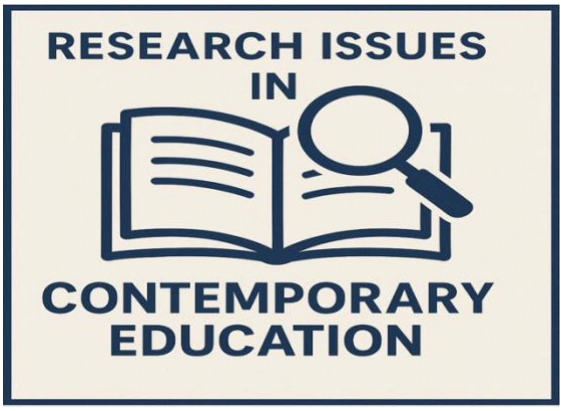


The Whole School Optimization Model: Using Innovative Leadership and Teacher Expertise to Overcome Wicked Problems in K-12 Education

Tiffini A. Brigola
University of Louisiana Lafayette

Abstract

Educational organizations increasingly face complex challenges that resist traditional linear solutions. These "wicked problems" are characterized by ambiguity, competing stakeholder priorities, and interconnected social factors that make them difficult to resolve through conventional school improvement strategies. The purpose of this study was to examine the dispositions and practices of school leaders who have demonstrated sustained success in improving their schools and to propose and support the Whole School Optimization Model (WSOM) as a framework for addressing these challenges. Guided by a pragmatist paradigm, this research employed a sequential mixed-methods, multiple-case study design conducted in three phases. Quantitative data were collected through the Whole School Optimization Inventory (WSOI), which incorporated validated survey instruments measuring school culture and empowering leadership, while qualitative data were gathered through open-ended survey responses, interviews, observations, and artifact analysis. Participants included educators from randomly selected schools as well as purposefully selected schools with a documented history of successful improvement. Findings indicate that successful schools are characterized by leaders who foster collaborative cultures, strategically build organizational capacity, and intentionally utilize expert teachers in leadership roles. These conditions promote individual and group states of flow that generate innovation and synergy, enabling school communities to address complex organizational challenges. The WSOM provides a systems-based framework that can guide leadership preparation, policy development, and future research aimed at achieving authentic and sustainable school improvement.

Keywords: whole school optimization; school leadership; teacher expertise; wicked problems; collaboration; school improvement

Introduction

Different from "tame problems" that are linear with clear solutions, "wicked problems" are complex social or environmental issues that are difficult to define, have no clear solution, and are interconnected with other problems, making them resistant to resolution through traditional approaches (Rittel and Webber, 1973). These problems are characterized by a high degree of uncertainty and ambiguity, and solutions often require collaborative, iterative processes rather than straightforward, linear problem-solving methods (Conklin, 2006). Strategies to address wicked problems often involve adaptive management, stakeholder engagement, and the integration of diverse perspectives to develop more comprehensive and flexible solutions (Head & Alford, 2015). Conklin (2006) emphasizes the importance of using collaborative frameworks and embracing the iterative nature of problem-solving to effectively address the multifaceted dimensions of wicked problems. Educational organizations often encounter wicked problems due to the complex and interdependent nature of the challenges they face, such as addressing educational inequity, adapting to rapidly changing technologies, and meeting diverse student and teacher needs. These problems are inherently difficult to solve because they lack clear definitions, involve multiple stakeholders with conflicting values, and are deeply embedded within larger social, economic, and political systems.

If governing bodies and policy makers were able to determine and analyze the dispositions and practices of current and potential school leaders to ensure they approach complex problems optimally, they could take proactive measures that promote the organization's efficiency and effectiveness in meeting students' needs, increasing classroom learning, and raising academic achievement in environments that promote collaborative learning for the whole community. Therefore, studying and uncovering which leadership styles, characteristics, knowledge, and practices that make up the dispositions of effective school leaders would provide evidence-based guidance to state- and district-level leaders and policymakers in their endeavors to create school systems capable of overcoming wicked problems and sustaining authentic improvement efforts in an ever-changing, global network while simultaneously meeting the unique needs of the communities and students they serve

Statement of the Problem

Improving student achievement and overall organizational effectiveness have been and continue to be major goals of K-12 school improvement initiatives in the United States, yet plans to accomplish these goals are often short-lived or fail to be initiated, leaving educators wondering why their plans and efforts are not working (Decker et al., 2012; Dolph, 2017; Spillane & Coldren, 2011). Organizational systems have worked towards optimizing their processes and resources, but our complex education system is struggling to follow suit, toiling with which critical foundations must be in place for schools to run optimally, enabling them to successfully and authentically meet the needs of their students, teachers, and unique communities they serve. Many factors have hindered successful implementation of improvement initiatives: inauthentic plans, blanket solutions, aversion to change, top-down structures, and undefined systems (Blizzard et al., 2012; Decker et al., 2012; Ooms and Piepenbrink, 2020; Smikle 2019; Teemant et al., 2021). Due to decades of implementation failure, there is a need to study what works for complex systems that are successful at tackling wicked problems to uncover what is missing from improvement efforts that fail.

Purpose of the Study

This study emerged through Pragmatism and had two goals: 1) to connect theoretical concepts to practical application in the field of education, and 2) to propose and support a model that can be used by district and state policy makers and leaders to better equip schools to tackle the challenges they face in order to create and sustain authentic, positive change. The WSOM was created through the connection of theoretical constructs revealed through an extensive preliminary literature review conducted to uncover how some schools are more successful at attaining their goals than others. The study was designed to confirm the connections in the proposed model or help to reveal previously under-researched dispositions and practices of school principals who have successfully led their school communities to sustainable, positive change. Therefore, the purpose of this study was to devise a clear path to authentic school improvement for any organization by identifying the types of challenges school systems face and uncovering the approaches successful school leaders utilize to remedy these complex problems in their individual, unique settings.

