82	36.1%	52	22.9%	4	1.8%
Use student data to plan instruction customized to the specific needs of students.										
Before SLO Implementation	67	29.3%	27	11.8%	81	35.4%	50	21.8%	4	1.7%
After SLO Implementation	64	28.2%	21	9.3%	91	40.1%	47	20.7%	4	1.8%
Select or create specific assessment questions to measure students' understanding of the identified content.										
Before SLO Implementation	59	25.8%	33	14.4%	76	33.2%	58	25.3%	3	1.3%
After SLO Implementation	56	24.7%	30	13.2%	79	34.8%	56	24.7%	6	2.6%
Use current student data to inform and plan your professional learning needs.										
Before SLO Implementation	56	24.5%	28	12.2%	73	31.9%	56	24.5%	16	7%
After SLO Implementation	51	22.5%	31	13.7%	64	28.2%	61	26.9%	20	8.8%

Survey Item	Daily		4 Times a Week		2 to 3 Times a Week		Once a Week		Never	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Have conversation with your colleagues focused on using student data to plan customized learning experiences to meet the specific needs of your students.										
Before SLO Implementation	51	22.3%	24	10.5%	96	41.9%	54	23.6%	4	1.7%
After SLO Implementation	46	20.3%	25	11%	88	38.2%	60	26.4%	8	3.5%
Have conversation with your administrators focused on using student data to plan customized learning experiences to meet the specific needs of your students.										
Before SLO Implementation	13	5.7%	12	5.2%	34	14.8%	83	36.2%	87	38%
After SLO Implementation	10	4.4%	15	6.6%	31	13.7%	86	37.9%	85	37.4%

<sup>1</sup>Note that table values reflect actual responses from teachers.

The two groups of items in Section B consisting of six Likert-type items were combined into subscales defined respectively as *Instructional Practices Prior to SLO Implementation* and *Instructional Practices After SLO Implementation*. High reliability coefficients were found for this sections, with the six item Instructional Practices prior to SLO implementation generating a value of .85 and the six item Instructional Practices after SLO implementation generating a reliability coefficient of .88. The scoring procedure for these subscales was detailed in Section 2. Scores for the two subscales ranged from 10 to 50, with higher values indicating that teachers reported they tend to use those instructional practices more frequently.

Figure 8 shows that most scores clustered in the 25 to 30 points range. This score distribution suggests that most teachers reported engaging in one or more of the instructional practices two to three times a week.

*Figure8:* Frequency Distribution of Instructional Practices Before SLO Implementation Subscale Scores

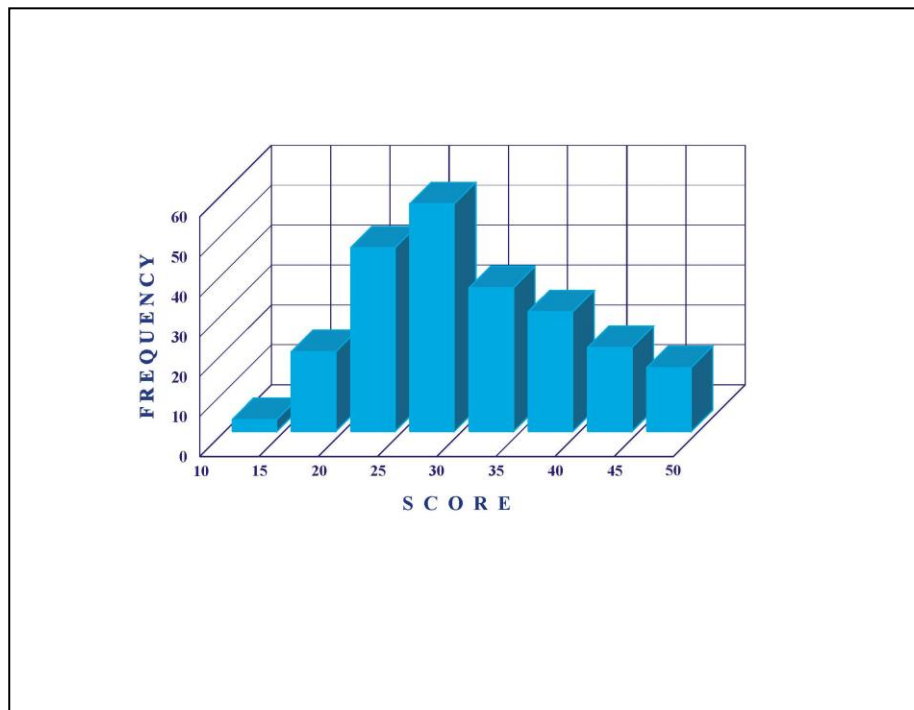
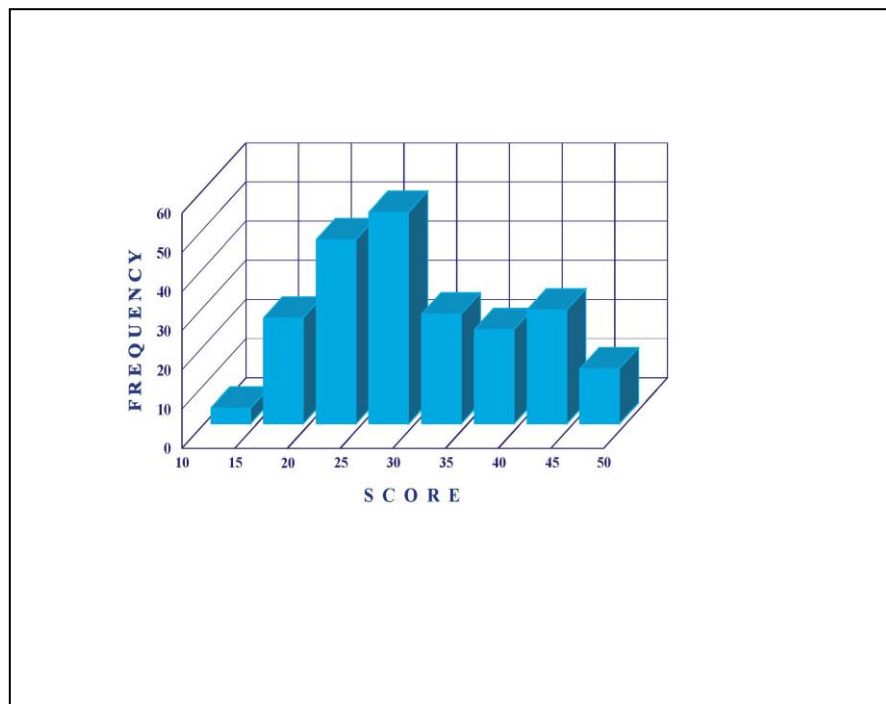


Figure 9 shows the Instructional Practices after SLO implementation subscale score distribution. These scores were distributed very similarly to the Instructional Practices prior to SLO implementation. Most scores were also clustered in the 20 to 30 points range suggesting that the majority of the teachers reported engaging in the instructional practices two to three times a week. The distributions displayed on the graphs suggest teachers did not report noticeable changes as a result of SLO implementation.

*Figure 9:* Frequency Distribution of Instructional Practices After SLO Implementation Subscale Scores



In order to determine if scores differed by selected respondent characteristics, I also conducted two additional statistical analyses for this research question. Generally, findings from

these statistical tests indicate that there were no statistically significant differences found. Tables 12, 13, 14 and 15 show the results from these tests.

Table 12

Summary of t-Tests on “Instructional Practices Prior to SLO Implementation” Subscale Scores Based on Dichotomized Recodings of Background Variables (N = 232)<sup>1</sup>

Subgroup	Subgroup Values			t-ratio
	n	$\bar{X}$	$\sigma$	
Overall Teaching Experience				
1-10 Years	91	32.2	8.2	1.07
10 > Years	136	30.9	9.1	
Teaching in County				
1-10 Years	120	32.0	8.9	1.12
10 > Years	107	30.7	8.6	
Teaching in Middle School				
1-10 Years	103	31.9	8.5	.80
10 > Years	124	31.0	9.5	
Teaching in Current School				
1-3 Years	112	31.1	8.9	-.47
4 > Years	115	31.7	8.7	
Teaching Subject Area				
Language Arts	101	31.3	8.6	-.80
Mathematics	116	31.6	9.0	

<sup>1</sup>Note that values reflect actual responses from sampled teachers.

