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2. STRENGTHENING THE LEAD

Supporting Teachers in the Teaching of Critical Issues

> I know no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them but to inform their discretion.
>
> (Jefferson, n.d.)

INTRODUCTION

> There is the standing danger that the material of formal instruction will be merely the subject matter of the schools, isolated from the subject matter of life-experience. (Dewey, 1916, p. 12)

The answers to critical issues begin with wondering. Have you ever witnessed an event or phenomenon for instance: unusual weather patterns, war or unrest, pollution and in response posed questions such as: Why is this happening? What can be done to change this situation? What is going on? These ponderings are the beginning phase of finding solutions. In order to allow students to explore critical issues and develop insights and potential solutions, schools must advocate critical thinking and give students opportunities to figure out problems independently. Rote learning may be an effective manner for students to learn multiplication, the alphabet, vowels and consonants, and mathematical formulas; however, once this background knowledge has been internalized educators need to reevaluate what it takes to make one a great thinker, leader, problem solver, change agent.

In today's society, a great deal of attention has been placed on student achievement outcomes with the intent of leveling the playing field for underserved students and, as a result, closing the achievement gap. Recently, states have had the opportunity to request flexibility in meeting certain requirements of the Elementary and Secondary Education Act (ESEA), if they agreed to put certain reform measures, including student performance goals into effect (U.S. Department of Education, 2013). While well meaning, the requirements put forth by ESEA are often perceived to be counterproductive to the teaching of critical issues. According to Ramirez (2008) school professionals need to support the pursuit of social justice with high expectations of all students. The question is, how can educators hold students to

I. R. Haslam & M. S. Khine (Eds.), Leveraging Social Capital in Systemic Education Reform, 17–41.

higher levels of achievement while keeping within standardized state and district mandates that connect student assessments to teacher performance? Some teachers may argue that time does not allow for engaging students in exploration and critical thinking. Fromm (1968) identified two routes that humankind might take, toward a programmed society in which individuals would be a component, or toward a resurgence of hope and humanism. I believe that most desire the latter for society, yet if we, as educators, do not want our students to become programmed members of society, critical thinking must be fostered. Careful consideration of lesson design that focuses on the standards and support by teacher leaders can prove effective in promoting thinking about critical issues and, at the same time, hold all students to high expectations.

Public Policies and Student Achievement

In international comparisons of achievement, students in the United States scored below twenty nine educations systems in mathematics literacy and twenty two education systems in reading literacy (U.S. Department of Education, 2015). While many factors may have accounted for the results obtained, the position of schools in the United States is generally perceived as uncertain. The notion of schools not serving the academic needs of students is not new. The publication of *A Nation at Risk* (1983) found that although historically schools and colleges have made positive contributions to the country and the welfare of its citizens; other countries have met and exceeded our educational successes. Since the report was released, policymakers have largely operated on the belief that our schools are inadequate. Public Law 107–110 otherwise known as the No Child Left Behind (NCLB) Act of 2002 (U.S. Department of Education, 2002) was a reauthorization of the Elementary and Secondary Education Act (ESEA)that was signed into law in 1965 by President Lyndon Baines Johnson (U.S. Department of Education, 1965), who believed in the concept of equitable educational opportunities for all students. The Elementary and Secondary Education Act called for providing financial resources (Title I funding) to schools in order to level the playing field by supporting students considered to be at risk. In addition, focus was placed on student achievement, teacher quality, and parental involvement.

The main educational reforms of ESEA were retained in the reauthorization. However, The No Child Left Behind Act of 2002 went a step further by holding state and local education agencies (LEAs) accountable for student achievement. This increase in accountability was viewed as the key to improving school and district performance. To this end, NCLB called for states to implement student assessments in mathematics and reading in grades 3 – 8 and once in high school. States were mandated to rank schools on the basis of their general performance as well as for major subgroups and to sanction schools that failed to make adequate yearly progress (AYP) toward the goals set forth by individual states (Hanushek & Raymond, 2005). In order to allow for transparency, it was also required that average

results be publicized. The attention given to high risk students and the transparency in reporting results was designed to give stakeholders the knowledge needed to make decisions that could improve the educational process in all communities.

Recognizing that instruction is a key component to meeting AYP; Title II, "Preparing, Training and Recruiting High Quality Teachers and Principals," was put into effect (U.S. Department of Education, 2006). Title II required each state to cultivate a highly qualified teaching force and districts were mandated to ensure that highly qualified teachers were in each classroom. To meet this goal, high quality professional development opportunities were required for each teacher. High quality professional development was identified as professional development that would give teachers the competencies that would assist them in becoming highly qualified and help students in meeting the standards set forth by the state. Another component of Title II mandated that evidence based practices be implemented as an impetus to student achievement.

The primary goal of the No Child Left Behind Act was to close the achievement gaps between the highest and lowest achieving subgroups of students. A study conducted by the Center on Education Policy (2008) found that achievement gaps on state assessments have primarily narrowed since 2002. Investigating the gaps in students found to be proficient in reading and math for all subgroups in all states with adequate data, in 327 occasions the gaps had narrowed while in 76 occasions the gaps had widened; in 20 occasions gaps remained constant. While these findings are encouraging, the question still remains as to whether or not performance on high stakes assessments will lead to improvement in quality of life as determined by future earnings, further education, and contributions to society. Most recently NCLB, or The Elementary and Secondary Education Act, has been reauthorized and is now known as Every Student Succeeds Act or ESSA (2015). The goal of ESSA is to provide all children with the opportunity to a fair, equitable, and high quality education. ESSA seeks to improve basic programs and therefore, close achievement gaps. The Every Student Succeeds Act scales back the federal role in K-12 education and gives more power to individual states and districts. The 2016–2017 school year will be transitional as states develop policies designed to comply with ESSA. Major issues that the new law addresses are testing and accountability, teacher evaluation, grants and fiscal accountability (National Conference of State Legislatures, 2015).

