The Quadratic Pathways Model to Promote Principals' Self-Efficacy and Resilience in Low-Socioeconomic Schools in Alberta

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Abstract

This paper presents the Quadratic Pathways Model (O'Neill, 2013), which emerged from the findings of a doctoral study that investigated the influences on principals' self-efficacy and resilience in low-socioeconomic-status (SES) schools. This model was developed to promote principals' efficacy and resilience while exercising leadership agency in these challenging contexts.

Principals leading in low-socioeconomic-status (SES) schools experience unique challenges from their counterparts in wealthier contexts. The literature identified that educators cope with students with academic problems, student disengagement, mental health concerns, behavioral issues, and parental disengagement. Additionally, many students lack the basics of life. Principals also contend with many teachers who believe some parents and students do not value education. Consequently, while cognizant of their need to be instructional leaders, some principals believe they cannot fully engage in the instructional aspect of their role due to the many pressures and competing demands on their attention, and the subsequent frustration influences their efficacy.

This study employed a theoretical framework founded upon Bandura's Social Cognitive Theory (1986, 1997), particularly pertaining to self-efficacy, and also integrated resilience research (Patterson & Kelleher, 2005), leadership theories (Leithwood et al., 2004), and contextual literature, which explored the complexities of low socioeconomic status schools.

The methodology was mixed methods utilizing questionnaires (n=42) and interviews (n=13) with principals in low-SES schools across the province of Alberta, Canada (Creswell & Guetterman, 2019). Although there were several key themes to emerge from the research, this paper focuses on the synthesis of a new model, the Quadratic Pathways Model, which was designed to inform system leaders of the various components that could enhance and sustain high principal efficacy and resilience in low-SES contexts. It offers principals a template that positively reconceptualises instructional leadership practices that enhance and nurture student success in challenging school contexts.

Keywords: self-efficacy, resilience, school principals, low socioeconomic schools, agency, instructional leadership, relationships.

Introduction

School leadership is difficult. As elsewhere, Alberta principals aspire to successful instructional leadership alongside their school managerial responsibilities. However, many principals of low-socioeconomic-status schools feel unsuccessful in their struggle to exercise instructional leadership activities. Instead, guided by an ethical imperative, they choose to spend their time supporting students' basic needs while also completing necessary administrative tasks. From a doctoral research study, this paper offers a model that reframes our perception of instructional leadership to conclude that many principals' existing practices are markers of success as instructional leaders, increasing principal self-efficacy and resilience.

Background

In each school, institutional power is given to the principal, who must be the leading agent of change to increase student achievement. Research has found that leadership influences student achievement (Bryk et al., 2010; Fullan, 2010; Grissom et al., 2021; Leithwood & Louis, 2012b; Louis, Dretzke et al., 2010; Penlington et al., 2008; Sergiovanni, 1984). Therefore, school leaders must exercise their skills, knowledge, and beliefs (Leithwood & McCullough, 2021; Louis, Dretzke et al., 2010; Wahlstrom & Lewis, 2008) to enhance student achievement (Bryk et al., 2010; DiPaola & Tschannen-Moran, 2003). What they choose to do intentionally is referred to as "leadership agency" (Bandura, 2006). Principals must exercise agency within the two roles specified by Alberta legislation (*Education Act*, 2020); that is, both as managers and instructional leaders, to shape the culture of the school and lead the school to enhancement.

Low-socioeconomic-status (SES) schools are complex environments that, compared to other schools, generally have proportionately higher numbers of students who require various

forms of academic, behavioral, emotional, and physical supports (Atzaba-Poria et al., 2004; Hill & Craft, 2003; Kennedy Green et al., 2007; Mulford et al., 2008). Hence, in this multifaceted context, difficulties may exist to hinder successfully exercised leadership. In these low-SES settings, principals expend time and effort as they respond to meet students' very diverse needs. As a result, principals often feel pressed for time to engage in instructional leadership actions they know will influence student success; consequently, they feel torn between the demands of their schools and the provincial and district expectations. The resulting tension engenders commensurate concerns over sustaining and eventually increasing their leadership resilience and self-efficacy while working against the contextual constraints that affect their school leadership capacity. This study sought to explore leaders' work and their sense of efficacy while juggling the many demands on their time and attention due to this challenging context.