\*p < .05; \*\*p < .01

Table 13

Analysis of Variance Summary “Instructional Practices Prior to SLO Implementation” Subscale Scores Based on Teaching Grade Level (N = 232)<sup>1</sup>

Subgroup	Subgroup Values			F-ratio
	n	$\bar{X}$	$\sigma$	
Teaching Grade Level				
Grade 6	66	31.8	8.7	.67
Grade 7	70	32.1	8.9	
Grade 8	91	30.6	8.8	

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

\*p < .05; \*\*p < .01

Table 14

Summary of t-Tests on “Instructional Practices After SLO Implementation” Subscale Scores Based on Dichotomized Recodings of Background Variables (N = 232)<sup>1</sup>

Subgroup	Subgroup Values			t-ratio
	n	$\bar{X}$	$\sigma$	
Overall Teaching Experience				
1-10 Years	91	31.2	9.1	.52
10 > Years	136	30.6	9.2	
Teaching in County				
1-10 Years	120	30.8	9.7	-.12
10 > Years	107	30.9	8.6	
Teaching in Middle School				
1-10 Years	103	31.5	9.3	1.05
75				

Subgroup	Subgroup Values			t-ratio
	n	$\bar{X}$	$\sigma$	
10 > Years	124	30.2	9.1	-.10
Teaching in Current School				
1-3 Years	112	30.8	9.5	
4 > Years	115	30.9	8.9	-.07
Teaching Subject Area				
Language Arts	101	30.9	8.6	
Mathematics	116	31.0	9.9	

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

\* $p < .05$ ; \*\* $p < .01$

Table 15

Analysis of Variance Summary “Instructional Practices After SLO Implementation”  
Subscale Scores Based on Teaching Grade Level (N = 232)<sup>1</sup>

Subgroup	Subgroup Values			F-ratio
	n	$\bar{X}$	$\sigma$	
Teaching Grade Level				.18
Grade 6	66	30.6	9.2	
Grade 7	70	31.4	9.2	
Grade 8	91	30.6	9.2	

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

\* $p < .05$ ; \*\* $p < .01$

### **Analyses for Research Question 3**

Research Question 3 was designed to explore the overall beliefs of subjects about the SLO process for improving learning. Specifically, the research question was expressed as: What are the perceptions of middle school mathematics and language arts teachers regarding the value of SLOs as a means to improve student learning? The corresponding hypothesis was stated as Middle school mathematics and language arts teachers will report that they view SLOs as a valuable practice as a means of improving student learning. Table 16 presents descriptive statistics for the questions from Section C of the survey.

The data revealed some consistent patterns regarding teacher's values and beliefs on the use of the SLO process as a means to improve student learning. A majority of the teachers reported disagreement when asked if the SLO process has deepened their understanding of how to use data to improve student learning. A majority also reported disagreement when asked if the SLO implementation has resulted in increased conversations with their colleagues and administrators about the use of student data to improve learning. The same tendency was observed when teachers were asked about the use of the SLO process to identify professional learning needs and to serve as a means to eliminate gaps and elevate all students. Most of the disagreement was found when teachers were asked if they value the SLO process as a means to focus conversations with colleagues and administrators on student needs. A total of 56.4% (128) expressed they disagreed or somewhat disagreed with this statement. The data also revealed that the majority of the teachers believe their professional learning should be based on the needs of



students, 53.7% (122) agreed and 33.3% (76) somewhat agreed. This was the only question where the majority of the responses fell under one particular category.

Table 16

Responses to "Beliefs Regarding Student Learning Objectives" Survey Items (N = 232)<sup>1</sup>

Survey Item	Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Agree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1. The SLO process has deepened my understanding of how to use data to improve student learning.	76	33.5%	26	11.5%	51	22.5%	51	22.5%	23	10.1%
2. The SLO process has resulted in increased conversations with my administrators regarding the use of data to improve student learning.	72	31.7%	29	12.8%	51	22.5%	54	23.8%	21	9.3%
3. The SLO process has led to an increase in conversations with my colleagues regarding the use of data to improve student learning.	61	26.9%	26	11.5%	49	21.6%	61	26.9%	30	13.2%
4. I value the SLO process as a means to focus my conversations with colleagues and administrators on student learning needs.	87	38.3%	41	18.1%	50	22%	33	14.5%	16	7%

Survey Item	Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Agree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
5. I believe my professional learning needs should be based on the needs of my students.	6	2.6%	9	4.0%	14	6.2%	76	33.5%	122	53.7%
6. I value the SLO process as a means to identify my professional learning needs so I can better meet the needs of my students.	78	34.4%	31	13.7%	43	18.9%	53	23.3%	22	9.7%
7. I believe beyond the two required SLOs, I should use the SLO process in less formal ways in my professional practice to monitor and improve student learning.	46	20.3%	27	11.9%	40	17.6%	67	29.5%	47	20.7%
8. I value the SLO process as a means to help me improve my teaching.	77	33.9%	38	16.7%	39	17.2%	47	20.7%	26	11.5%
9. I value the SLO process as a means to increase student achievement at my school.	63	27.8%	41	18.1%	41	18.1%	48	21.1%	34	15%

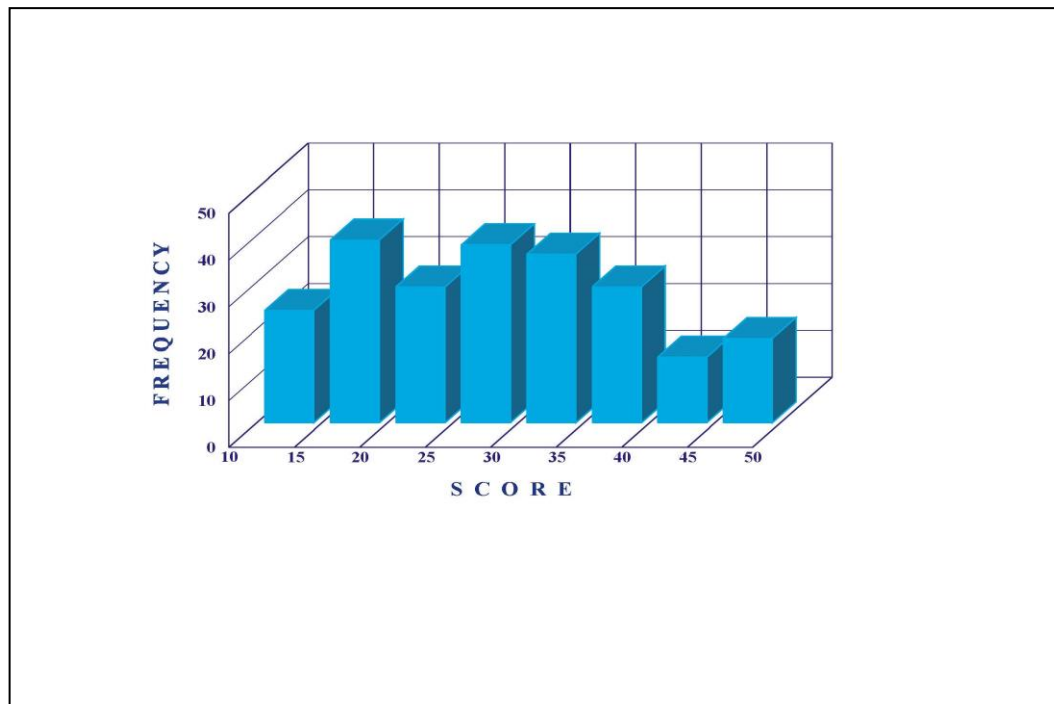
Survey Item	Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Agree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
10. I value the SLO process as a means to eliminate gaps and elevate all students.	68	30%	35	15.4%	50	22%	43	18.9%	31	13.7%

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<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

The ten Likert-type items within Section C of the survey were also combined into a subscale defined as General Beliefs about SLOs. The scoring procedure was consistent with the approach used for the other two subscales in this study. A strong reliability coefficient of .93 was found for this section. Figure 10 shows the distribution of scores displayed in a bar graph. The scores clustered in the 15 to 20 point range and the 25 to 30 point range.

*Figure 10: Frequency Distribution of Beliefs Regarding SLO Practices Subscale Scores*



In order to determine if scores differed by selected respondent characteristics, I conducted two additional statistical analyses. Table 17 presents the results of the 5 separate t-tests that examined teaching experience and subject area taught. Table 17 shows a statistically significant difference found in mean scores for years teaching at

current school and the subject area taught. Specifically, teachers with 1-3 years of experience at their current school had more positive beliefs about the SLO process than their colleagues with 4 or more years at the school, and mathematics teachers had more positive beliefs than language arts teachers.