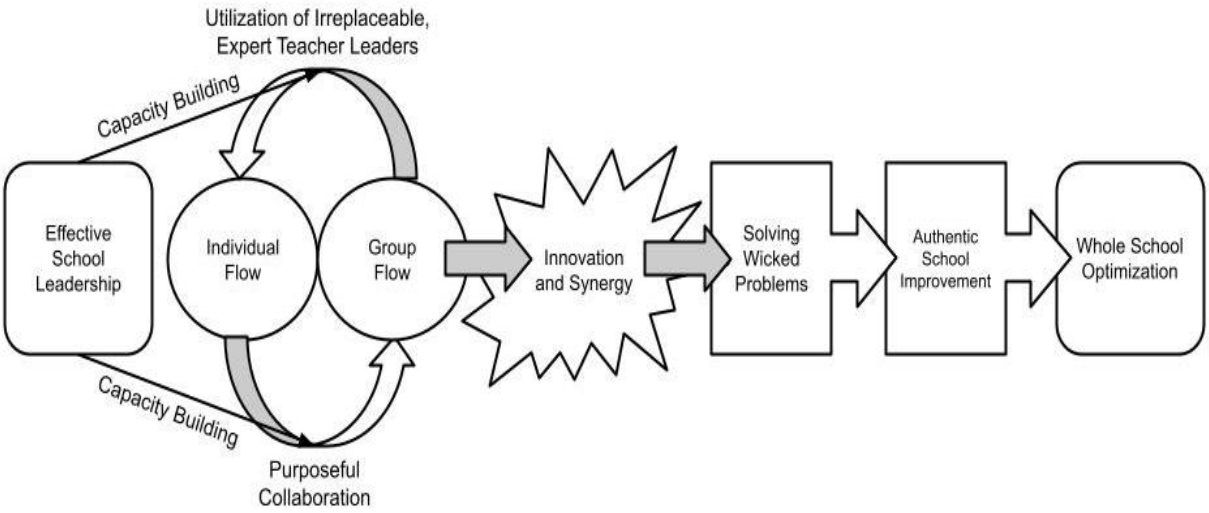
Theoretical Framework

The Whole School Optimization Model (WSOM) was designed to clearly illustrate the necessary components of effective and sustainable improvement efforts as well as how these components work together to reach an optimal state of operation. Whole School Optimization (WSO) is positioned on the right end of the model as the destination of the route to authentic, effective, and lasting school improvement initiatives. On the left end of the model is Effective School Leadership, the first and most important foundation of the pathway to WSO because the successful functioning of all other components of the model are dependent on this first critical factor (Bottoms & Schmidt-Davis, 2010). The subsequent components symbolize the human resources, practices of leadership, and the relationships between them that ultimately lead to the result of following the pathway (Couto, 2015; Strunk et al., 2015). When effective school leaders practice capacity building through the utilization of irreplaceable, expert teacher leaders and purposeful collaboration, the result is the generation of the two interacting forms of flow (Berliner, 2001; Brown, Flood, Armstrong, MacGregor, & Chinas, 2020; Bucci, 2003; Clark, 2017; Hattie, 2016; Katzenmeyer & Moller, 2009; Levin & Schrum, 2017; Mayeaux & Olivier, 2020; TNTP, 2010; Vasilieva & Tochikina, 2020).

Individual and group flow are two different, interacting forms of flow (Vasilieva & Tochikina, 2020). Individual flow is the result of experts acting in tasks that require them to make impactful use of their knowledge, skills, and motivation (Mayeaux, 2016; Mayeaux & Olivier, 2020); group flow is generated when experts are leaders of collaborative teams who work to address a need or solve a problem (Primus & Sonnenburg, 2018; Selamat & Zhang, 2020). Individual and group flow work together in a cycle, feeding and growing each other through collaborative interaction (Primus & Sonnenburg, 2020). Group flow generates innovation and synergy which generates creative ideas and practices that work towards solving wicked problems (Blizzard, Klotz, & Hall, 2012; Primus & Sonnenburg, 2020). When educational organizations can sustain these effective and meaningful change initiatives, they reach running states of optimization, ultimately resulting in authentic school improvement that makes real impacts and lasts despite the challenges faced by the organization (Ooms & Piepenbrink, 2020; Ropianto, Rukun, Hayadi, Utami, Candra, Hardianto, & Mesterjon, 2017; Stansfield, South, & Mapplethorpe, 2021).

Figure 1

The Whole School Optimization Model



Theoretical models that serve as the foundations of this study include the following: theory of authority (Barnard, 1968), leadership theory (Northouse, 2016), flow theory (Mayeaux, 2016; Nakamura & Csikszentmihalyi, 2002; Primus & Sonnenberg, 2018), theory of expertise as applied to teachers (Berliner, 1994; Hattie, 2002), and the whole-systems design approach to organizational optimization (Blizzard, Klotz, & Hall, 2012; Stansfield, South, & Mapplethorpe, 2021). The focus subjects of this work fall under the phenomenon of authority (Barnard, 1968; Haugaard, 2018) and the theoretical frameworks of leadership (Northouse, 2016), namely those styles and practices research has proven to have a significant impact on change efforts (Hall & Hord, 2020; Strunk, et al., 2015) and improvement initiatives (Strunk, et al., 2015; Ropianto, et al., 2017; Meyers & VanGronigen, 2019; Dolph, 2017; Chang and Chou, 2017; Decker, et al., 2012). Then the subjects of teacher expertise (Berliner, 1994; Hattie, 2016), irreplaceability (TNTP, 2009; TNTP, 2010), and utilization (Berliner, 1994; Berliner, 2001; Hall & Hord, 2020; Reeves, 2008) are presented as the often-overlooked critical component of the process (Berliner, 2001; Calhoun, 2002; Zydziunaite, et al., 2020). This study identifies and examines the elements of community (Stroh, 2015; Teemant, Yoder, Sherman, & Graff, 2021), optimization (Ropianto, et al., 2017), wicked problems (Ooms & Piepenbrink, 2020; Teemant, et al., 2021), and authenticity (Klonoski, 2003; Songtao, 2015; Stroh, 2015) within the framework of whole-systems design (Blizzard, et al., 2012; Stansfield, et al., 2021).