Conceptual Framework Assumptions

Three main assumptions guided this study. First, that leadership is necessary for effective schools (Bryk et al., 2010; Leithwood & Jantzi, 2008; Leithwood & Louis, 2012b), and to create collaborative cultures that build the necessary capacity to better support students (Alexander et al., 1997; DuFour & Marzano, 2011; Grissom et al., 2021; Louis & Wahlstrom, 2011; Mulford, 2008; Tschannen-Moran, 2009). Second, the context of low-SES schools has unique and more challenging issues than other higher SES school environments (Alexander et al., 1997; Hill & Craft, 2003; Kennedy Green et al., 2007), which influences leadership capacity (Carlisle et al., 2005; Horvat et al., 2010; Kennedy Green et al., 2007). Third, leaders' individual beliefs and attitudes will influence what they do to achieve success in their roles (Bandura, 1997; McLeod & Dulsky, 2021; Patterson & Kelleher, 2005; Wahlstrom & Lewis, 2008). The following conceptual framework illustrates our interpretation of the influences on the principal agency. This study is

rooted in Social Cognitive Theory (Bandura, 1977). Figure 1 shows how Bandura's (1986) three interrelated factors influence principal agency: personal factors, the external environment, and individual choice leading to the behaviour. Arrows indicate mutual/reciprocal influence, and it is in examining the interplay of related influence among the three factors we explored principal agency.

Selected Literature

The literature selected to support this paper's findings includes three themes. First, the *context* of low-socioeconomic-status schools (SES) is examined where these principals practice their leadership. Second, *leadership* is briefly examined, along with the roles for which they have responsibility and their agency in exercising leadership. Third, *Bandura's Social Cognitive Theory*, which underpins conceptualizations of efficacy, is briefly introduced and focused on principal self-efficacy and resilience—how successful principals feel and their ability to cope during stress.

Context

Burney and Beilke (2008) cited the U.S. Social Security Office of Policy Research and Analysis, which defined the term *socioeconomic* as "one's relative standing regarding income, level of education, employment, health, and access to resources" (p. 297). Bok (2010) referred to Bourdieu's theory of habitus, in which people behave and think in specific ways depending upon their socially defined context, thereby illustrating that each contextual background engenders a unique culture. The low-SES context encompasses students, families, and community within an educational setting that includes school staff, administration, and district hierarchy.

Figure 1:

Influences on principal agency in low-SES schools (through the lens of Social Cognitive Theory).
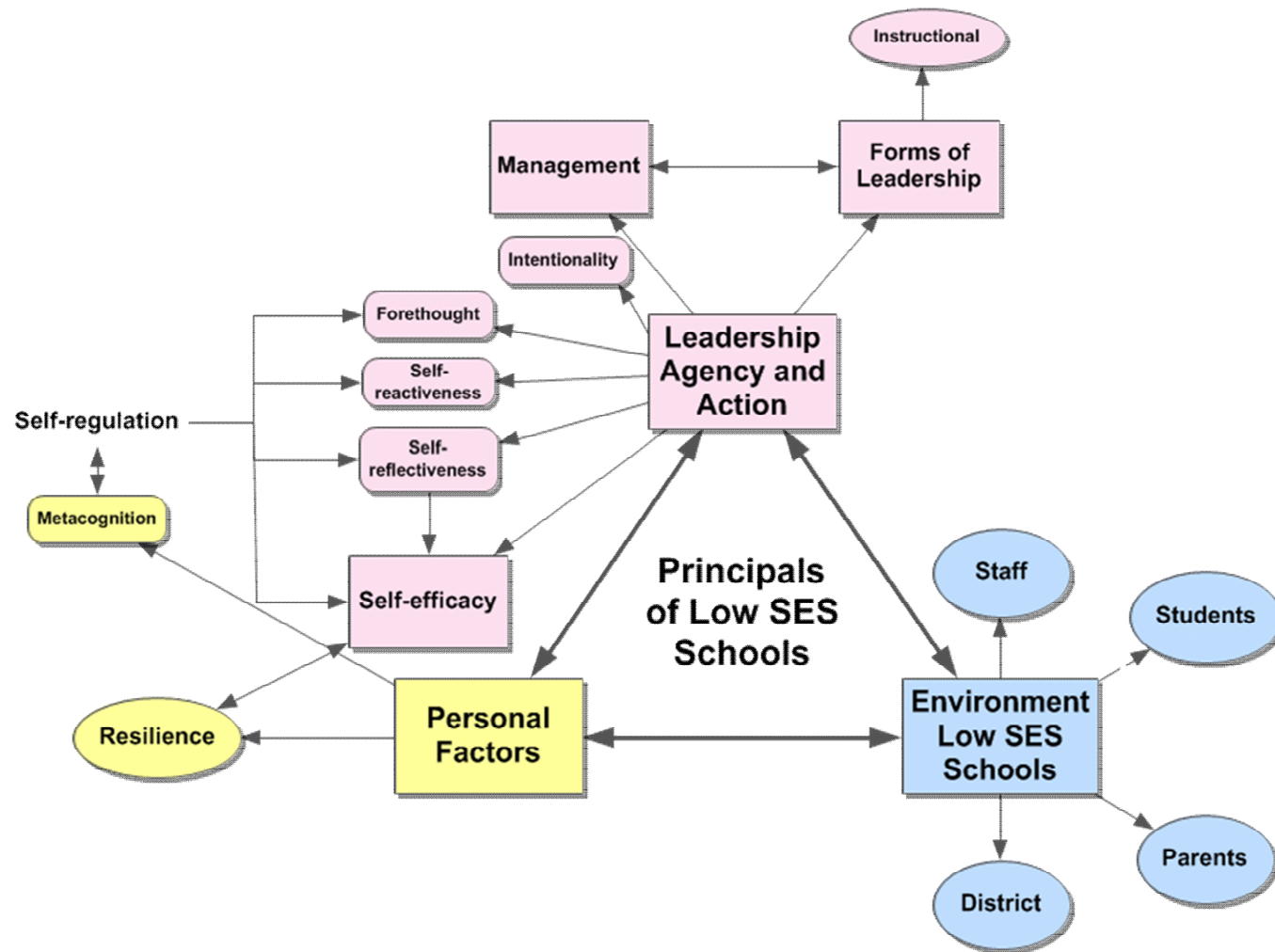
Note: Adapted from Social Foundations of Thought & Action: A Social Cognitive Theory (p. 24), by A. Bandura, 1986, Prentice-Hall, Inc.

One of the most important differences is that of lower academic achievement compared to those from middle-class backgrounds (Jensen, 2009; Kennedy Green et al., 2007; Thomson, 2018), and less engagement with school (Alexander et al., 1997; Halle et al., 1997). Student backgrounds that involve parental stresses caused by financial uncertainty (Bronfenbrenner & Evans, 2000) have been associated with an increased probability of behavioral and emotional problems for students, which influence their ability to learn necessary social skills (Amato & Cheadle, 2008; Jensen, 2009). These students require support to ensure their success.

Principals often must negotiate a lack of understanding between school personnel and parents or students. School staffs have expectations for parental involvement (Horvat et al., 2010), which, when limited in low-SES schools, leads staff to conclude that these parents are not very involved in their children's school (Jesse et al., 2004; McGee, 2003), nor value education (Hill & Craft, 2003; Lareau, 2011; Lott, 2001; Sirin, 2005). The lack of communication between home and school limits mutual understanding and goalsetting for student success and exacerbates social differences between the two.

Administrators agree on the importance of teachers' ability to teach well, have a rapport with the students, and have the necessary attributes to develop themselves professionally (Cochran-Smith, 2006; Watt et al., 2010). Effective teachers are important influences on student achievement (McNeal, 2005), and those who are capable of developing supportive relationships with students give them the necessary encouragement for academic and social engagement (Myers & Pianta, 2008). However, teachers differ in their abilities to create a cohesive and emotionally supportive classroom (Buyse et al., 2008). Additionally, some teachers do not believe they can make a difference for these students (Hamre et al., 2007).