Instruction and Student Achievement

Many reforms and policies, extending from professional development for teachers to the adoption of content standards as a basis for curriculum writing and student learning, have been implemented in public schools in an effort to improve instruction and increase student outcomes. Although the scope of the reform efforts that have been mandated is considerable, until recently, most schools and districts have assessed them solely through the use of student test scores with little to no attention given to monitoring and collecting data on the quality of instruction and ultimately

relating the data to student outcomes. The lack of attention to instruction is interesting given that quality instruction has been identified as the most important school factor to impact student achievement (Darling-Hammond, 2010; OECD, 2010). Incomplete data related to the influence of instruction on school reform and student achievement, leaves schools wondering where to focus professional development funds and activities. According to Darling-Hammond (2010), teachers who are effective possess: content knowledge, the ability to develop higher order thinking skills, an understanding of the developmental process, the capacity to adapt, a solid intellect and strong verbal ability. Although these factors have been recognized as qualities that effective teachers possess, simply possessing the identified characteristics do not guarantee an increase in student outcome or achievement. Teachers must also be provided with quality professional development, a curriculum that is aligned to the standards, and the ability to collaborate with colleagues.

Presently, all public school districts in the United States are expected to evaluate teachers using multiple measures. The multiple measures used include; student achievement data, classroom observations, and additional data such as lesson plan review, teacher reflection, etc. (Hull, 2013). Formulas for allocating the weight of different measures may vary however, formulas should be field tested to show that they are valid. Since the main goal of educators is to increase the level of student learning, and student test scores have been shown to have a positive correlation to teacher effectiveness (MET, 2013), statistical measures designed to link student outcomes to instruction might carry more weight in formulas designed by states/districts.

Effective teachers must have a wide variety of research based teaching strategies available and be able to apply the strategies appropriately. Effective teachers need to have job embedded professional development that will assist them in using research based strategies to meet student needs, collaborate with colleagues, and use student work as the impetus for adjusting and delivering instruction. Effective teachers should also have the tools necessary to collect classroom data and make instructional decisions based on the data collected.

Value Added Measures and Student Achievement

Studies have implied that value added measures, or teachers' impact on student test scores, separate from economic and sociological factors that may impact learning, are an indicator of student achievement in the short term (Hanushek, 2009; Gordon, Kane, & Staiger, 2006; MET 2013). A study conducted by Glazerman, Protik, Bruch, and Max (2013) examined the use of financial reward to encourage teachers who had the top 20% of value added student test scores to volunteer to teach in a low performance school. The findings show a positive correlation between value added teachers and student test scores. The Measures of Effective Teaching (MET) Project (2013) examined the practices of approximately 3,000 teachers. It was determined that multiple measures including value added measures, classroom observations, and

student questionnaires should be used to provide teachers with meaningful feedback in order to improve instruction.

Although studies indicate that value added measures are an estimate of student achievement in the short term, the question still remained as to whether the increase in achievement would carry through to adulthood. In order to address this question, a study was conducted by Chetty, Friedman, and Rockoff (2013). The study analyzed data based on student achievement and teachers in grades 3–8 in a large urban school district from 1989–2009 and data from United States tax records from 1996–2011. About one million individuals were tracked from elementary school to early adulthood. Income, colleges attended, and teenage births were measured. It was found that students assigned to high value added teachers in early elementary school years are more likely to attend college, earn a higher income, and live in moreexpensive neighborhoods (Chetty, Friedman, & Rockoff, 2013). Related studies conducted by Murnane, Willett, Cuhaldeborde, and Tyler (2000); Lazear (2003) have resulted in similar outcomes. While many have criticized utilizing value added measures as a means to evaluate teachers, evidence indicates that value added measures when used as part of multiple indicators are a viable means to identify effective teachers.

LEADERSHIP

Leadership has been found to be one of the most important factors in the teaching/learning process. Leadership can have a profound impact on student learning and the quality of teaching, both of which can influence student achievement (Dinham & Crowther, 2011; King & Bouchard, 2011). While research indicates that skilled leadership has significant influence on school and student success; with the ever increasing demands placed on school principals in an effort to be more transparent, it is not feasible to expect the principal to singlehandedly transform or improve the school. Distributed or shared leadership is more likely to bring about school and student success as this type of leadership will nurture and maintain a positive school climate, provide examples for teachers to implement best practices, and improve student achievement (Weller, 2001). Distributed or shared leadership can be described as a way of leading a school through increasing the amount of individuals who are included in the decision making process. Teacher leadership is an example of this type of leadership.

Schools today struggle with an increasing number of problems including: safety, graduation rates, absenteeism and poverty while seeking measures to increase the level of student achievement. According to Harris and Muijs (2004) teacher leaders make a contribution to their school by working with their colleagues in order to establish a culture of learning designed to ultimately increase student achievement. Glickman (2002) states that teacher leadership allows teachers to have an impact on the school and therefore, teacher leaders can affect change that may ultimately result in increased student achievement. Although there has been a trend toward shared leadership through the implementation of teacher leaders, traditionally,

schools have existed with a top down approach. Therefore, a paradigm shift is required in order for teacher leadership to be meaningful and sustainable. In order to have a successful teacher leadership program, schools must develop and support a culture that promotes professional development and allows for teachers to assume leadership roles (Danielson, 2006). According to York-Barr and Duke (2004) if the accepted standards in a school organization are designed to bolster learning and ongoing advancement, all stakeholders will concentrate on learning; teachers will be expected to take part in professional development opportunities and teacher leaders will be viewed as role models offering positive contributions to the teaching profession.

Teacher Leadership

Teacher leadership is the process through which classroom teachers take on a variety of responsibilities, depending on expertise, in order to promote student achievement. Although it had been thought for many years that building principals alone can improve schools, change is more likely to occur when organizational capacity is increased through the development of teacher leaders (Buchen, 2000). Cummings and Worley (2009), discuss the impact of organizational capacity on educational reform. Organizational capacity, or school capacity, is comprised of the collective knowledge and skills that each professional brings to the teaching process. Increasing the social capital of a school through the development of teacher leaders is a means for principals to maximize organizational capacity and, as a result, bring about change.