Literature Review

The literature review revealed that relationships exist between the dispositions and practices of school administrators and their ability to optimally run an educational organization. These relationships are illustrated in the WSOM, which was built upon eight critical elements synthesized and connected through the review: (1) Effective School Leadership; (2) Capacity Building; (3) Irreplaceable, Expert Teachers; (4) Purposeful Collaboration; (5) Flow; (6) Innovation and Synergy; (7) Solving Wicked Problems; and (8) Authentic School Improvement. These eight components as well as the ultimate destination of the pathway—Whole School Optimization—as they are used in this study, are defined below. WSO is the process that involves making the best use of material and human resources to maximize effectiveness of all components of the school community, including but not limited to the following: culture and climate, student safety and wellness; student academic achievement, enrichment, and efficacy; teacher efficacy and satisfaction; parental involvement; community involvement; multi-channel communication; financial efficiency and transparency; and purposeful technology use (Decker et al., 2012; Hudson et al., 2019; Lindahl, 2006; Maier et al., 2017; Teemant et al., 2021).

Effective School Leadership

Effective School Leadership refers to any individual member (or team of members of a school organization) who is given authority and collaboratively identifies the needs of the organization, creates a plan of action to address the organization's needs, manages the implementation of the plan, supports members of the organization throughout the change process, reflects on the effectiveness of the improvement initiatives, and refines the implementation of the plan for optimization. Effective School Leadership can also refer to the action(s) taken by the member or team of members of the school organization toward achieving the goals, vision, and mission of the organization (Barnard, 1968; Bass & Stogdill, 1990; Beycioglu et al., 2012; Brown et al., 2020; Burns, 2003; Chang et al., 2017; Clark, 2017; Couto, 2015; Deligiannidou et al., 2020; Hall & Hord, 2020; Hattie, 2015; Hattie, 2002; Haugaard, 2018; Howe, 2016; Northouse, 2016; Pounder, 2006; Selznick, 1943).

Capacity Building

Capacity Building refers to the practices initiated by Effective School Leadership including but not limited to administering support and interventions during change, facilitating professional learning opportunities that build expertise, and providing leadership opportunities that are

personalized to and meet the needs of the faculty and staff of the school organization. These practices are flexible, personalized, and designed to build the empowerment and expertise of the faculty members and effectively utilize them in both individual and collaborative efforts to successfully attain goals specified in school improvement plans (Berliner, 2001; Bottoms & Schmidt-Davis, 2010; Brown & Flood, 2020; Clark, 2017; Couto, 2015; Hall & Hord, 2020; Katzenmeyer & Moller, 2009; Levin & Schrum, 2017; Mayeaux & Olivier, 2020; Payne, 2008; Vasilieva & Tochikina, 2020).

Purposeful Collaboration

Purposeful collaboration occurs when school or district leaders create and maintain a structured environment and culture that support teams collaborating to identify and attend to the needs and challenges of the organization through research, creativity, and innovation (Berliner, 2001; Calhoun, 2002; Clark, 2017; Couto, 2015; Hagan, 2016; Howe, 2016; Strunk et al., 2015). Learning and diverse perspectives are critical components in the process of change and are required in order to improve programs, processes, and practices; therefore, in order to support and sustain meaningful, positive improvement, leaders must cultivate purposeful collaboration in their efforts to overcome wicked problems (Hall & Hord, 2020).

Irreplaceable, Expert Teachers

These are individual, expert classroom teachers who 1) often work in a state of individual flow, 2) exceed measurable state proficiency labels for teacher performance, and 3) go beyond merely meeting instructional needs to build relationships with peers and children they teach, ultimately making a far-reaching, lifelong, positive impact on the careers and futures of their coworkers and students (Berliner, 1994; Berliner, 2001; Bridwell-Mitchell & Fried, 2020; Bucci, 2003; Garcia-Martinez et al., 2020; Glaser, 1996; Hagan, 2016; Henry & Redding, 2020; James & Wyckoff, 2020; Katzenmeyer & Moller, 2009; Klonoski, 2003; Levin & Schrum, 2017; Lv & Zhang, 2017; Malm, 2020; Mayeaux & Olivier, 2020; Meskill, 2002; Reeves, 2008; Shen et al., 2020; Soares, 2020; Sorensen, 2017; Sternberg & Horvath, 1995; TNTP, 2009; TNTP, 2010; Wingfield et al., 2010; Yates & Hattie, 2013; Zydziunaite et al., 2020).

Flow

Flow is the state of enhanced creativity occurring in individuals or in collaborative groups wherein experts immerse themselves in activities in which their motivations, innovations, and focus are aligned with the acts they are performing. These states of individual and group flow work

synergistically when fostered and bolster the probability of solving problems that would otherwise be much more difficult or impossible to solve (Mayeaux, 2016; Mayeaux & Olivier, 2020; Nakamura & Csikszentmihalyi, 2002; Primus and Sonnenberg, 2018; Selamat & Zhang, 2020).

Innovation and Synergy

Innovation and synergy are phenomena that occur as a result of the utilization of irreplaceable, expert teachers as leaders and initiators of the flow experience in purposeful and intentional collaborative efforts. The group flow generated in collaborative experiences leads to creative ideation and coaction, ultimately resulting in the whole school community of stakeholders engaging in solving complex and wicked problems through creative and innovative ideas (Mayeaux, 2016; Ooms & Piepenbrink, 2020; Primus & Sonnenburg, 2018; Selamat & Zhang, 2020; Teemant et al., 2021; Vasilieva & Tochikina, 2020).