Leadership

Principals are influenced by the specific needs of their school community. Therefore, principals' behaviors are shaped by their particular contexts (Hallinger & Heck, 2010). The factors of increased expectation and accountability, enforcement of new policies, and the provision of support for programs add to the complexity of the role of the principal, which in some cases demands more from the principal than is reasonably possible within time constraints (Cooley & Shen, 2003). Additionally, the public ranking of schools by standardized test scores provides a negative stressor for principals in low-achieving schools.

Principals have an impact on schools (Grissom et al., 2021; Hallinger et al., 1996) and are the most influential (Stewart, 2006) and powerful (Penlington et al., 2008) factors in the school environment. They can impact the culture, attitudes, and behaviour of the others in the environment of the school and in the school community (Grissom et al., 2021; Sammons et al., 1995) through shared purpose and relationships that enable the effectiveness of others through mobilized collective effort (Leithwood, 2021; Leithwood & Jantzi, 2000, 2008). Principals are accountable to many stakeholders. To school districts, principal accountability is based partially upon the assurance that mandated policy is being upheld as well as on compliance with district rules and regulations to ensure that all aspects of the school are working well. Principals are accountable to students and parents for the character and quality of teaching and learning that occur at the school (Leithwood & Riehl, 2003), to the community for students to be successful in society, and to their staff to ensure the removal of roadblocks that prevent the optimization of teaching and learning, and finally to their own moral and ethical standards for how they choose to act. In short, "leaders are expected to be all things to all people" (Scott, 2016, p. 2).

Principal roles

Principals must exercise two roles, that of *manager/administrator* and *instructional leader*, responsible for students' learning outcomes and teaching and assessment approaches of teachers, which are both explicitly detailed for each principal by each school district (Hallinger, 2005). In Alberta, the *Education Act* ("Education Act", 2019) legally mandates both, and the Leadership Quality Standard describes the occurrence of quality leadership based on "when the leader's ongoing analysis of the context, and decisions about what leadership knowledge and abilities to apply, result in quality teaching and optimum learning for all school students" (2020, p. 2).

Each of these roles has an important purpose, described by Leithwood (2007) as management creating stability and leadership causing improvement. Certainly, stability is a prerequisite for success when used as a euphemism for organized, compliant, orderly, and well-run structures, which offer support to a climate necessary for teaching and learning to occur (Bush, 2008). However, the managerial role of school administration has escalated with increased technology, changing regulations and policies, and increased requirements for reporting (Hallinger & Heck, 1996). Districts highly value attention to these explicit functions, so time is thus often prioritized by principals.

The theoretical construct of instructional leadership is employed when describing actions that lead to student achievement and has become synonymous with the leadership of effective schools (Leithwood, 2007). The many leadership functions recently have been distilled into two fundamental roles, identified as providing direction (Leithwood & Louis, 2012a; Louis, Leithwood et al., 2010) and exercising influence (Louis, Leithwood et al., 2010). Leadership is practiced when articulating knowledge and beliefs to others creates a shared vision and group commitment to common goals (Leithwood & Louis, 2012a) which could produce a change in a school culture that

influences student learning (Fullan, 2000). Therefore, principals negotiate time between management and leadership to effectively initiate change (DiPaola & Tschannen-Moran, 2003).

In low-SES contexts, there are additional concerns for principals who must spend time with the urgent tasks of dealing with student social issues (Cooley & Shen, 2003), supporting students who need emotional assistance (Becker & Luthar, 2002), and providing for the basic needs of some students. This further removes principals from their role of influencing instruction (Stephenson, 2007). Because of this, some leaders may feel that they are not accomplishing the valued goal of instructional leadership, lowering their self-efficacy beliefs.