The present decade has brought with it a high stakes accountability movement with a focus on an increase in student achievement. The desired increase in student achievement and an overall improvement in the quality of educational opportunities for students will require organizational change. Harris and Muijs (2004) found that successful educational reform is more apt to occur when teachers take on leadership roles. Distributed leadership is a factor that contributes to greater student achievement as teacher leaders have the ability to influence and support others in order to bring about change. According to Hirsh and Killion (2007) change will not take place if leadership is given to a select few. Sustainability is another aspect of teacher leadership. Teacher buy-in to the school's vision, goals, and initiatives will help to ensure that these components of an effective school will continue even if the principal leaves. Teacher leadership is not a new concept. In 1986, a report funded by the Carnegie Foundation for Advancement of Teaching suggested that districts denote individuals who could model teaching methodologies for other teachers. Although teacher leadership is not new, one need not look far to realize that it is an untapped resource in many schools and districts. One might question why teacher leadership has not become a mainstay of public education. Perhaps, as Gawande (2013) said of the medical field, "ideas that violate prior beliefs are harder to embrace." In order to validate teacher leadership and challenge the belief that

principals (or a select few) must hold all the power, teacher leaders need to focus on school and student improvement.

In examining teacher leadership, two distinct types emerge; formal teacher leadership and informal teacher leadership (York-Barr & Duke, 2004). Teacher leadership can be formal in that the individual is recognized as a teacher leader through a designated title or role (supervisor, instructional coach, data coach, etc.); or informal where the individual does not have a title but colleagues view the teacher as someone they can trust and learn from. Killion and Harrison (2006) defined ten roles of teacher leaders as:

- Resource Provider – shares professional journals, books, websites, etc.
- Instructional Specialist – helps to design and implement effective, research based instructional strategies.
- Curriculum Specialist – serves on curriculum committees, develops pacing guides, and leads initiatives in regard to curriculum.
- Classroom Supporter – observes lessons and gives feedback, co-teaches, models instructional strategies.
- Learning Facilitator – leads professional development workshops.
- Mentor – serves as a role model for others, advises new teachers as to school procedures.
- School Leader – chairs committees, serves as a liaison to the community.
- Data Coach – assists teachers in analyzing data.
- Catalyst for Change – researches current research in education, questions and makes research based proposals for improving the teaching/learning process.
- Learner – demonstrates a passion for acquiring new knowledge.

A glance at the roles will suggest that there is a great deal of overlap between roles and some roles require specialized preparation while others may be inherent.

Teacher leaders can assist supervisors and principals with curricular and instructional support. Traditionally, principals and supervisors are the observers of teachers and are expected to provide quality feedback and guidance. While many teacher leaders are not in a position to hold teachers accountable for their practice; teacher leaders can be very effective in setting the standard for instruction. Teacher leaders can visit classrooms and give their colleagues suggestions for improving the teaching learning process. Teacher leaders can model a variety of instructional strategies for others, provide professional development, offer support for struggling teachers or those in need of improvement, and serve as a sounding board for teacher concerns. Teacher leaders can advise new teachers in regard to effective instructional techniques, curriculum specific to grade levels, school procedures, and best practices. Teacher leaders can assist others in analyzing data to improve instruction and they can develop newsletters, blogs, and websites. Teacher leaders can bring about change through a common effort when supported by the principal.

Teacher leaders are in a position to determine what best meets the needs of the school due to their daily, close interactions with colleagues and students. School

districts often call in experts from outside the school or the school district to improve student performance. Yet, teachers have a pragmatic understanding of the needs of the school and the school community that outsiders frequently do not (Nappi, 2014). In addition, outside consultants and teaching experts often do not have experience in education or public schools (Leana, 2011). Having an understanding of the needs of the school and school community allows the teacher(s) to implement practices that target the specific needs of the students and the school. In addition, encouraging professionals to participate in school leadership alters the perception of ownership in that the feeling of ownership increases when teachers become part of the decision-making process.

The Role of the Principal in Fostering Teacher Leadership

In order for teacher leadership to be successful, principals must have a clear sense of purpose. Instruction should be a priority with curriculum aligned to state academic standards. District/school vision needs to be aligned with goals and initiatives. Most importantly, this information must be communicated clearly and frequently so that it becomes part of the acculturation of the school. Principals must also put their ego aside. Allowing for others to take on leadership roles does not diminish the role of the principal but will serve to enhance the principal's impact on the efficacy of the school as a whole because the principal will acquire time for conducting more walk throughs, observations, and conferencing. In essence, the principal will be the true educational leader of the school and set an example for others.

Building organizational capacity by implementing teacher leaders, will most likely take place through two venues. One means of selecting teacher leaders is by principals choosing individuals to take on leadership roles based on prior performance while another way teacher leaders will be recognized is through their relationship with others. Teachers who become leaders due to their relationship with stakeholders in the school community will generally emerge naturally. Regardless as to how a teacher became recognized as a leader, it is important that all leaders understand the philosophy and goals of the organization and work toward achievement of same. Principals need to observe and if a naturally emerging leader is not in line with the school's philosophy, he or she must redirect the teacher in a diplomatic manner so that the teacher is not discouraged or diminished in any way. Well-meaning individuals who are not on-board with the school/district mission can undo work that had been put in place earlier. This is particularly true if an initiative is found to be unpopular with teachers.

The competencies and knowledge required of teacher leaders are identified in The Teacher Leader Model Standards (Teacher Leadership Exploratory Consortium, 2011). For principals who are interested in expanding the leadership capacity within their schools, the Standards give some thoughts for implementing as well as strategies for supporting teacher leaders (Nappi, 2014). The diverse characteristics of teacher leadership are outlined in the seven domains of the Standards:

- Domain I: Fostering a collaborative culture to support educator development and student learning;
- Domain II: Accessing and using research to improve practice and student learning;
- Domain III: Promoting professional learning for continuous improvement;
- Domain IV: Facilitating improvements in instruction and student learning;
- Domain V: Promoting the use of assessments and data for school and district improvement;
- Domain VI: Improving outreach and collaboration with families and community;
- Domain VII: Advocating for student learning and the profession (p. 9).