Table 17

Summary of t-Tests on “Beliefs Regarding SLO Practices” Subscale Scores Based on Dichotomized Recodings of Background Variables (N = 232)<sup>1</sup>

Subgroup	Subgroup Values			t-ratio
	n	$\bar{X}$	$\sigma$	
Overall Teaching Experience				
1-10 Years	91	29.5	10.4	.88
10 > Years	136	28.1	10.7	
Teaching in County				
1-10 Years	120	29.2	10.1	.66
10 > Years	107	28.2	11.1	
Teaching in Middle School				
1-10 Years	103	29.5	10.6	1.05
10 > Years	124	28.0	10.5	
Teaching in Current School				
1-3 Years	112	30.1	10.4	1.97*
4 > Years	115	27.4	10.6	
Teaching Subject Area				
Language Arts	101	26.6	10.6	2.80**
Mathematics	116	30.5	10.3	

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

\*p < .05; \*\*p < .01

To examine differences in scores by primary grade level taught, I used a one-way ANOVA (grade level  $\bar{X}$  score). Table 18 shows that there were statistically significant differences among these subgroups. Grade eight teachers achieved a higher mean score, followed by grade 7 teachers, with grade 6 teachers having the lowest mean score.

Table 18

Analysis of Variance Summary "Beliefs Regarding SLO Practices" Subscale Scores

Based on Teaching Grade Level (N = 232)<sup>1</sup>

Subgroup	Subgroup Values			F-ratio
	n	$\bar{X}$	$\sigma$	
Teaching Grade Level				
Grade 6	66	26.2	9.9	3.19*
Grade 7	70	28.7	10.4	
Grade 8	91	30.5	10.5	

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

\*p < .05; \*\*p < .01

#### Analyses for Research Question 4

Research Question 4 was designed to explore the perceptions of teachers about the value of the SLO process for identifying their professional development needs. The research question was stated as: What are the perceptions of middle-school mathematics and language arts teachers regarding the value of SLOs as to their own professional growth? The corresponding hypothesis was presented as Middle school mathematics and language arts teachers will report that they view SLOs as a valuable mechanism for targeting their professional growth. Table 19 presents descriptive statistics of the questions from Section C of the survey that focused on professional learning.

Slightly over 87% (n=122) of the teachers agreed or somewhat agreed with the item asking if they believed their professional learning needs should be based on the instructional needs of students. In contrast, 48.1% (n=109) of teachers selected disagree or somewhat disagree when responding to the statement regarding valuing the SLO process as a means to identify their professional learning needs in order to better meet the needs of their students. Many teachers, 50.6% (n = 115), also tended to disagree when asked if they valued the SLO process as a means to help improve their teaching.



Table 19

Responses to "Beliefs Regarding Student Learning Objectives and Professional Learning" Survey Items (N = 232)<sup>1</sup>

Survey Item	Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Agree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
5. I believe my professional learning needs should be based on the needs of my students.	6	2.6%	9	4.0%	14	6.2%	76	33.5%	122	53.7%
6. I value the SLO process as a means to identify my professional learning needs to so I can better meet the needs of my students.	78	34.4%	31	13.7%	43	18.9%	53	23.3%	22	9.7%
8. I value the SLO process as a means to help me improve my teaching.	77	33.9%	38	16.7%	39	17.2%	47	20.7%	26	11.5%

<sup>1</sup>Note that table values reflect actual responses from sampled teachers.

## **Conclusions**

The study results include both anticipated and unexpected outcomes. This section presents conclusions drawn from the results of my analyses of survey responses, summarized by research question.

**Characteristics of respondents.** The data show that while many of the middle school language arts and mathematics teachers who responded are not considered novice teachers, most of them have served at their current school between one and three years. The majority, 71.4%, of the participants have served at their schools for six years or less.

**Teacher Choice.** The response patterns suggest that a majority of the teachers believed they have autonomy, to some extent, in selecting at least one of their SLOs, and in determining the SLO window, growth targets, and target population.

### **Research question #1: Knowledge and Understanding about Student**

**Learning Objectives.** As expected, responses to the survey items in Section A confirm that most teachers agreed they have a clear understanding of the SLO process. Teachers further agreed that they understand how to write an effective SLO, how to obtain historical data on current students, and how to analyze student data. Not surprisingly, 91.2% (n=209) of the teachers agreed or somewhat agreed to having a clear understanding of how SLOs are factored into their final ratings. In contrast only 58.8% (n=135) reported agreement or some agreement to understanding why they write SLOs and 62% (n=142) agreed or somewhat agreed to understanding how the SLO process is

intended to improve student learning beyond the evaluation of their teaching. Teachers with over ten years of teaching experiences in the district reported a greater confidence regarding the process and purpose of SLOs.

These results suggest that although SLSD may have intended to implement SLOs as a mechanism to improve teaching and learning as well as a tool to evaluate teacher effectiveness, teachers appear to see SLOs mostly as a tool for complying with the state mandate to include student achievement measures in teacher evaluations. The associated hypothesis for research question one was supported in that teachers reported having a clear understanding of the process and intent of SLOs. I believed teachers would report a high agreement for understanding SLOs because SLSD provided multiple forms of support in an effort to ensure teachers understood the SLO process. Professional development was offered through the "train the trainer" model at school sites on multiple occasions. In addition, model SLOs and webinars were posted on the SLSD internal website so that teachers could access on demand support. Understanding the process, however, does not seem to translate into appreciation for the process.

**Research question #2: Instructional Practices.** Results of responses to these items supported my hypothesis that middle school mathematics and language arts teachers would report changes in specific instructional practices as a result of SLO implementation in one area, and did not support my hypothesis in all the other areas. I surmised that as teachers became more comfortable using SLOs, they would discover that the process offered them opportunities to analyze student data in order to plan appropriate

instructional experiences for students. The importance of using student data to guide instructional planning was already emphasized across the school system in less formal ways. I believed that the SLO process was a way to formalize the practice and make it consistent throughout the district. For this reason, I proposed that teachers would report an increase in the frequency of data use during instructional planning. In addition I believed the process would reveal how to align student needs with professional development needs leading teachers to report an increase in the use of to plan their professional development. For questions regarding their instructional practices, 35.4% (n=81) of the teachers reported using data to plan instruction two to three times a week, based on student needs prior to SLO implementation. After SLO implementation, 40.1% (n=91) of the teachers reported using data to plan instruction two to three times a week, an increase of only 4.7% (n=10).

Another surprising finding related to research question 2 was the number of teachers who reported never having conversations with administrators regarding using student data to plan customized learning experiences to meet the needs of students. In reporting behaviors prior to SLO implementation, 38% (n=87) of teachers indicated never having such conversations with administrators. This number changed very little after SLO implementation, dropping only to 37.4% (n=85). As a part of the SLO process, teachers are expected to meet with their administrators to discuss the SLOs at least twice during that specific SLO implementation period, first to get the SLO approved and again at the end of the SLO period. A midpoint discussion is also suggested. Therefore, a

greater increase was expected. However, the question specifically asked about meetings with administrators. Instead of meeting with administrators, teachers may have met with the assigned SLO coach at their school. SLO coaches are teacher leaders, selected by the principal and trained by central office staff to assist school based administration with reviewing and approving SLOs. These meetings would not be reflected in the responses.

Finally, an unexpected trend was revealed when teachers were asked to report on the frequency of their engagement in conversation with their colleagues around student data. The number of teachers who engaged in conversation with colleagues two to three times a week actually decreased from 96 (41.9%) prior to SLO implementation to 88 (38.2%) after SLO implementation. The number of teachers who reported daily conversations with colleagues also decreased, dropping from 51 (22.3%) prior to SLO implementation to 46 (20.3%) after SLO implementation. The number of teachers who reported never engaging in conversations with colleagues increased from 4 (1.75) to 8 (3.5%). Most middle schools schedule time once a week during which teachers are required to meet with colleagues in their department to analyze student data and develop instructional plans based on student needs. This time is often referred to as collaborative planning time. In this category I anticipated frequencies to increase from once a week to two to three times a week because of the existing once a week planning time that is already in place. The results for research question number two suggest the implementation of SLOs did not result in a noticeable change in behaviors related to engaging in specific instructional practices.

**Research question #3: Beliefs Regarding Student Learning Objectives.** My hypothesis that mathematics and language arts teachers would view the SLO process as a valuable means to improving student learning was not supported by the results. While 87.2% (n=198) of the teachers agreed or somewhat agreed that their professional learning should be based on the needs of students, teachers generally reported that they did not value SLOs as a means to improving collaboration with colleagues and administrators, increasing student achievement, or eliminating achievement gaps. Among the teacher respondents, 56.4% (n=128) did not value the process as a means to collaborate with colleagues and administrators; 45.9% (n=104) did not value the process as a means to increase student achievement at their schools; and 45.4% (n=103) did not value the process as a means to eliminate gaps and elevate all students. The data suggest that teachers believe their professional development needs should align with meeting the instructional needs of students; however, they do not value the SLO process as an avenue to improve teaching and learning.