Principal Agency

Principals must be agents of change by setting goals and taking purposeful action to increase student achievement. The perspective of Social Cognitive Theory was used to examine and understand how the interaction of influences on principals' knowledge, skills, attributes, and beliefs affected their agency. This theory was developed by Bandura (1986), who conceptualized human functioning as the movement of mutual influences among three interacting factors: each individual's personal, behavioral, and environmental factors. In Social Cognitive Theory, emotional factors, such as learned skills and attitude, influence an individual's actions. Bandura stated that the environment, composed of external factors, is also a key component of behavior. The fact that the environment, or low-SES, exerts a reciprocal influence on the individual principal who possesses personal knowledge, skills, and attributes is important because that is what influences leadership agency.

The principal belief underlying Social Cognitive Theory is that of human agency, which means intentional action. "To be an agent is to influence intentionally one's functioning and life circumstances" (Bandura, 2006, p. 164). Individuals have control over their actions but possess

self-beliefs that influence their behavior, thoughts, and feelings. This is particularly important for principals as leaders in low-socioeconomic-status schools, where the expectation for principals is to bring about needed positive change. Therefore, principals' beliefs that motivate them to act are especially significant, as it is in action that leadership is manifested.

The fundamental properties of human agency: intentionality, forethought, self-reactiveness, and self-reflection (Bandura, 1997) are those metacognitive aspects that lead to self-knowledge about how their actions are envisioned, guided, and planned, and the self-judgment of how they did. Self-reflection allows individuals to question their values and actions that they have taken (Bandura, 2001). Self-efficacy is an aspect of self-reflection.

Self-efficacy

Individuals act purposively due to their beliefs in their abilities to succeed. The ability to reflect on their thoughts and actions to gain self-knowledge is central to understanding self-efficacy. Knowledge and skills alone are not adequate for ensuring a matching performance; if they were, one could predict behavior from the individual's knowledge and skill development. Instead, how people perceive future performance influences actual performance. In other words, self-efficacy can alter the relationship between knowledge and action. "Perceived self-efficacy is a judgment of one's ability to organize and execute given types of performances" (Bandura, 1997, p. 391). This means that self-efficacy is activated whenever people think about potential performance attainments. Self-efficacy is the most influential aspect of self-knowledge focused on personal agency (Bandura, 1986, 1991), and explains the individual difference in performance from people with the same skill set. Self-efficacy focuses on individual judgments on how skills will be utilized (Bandura, 1986), and is gained by previous mastery experiences, vicarious

experiences, expressed confidence from others, and how those experiences made them feel (Bandura, 1997).

Resilience

Resilience is that characteristic of an individual that allows them to adapt positively and sometimes gain strength by overcoming adverse experiences (Masten & Obradovic, 2008) and is said to be highly contextual (Prince-Embury, 2008). Protective factors for principals allow them to thrive (Luthar et al., 2006; O'Leary, 1998) and feel successful in their demanding jobs. Since self-efficacy leads to resilience (Earvolino-Ramirez, 2007), positive self-efficacy beliefs for principals will sustain and improve successful leadership.

Methodology

This research study was a two-phase sequential mixed-methods design within the pragmatic paradigm (Cresswell et al., 2006; Gay et al., 2009; Onwuegbuzie & Leech, 2005) to answer the question, "What is the relationship between effective leadership and high self-efficacy in principals within the context of low-socioeconomic-status schools?"

The population of this study consisted of principals of low-socioeconomic-status schools across the province of Alberta, Canada. Through a random stratified approach to achieve representational balance in Alberta's five geographic educational areas, 42 principals (60%) responded from eight school districts in Alberta to complete the questionnaire component of Phase 1, and thirteen of these principals participated in the interviews of Phase 2.

The four-sectioned questionnaire of Phase 1 consisted of a demographic section, a resiliency scale, a self-efficacy scale, and two short-answer questions. The self-efficacy scale used was the Principal Sense of Efficacy Scale (PSES) (Tschannen-Moran & Gareis, 2004), a validated

instrument that was established to measure three factors: Self-efficacy for Instructional Leadership, Moral Leadership, and Management. To that scale, items that related to Self-efficacy in a Low-SES Context were added by the researchers. The resiliency scale was researcher-developed, containing some items from a previously established scale (Connor & Davidson, 2003). The 17 items were divided into four themes: Tenacity, Self-Confidence, Relationships and/or Supports, and Competence. Both researcher-developed scales were peer-reviewed and tested by focus groups, and the mean scores were reported and compared, primarily by these grouped factors.