When selecting teacher leaders, principals should identify strengths within faculty members and build upon these strengths in order to increase the organizational capacity of the school and/or district. For example, if an elementary teacher has developed a passion for writing, the principal should research professional development opportunities that match the school goals and invite the teacher to attend with the understanding that he/she will turnkey the information learned to the appropriate colleagues. Once professional development is provided by the teacher, administrative follow-through must take place. Administrative follow-through gives support to teacher leaders, promotes buy-in from others, and elevates the potential for change. Following up conveys to the faculty that the principal cares about the initiative and expects results. Without administrative follow-through, initiatives rarely become part of the fabric of the school.

Teacher leaders have professional learning needs and principals should not only recognize these needs but provide meaningful professional development to teacher leaders in order to meet these educational requirements. The top ten learning needs for teacher leaders as identified by Gordon, Jacobs, and Solis (2014) are:

- Interpersonal Skills
- Organizing
- Knowledge of Curriculum and Instructional Innovations
- Mentoring
- Group Process
- Technology
- Facilitating Change
- Training and Coaching
- Leading Reflective Inquiry and
- Addressing Diversity

It is the role of the principal to support teacher leaders and provide ample opportunities for teacher leaders to participate in their own professional learning so they can better understand the needs of their colleagues and be prepared to support them as they confront challenges. Case Study 1 illustrates one Principal's attempt to engage faculty in data driven decision making through collaboration, mutual respect and cooperation.

CASE STUDY 1

Marielle was hired as the principal of a small suburban high school. Prior to Marielle's hire, there had been two principals who were not offered tenure based on their performance. The socio-economic status of the district was on the higher end as income per capita was robust, housing in the district was expensive, and taxes were high. There was only one apartment building in the town. Most of the parents were blue collar workers who made their income through professions such as plumber, electrician, etc. Some parents were white collar workers but they were in the minority. There wasn't a great deal of diversity in the school as the majority of students in the district were Caucasian. The school board was very opinionated and had a good deal of influence on the superintendent.

The principal who preceded Marielle was hired to bring about change and did so within his first 18 months in the position. Although the changes brought about during his tenure were not harmful to the educational process, the changes infringed upon the traditions that had become part of the fabric of the school and district. Making changes rapidly brought about a great deal of unrest among the faculty. Teachers did not go into the principal's office without union representation and, with the exception of a few individuals, trust was non-existent. The authority in the building was held by a department supervisor, not the principal. Teachers went to the department supervisor when they had questions, needed to leave the building early, or had student concerns. In addition, parents called the department supervisor with questions and concerns as did the superintendent on occasion.

Marielle had acquired some background information from colleagues prior to joining the district and knew that in order to be successful, she would need to observe and support the faculty for a period of time before making any major decisions; Marielle also knew she would need to establish trust among the staff and, in particular, with the powerful department supervisor. Since the assistant principal, who had been in the district for over twenty years, had taken a position in another district, Marielle started the school year with the need to hire an assistant principal. Knowing that the teachers would be observing her actions when filling this important position, Marielle asked for stakeholders (staff, parents, students) to volunteer to be on a committee to interview candidates for the assistant principal position. Marielle also personally invited some faculty members who were particularly critical of the outgoing principal to be on the committee with the understanding that the interview committee would have some type of buy in and be less likely to talk critically of the process. Everyone had an equal say in the decision and Marielle brought the individual who had the most votes in the committee to the board as a recommendation. This was Marielle's first step in creating a culture of shared leadership.

Over the next two years, Marielle formed a close working relationship with the department supervisor and began to make critical decisions for the school. Teachers, parents, and community members addressed Marielle with concerns and she was viewed as the educational leader of the school. However, Marielle did not operate

in a vacuum. While she made critical decisions on her own (for example when the building needed to be evacuated or a faculty member's behavior needed to be addressed), most of the decisions that would have an impact on the educational process were made in conjunction with committees made up primarily of teachers (with parents, community members, and students invited when appropriate). Committee members were selected based on recognition by faculty and staff as a leader (natural leaders), recognition by the principal as having leadership potential, and volunteers.

Working with committees to make educational decisions was one way that Marielle worked within the school structure to develop a collaborative atmosphere. In addition, Marielle began to work with teams of teachers to engage in action research, analyze data, and make recommendations on a regular basis. One action research project that resulted in a number of changes within the school setting was that of guided inquiry.

During Marielle's second year as principal of the high school, the district implemented guided inquiry as a strategy for all teachers to be using within their classrooms. Guided inquiry is a teaching strategy that is designed to promote critical thinking. Teachers design learning experiences that will guide students in building a knowledge base that will result in deep understanding of the problem under study. Learning experiences are relevant to students and can be approached in a variety of ways. Students are actively engaged in the learning experience and learn to assess and evaluate information in order to form an opinion/solution to the problem or issue understudy. Assessment is ongoing and involves a wide range of methods such as; formative assessment, reflection, peer evaluation, etc.

Although guided inquiry was a district initiative, many of the teachers in the high school had not bought in to the concept of guided inquiry. Some teachers did not understand it, others believed that they had met with success in the past and were not willing to change; others were interested but uncertain as to how to proceed as the district directive was not clear and professional development was offered in the tradition form of a one day presentation without administration present and no follow-up.

Marielle applied for a small grant and after it was awarded, asked for volunteers as well as teacher leaders who had emerged naturally who would be interested in learning more about guided inquiry and implementing it in their classrooms. Eight teachers and building supervisors formed the first action research committee. All grade levels at the high school were represented as were all of the departments. Funding provided through the grant allowed Marielle to purchase books on guided inquiry for the teachers on the action research team, hire an educational consultant to work with the teachers on an ongoing basis, and pay for substitutes while teachers collaborated. The team of teachers implemented guided inquiry as a teaching strategy within their classrooms and collected data on student performance. The team analyzed the data and made the recommendation to expand the initiative within the high school. The teachers who were on the team

became the in-house "experts" and began to provide professional development for other teachers.