There was a statistically significant difference found between teachers teaching three years or less at their school and those teaching over four years. Teachers teaching three years or less had a higher belief ( $\bar{X} = 30.1$ ) in the value of SLOs than teachers teaching at the school for over four years ( $\bar{X} = 27.4$ ). This may be influenced by the likelihood that teachers at a new school are adapting to new cultures and may be more likely to reexamine their professional practice. A statistically significant difference was also found when comparing the mean scores of the mathematics teachers with the mean

scores of the language arts teachers. Mathematics teachers had a higher mean score ( $\bar{X} = 30.5$ ), a greater belief in the value of SLOs, than the language arts teachers ( $\bar{X} = 26.6$ ). Finally when comparisons were made by grade levels, statistically significant differences were found within this sub group. Eighth grade teachers had the highest mean score ( $\bar{X} = 30.5$ ), followed by grade 7 teachers ( $\bar{X} = 28.7$ ), then six grade teachers ( $\bar{X} = 26.2$ ).

**Research question #4: Beliefs Regarding Student Learning Objectives and Professional Learning.** Once again, findings related to teachers' perceptions of SLOs as valuable to identifying their professional development needs did not support my hypothesis that middle school language arts and mathematics teachers will report that they view SLOs as a valuable mechanism for targeting their professional development needs. I believed teachers would discover the value of using the SLO process to identify their professional learning needs as they became comfortable implementing SLOs and realized that the SLO documents clearly outlined the relationship between student needs and teacher professional development needs. The data were surprising. As previously stated, 87.2% (n=198) of the teachers agreed or somewhat agreed that professional development should be aligned to the needs of students; however, 48.1% (n=109) of the teachers reported they do not value the SLO process as a tool for identifying their professional development needs. In addition 50.6% (n=115) indicated disagreement when asked if they value the SLO process as a means to improve their teaching.

In summary, the data from this study revealed that teachers believe in using student data to drive instructional planning and identify teacher professional development needs, but the responding teachers were clear that they do not regard the SLO process as helpful in reaching either of those goals. Responses demonstrate that most teachers understand the SLO process and also understand the intended purpose of SLOs; however, teachers do not value this process as a means to increase student achievement at the school. This study reveals a disconnect between what central office staff believe teachers need, what the teachers actually receive, and how the teachers perceive the value of what they receive (Employee SLSD, personal communication, April 11, 2017).

### **Limitations**

The limitations to this study are primarily in the area of available time and energy on the part of teachers. The language arts teachers and mathematics teachers have extremely full and demanding schedules. Middle grade mathematics and language arts teachers over the past three years have been faced with implementing new curriculum based on new standards, implementing a new evaluation system, and preparing students for a new assessment. These changes have placed heavy demands on teachers' schedules. The timing of the study was also a limitation. The month of March is an extremely busy time at the schools as the state assessment window is only one month away. In developing the survey items, I gave careful consideration to how much time it would take for teachers to respond. If the timing and the hectic schedules of teachers were not constricting factors, I would have considered adding a few open ended questions to



explore more deeply into the perceptions of the teachers. Other options for probing more extensively might have included convening focus groups or conducting interviews after reviewing the survey results. One other limitation was time to pilot the survey questions. The survey questions were sent out to a small group of educators as a pilot, but the responses received did not speak to how the educators interpreted the questions or statements.

## **Implications**

The problem of practice began with the discovery of a misalignment between middle grade student performance and middle school teacher ratings. This led to questions regarding the potential for Student Learning Objectives (SLOs), as a part of a redesigned evaluation system, to improve teaching and learning by linking teacher professional development and teacher practice with student outcomes. This study was intended to be a small step toward unpacking whether SLOs support increased teacher effectiveness leading to increased student performance in targeted instructional areas. The focus was on the middle grade mathematics and language arts teachers' understanding of the process and purpose of SLOs, their perceptions regarding changes in specific practices as a result of SLO implementation, and their beliefs regarding the SLO process as a means to improve student learning and inform professional development. The findings in this study give the Saint Lawrence School District (SLSD) some opportunity to celebrate, as well as some areas to rethink in order to continue efforts to improve teacher practice and increase student performance.

As a first step, SLSD should celebrate their efforts in preparing middle grade teachers to implement SLOs. The majority of the teachers reported they having a clear understanding of the steps in the SLO process. They also indicated that they know how to write an effective SLO, obtain historical student data, and analyze data to determine students' level of mastery of the essential content. These efforts should not go unnoticed especially since SLSD met the state's timeline despite the fact they were not given any extra time to compensate for assisting the state in piloting the state model while SLSD designed and piloted its own district model.

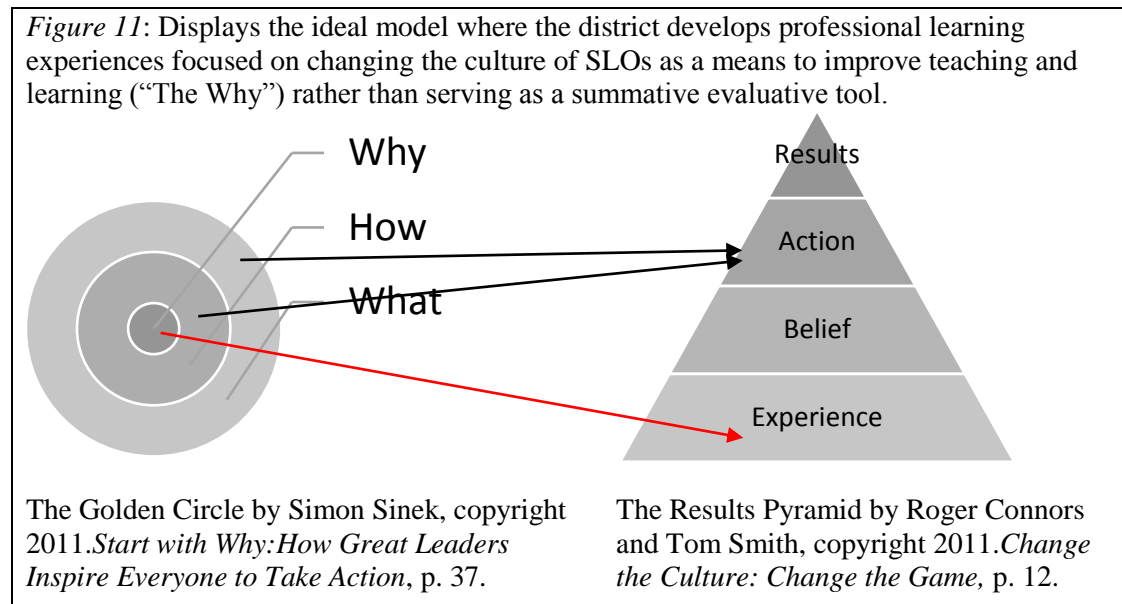
On the other hand, SLSD central office staff should acknowledge issues in the teachers' perceptions regarding the value of the SLO process in improving student achievement at their schools, identifying their professional development needs, and eliminating gaps in order to elevate all students. Additionally, knowing that the primary purpose of the SLO is to improve teaching and learning, SLSD should acknowledge that the majority of the teachers reported they were clear how SLOs are factored into their final ratings, suggesting that they still view SLOs primarily as an evaluative tool. The challenge that lies ahead for SLSD is to consider avenues to address a culture that seems to be viewed as a culture of compliance. The contrast between the teachers reporting a high agreement regarding the process associated with completing SLO documents and their disagreement with the value of SLOs as a means to increase student performance at the school and district level, suggests teachers are adhering to the practice, but do not believe in the process. If teachers do not value the SLO process as a means to improve

teaching and learning, the district, the teachers, and the students may not realize the full benefits of this tool.