Wicked Problems

Wicked problems are unrelenting, tangled challenges for which the root causes and solutions are unclear, and significant learning is needed to tackle them. Wicked problems' causes and solutions are unique to the individual communities experiencing them and are often too complex to be identified through traditional means, so they are debated amongst the members of the organization impacted by the problem (Ooms & Piepenbrink, 2020; Rittel and Webber, 1973; Teemant et al., 2021).

Authentic School Improvement

Authentic School Improvement is meaningful, effective, and sustained collaborative initiatives, actions, and positive changes--formal or informal--aimed at building organizational optimization specifically designed to meet the unique needs of the school community being served by the school (Hall & Hord, 2020; Meyers & VanGronigen, 2019; Ropianto et al., 2017; Sagor, 2000; Spillane & Coldren, 2011; Strunk et al., 2015; VanGronigen, Meyers, & Hitt, 2017). These conceptual elements informed the design of the present study, which sought to examine how schools with a history of successful improvement approach and solve wicked problems.

Method

The literature review and theoretical framework highlight the importance of leadership practices, teacher expertise, and collaborative cultures in addressing complex organizational challenges in schools. To further investigate how these elements operate in practice within successful schools, this study was guided by the following research question:

1. How do schools that have demonstrated a history of successful improvement approach and solve the wicked problems they face?"

An extensive literature review led to the development of the following hypotheses:

H_1: School leaders are the critical component in the system who are responsible for creating a culture that utilizes irreplaceable, expert teachers in innovative leadership roles to have a significant positive impact on creating sustainable, authentic change by overcoming wicked problems that would otherwise hinder their efforts.

H_0 (Null Hypothesis): School leadership practices and the utilization of expert teachers in leadership roles have no significant impact on creating sustainable, authentic school improvement or overcoming wicked problems within school organizations.

Pragmatists acknowledge that all knowledge is social knowledge, and more than one approach to inquiry is necessary to gain a full understanding of reality and how actions and creating new knowledge can bring change to reality (Kaushik & Walsh, 2019); therefore, this research study was structured as a sequential, mixed-methods, multiple-case study design to test the research hypothesis and support the proposed model. The study was conducted in three phases. Phase I participants (n=191) were randomly selected school leaders, teachers, and counselors recruited from schools around the state. Participants in Phases II and III (n=110) were purposefully selected school leaders, teachers, and support staff recruited because their schools had demonstrated a history of successful improvement, and their principals had been recognized and honored for their leadership at the local, district and state levels. Phase II involved the collection and analysis of school performance, demographic, and community data to support the selection of the two case study schools of this work.

The Whole School Optimization Inventory (WSOI) was composed of a demographic information collection component and two previously validated survey instruments: Olivier's (2001) *Revised School Culture Elements Questionnaire*, revised by Mayeaux (2016), and Arnold, Arad, and Rhoades's (2000) *Empowering Leadership Questionnaire*. It was distributed to participants in Phases I and III, and interviews and observations were conducted in Phase III only, along with the collection of artifacts. The WSOI collected quantitative data through eliciting

participants' level of agreement with 58 Likert-scale statements. Five open-ended questions collected qualitative data and were designed to elicit responses directly connected to one or more of five areas of focus: 1) Effective School Leadership, 2) School Culture, 3) the Utilization of Irreplaceable, Expert Teachers, 4) Flow, Innovation, and Synergy, and 5) Solving Wicked Problems. Additional qualitative data was collected from interviews, observations, and artifacts.

A descriptive statistical analysis was conducted using the quantitative data collected, and qualitative data was segmented and coded by theme and positive or negative perspective. A triangulation of data was conducted to synthesize and compare data from all phases to uncover patterns, develop rich descriptions, and confirm the researcher's hypothesis. This sequential, mixed-methods case study approach allowed the researcher to gather and analyze data in phases to be able to build a strong foundation for comparison in Phase I, to vet and validate the cases in Phase II, and to collect data from purposefully selected schools in Phase III. Triangulation of the data collected built strong descriptions and a deep understanding of whether the proposed theoretical model aligns with the real, practical application of these theories by leaders and teachers who have been recognized as successful in their attempts to authentically improve their schools.

Triangulation

The final analysis of the data collected in this study triangulated data from Phases I, II, and III to develop a rich description of the context of the cases in order to compare the data gathered in these purposefully selected cases to the data gathered from the sample population of Phase I where participants were more randomly recruited. The comparison of these different sets of data was the basis of the assertions made to confirm the hypotheses regarding the themes of the research question for this work and the phenomenon of effective leaders who utilize their teachers in innovative ways to overcome wicked problems in authentic school improvement.

Overall, the quantitative data collected in Phase III from the quintain participants who completed and submitted the WSOI had higher means in all areas of focus than the data collected from the sample of participants in Phase I. Likewise, the qualitative data collected from Phase III participants were overall more positive and more focused on leadership, teachers, and flow than the data collected from the participants in Phase I of this work. The foundations of the WSOM were the areas of focus of this research; therefore, these components of the model were the categories under which all quantitative and qualitative data were sorted in both Phase I and Phase III. Comparisons were made between the findings in Phase I and the findings in Phase III to

determine if a significant difference emerged between the perceptions of the Phase I participants and the perceptions of those participants who made up the case studies of the quintain.

Findings

Quantitative and qualitative data were collected from the WSOI in Phases I and III and were then triangulated to compare findings from the random and purposefully selected populations. The most agreed upon statement between the two populations was, "Teachers openly share problems with each other" with a mean difference of .001. The statement with the greatest difference was, "Leadership roles are equally shared by teachers and administrators" with a mean difference of .474. Phase I participants submitted 922 qualitative statements in which 49.6% were positive. Phase III participants submitted 959 statements, and 75.3% were positive. There were 58 Likert-scale statements. Those presented in Table 1 were those statements with the greatest mean difference between Phase I and Phase III responses.