The initial action research on guided inquiry resulted in a shift from paper and pen assessments to more formative assessments and performance based assessments; eventually it was decided that teachers needed longer blocks of time to work with students. The teacher leaders explored different types of scheduling, visited schools, and developed a proposal to present to the Superintendent and Board of Education regarding a schedule where students could spend more time exploring topics. The guided inquiry action research team comprised the first cohort of informal teacher leaders within the high school.

Discussion

Marielle was attuned to the faculty/staff and did not make major changes immediately. Developing a collaborative culture based on trust, respect and common goals, Marielle was able to implement change over a period of time. Teachers began to take on leadership roles and professional development was based upon need and ongoing. Teachers collected data and make instructional decisions based on the data collected. Higher order thinking skills were encouraged through a variety of instructional strategies which eventually led to a change in assessment. While the high school had moved forward by developing teacher leaders and using guided inquiry within the school, the middle and elementary schools were not on board.

Teacher Leadership and Professional Development

School culture can be either positive or toxic. According to Peterson and Deal (2011), without a positive school culture that has been fostered over time, schools will falter. Positive school cultures are built by formal and informal leaders and based on strong values and tradition that is nurtured through reflection, a sense of purpose, and ongoing improvement. A positive school culture will focus on professional development as a form of collaboration. Contributions made by teachers are respected and accepted. Teachers are recognized for their expertise and play a role in the decision making process. A school culture that does not focus on these beliefs can impede the success of teacher leadership as well as student achievement.

A great deal of emphasis has been placed on restructuring schools. However, Fullan (2007) suggests re-culturing schools rather than restructuring. Re-culturing requires collaboration among school administration and faculty that results in trust, respect, professional satisfaction, improved instructional practices, increased achievement for all students, and change that is sustained over a period a time. High quality professional development is a critical component in the process of re-culturing.

Whether examining school restructuring or school re-culturing, improving teacher practices that will result in greater achievement for all students is the ultimate goal. Although high quality professional development has been the objective of a large

number of schools and districts, studies indicate that many schools still engage in unproductive, conventional professional development activities (Guskey, 2003). Established professional development practices are built upon the belief that teachers are passive recipients of knowledge that is imparted through an outside expert and once the information is presented to teachers, it will be used in classrooms without further instruction or follow up.

Research found that when unconventional types of professional development are presented in a collaborative environment both teacher practices and student achievement are impacted in a positive manner. Unconventional or collaborative types of professional development include teachers throughout the process. In collaborative professional development, teachers have a part in determining need and how information will be delivered. In addition, collaborative professional development ensures that the information provided is focused, aligned with district and state standards, job imbedded, long term, includes follow through and is supported by administration (Guskey, 2003; Vaughn & Coleman, 2004).

Professional development should be targeted and appropriate for the audience selected. All-inclusive professional development workshops generally leave some of the participants uninspired and consider the time to be wasted. As with any other teaching situation, when professional development is offered, participants should know why it is a valuable learning experience, how it can/will be applied to their teaching situation, and what the expectation is. In today's economic climate, most principals do not have unlimited resources available to promote teacher leadership and productive professional development programs. However, there are means that principals can employ to support teacher leadership and professional development programs that do not carry a large price tag.

Simply acknowledging teacher leaders as resources for others will intrinsically reward those who go above and beyond. Acknowledgment of teacher leaders and highlighting their expertise by suggesting that colleagues ask them for resources, visit their classrooms, or attend a workshop they are giving will also encourage faculty to look to them for guidance. Providing teacher leaders with flex time, classroom coverage, and scheduled time during staff meetings will also go a long way in recognizing their contributions to the school. Allowing teachers, especially teacher leaders, to play a role in the decision making process will affirm that their knowledge and skills are valued. However, this only holds true if the principal follows through with recommendations and proposals made by the individual or the committee.

Productive professional development programs can be designed by teachers who have an expertise in a particular content area or instructional strategy. It is important that administration become part of professional development offerings in order to send the message that the content area or strategy being presented is important. Setting up lab classrooms where teachers can view the strategy being implemented is another tactic that can be employed. It is essential that professional development be ongoing. Administrative follow through, where administrators conducting walk through or observations look for strategies to be put into practice in the classroom is

also critical to the success of the program. But not all attempts by administrators to implement curriculum change is successful:

Case study 2 expands the teacher leader model to the district level and attempts to engage faculty across a system in collaborative, data driven decision making. Unfortunately, the conditions for change were not appropriate as trust was lacking and motivation was low. The result was little to no impact on student achievement.

CASE STUDY 2

Samantha as a well-respected elementary school principal in a medium sized, suburban school district. The social economic status of the district was varied as some sections of the township had high income per capita and expensive homes while other sections were in poverty status. There were an increasing number of minority students moving into the district and the township had a large number of trailer parks and low income housing. The superintendent and Board of Education members were supportive of any change that would support students.

Samantha had over 25 years of experience as a teacher and principal at the elementary level and was ready for a new challenge. Therefore, when the position of assistant superintendent in charge of curriculum and assessment became available through a retirement, Samantha applied for the position and was selected as the successful candidate. The immediate problems that Samantha needed to tackle were the district's test scores and high school graduation rate as both were decreasing at an alarming rate.

One of Samantha's first decisions was to form a district assessment team comprised of a minimum of three teachers from all seven of the districts' schools to analyze the most recent test scores as well as the test scores from the previous three years. The teachers met for a week during the summer. Initially, the group met in school based teams to analyze the scores from their individual schools and then met as a larger group to discuss trends. It appeared as though students were meeting the requirements for math at the elementary level but falling short at the middle and high school level. In Language Arts, the students were not meeting with success at any level. However, it differed from grade level and from school to school as to where students were meeting with difficulties. In some cases, it appeared to be reading while in others writing was an issue.

Once the areas of concern were identified with specificity, Samantha provided professional development in the targeted areas for the teachers on the assessment team and invited principals to attend. The concept that was relayed to the assessment team members and their respective principals was that the professional development would be "turn-keyed" and provided to faculty members within the schools. It should be noted that in most cases principals reported that they were too busy to attend professional development sessions and only a few would occasionally stop by.