Qualitative data were elicited through the open-ended questions from the questionnaire and the semi structured interview protocol in Phase 2 and determined by an ongoing iterative process of numbering and coding common themes from the interview transcripts, employing the use of multiple analysis techniques which established a higher level of confidence in the reliability of the reported study results. Finally, results were combined so that the rich data acquired from the interviews and questions would offer substantiation to the descriptive data derived from the questionnaires and provide detail and context for principals' responses.

Analysis

An analysis of the mean grouped responses of the self-efficacy questionnaire revealed that leaders indicated higher self-efficacy with Instructional Leadership (7.27) and Low-SES Context (7.46). The lowest score was with Management (6.84). It was determined that high self-efficacy did not appear to be associated with one single factor because of the range of responses. The resiliency questionnaire revealed that the highest-scoring factors were Competence (3.60) and Self-Confidence (3.60), which suggested the participants had a stronger belief in their personal capabilities and leadership abilities than they did in their interactions with other people.

From the interviews and short answer questions, all (100%) of principals identified Relationships, Staff, Parents, and Student Success as the most prevalent influences on their self-efficacy and resilience, indicating the importance of relationships with others, always with the goal of student success.

Findings and Discussion

Four key findings from this research study explored the influences on principals' capacity to lead low-SES schools. The first endorsed the claim that principals experienced tensions in managing their competing responsibilities. Similar to those in previous studies (Lehman, 2007; Ream, 2010; Santamaria, 2008), these principals scored a lower self-efficacy score for management items than they did for instructional leadership. The issue of feeling a lack of control over how they spent time during their day had the highest negative influence on their self-efficacy. Because of these time challenges, principals during interviews stated disappointment in their perceived failure to practice instructional leadership, which, endorsing previous literature (Leithwood, 2007), was identified as professionally leading others to greater capacity. This was acutely felt as they believed their schools needed to increase student achievement levels.

The second significant influence on principal self-efficacy was the capacity of the staff for the two important aspects of their jobs; pedagogy and relational understanding. Some principals echoed Konstantopoulos' (2009) belief that effective teachers promote the most academic gain in students, which is especially important in these SES schools. Other principals valued the importance of teachers' ability to relate to students more than teaching competence, believing in students' subsequent increased behavioral and emotional engagement (Myers & Pianta, 2008;

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Skinner et al., 2008). They were especially concerned when some staff did not believe that their efforts could make any difference for students, which aligned with earlier studies (Auwarter & Aruguete, 2008; Burney & Beilke, 2008; Woolfolk Hoy et al., 2008), and some teachers appeared to lack the capacity for academic or emotional relationship growth, though principals endorsed the belief that they could affect positive staff growth if teachers were willing to be open to change (Jerome., 2009).

Another major theme was that principals attempted to increase the resources for students by expanding the potential for support. They justified the expenditure of time and money supporting students in their hierarchy of needs, such as breakfast programs, which would improve conditions for student learning (Maslow, 1943). Principals endorsed the need for mental health professionals in the school (Wright et al., 2006), initiated support from the community, and made efforts to increase parental support for students by building relationships through communication with parents, which was also aimed to advance goodwill and shared values.

The last key finding was that principals utilized both personal and external support so that they could continue effective leadership practices. Firstly, principals expressed a moral imperative to make a difference for the students in their schools. This was a very strong motivator to help sustain principals in their work and endorsed the findings of previous literature (Fullan, 1993; Fuller, 2012; Sergiovanni, 1992; Stephenson, 2007). Secondly, principals agreed with stated personal attributes for resilience, such as perseverance and goal attainment (Masten & Obradovic, 2008; Rutter, 2006), which included various coping strategies to sustain their work. The strongest external support for principal resilience was from peer groups (Daly & Finnigan, 2011) rather than district superordinates.