Table 1

Quantitative Data Sample of Largest Mean Differences

WSOI Statement	Phase I Mean μ^{I}	Phase III Mean μ^{III}	Mean Difference $\mu^{III} - \mu^{I}$
"My administrator encourages group members to solve problems together.	3.106	3.375	.269
"My administrator cares about our personal problems."	2.983	3.313	.330
"My administrator teaches work group members how to solve problems on their own."	2.853	3.271	.418
"Leadership roles are equally shared by teachers and administrators."	2.568	3.042	.474

While Table 1 presents a sample of the quantitative findings highlighting the largest mean differences between Phase I and Phase III responses, qualitative data were also analyzed to further examine participants' perceptions across the five areas of focus in this study. Phase I participants submitted 922 statements in the five open-ended constructed response component of the WSOI. Phase III participants submitted 959 statements. Table 2 summarizes the distribution of positive and negative qualitative statements submitted by participants in both phases.

Table 2

Qualitative Data Summary

Statement Theme	Phase I Statements		Phase III Statements	
	# / % Positive	# / % Negative	# / % Positive	# / % Negative
Effective Leadership	63 / 58.9%	44 / 41.1%	211 / 64.7%	115 / 35.3%
School Culture	47 / 42.7%	63 / 57.3%	124 / 79.0%	33 / 21.0%
Utilization of Irreplaceable, Expert Teachers	106 / 51.7%	99 / 48.3%	131 / 80.9%	31 / 19.1%
Flow, Innovation, and Synergy	82 / 40.6%	120 / 59.4%	57 / 58.8%	40 / 41.2%
Solving Wicked Problems	159 / 53.3%	139 / 46.7%	199 / 91.7%	18 / 8.3%

While Table 2 summarizes the distribution of qualitative statements by theme and participant perspective, additional insight can be gained by examining specific examples of the responses submitted by participants. Table 3 presents representative samples of qualitative statements related to perceptions of effective leadership from both Phase I and Phase III participants. This table presents a small sample of the 1,881 qualitative statements collected. These samples were presented to demonstrate the different perceptions of leadership submitted by the two populations of participants.

Table 3

Qualitative Statement Samples about Effective Leadership

Phase I Statement Samples	Phase III Statement Samples
"Is fantastic with curriculum but struggles with discipline"	"Professional and compassionate"
"Wants to improve but does not plan ahead or thoroughly"	"Understands the importance of building community"
"...feel as if she totally disregards our opinions"	"Gets real solutions to real problems"
"Waits until the last minute to get information to us"	"Visionary leader... has these big, lofty ideas"

This study uncovered three major findings about dispositions and practices of leaders that can help policymakers identify current and potential administrators who are more likely to attain authentic school improvement by solving wicked problems. First, schools that demonstrate a

history of successful school improvement use multiple methods and clear communication to identify the problems they face to create goals for their improvement initiatives. Second, successful leaders clearly communicate goals and decisions to the faculty and staff and help their stakeholders focus on attaining these goals. Third, leaders of successful schools identify and strategically utilize their human resources in ways that provide opportunities for teacher leadership and have positive impacts on students and peers.

Discussion

The purpose of this study was to examine how schools with a history of successful improvement approach and solve the wicked problems they face. The findings suggest that schools able to sustain authentic improvement efforts share several leadership and organizational characteristics that align with the proposed Whole School Optimization Model. In direct response to the research question, schools that successfully address wicked problems do so through leadership practices that foster collaborative cultures, strategically develop organizational capacity, and intentionally utilize expert teachers in leadership roles to generate innovation and shared problem solving.

The findings support the assertion that effective school leadership serves as the critical foundation for addressing complex organizational challenges. Participants from schools with demonstrated success reported stronger perceptions of leadership practices related to communication, collaboration, and shared problem solving. These findings align with existing research emphasizing the central role of school leaders in guiding improvement initiatives and fostering cultures that support meaningful change (Hall & Hord, 2020; Spillane & Coldren, 2011; Strunk et al., 2015).

A second key finding of this study highlights the importance of capacity building and purposeful collaboration within school organizations. Successful schools demonstrated greater emphasis on collaborative problem solving and collective responsibility among staff members. Leaders in these environments appear to create structures that support professional learning and distributed leadership, allowing teachers to contribute their expertise to organizational improvement efforts. These findings support previous research suggesting that collaborative cultures strengthen schools' ability to address complex challenges and sustain improvement over time (Katzenmeyer & Moller, 2009; Levin & Schrum, 2017).

Another important implication of the findings relates to the strategic utilization of expert teachers. Schools demonstrating sustained improvement were more likely to recognize and utilize highly effective teachers in leadership roles that extend beyond their classrooms. When these teachers were given opportunities to guide collaborative efforts and mentor peers, their expertise contributed to collective problem solving and innovation within the organization. This finding aligns with research highlighting the importance of teacher leadership and professional capital in improving school outcomes (Berliner, 2001; Hattie, 2016; Mayeaux & Olivier, 2020).

Finally, the findings support the role of individual and group states of flow in generating innovation and synergy within school communities. When expert teachers are empowered to lead collaborative efforts, their individual expertise contributes to collective creativity and problem solving. This interaction between individual and group flow appears to facilitate the development of innovative practices that help schools address the complex and interrelated challenges that characterize wicked problems.

Taken together, these findings provide empirical support for the Whole School Optimization Model as a framework for understanding how effective leadership, teacher expertise, and collaborative cultures interact to promote authentic school improvement. Schools that intentionally cultivate these elements appear better equipped to generate innovative solutions and sustain meaningful change despite the complex challenges they face.