The teachers brought the information they gathered through analyzing the data back to their respective schools and worked with a school based team of teachers to

develop teaching strategies based on the data that had been collected and analyzed. The school based team of teachers then presented the strategies to their colleagues and provided professional development as to how strategies might be implemented. Teachers were given release time to observe colleagues as "critical friends" and a lesson plan data base was developed. The lesson plans were reviewed by Samantha and the supervisors prior to being put into the data base to ensure that the lessons were aligned to the standards.

The high school and middle schools met with a great deal of success following this plan as student scores increased significantly and at the high school level, the graduation rate improved. The four elementary schools remained stagnant and, in some cases, scores decreased.

Samantha began to investigate what took place at the middle and high schools as opposed to what took place at the elementary schools. She discovered that the principals at the middle school and high school recognized the problem(s) at hand. The principals in both schools encouraged and supported the initial members of the district assessment team and worked with the school based team to not only develop instructional strategies but also to improve the overall culture of the schools. Faculty meetings became more meaningful. Anything that could go out to the faculty and staff through a memo or email did so. Faculty meeting times was used for further analyzing student work and ongoing professional development. The teachers, students, parents, and staff were informed of the efforts that were being made to increase student success and updates were communicated frequently throughout the school year. Teachers who did not 'buy in' to the strategies that were presented during professional development meetings were met with individually and the need to comply was stressed. Both principals visited classrooms on a regular basis and looked for best practices. The principals became "cheerleaders" for the faculty and student body.

A look at the elementary schools yielded quite a different picture. The four principals met on a regular basis and determined that what had been taking place in the classrooms was already meeting the needs of their students. The members of the district assessment committee were given little time to present their findings to faculty and although the school based teams were meeting and producing lesson plans; it was merely an exercise as the lesson plans were not being accessed by the faculty at large. In some cases, the elementary principals disagreed with the instructional strategies that had been presented to the district assessment team members and put up roadblocks that prevented the material being shared. Faculty meetings remained principal centered and were primarily used to share information (upcoming assemblies, etc). Follow through did not take place.

Discussion

Samantha recognized the need for the faculty to engage in collaborative, data based, decision making that would impact instruction. Teachers selected to be on the district and school based teams were given ample time by district administration to

collaborate and follow through on their task. In this case, not all principals were on board and it had a negative impact on student achievement.

Fostering Critical Thinking

Assuming the school climate is conducive and open to change then a Teacher Leadership program focused on critical thinking about teaching and learning in schools would be an interesting challenge. How can teachers go about teaching critical thinking in their classrooms is an invitation to engage in critical thinking about how teachers teach.

A basic definition of critical thinking is the 'thinking about how we think'. A seminal study conducted by Glaser (1941) identified three elements of critical thinking as: (1) an attitude that allows one to approach problems and situations in a thoughtful manner, (2) understanding the methods of logical inquiry and reasoning and (3) skill in application of problem solving, logical inquiry and reasoning. Dewey (1933) stated that an individual must desire to think as simply acquiring knowledge did not guarantee the ability to think with proficiency. According to Dewey, individuals need to engage in reflective thinking which involves contemplating an idea with serious deliberation in order to solve problems. The Delphi Report (1990) was a ground breaking study that summarized the findings of a two year project designed to define critical thinking and the cognitive and sub-cognitive skills of critical thinking. The report also presents specific recommendations related to the teaching of critical thinking. The core cognitive skills and sub-skills identified are as follows:

Skill

1. Interpretation
   Sub-skills: Categorization, Decoding Significance, Clarifying Meaning
2. Analysis
   Sub-skills: Examining Ideas, Identifying Arguments, Analyzing arguments
3. Evaluation
   Sub-skills: Assessing Claims, Assessing Arguments
4. Inference
   Sub-skills: Querying Evidence, Conjecturing Alternative, Drawing Conclusions
5. Explanation
   Sub-skills: Stating Results, Justifying Procedures, Presenting Arguments
6. Self-Regulation
   Sub-skills: Self-examination, Self-correction

Everyday classroom practices when thoughtfully designed are what can provide the fuel for developing core cognitive skills as well as the sub-skills identified as factors of critical thinking.

Thinking critically about issues requires reflection and examination of widely held beliefs. The ability to think critically lets individuals investigate all aspects of an issue prior to making a judgment and accepting outcomes that may not coincide with their original beliefs. Reflection enables students to think about the knowledge they have attained so they can identify areas of confusion, what still needs to be learned, and new goals to be created. Today's educators often talk about the importance of having their students think critically however, rarely are thoughts put into action as many teachers view the state and district mandates as leaving little time for activities designed to help student hone their critical thinking skills. With test scores a priority, many students are entering post secondary schools and the work force without the critical thinking skills that are necessary to succeed (Smith & Szymanski, 2013) or the understanding as to what the concept of critical thinking means (Henderson-Hurley & Hurley, 2013).

A study by Tsai, Chen, Chang, and Chang (2013) found a positive relationship between focusing on the development of critical thinking skills and increased test scores as activities designed to develop critical thinking skills lead to students internalizing the subject matter. Internalizing the subject matter allows for students to employ higher order thinking skills and engage in metacognition or thinking about thinking. However, while students may possess a body of knowledge, the absence of critical thinking skills will thwart the analyzing and evaluation of issues.

Research conducted by Halx and Reybold (2005) ascertained that while learning entails energy, critical thinking requires a great deal of intellectual exertion as well as personal reflection which oftentimes is uncomfortable for both students and teachers. Due to the level of discomfort and lack of time critical thinking is often not addressed at the K-12 level. This is unfortunate as research indicates that focusing on critical thinking skills in K-12 education can increase academic grit as well as student test scores (McCollister & Sayler, 2010; Snodgrass, 2011; Tsai, Chen, Chang, & Chang, 2013). According to Tsai et al. (2013), when teachers implement activities that are designed to encourage thinking critically, students develop a deeper understanding as to why a phenomenon has occurred instead of being limited to understanding what has occurred. This concentrated understanding will enable students to evaluate the situation or occurrence and offer opposing views.