The behaviors of principals in the study illustrated the complexities of the role of leadership. They aspired to exercise instructional leadership but felt constrained by the demands of their schools. These principals navigated between instructions from the district office and their school communities, assisted by their priorities, skills, attributes, and learned experience, and supported by their beliefs of self-efficacy and their resilience to sustain their leadership practice.

The Quadratic Pathways Model—Necessary Supports for Sustaining Principal Efficacy and Effectiveness

Principals are responsible for the achievement of the students in their schools. Their accountability to their stakeholders: students, parents, community members, the school district, and the education authority is always an important and guiding aspect of principals' professional lives. For principals who work in low-socioeconomic-status schools, the accomplishment of their students is displayed in relief against those of schools in more affluent areas, and these comparisons are frequently articulated through overall differences in academic performance. Therefore, principals in low-SES schools attempt to ameliorate contextual influences on student achievement. For students to be academically competitive, principals must first mobilize the school's resources to provide students with what they need for academic and emotional readiness.

Purpose

Four major themes of influence emerged from this study. The Quadratic Pathways Model (QPM) was generated from these findings and delineated the necessary support for sustaining principals' efficacy to effectively enact leadership roles (See Figure 2). Its purpose is to inform principals and district decision-makers of the various components that could enhance and sustain high principal efficacy and resilience specifically focused on low-socioeconomic-status schools. For principals, this model is proposed as a guide to developing successful practices and offers a

reframing of negative influences on principals' self-efficacy beliefs by conceptualizing these components as necessary pathways to facilitate student success.

The secondary purpose of this model is to help inform principal selection and succession planning in school districts. Additionally, this model encourages resilience which supports the maintenance of active leaders. School districts that ensure principals have and maintain the intrinsic motivation to help students will benefit by potentially increasing the longevity of principals' effective practice in low-SES schools. Informed district support of the uniqueness of low-SES schools may lead to special provisions offered in terms of staffing, resulting in greater flexibility for hiring choices for these principals. Also, the district could offer increased professional development support for staff, increasing pedagogical acumen. Recognition by the district of the distinctiveness of low-SES schools may lead to leadership development programming specific to SES issues, mentorship programs with experienced principals, and perhaps a redefinition of district support with the creation of a non-evaluative position "district principal" that would offer ongoing support for principals.