Conclusion

The purpose of this study was to examine how schools that demonstrate a history of successful improvement approach and solve the wicked problems they face. Drawing on a sequential mixed-methods design, this research explored the dispositions and practices of school leaders and educators working in schools recognized for sustained improvement. The findings suggest that successful schools are characterized by leadership practices that intentionally cultivate collaborative cultures, strategically build organizational capacity, and utilize the expertise of highly effective teachers in leadership roles.

The results of this study provide support for the Whole School Optimization Model as a framework for understanding how these elements interact within successful school organizations. When school leaders foster environments where expert teachers are empowered to contribute their knowledge and leadership within collaborative structures, conditions emerge that promote both individual and group states of flow. These interactions appear to generate innovation and synergy

that enable school communities to address complex organizational challenges and sustain authentic improvement efforts over time.

The implications of this work extend beyond individual schools. The Whole School Optimization Model offers a conceptual framework that can inform leadership preparation programs, district and state policy development, and professional learning initiatives aimed at strengthening school improvement efforts. By emphasizing the importance of leadership practices that recognize and leverage teacher expertise, educational systems may be better positioned to address the complex and evolving challenges facing schools.

Future research should continue to explore how the components of the Whole School Optimization Model operate across different school contexts and educational systems. Additional studies examining the long-term impact of leadership practices that promote collaboration, capacity building, and teacher leadership may further illuminate strategies that enable schools to effectively address wicked problems and sustain meaningful improvement.

References

Arnold, J., Arad, S., & Rhoades, J. A. (2000). The empowering leadership questionnaire: The construction and validation of a new scale for measuring leader behaviors. *Journal of Organizational Behavior 21*(3), 249-269. DOI: 10.1002/(SICI)1099-1379

Barnard, C. I. (1968). Chapter xii: The theory of authority. *The Functions of the Executive*, Cambridge, MA: Harvard University Press.

Bass, B. M., & Stogdill, R. M. (1990). Chapter 14: leadership and the power of distribution. *Bass and Stogdill's Handbook of Leadership: Theory, Research, and Managerial Applications*, New York, N.Y.: Simon & Schuster, Inc.

Berliner, D. C. (1994). Expertise: The wonders of exemplary performance. In John N. Mangieri and Cathy Collins Block (Eds.), *Creating powerful thinking in teachers and students* (pp. 141-186). Ft. Worth, TX: Holt, Rinehart and Winston

Berliner, D. C. (2001). Chapter 2: Learning about and learning from expert teachers. *International Journal of Educational Research*, *35*(5), 463-482

Beycioglu, K., Ozer, N., & Ugurlu, C. T. (2012). Distributed leadership and organization trust: The case of elementary schools. *Social and Behavioral Sciences*, *46*, 3316-3319. https://doi.org/10.1016/j.sbspro.2012.06.058

Biesta, G. (2009). Good education in an age of measurement: On the need to reconnect with the question of purpose in education. *Journal of Personnel Evaluation in Education*. http://effect.tka.hu/documents/OtherLibraryElements/pdfgU6kKuP7V0.pdf

Blizzard, J. L., Klotz, L. E., & Hall, L. (2012). A framework for sustainable whole systems design. *Design Studies*, *33*(5), 456-479. DOI: 10.1016/j.destud.2012.03.001

Bowden, T., & Russo, R. "Mike". (2017). A roadmap for achieving real culture change in your organization. *The Journal of the American Society of Military Comptrollers*, *Fall*, 35-39. ISSN: 00042188

Bridwell-Mitchell, E. N. & Fried, S. A. (2020). Learning one's place: Status perception and social capital in teacher communities. *Educational Policy*, *34*(7), 955-991.

Bottoms, G. & Schmidt-Davis, J. (2010). The three essentials: Improving schools requires district vision, district and state support, and principal leadership. *High Schools that Work: Learning-Centered Leadership Program*. Southern Regional Education Board

Brown, C., Flood, J., Armstrong, P. W., MacGregor, S., & Chinas, C. (2020). Is distributed leadership an effective approach for mobilising professional capital across professional learning networks? Exploring a case from England. *Journal of Professional Capital & Community, 6*(1), 64078. https://doi.org/10.1108/JPCC-02-2020-0010

Bucci, T. T. (2003). Researching expert teachers: Who should we study? *The Educational Forum, 68*(1), 82-88. DOI: 10.1080/00131720308984606

Burns, J. M. (2003). Transforming Leadership: A New Pursuit of Happiness [Audible Audiobook]. New York, N.Y.: Atlantic Monthly Press

Calhoun, E. F. (2002). Action research for school improvement: Action research is continual professional development--a direct route to improving teaching and learning. *Educational Leadership, 59*(6), 18-24

Chang, D., Chen, S., & Chou, W. (2017). Investigating the major effect of principal's change leadership on schoolteachers' professional development. *IAFOR Journal of Education, 5*(3). https://doi.org/10.22492/ije.5.3.07

Clark, A. J. (2017). Sustainable school improvement: Suburban elementary principles' capacity building. *Journal for Leadership and Instruction, 16*(1), 5-8

Couto, R. A. (2015). Puzzles, paradoxes, and paradigms: the intellectual legacy of James MacGregor Burns. *Leadership and the Humanities, 3*(1), 19-25. DOI: 10.4337/lath.2015.01.03. https://www.elgaronline.com/view/journals/

Decker, P., Durand, R., Mayfield, C. O., McCormack, C., Skinner, D., & Purdue, G. (2012). Predicting implementation failure. *Journal of Organizational Culture, Communications and Conflict, 16*(2), 29-50. https://www.researchgate.net/publication/261365632

Deligiannidou, T., Athanailidis, I., Laios, A., & Stafyla, A. (2020). Determining effective leadership qualities of a school principal from the perception of PE teachers in Greece. *Journal of Physical Education and Sport, 20*(3), 2126-2135. ISSN: 2247-806X

Dolph, D. (2017). Challenges and opportunities for school improvement: Recommendations for urban school principals. *Education and Urban Society, 49*(4), 363-387. https://doi.org/10.1177/0013124516659110