Reflective assessment can play a major role in critical thinking. Reflective assessment is a formative process where assessment is built into the learning process rather than a separate evaluation piece. Traditionally, assessment has been viewed as a summative evaluation of the students' learning. However, if the goal is to have students take ownership of their own learning and to improve student learning then assessment should be woven into the fabric of the teaching learning process. Reflective assessment grows out of the theories of Dewey (1933), Piaget (1976) and other Constructivist Theorists. Dewey (1933) considered reflection to be central to all learning experiences, enabling "us to act in a deliberate and intentional fashion" (p. 212) and that the art of reflecting "enables us to know what we are about when we act" (p. 17).

Public school teachers must adhere to state and district mandates and some might believe that the imposed mandates prevent implementing activities that will teach students how to think critically. Yet, there are numerous strategies that teachers can employ that will engage students in experiential learning, which focuses upon the experiences created for students, while meeting standards as well as state and district benchmarks. Critical thinking activities can be implemented within the instructional time allotted in each subject area with thoughtful planning of lessons. McCollister and Sayler (2010) suggest that teachers use questioning techniques that allow students to engage in metacognition and develop activities that require students to evaluate information through the collection and analyzing of data rather than memorizing and recalling facts. According to studies (McCollister & Sayler, 2010; Tsai et al., 2013), when students view the acquisition of information as a process they are developing skills that will assist with language arts development and problem solving skills which have been found to have an impact on student performance in relation to standardized assessments.

Teacher leaders can provide professional development designed to enhance critical thinking in the classroom by offering opportunities for ongoing adult learning in modeling, resource provider, curriculum specialist, classroom supporter, learning facilitator, mentor, data coach, catalyst for change, etc. in the following areas:

- Developing student learning activities authentic or relevant to students,
- Designing problems that are minds on as well as hands on or student centered,
- Increasing the repertoire of questioning techniques,
- Developing appropriate assessments that are woven into the class activities,
- Infusing technology,
- Collaborating with others.

Developing student learning activities that are authentic or relevant to students is paramount in developing critical thinking. Authentic learning focuses on making connections between what students learn in school to issues that occur in the real world. Authentic learning is routed in constructivist learning by nature. Authentic learning tasks provide students with the opportunity to apply concepts to new situations allowing for deeper understanding of topics under study. Teacher leaders can provide professional development to teachers in the form of modeling, resource provider, etc. when focusing on developing student learning tasks that are authentic.

Authentic learning activities are student centered and encourage students to be minds on as well as hands on. Activities that keep students busy but do not encourage reflection, analysis, discussion, etc. are of little value to students as they most likely will not retain what is learned. Authentic learning activities that are minds on provide for students to acquire foundational skills, knowledge, and understandings that professionals would use in the real world. Prior learning from a variety of disciplines (promoting interdisciplinary perspectives) is applied to new learning allowing for teachers to assess the level of knowledge attained. Designing activities that are

minds on drives students to contemplate issues with greater thought, broach difficult questions, take many forms of data into consideration, ponder opposing ideas, consider opposing viewpoints, and traverse complicated issues and circumstances. Teacher leaders can be instrumental in assisting teachers as they design learning activities that are authentic and minds on.

Increasing the repertoire of questioning techniques will promote critical thinking. How a question is presented will determine if the student will answer using recall or higher level thinking skills as identified by Bloom's Taxonomy originally published in 1956 and revised in 2001 (Anderson et al., 2001) to reflect 21st Century Learning (Figure 1) and Webb's Depth of Knowledge (1997) (Figure 2). Questions that require students to synthesize, evaluate, analyze, and apply will result in meaningful learning and frequently, a challenging of commonly held assumptions.

Socratic questionings involves presenting questions that will require students to explore a meaning, assertion, or belief. Paul (2009) identified six types of Socratic questions; clarification, probing assumptions, probing reasons and evidence, viewpoint and perspectives, probing implication and consequences, and questions about questions. The Socratic Method serves to clarify and, in some cases, challenge assumptions. Answers are not necessarily right or wrong as answers are based on the student's experiences.