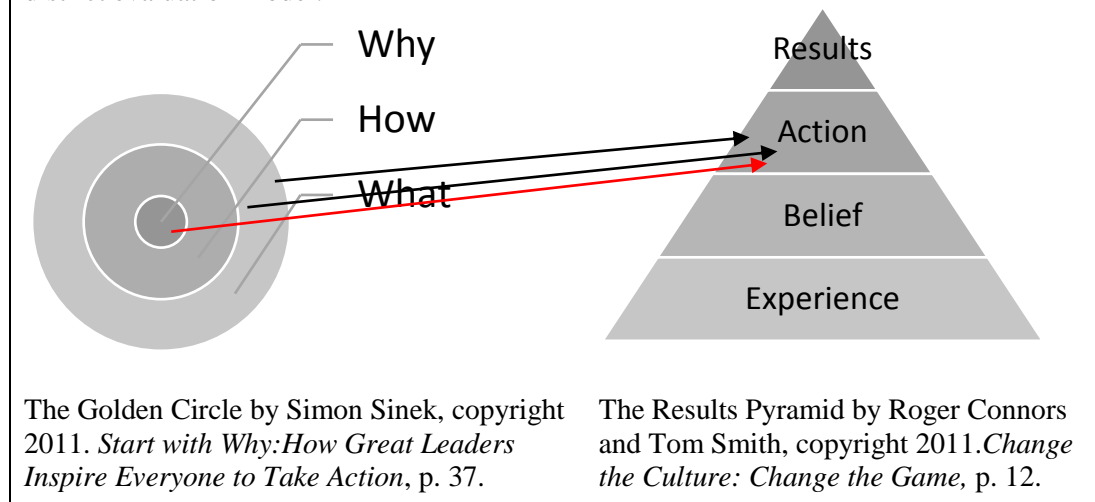
Simon Sinek says we must get people to see why we are doing what we are doing before deciding how or what we are going to do(Sinek, 2011). In the school district the intent behind the SLOs was twofold, improving teaching and learning by focusing on enhancing teacher practice based on student needs and fulfilling a federal mandate to link teacher evaluations with student outcomes. Through this study we learn that teachers were clear about the secondary “why,” the evaluative nature of SLOs; however, it seems they are not convinced that SLOs are a mechanism to accomplish the primary purpose of increasing student achievement.

Connors and Smith (2011) say that experiences we create within our organization foster the beliefs of the people who work there. They propose that those beliefs will determine the actions people take and that people's actions drive results. SLSD began at a steady pace to redesign the district's teacher evaluation process. After receiving federal funds, the district had to cut the timeline short and accelerate the pace for design and implementation. This constriction on time was compounded by the need to pilot the state evaluation model while developing and piloting the district model. Figure 11 attempts to display the ideal model in which the district could spend time developing professional learning experiences to help shape the beliefs of teachers around SLOs. These learning experiences could place greater focus on the intent of using SLOs to enhance teacher practice and improve student learning. The rigid and short timeline forced district staff to

move at a faster pace, thus placing more emphasis on action for implementation (the process, the how, and the what) as displayed on Figure 12.



*Figure 12: The timeframe imposed on SLSD by the state forced SLSD to move at a faster pace, thus the focus was then on ensuring teachers understood how to write an effective SLO and monitor student learning. This timeframe also included piloting the state and district evaluation model.*



The school district has invested time, money, and human capital to develop a robust system for helping teachers to identify where students are relative to the outlined standards and to align professional development and instructional planning with the student needs. A beginning step for SLSD now is to slow down and listen to the voice of the teachers. District personnel need to investigate further to understand why teachers believe SLOs may not be the best tool to drive increased student achievement at the school or district level. In addition, the district needs to afford teachers the opportunity to serve in integral roles to create professional learning experiences that could begin to address issues in the current culture. Teachers might also be given greater opportunity to recommend changes to the SLO process while maintaining the original intent.

Listening to school based administrators is another important step. Principals and assistant principals are the main conduits through which information is communicated to teachers, and they oversee implementation at the school level. SLSD should engage school based administrators (principals and assistant principals) in conversations to understand their perspectives or possibly ask administrators to complete a survey similar to the one used in this study. It is important to determine whether the beliefs of administrators mirror those of the teachers or if they feel differently regarding the role of SLOs in improving student learning in order to offer the appropriate support and professional development for school based administrators.

Another consideration for SLSD is to review the initial orientation to SLOs that is presented to new teachers to ensure the orientation affords new teachers the opportunity to understand the value of SLOs for impacting student achievement. Furthermore, the district should consider the supports provided by school based staff on the SLO process during a teacher's first three years in the district. The goal is to ensure these experiences consistently show teachers the alignment between SLOs and other systemic efforts that are in place to address high achievement for all students.

While this study may be a first step in hearing the teacher's voice, SLSD must consider mechanisms by which they can listen to a broader cross section of teachers. The steps that are put in place should broaden the number of teachers offered the opportunity to speak and include teachers who belong to organizations such as the local teachers' association or serve in leadership positions at the school level, as well as teachers who might not ordinarily speak out. Teachers are the end users of Student Learning Objectives and the individuals SLSD counts on to impact students' academic needs every day. The district should, therefore, value their perspectives when it comes to the mechanisms used at the school and classroom level.

Student Learning Objectives (SLOs) were adopted by SLSD as an additional avenue, complementing current initiatives, to ensure achievement at high levels for all students. The use of SLOs allows teachers to set instructional goals for students and monitor each child's progress toward attaining those goals. The value of this process is the teacher's ability to identify appropriate instructional strategies to employ in order to

address the learning needs of students individually and collectively, and to monitor student progress more frequently. Teachers and administrators are able to see where students are relative to meeting the goals set by the state early enough to be able to make the necessary adjustments in instruction or professional development. SLOs, when implemented with fidelity, will offer school districts a clear picture of student growth in every classroom; and, consequently, help to develop a closer alignment between teacher ratings and student performance.

### **Recommendations**

Recommendations for future research include further investigation of tools and processes teachers value as means to identify professional development needs that are aligned to student instructional needs. Teachers clearly see the connection between the students learning needs and the teacher's professional needs, but they do not value the SLO process as a means to inform their professional development needs. Since school based administrators communicate information to teachers regularly and are the liaisons between the school and the central office, investigating school based administrator perceptions regarding their values of SLOs in improving student learning is also necessary.

## Appendix A

### Survey Questions

#### A. Knowledge and Understanding about Student Learning Objectives

Question Number		Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree
1	I have a clear understanding of how Student Learning Objectives (SLOs) are factored into my final rating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	I have a clear understanding of the steps of the SLO process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	I have a clear understanding of how to write an effective SLO.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	I am comfortable obtaining historical data on current students for the learning content I have chosen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	I am comfortable analyzing student data to determine each student's level of mastery of the essential content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Beyond the evaluation process, I have a clear understanding of why I am writing SLOs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Question Number		Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree
7	Beyond the evaluation process, I have a clear understanding of how implementing the SLO process is intended to improve student learning.	o	o	o	o	o

8	Please rank the top three resources and supports that have been helpful in preparing you to write and implement effective SLOs.
	<input type="checkbox"/> Online Supports on the Maryland State Department of Education (MSDE) Website <input type="checkbox"/> The SLO webinars on the AACPS Intranet <input type="checkbox"/> The Model SLOs on the AACPS Intranet <input type="checkbox"/> Resources on the AACPS Teacher/Principal Evaluation (TPE) site <input type="checkbox"/> The half day trainings that were held at my school <input type="checkbox"/> Administrators at my school <input type="checkbox"/> Colleagues within my department at the school <input type="checkbox"/> Colleagues outside my department at my school <input type="checkbox"/> Representatives from the Instructional Data Division <input type="checkbox"/> Representatives from the Division of Curriculum and Instruction <input type="checkbox"/> Representatives from the Office of School Performance <input type="checkbox"/> Other – Please list

## B. Instructional Practices

Question Number		Daily	4 Times a Week	2 to 3 Times a Week	Once a Week	Never
9	Prior to implementing SLOs, how often did you engage in the following instructional practices?					

Question Number	Daily	4 Times a Week	2 to 3 Times a Week	Once a Week	Never
Use student data to identify students who have not mastered essential content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use student data to plan instruction customized to the specific needs of students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Select or create specific assessment questions to measure students' understanding of the identified content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use current student data to inform and plan your professional learning needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have conversation with your colleagues focused on using student data to plan customized learning experiences to meet the specific needs of your students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have conversation with your administrators focused on using student data to plan customized learning experiences to meet the specific needs of your students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Number					
	Daily	4 Times a Week	2 to 3 Times a Week	Once a Week	Never
10	As a result of implementing SLOs, how often do you engage in the following instructional practices?				
	Use student data to identify students who have not mastered essential content.				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Use student data to plan instruction customized to the specific needs of students.				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Select or create specific assessment questions to measure students' understanding of the identified content.				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Use current student data to inform and plan your professional learning needs.				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Have conversation with your colleagues focused on using student data to plan customized learning experiences to meet the specific needs of your students.				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Have conversation with your administrators focused on using student data to plan customized learning experiences to meet the specific needs of your students.				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### C. Beliefs about Student Learning Objectives

Question Number		Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree
11	The SLO process has deepened my understanding of how to use data to improve student learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	The SLO process has resulted in increased conversations with my administrators regarding the use of data to improve student learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	The SLO process has led to an increase in conversations with my colleagues regarding the use of data to improve student learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	I value the SLO process as a means to focus my conversations with colleagues and administrators on student learning needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	I believe my professional learning needs should be based on the needs of my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	I value the SLO process as a means to identify my professional learning needs to so I can better meet the needs of my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	I believe beyond the two required SLOs, I should use the SLO process in less formal ways in my professional practice to monitor and improve student learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	I value the SLO process as a means to help me improve my teaching.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Number		Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree
19	I value the SLO process as a means to increase student achievement at my school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	I value the SLO process as a means to eliminate gaps and elevate all students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### D. Teacher Choice