Garcia-Martinez, I., Tadeu, P. J., Ubago-Jimenez, J. L., & Brigas, C. (2020). Pedagogical coordination in secondary schools from a distributed perspective. Adaptation of the distributed leadership inventory (DLI) in the Spanish context. *Education Sciences, 10*(7), 175. https://doi.org/10.3390/educsci10070175

Glaser, R. (1996). Changing the agency for learning: Acquiring expert performance. In K. A. Ericsson (Ed.), The Road to Excellence: The Acquisition of Expert Performance in the Arts and Sciences, *Sports and Games*, 303-311. Mahwah, NJ: Lawrence Erlbaum Associates. https://bit.ly/3HCu0fI

Groundwater-Smith, S., Mitchell, J., & Mockler, N. (2016). Praxis and the language of improvement: Inquiry-based approaches to authentic improvement in Australasian schools. *School Effectiveness and School Improvement, 27*(1), 80-90. ISSN: 0924-3453

Guiette, A., & Vandenbempt, K. (2013). Exploring team mental model dynamics during strategic change implementation in professional service organizations: A sensemaking perspective. *European Management Journal, 31*(6), 728744.https://doi.org/10.1016/ j.emj.2013.07

Hall, G. E. & Hord, S. M. (2020). *Implementing change: Patterns, principles, and potholes* (5th ed.). Hoboken, NJ: Pearson

Hattie, J. A. C. (2016). High-impact leadership. *Improving Schools: What Works?, 72*(5), 36-40, ASCD. http://www.ascd.org/publications/educational_leadership/feb15/vol72/

Hattie, J.A. C. (2002). What are the attributes of excellent teachers? In *Teachers make a difference: What is the research evidence?* (pp. 3-26). Wellington: New Zealand Council for Educational Research. https://www.researchgate.net/publication/252090858_

Haugaard, M. (2018). What is authority? *Journal of Classical Sociology, 18*(2), 104-132. https://doi.org/10.1177/1468795X17723737

Head, B. W., & Alford, J. (2015). Wicked Problems: Implications for Public Policy and Management. Administration & Society, 47(6), 711-739

Howe, A. T. (2016). Principal trust: Factors that influence faculty trust in the principal. *Educational Leadership Commons*: BYU ScholarsArchive. ISSN: 2572-4479

Hudson, B., Hunter, D., & Peckham, S. (2019). Policy failure and the policy-implementation gap: Can policy support programs help? *Policy Design and Practice, 2*(1), 1-14. DOI: 10.1080/25741292.2018.1540378.

Katzenmeyer, M., & Moller, G. (2009). *Awakening the Sleeping Giant: Helping Teachers Develop as Leaders.* Thousand Oaks, CA: Corwin, SAGE. ISBN 978-1-4129-6040-3

Kaushik, V. & Walsh, C. A. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social Sciences, 8*(9), 255. DOI: 10.3390/socsci8090255. https://www.mdpi.com/2076-0760/8/9/255/htm

Klonoski, R. J. (2003). Teaching as a Primordial Act of Friendship. *The Journal of Educational Thought (JET) / Revue De La Pensée Éducative, 37*(2), 137-155. Retrieved January 3, 2021, from http://www.jstor.org/stable/23767412

Levin, B. B., & Schrum, L. (2017). *Every Teacher a Leader: Developing the Needed Dispositions, Knowledge, and Skills for Teacher Leadership*. Thousand Oaks, CA: Corwin, SAGE. ISBN: 978-1-5063-2643-6

Lindahl, R. (2006). The role of organizational climate and culture in the school improvement process: A review of the knowledge base. *Creative Commons*

Lv, C. M., & Zhang, L. (2017). How can collective leadership influence the implementation of change in health care? *Chinese Nursing Research, 4*(4), 182-185

Maier, A., Daniel, J., Oakes, J., & Lam, L. (2017). Community schools as an effective school improvement strategy: A review of the evidence. Learning Policy Institute, National Education Policy Center, December 2017

Mayeaux, A. S. (2016). Motivating teachers towards expertise development: A mixed-methods study of the relationships between school culture, internal factors, and state of flow. *Research Issues in Contemporary Education, 1*(1), 1-13

Mayeaux, A. S., & Olivier, D. F. (2020). *Expertise in Every Classroom: Guidelines to Bridging Research and Practice*. Lanham, MD: Rowman & Littlefield. ISBN 978-1-4758-5282-0

Meskill, C., Mossop, J., DiAngelo, S., & Pasquale, R. K. (2002). Expert and novice teachers talking technology: Precepts, concepts, and misconcepts. *Language Learning & Technology, 6*(3), 46-57

Meyers, C. & VanGronigen, B. (2019). A lack of authentic school improvement plan development. *Journal of Educational Administration, 57*(3). DOI: 10.1108/jea-09-2018-0154.

Nakamura, J. & Csikszentmihalyi, M. (2002). The concept of flow. *Handbook of Positive Psychology*, 89-105. Oxford, United Kingdom: Oxford University Press

Northouse, P. G. (2016). *Leadership: Theory and Practice*, (7th edition), Thousand Oaks, CA: SAGE Publications, Inc.

Olivier, D. F. (2001). Teacher personal and school culture characteristics in effective schools: Toward a model of a professional learning community. Unpublished doctoral dissertation, Louisiana State University

Ooms, W. & Piepenbrink, R. (2021). Open innovation for wicked problems: Using proximity to overcome barriers. *California Management Review, 63*(2), 62-100. DOI: 10.1177/0008125620968636

Ortiz-Gómez, M., Ariza-Montes, A., & Molina-Sánchez, H. (2020). Human values and work engagement: The mediating role of authenticity among workers in a Spanish religious organization. *Frontiers in Psychology, 11*. DOI: 10.3389/fpsyg.2020.00076

Payne, C. M. (2008). *So Much Reform, So Little Change: The Persistence of Failure in Urban Schools*. Cambridge, MA: Harvard Education Press. ISBN: 978-1-891792-88-5

Peurach, D. J., Cohen, D. K., Yurkofsky, M. M., & Spillane, J. P. (2019). From mass schooling to education systems: Changing patterns in the organization of management of instruction. *Review of Research in Education, 43*(1), 32-67. DOI: 10.3102/0091732X18821131.