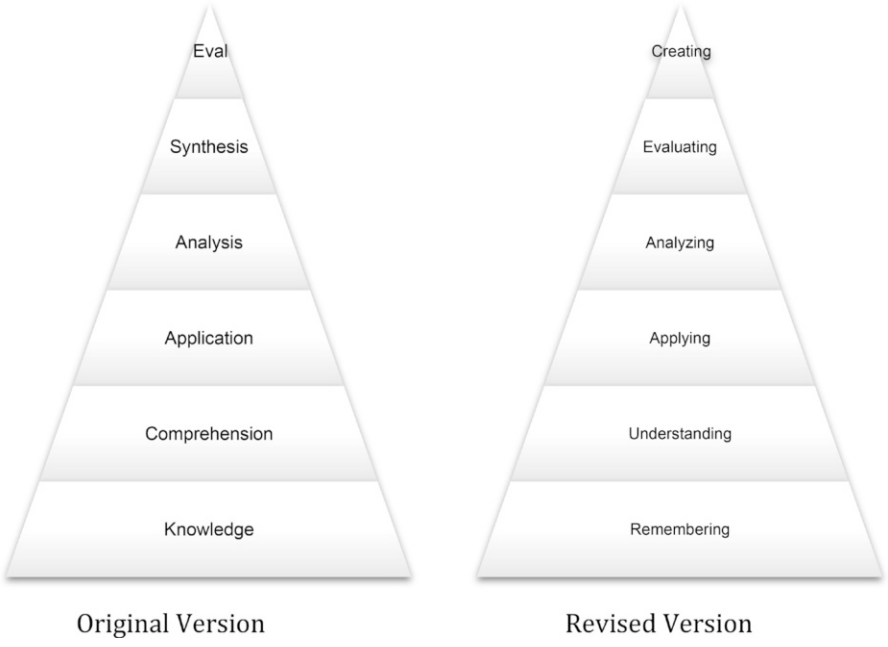

Figure 1. Bloom's Taxonomy original version and revised version

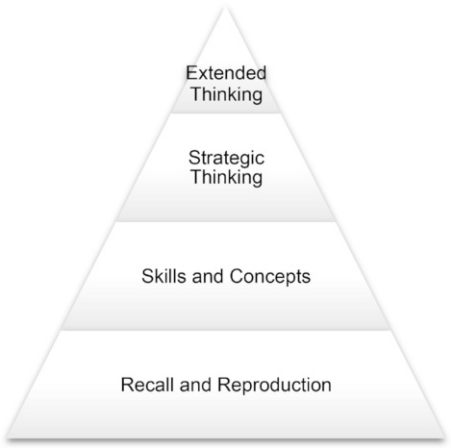

Figure 2. Webb's depth of knowledge

Effective teachers use a wide variety of questioning techniques, focus on questions that will elicit higher order thinking, and allow for appropriate wait time. However, these techniques are not innate to many and must be modeled in order to be implemented effectively; this is where teacher leaders can provide support.

Assessments should provide timely feedback as well as opportunities for students to reflect upon their learning. Assessments that are designed to assess student learning on authentic tasks that promote critical thinking differ from traditional pen and paper assessments as, oftentimes, there is no right or wrong answer. Solutions to problems are often complex and multifaceted. Assessments that assist in promoting critical thinking allows for students to self evaluate. The assessments that are designed and incorporated into the lesson ought to guide student learning and the teacher's lesson plans. Students are more apt to engage in reflection when utilizing rubrics that they assisted in developing. Teacher leaders can provide professional development on how to incorporate student input into the designing of rubrics and constructing assessments that target the standards under study.

Technology is a necessary tool for 21st Century learners and must be implemented in a thoughtful manner. Technology should be integrated into the learning experience and not viewed as an "add on". Planned student activities that promote critical thinking should require students to conduct meaningful research, share finds, make determinations, solve problems, create meaning, and communicate with others. A wide variety of technology is available to students and should be infused into lesson design as appropriate to the task or problem under study.

Technology is ever changing. It is difficult for teachers to keep up with the wide range of technology available and utilize the technology in a manner that will reap the greatest benefit in student learning. Teacher leaders can be classroom supporters, resource providers, and specialists that assist in the area of technology.

Lessons that are designed to promote critical thinking should have components that allow for collaboration. Planned tasks and activities should allow for students to share what they are learning to a wide variety of audiences. Some areas to plan for are; student to student collaboration, student to teacher collaboration, student to expert collaboration, etc. Teacher leaders can support teachers as they develop and implement techniques that give students the opportunity to navigate conversations within small and large groups.

It is important for teachers and administrators alike to understand that their role in helping students think critically is not business as usual. In order to engage students in evaluating and analyzing information, so they can make quality judgments, the teacher needs to provide opportunities for students to take ownership of their learning. This is a shift in pedagogy that has been much talked about but is often overlooked due to the constraints of the school day and amount of subject area content that teachers are required to expose students to. Allowing for students to take ownership of their learning requires skilled classroom management practices and solid lesson planning with a focus on student engagement. The teacher's role becomes one of facilitator rather than the point of information and lessons are planned so that students are actively engaged in higher order thinking. This type of learning environment, where students are engaged in discussion and uninhibited thought process is not always neat as the outcome might result in more questions or differing opinions. Teacher leaders can be instrumental in assisting teachers as they work through this process.

SUMMARY

Education can be the medium for empowering students to become critical, involved members of society in a world that is ever changing in many aspects. Educational policies have been put in place that recognize the importance of students having a core of knowledge. Yet it is important for students to understand the importance of their actions in a society that is not restricted but global in nature. Due to increased demands on teachers, core standards are "covered" in most classrooms but little attention is given to honing the skills that are required of a critical thinker.

Quality instruction has been identified as one of the most important school factors to impact student achievement (Darling-Hammond, 2010). Advancing teacher proficiency is a challenge faced by school leaders. In an attempt to improve instruction through teacher expertise, teacher effectiveness has been woven into mandates. However, mandates alone will not improve instruction. Traditional professional development presented with the intent of improving teaching is one approach that schools have used to improve the teaching/learning environment. Traditional professional development where teachers are presented with a teaching strategy without follow up has been found to be unproductive (Guskey, 2003). Presenting teaching strategies to teachers does not ensure that they (the strategies)

will be implemented and, if strategies are implemented, there is no guarantee that the techniques will be implemented appropriately and with fidelity.

Teacher leaders can be instrumental in the attempt to improve instruction. Teacher leaders can assist teachers in learning research based instructional strategies. Teacher leaders can also help teachers in applying strategies appropriately through ongoing professional development, modeling, setting up lab classrooms, providing resources, coaching, etc.

Leadership has been found to be another influential factor in building a positive school culture and improving student achievement (King & Bouchard, 2011). Increasing demands on school principals leave them in a position where they can no longer manage all aspects of the school alone. Therefore, sharing leadership responsibilities among the school faculty is more likely to have an effect on school improvement and student achievement. In schools where shared leadership is practiced, members of the school take responsibility for improved instruction and student learning. Members of shared leadership teams engage in collaborative efforts designed to increase student achievement through reflection, professional development, and goal setting. In order for shared leadership to be successful, principals must invest in faculty members and not only encourage them to take leadership roles but to support them in their efforts. It is the principal's role to develop a collaborative, support structure that will allow teachers to learn, analyze data, and reflect upon their practices.

Many professional organizations cite critical thinking as a key intellectual and practical skill (Rowles, Morgan, Burns, & Merchant, 2013). However, a number of studies have found that critical thinking is a skill that many entering higher education and the workforce do not possess (Rowles et al., 2013; Henderson Hurley & Hurley, 2013). Research indicates that focusing on developing critical thinking skills in grades K – 12 can improve academic rigor and student achievement (Tsai, Chen, Chang, & Chang, 2013). Teacher leaders can assist their colleagues as they implement activities designed to enhance the critical thinking process. Teacher leaders can present professional development on strategies and methods that will encourage critical thinking.

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