Question Number		Yes	No
21	I am able to select my SLOs based on my analysis of historical student data.	<input type="radio"/>	<input type="radio"/>
22	I participate in one school-wide SLO.	<input type="radio"/>	<input type="radio"/>
23	I am able to select at least one of my SLOs.	<input type="radio"/>	<input type="radio"/>

Question Number			
		Yes	No
24	Both of my SLOs are selected by the school administration.	<input type="radio"/>	<input type="radio"/>
25	Outside of a school school-wide SLO, my school administration allows me to select my target population(s).	<input type="radio"/>	<input type="radio"/>
26	Outside of a school focused SLO, my school administration allows me to select the learning content for my SLO(s).	<input type="radio"/>	<input type="radio"/>
27	Outside of a school school-wide SLO, my school administration allows me to select my SLO growth target(s).	<input type="radio"/>	<input type="radio"/>
28	Outside of a school school-wide SLO, my school administration allows me to determine my SLO window.	<input type="radio"/>	<input type="radio"/>
29	The learning content I select is aligned with the curriculum document for my course and grade level.	<input type="radio"/>	<input type="radio"/>

## E. Background Information

Question Number	1 – 3 Years	4 – 6 Years	7 – 10 Years	11 – 20 years	Over 20 Years
30 Please respond to the following questions about your background					
How long have you been teaching (include this year)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How long have you been teaching in AACPS (include this year)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How long have you taught middle school (include this year)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How long have you been teaching at your current middle school (include this year)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Number		Grade 6	Grade 7	Grade 8
31	Indicate the primary grade level you currently teach?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Number		Mathematics	Language Arts	Other
32	Indicate the primary subject you currently teach?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Appendix B

### Consent Form

<b>Project Title</b>	<i>An Investigation of Middle Grade Mathematics and Language Arts Teachers' Knowledge and Beliefs of Student Learning Objectives</i>
<b>Purpose of the Study</b>	<i>This study attempts to identify middle grade mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with the implementation of the SLO process; the extent to which they report that student data from the SLO process have changed their instructional practices; and their perceptions regarding the value of SLOs in improving student learning and their own professional growth. This research is being conducted for my doctoral dissertation under the direction of Dr. Margaret McLaughlin, University of Maryland.</i>
<b>Procedures</b>	<p><i>Your participation in the study involves completing an anonymous online survey that will take you approximately 10 minutes. The survey is administered through Qualtrics and may be completed on a desktop computer, iPad or similar electronic device or smart phone. The survey will ask questions in the following categories:</i></p> <ul style="list-style-type: none"> <li><i>– Knowledge and Understanding about Student Learning Objectives</i></li> <li><i>– Changes in Instructional Practices</i></li> <li><i>– Values and Beliefs About Student Learning Objectives</i></li> </ul>
<b>Potential Risks and Discomforts</b>	<i>There are no known risks associated with participation. In order to prevent breach of confidentiality, your responses will be anonymous.</i>
<b>Potential Benefits</b>	<i>There are no direct benefits for your participation. However, the results of the survey may be a potential benefit to the district as I hope to learn how to better support teachers during the writing and implementation of SLOs.</i>
<b>Confidentiality</b>	<i>Your responses are anonymous. When you enter the survey you will be assigned a random number and your completed survey will be identified only by that number with no link to your identity. All data obtained from the survey will be reported in an aggregate format (by reporting only combined results and never reporting individual ones). Response data will be downloaded into an Excel file containing the unique numbers. The primary investigator listed below will have sole access to the files which will be stored in the HIPPA-compliant, secure database until it is deleted by the primary investigator. If we write a report or</i>

	<p>article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</p>
<b>Incentive</b>	n/a
<b>Right to Withdraw and Questions</b>	<p>Participation in this research study is completely voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment status in the county. If you desire to withdraw, please close your Internet browser.</p> <p>If you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator: Zipporah Miller at XXX-XXX-XXXX or <a href="mailto:zmiller8@umd.edu">zmiller8@umd.edu</a></p> <p>If you have questions you do not feel comfortable asking the researcher, you may contact Dr. Margaret McLaughlin, XXX-XXX-XXXX, 3119 Benjamin Building, <a href="mailto:mjm@umd.edu">mjm@umd.edu</a>.</p>
<b>Participant Rights</b>	<p>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</p> <p style="text-align: center;"> <b>University of Maryland College Park</b>  <b>Institutional Review Board Office</b>  <b>1204 Marie Mount Hall</b>  <b>College Park, Maryland, 20742</b>  <b>E-mail: <a href="mailto:irb@umd.edu">irb@umd.edu</a></b>  <b>Telephone: 301-405-0678</b> </p> <p>This research has been reviewed according to the University of Maryland, College Park, IRB procedures for research involving human subjects.</p>
<b>Statement of Consent</b>	<p>By agreeing to participate, you are indicating that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction; and you voluntarily agree to participate in this research study. You may print/download a copy of this consent form.</p> <p>If you agree to participate, please select 'Yes' below.</p>
	<input type="checkbox"/> Yes <input type="checkbox"/> No

## Appendix C

### Email to Principals

**From:**  
**To:** Principals-Middle  
**Cc:** Principals Secretaries - Middle  
**Subject:** Request for Support - Please Read  
**Date:** Thursday, March 09, 2017 10:23:42AM  
**Attachments:**  
**Importance:**

---

Dear Middle Level Principal,

As a school system, we have been implementing SLOs for three years. We are striving to enhance and improve the process and we need your help. Mrs. Zipporah Miller, SLSD Senior Manager and a UMD Doctoral Candidate, is conducting research on Mathematics and Language Arts teachers' knowledge and understanding of the intent and processes associated with the implementation of the SLOs. This study was encouraged by SLSD leadership as a means to listen to our teachers and gain valuable insights on the SLO process from the teacher perspective.

We are writing to inform you that during the week of March 10-17, 2017, all your mathematics and language arts teachers will receive an email from Dr. Xyz Abc. This email will contain a link to complete an anonymous ten minute teacher survey.

**Please encourage your teachers to complete the survey. We value their feedback as it will assist the school system to respond and make any nuanced changes to the SLO process.**

Please note: This study has been approved through the Saint Lawrence School District Instructional Data Division and the University of Maryland Institutional Review Board.

Thank you in advance for your help.

Deputy Superintendent

Deputy Superintendent

If you have any questions about this study or the survey please contact  
Zipporah Miller directly at [zmiller@xxxxx.org](mailto:zmiller@xxxxx.org)

---

Please consider the environment before printing this e-mail.

## Appendix D

### Email to Department Chairs

**From:**  
**To:**  
**Cc:**  
**Subject:** Request for your Input - Please Respond  
**Date:** Friday, March 10, 2017 2:58:33PM  
**Attachments:**

---

*Dear Middle School Math DC,*

*Please forward the invitation/request below to each one of your department's math teachers, including any special education math teachers who may be a part of your faculty. I would also like you to respond to the survey request.*

*Many thanks!*

*Deputy Superintendent*

Dear Middle Level Math Teacher,

**Your participation is requested to complete an online anonymous SLSD teacher survey.** The purpose of the survey is to listen to your voice –gather your thoughts – regarding the implementation of SLOs in SLSD. This survey is a part of a research project investigating middle level mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with the implementation of the SLO process.

This study was encouraged by our school system leadership in an effort to listen to our teachers so as to continue to improve the process. Your feedback is valuable as it will help us as a school system to respond and make the necessary nuanced changes.

The survey is being conducted as part of my dissertation research under the direction of Dr. Margaret J. McLaughlin, University of Maryland, and in partnership with our school system. It has the full support of Dr. Xyz Abc, Deputy Superintendent, and the SLSD Research Office.

**The survey will take no more than 10 minutes to complete. Your responses will be completely anonymous and results will not be able to be linked to an individual. The deadline for survey responses is March 18,2017.**

The study has been approved through the Saint Lawrence School District Data Division and the University of Maryland Institutional Review Board.

Please [CLICK HERE](#) to be taken to the survey or copy and paste the link below to your browser.

[https://umdsurvey.umd.edu/SE/?SID=SV\\_exlXR5E6vx3WKbz](https://umdsurvey.umd.edu/SE/?SID=SV_exlXR5E6vx3WKbz)

Thank you in advance for your help

Sr. Manager  
Doctoral Candidate

Deputy Superintendent

If you have any questions about the survey before you begin or while taking it, please contact Zipporah Miller [zmiller@xxxxx.org](mailto:zmiller@xxxxx.org)

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Please consider the environment before printing this e-mail.