Pounder, J. S. (2006). Transformational classroom leadership: The fourth wave of teacher leadership? *Educational Management Administration & Leadership, 34*(4), 533-545. DOI: 10.1177/174114320606921

Primus, D. J. & Sonnenburg, S. (2018). Flow experience in design thinking and practical synergies with lego serious play. *Creativity Research Journal, 30*(1), 104-112. DOI: https://doi.org/10.1080/10400419.2018.1411574

Reeves, D. B. (2008). *Reframing Teacher Leadership to Improve Your School*. Alexandria, VA: ASCD. ISBN-13 978-1-4166-0666-6

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning. Policy Sciences, 4(2), 155-169

Ropianto, M., Rukun, K., Hayadi, B. H., Utami, F. H., Candra, O., Hardianto, & Mesterjon. (2017). Optimization of strategic planning organization in the framework of achievement objectives of education. *Advances in Social Science, Education and Humanities Research, 149*, 149-151

Sanders, M., (2016). Leadership, partnerships, and organizational development: Exploring components of effectiveness in three full-service community schools. *School Effectiveness and School Improvement, 27*(2), 157-177

Selamat, M. H. & Zhang, Y. (2020). The impact of design thinking on innovative behaviors, with the mediating effect of knowledge sharing. *International Journal of Business Management Science, 10*(1), 1-26. ISSN: 1985-692X

Selznick, P. (1943). An approach to a theory of bureaucracy. *American Sociological Review, 8*(1), 47-58. https://doi.org/10.2307/2085448

Shen, J., Wu, H., Reeves, P., Zheng, Y., Ryan, L., & Anderson, D. (2020). The association between teacher leadership and student achievement: A meta-analysis. *Educational Research Review, 31*. DOI: 10.1016/ j.edurev.2020.100357

Soares, L. (2020). Awakening teacher leaders: A new paradigm in education for school and student success. *PUPIL: International Journal of Teaching, Education and Learning, 4*(2), 96-106. ISSN 2457-0648

Sorensen, N. (2017). Improvisation and teacher expertise: Implications for the professional development of outstanding teachers. *Professional Development in Education, 43*(1), 6-22. http://dx.doi.org/10.1080/19415257.2015.1127854

Spillane, J. P., & Coldren, A. F. (2011). *Diagnosis and Design for School Improvement: Using a Distributed Perspective to Lead and Manage Change*, New York, N.Y.: Teachers College Press. ISBN: 0807752150

Stansfield, J., South, J., & Mapplethorpe, T. (2021). What are the elements of a whole system approach to community-centred public health? A qualitative study with public health leaders in England's local authority areas. *BMJ Journals, 10*(8)

Sternberg, R., & Horvath, J. (1995). A Prototype View of Expert Teaching. *Educational Researcher, 24*(6), 9-17. http://www.jstor.org/stable/1176079

Stroh, K. M. (2015). Intersubjectivity of dasein in Heidegger's "being and time": How authenticity is a return to community. *Human Studies, 38*(2), 243-259. https://www.jstore.org/stable/2457333

Strunk, K. O., Marsh, J. A., Bush-Mecenas, S. C. & Duque, M. R. (2015). The best laid plans: An examination of school plan quality and implementation in a school improvement initiative. *Educational Administration Quarterly, 52*(2), 259-309. https://doi.org/10.1177/0013161X15616864

Sutton, A. (2020). Living the good life: A meta-analysis of authenticity, well-being, and engagement. *Personality and Individual Differences, 153*. DOI:10.1016/j.paid. 2019.109645

Teemant, A., Yoder, G. B., Sherman, B. J., & Graff, C. S. (2021). An equity framework for family, community, and school partnerships. *Theory Into Practice, 60*(1), 28-38. DOI: 10.1080/00405841.2020.1827905

TNTP. (2010). *The Irreplaceables: Understanding the Real Retention Crisis in America's Urban Schools*. New York, NY: The New Teacher Project. https://tntp.org/assets/documents/ TNTP_Irreplaceables_2012.pdf

VanGronigen, B. A., Meyers, C. V., & Hitt, D. H. (2017). A rubric for assessing schools' plans for rapid improvement [The Center on School Turnaround]. San Francisco: WestEd

Vasilieva, E. V. & Tochikina, T. E. (2020). Synergy and design thinking and process transformation approaches. *Upravlenie, 8*(1), 83-93. DOI:10.26425/2309-3633-2020-1

Wingfield, R. J., Reese, R. F., & West-Olatunji, C. A. (2010). Counselors as leaders in schools. *Florida Journal of Educational Administration & Policy, 4*(1). https://files.eric.ed.gov/fulltext/EJ911435.pdf

Yates, G. C. R., & Hattie, J. (2013). Experts amongst us: What do we know about them? *Journal of Educational Inquiry, 12*(1), 40-50. https://ojs.unisa.edu.au/index.php/EDEQ/article/ view/798

Zydziunaite, V., Kontrimiene, S., Ponomarenko, T., & Kaminskiene, L. (2020). Challenges in teacher leadership: Workload, time allocation, and self-esteem. *European Journal of Contemporary Education, 9*(4), 948-962. http://ejournal1.com/journals_n/1608758517

Author Biography

Dr. Tiffini A. Brigola is an Assistant Professor of Educational Foundations and Leadership at the University of Louisiana at Lafayette. Her research and authorship focus on effective school leadership, improvement science, teachers as keystones, and addressing wicked problems in education through innovative, systemic solutions.