## Appendix E

### Reminder Email to Department Chairs

#### Mathematics

**From:**  
**To:**  
**Cc:**  
**Subject:** REMINDER  
**Date:** Thursday, March 16, 2017 11:40:20AM

---

Good Morning,

*This message is being sent on behalf of DefgHijk, Coordinator for Middle School Math.*

*This is a gentle reminder: If you have not had the opportunity to share with your team, please do so and I strongly recommend you to encourage your teachers to complete the survey. See below the previous message from Dr. Xyz Abc for the survey details and link.*

Thank you in advance for your prompt attention.

*Lmno Pqrst*  
MiddleandHighSchoolMathOffice

*Dear Middle School Math DC,*

***Please forward the invitation/request below to each one of your department's math teachers, including any special education math teachers who may be a part of your faculty. I would also like you to respond to the survey request.***

*Many thanks!*  
*Maureen McMahon, SLSD Deputy Superintendent*

Dear Middle Level Math Teacher,

**Your participation is requested to complete an online anonymous SLSD teacher survey.** The purpose of the survey is to listen to your voice –gather your

thoughts – regarding the implementation of SLOs in SLSD. This survey is a part of a research project investigating middle level mathematics and language arts teachers’ knowledge and understanding of the intent and processes associated with the implementation of the SLO process.

This study was encouraged by our school system leadership in an effort to listen to our teachers so as to continue to improve the process. Your feedback is valuable as it will help us as a school system to respond and make the necessary nuanced changes.

The survey is being conducted as part of my dissertation research under the direction of Dr. Margaret J. McLaughlin, University of Maryland, and in partnership with our school system. It has the full support of Dr. Xyz Abc, Deputy Superintendent, and the SLSD Research Office.

**The survey will take no more than 10 minutes to complete. Your responses will be completely anonymous and results will not be able to be linked to an individual. The deadline for survey responses is **March 18, 2017.****

The study has been approved through the Saint Lawrence School District Instructional Data Division and the University of Maryland Institutional Review Board. Please [CLICK HERE](#) to be taken to the survey or copy and paste the link below to your browser.

[https://umdsurvey.umd.edu/SE/?SID=SV\\_exIXR5E6vx3WKbz](https://umdsurvey.umd.edu/SE/?SID=SV_exIXR5E6vx3WKbz)

Thank you in advance for your help.

Zipporah Miller  
SLSD Sr. Manager,  
Doctoral Candidate

Deputy Superintendent

If you have any questions about the survey before you begin or while taking it, please contact Zipporah Miller [zmiller@xxxx.org](mailto:zmiller@xxxx.org).

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Please consider the environment before printing this e-mail.



## Language Arts

**From:**  
**To:**  
**Cc:**  
**Subject:** Fw: Request for your Input – Please Respond  
**Date:** Wednesday, March 15, 2017 8:52:19AM  
**Attachments:**

---

Below is a copy of an email that went out last week that some of you may have received. Please share this with your language arts team and encourage them to complete the survey by the end of the week.

See you  
Thursday!  
Uvw

---

**From:**  
**Sent:**  
**To:**  
**Cc: Subject:** Request for your Input - Please Respond

Dear Middle Level Language Arts Teacher,

**Your participation is requested to complete an online anonymous SLSD teacher survey.** The purpose of the survey is to listen to your voice –your thoughts regarding the implementation of SLOs in SLSD. This survey is a part of a research project investigating middle level mathematics and language arts teachers’ knowledge and understanding of the intent and processes associated with the implementation of the SLO process.

This study was encouraged by our school system leadership in an effort to listen to our teachers so as to continue to improve the process. Your feedback is valuable as it will help us as a school system to respond and make the necessary nuanced changes.

The survey is being conducted as part of my dissertation research under the direction of Dr. Margaret J. McLaughlin, University of Maryland, and in partnership with our school system. It has the full support of Dr. Xyz Abc, Deputy Superintendent, and the SLSD Research Office.

**The survey will take no more than 10 minutes to complete. Your responses will be completely anonymous and results will not be able to be linked to an individual.**

The study has been approved through the Saint Lawrence School District Instructional Data Division and the University of Maryland Institutional Review Board.

Please [CLICK HERE](#) to be taken to the survey or copy and paste the link below to your browser.

[https://umdsurvey.umd.edu/SE/?SID=SV\\_exlXR5E6vx3WKbz](https://umdsurvey.umd.edu/SE/?SID=SV_exlXR5E6vx3WKbz)

Thank you in advance for your help.

Zipporah Miller  
SLSD Sr. Manager  
Doctoral Candidate

Deputy Superintendent

If you have any questions about the survey before you begin or while taking it, please contact Zipporah Miller [zmiller@xxxxx.org](mailto:zmiller@xxxxx.org).

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Please consider the environment before printing this e-mail.

## Appendix F

### *University of Maryland College Park Institutional Review Board Application*

#### **1. Abstract:**

The purpose of this study is to investigate middle grade mathematics and language arts teachers' knowledge and understanding of the intent and processes associated with the implementation of the SLO process; the extent to which they report that student data from the SLO process have changed their instructional practices; and their perceptions regarding the value of SLOs to improving student learning and their own professional growth. This study is guided by the following research questions:

1. What is the level of understanding among middle grade mathematics and language arts teachers of the intent and processes associated with the implementation of SLOs?
2. To what extent do middle grade mathematics and language arts teachers report that student data from the SLO process have changed their specific instructional practices?
3. What are the perceptions of middle grade mathematics and language arts teachers regarding the value of SLOs as a means to improving student learning?
4. What are the perceptions of middle grade mathematics and language arts teachers regarding the value of SLOs to their own professional growth?

The researcher plans to administer a 35- question anonymous online survey to middle grades mathematics and language arts teachers serving in the 19 comprehensive middle schools within the Anne Arundel County Public School District. The survey will take participants approximately 10 minutes to complete. The online survey will be created within and administered via an account on the University of Maryland Qualtrics Platform. In order to protect the school district, the researcher will assign an unrecognizable pseudonym in any document or presentation disseminating results. In order to protect the participants, the survey will be anonymous and will not ask for any potentially identifiable information such as the names of schools where teachers are currently assigned. Information from the survey will be used to identify critical areas for future professional development as well as additional resources and supports that may assist teachers with SLO implementation.

Request for permission to conduct the research is pending in AACPS and will be finalized once UM IRB has approved the study. Permission will be sent to the UM IRB when it is obtained.

## 2. Subject Selection:

- a. **Recruitment:** The survey will be sent to the 225-330 middle school mathematics and language arts teachers in the district. The researcher will request approximately 15 minutes from the Associate Superintendent for School Performance to introduce the purpose and benefits of the study to all middle school principals during one of their scheduled monthly meetings. During that session the researcher will make the middle school principals aware that a survey will be sent to all middle school language arts and mathematics teachers. Principals will be asked to inform their mathematics and language arts teachers that participation in this study is voluntary but to encourage participation. The researcher will also reach out to the middle school mathematics and language arts coordinators in the district and ask for time to speak to the department chairs during their scheduled department chair meetings. During the department chair meetings, the researcher will also inform them of the purpose and benefits of the study to the school district. Department chairs will also be asked to encourage the teachers at the school to participate in this study by completing the online survey. Both middle school principals and language arts and mathematics department chairs will receive a copy of the study cover letter, the approval letter to conduct the study, survey questions and copies of the recruitment and reminder emails.

The email addresses for the language arts and mathematics teachers will be obtained from the Human Resources Division. A recruitment email will then be sent to all middle school language arts and mathematics teachers, their principals will be copied on the email. The recruitment email will explain the purpose and potential benefits of the study and contain the link to the survey. District approval letter to conduct the survey will be attached.

- b. **Eligibility Criteria:** Participants must work in one of the 19 comprehensive middle schools within Anne Arundel Public Schools and be designated as mathematics or language arts teachers. Participants will only include classroom teachers whose primary responsibility is teaching mathematics or language arts. All participants must be 18 years of age or older.
- c. **Rationale:** The focus on middle school language arts and mathematics teachers was determined based on a review of the most recent achievement data for Anne Arundel County Public Schools. Those results indicated that 10 of the 19 middle schools did not

meet their proficiency targets in either or both mathematics and reading (language arts) or both. In addition, these 10 middle schools showed a clear discrepancy on their teacher ratings and school academic performance in mathematics and language arts.

- d. **Enrollment Numbers:** Middle schools have various numbers of teachers who teach language arts or mathematics. There are approximately 6 to 13 teachers in each subject area per school therefore an approximate total of 330 middle school mathematics and language arts teachers. The Human Resources Division has indicated that there were 225 such teachers last fall. The maximum number of participants for this survey is 330.
- e. **Rationale for Enrollment Numbers:** In order to reach as many language arts and mathematics middle school teachers, the researcher plans to disseminate the survey to all language arts and mathematics teachers in the 19 Anne Arundel County Middle Schools.

### 3. Procedures:

An online 35- question anonymous survey has been developed using the Qualtrics survey package. The survey questions are grouped into the following categories:  
Knowledge and Understanding about Student Learning Objectives,  
Instructional Practices,  
Beliefs about Student Learning Objectives and  
Background Information.

The survey requires approximately 10 minutes to complete. The survey will be administered through a Qualtrics account. The process will begin with two presentations by the researcher to all AACPS middle school principals and to the AACPS mathematics and language arts coordinators. The researcher will inform them of the purpose and potential benefits of the study to the school district. The department of Human Resources will be contacted to obtain the distribution list of mathematics and language arts teachers in the 19 comprehensive middle schools. An email will then be sent to all identified middle grades mathematics and language arts teachers serving in the 19 comprehensive middle schools within Anne Arundel County Public Schools. The email will explain the purpose and potential benefits to the district. It will inform participants their responses will be completely anonymous and their participation is voluntary. They will also be told that the survey will take approximately 10 minutes to complete. The email will contain a link to the survey. Participants will be able to complete the survey on a desktop computer, laptop, iPad, or smartphone. The email will also include the timeline in which the survey should be completed. Participants will be given 2 weeks to complete the survey. A reminder email will be sent at the end of the first week and two days prior to the completion deadline. Thank you letters will be sent to all principals, language arts and mathematics coordinators and department chairs for assisting with the recruitment

process. The district approval letter will be attached to the email.

**4. Risks:**

There are no known risks to participants for involvement in this study. Participants may feel inconvenienced for the short time it will take them to complete the survey.

**5. Benefits:**

There are no direct benefits to the participants. However, a potential benefit to the district is gaining information regarding the teachers' SLO implementation which could guide professional learning needs for teachers in middle schools

**6. Confidentiality:**

All efforts will be made to protect the confidentiality and privacy of participants. First, the survey is anonymous. When a participant enters the survey s/he will be assigned a unique identifier that will identify a completed survey but cannot be linked to any identifying information. All responses will be reported in the aggregate and no individually identifiable data will be collected. A pseudonym will be used for the name of the school district. The response data will be downloaded into an Excel file which will be maintained on one password protected computer. Only the researcher will have access to the data.

**7. Consent Process:**

The first page of the online survey will include the consent information. When participants click the link to the survey they will be directed to a page that informs them of the purpose of the study and that the study is voluntary and anonymous. The risks and potential benefits will be described. If the participants consent to participate they will click "yes" and will be directed to the survey. If they click

“no” they will receive a thank you and the survey will close.

The research study requires participants to complete an online survey, therefore obtaining consent on a written form will not only hinder the research process, but will also not allow the survey to be anonymous.

**8. Conflict of Interest:**

I am a current employee for Anne Arundel County Public Schools, however I am not a current or previous supervisor of middle school mathematics or language arts teachers. In my current position as Senior Manager for Organizational Learning, I oversee three teacher specialists for professional development and a professional development specialist. I am responsible for designing implementing and evaluating professional development efforts for our school district which includes teachers, however I have no supervisory responsibilities with middle school mathematics and language arts teachers. The middle school building principal is the direct supervisor and evaluator for middle school language arts and mathematics teachers.

No conflict of interest exists.

**9. HIPAA Compliance:**

Not Applicable

**10. Research Outside of the United States:**

Not Applicable

**11. Research Involving Prisoners:**

Not Applicable

## **12. SUPPORTING DOCUMENTS**

Your Initial Application must include a **completed Initial Application Part 1 (On-Line Document)**, the information required in items 1-11 above, and all relevant supporting documents including: consent forms, letters sent to recruit participants, questionnaires completed by participants, and any other material that will be presented, viewed or read to human subject participants.

For funded research, a copy of the Awarded Grant Application (minus the budgetary information) must be uploaded. If the Grant has not been awarded at the time of submission of this Initial Application, a statement must be added to the Abstract Section stating that an Addendum will be submitted to include the Grant Application once it has been awarded.

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**THE IRB OFFICE WILL NO LONGER STAMP CONSENT FORMS. THE CONSENT FORMS IN YOUR APPROVED IRBNET PACKET MUST BE USED. THESE ARE YOUR APPROVED CONSENT FORMS.**



## Appendix G

### SLSD IRB Application and Approval

February 2, 2017

Ms. Zipporah Miller

[zmiller@xxxx.org](mailto:zmiller@xxxx.org)

222-555-1212

Re: Research Application

Dear Ms. Miller:

Thank you for your interest in conducting the study An Investigation of Middle Grade Mathematics and Language Arts Teachers Knowledge and Beliefs of Student Learning Objectives in the Saint Lawrence School District. We have had an opportunity to review your request.

All requests to conduct research in Saint Lawrence School District are reviewed in regard to three major criteria. First, does the research have a potential positive contribution towards improving the delivery of instruction to students attending Saint Lawrence School District? Second, does the research have procedures and processes in place to insure the confidentiality of all participants in the study? Third, does the research obtain its data in such a way that it will have a minimal impact upon the instructional time of students and/or staff?

The proposed study will address important areas of education research and at this time we are approving your application to conduct research in Saint Lawrence School District for the individuals referenced in the accompanying email. I have also reviewed the study for the purpose of determining how well it ensures the confidentiality of all respondents. There is nothing that would suggest that personal identifying information will be divulged outside of the research team. Please note that teachers should only be contacted one time and “no response” should be considered the same as if they declined participation. In closing, I would like to ask that you consider this letter as formal approval of your request to conduct your research project in Saint Lawrence School District. Please insure that all school, teacher or student identifying information is removed from any prepared documents, either paper or electronic, that may be a part of any final drafts of documents relating to your study.

On behalf of the Research Office, I wish you success in the conduct of your study.

Sincerely,

Senior Manager of Research

Instructional Data Division

cc: Executive Director

# Appendix F

## Saint Lawrence School District Student Learning Objective (SLO) - Teacher

<b>Employee</b>	<b>Position</b>	<b>School</b>	<b>Final SLO Score:</b>	
<b>SLO # ____ SLO Title:</b>			<b>Reviewer:</b>	
<b>Target:</b> Option 1 Target: Of the ____ students in the identified SLO group, ____ - ____ students (approximately ____ - ____%) will score ____ points on the _____ (post test, rubric, etc.).  Option 2 Growth Target: Of the ____ students in the identified SLO group, ____ - ____ students (approximately ____ - ____%) will improve their score by ____ points or attain a minimum of ____ on the _____ (post test, rubric, etc.).  Option 3 Individual Student Target (F&P etc): Of the ____ students in the identified SLO group, ____ - ____ students will increase their level as indicated on the data chart.				
<b>Scoring Bands</b>				
<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	
0 students met target or SLO incomplete	1 to ____ students met the target	____ - ____ students met the target	____ or more students target	
<b>SLO Interval</b>	<b>Initial Approval</b> (Reviewer Initials)	<b>Date</b>	<b>Mid-Conference</b> (if requested by Employee) (Reviewer Initials)	<b>Date</b>
<b>From:</b>				
<b>To:</b>				
<b>SLO Final Conference</b>				
<b>Employee's Signature</b>		<b>Date</b>	<b>SLO Reviewer's Signature</b>	<b>Date</b>

<b>SLO Component</b>	
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<b>Learning Content</b> The 2-5 standard(s) students must master (e.g., Maryland College and Career-Ready Standards, international, national, state, local or industry standards).	<b>This SLO focuses on the following standards:</b>										
<b>Data Review and Baseline Evidence</b> Baseline quantitative data for all students.	<b>Current data on the current students:</b> Baseline Information <ul style="list-style-type: none"> <li>• Grade or level expectation by the end of the SLO period:</li> <li>• Previous performance on similar standards:</li> </ul>										
<b>Selected Student Population</b>  A description of the demographics and performance of the selected student population is included.	Male	Female	White	AA	Asian	Hisp.	Multi-racial	Pacific Is.	Amer Ind.	IEP	504
<b>Strategies</b>  Specific strategies are unique to the diagnosed needs of the selected student population. These strategies should be beyond the normal scope of work typically utilized to teach this content.	<b>Strategies to be employed in order to achieve the goal:</b>										

<b>Professional Learning and Resources Needed</b>  Specific professional learning experiences, human and material resources needed to support identified strategies are described.	<b>Professional learning and resources needed:</b>
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**Data Table for Option 1: Target**

Student Name	Final Score	Did the student meet the SLO goal?
Total Met:		



### Data Table for Option 3: Individual Student Growth Target

[illegible]

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