Figure 2:
The Quadratic Pathways Model
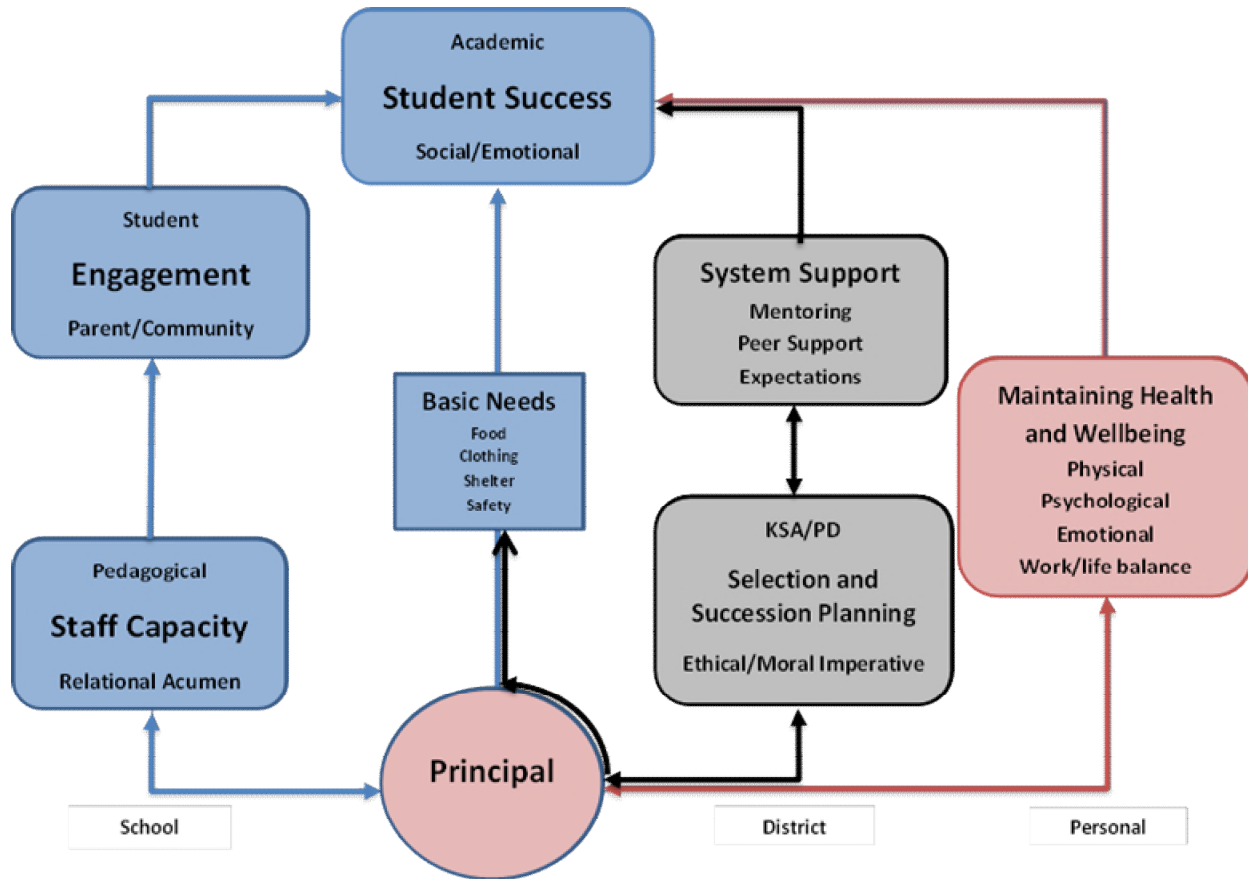
Note: KSA=Knowledge, Skills and Attributes, PD= Professional Development

Pathways

The Quadratic Pathways Model (QPN) illustrates the understanding that principals affect student achievement indirectly through their influence on the teacher, the school environment, and policies and procedures, which reflect the findings of previous research (Bush, 2008; Day et al., 2008; Louis, Dretzke et al., 2010; Louis, Leithwood et al., 2010). However, the principal does directly influence situations such as setting up school programming and arranging necessary resources both within the school and in the community (Skaalvik, 2020). The principal also supports teachers to ensure a well-balanced, orderly environment for learning to occur (Bush,

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2008). The School pathway describes school-based concerns and includes 'Staff Capacity' and 'Engagement' leading to 'Student Success'. The Principal pathway explains the moral imperative leaders have to ensure that the 'basic needs' of students are met, which is a result of principals' beliefs that supporting students in that way makes them more receptive to learning (Fuller, 2012; Stephenson, 2007). The District pathway relates to influences from the school district. These include considerations for system leaders during principal selection and continuance processes to ensure the optimum leader is placed in each school. This pathway also consists of 'System Supports', which are in place to enhance principals' knowledge and decision-making, as well as the feeling of strength from belonging to a group. The Personal pathway deals with the responsibility of principals to monitor the conditions of their health and well-being to create the sustainability of good leadership. All four of these pathways must be followed to create optimal and continuous leadership with the view to promoting student success in low-SES schools.

Principals have a duty to enact their expectations within their school system (Scott, 2016). Primarily, they bear the responsibility for student success, which is the central premise of this model. School principals must act as instructional leaders in order to increase teaching and learning, evaluate teachers and programs, maintain order and discipline, manage the school, cooperatively interact with the community, and ensure that students are achieving success. However, in low-SES schools, there are many obstacles that lie in student achievement. Principals attempt to meet these needs by utilizing their knowledge, skills, and attributes, in addition to the resources of the school and the school district, to adequately address the needs of these students.

Principals must establish a set of efficacy beliefs based upon their own experiences while leading low-SES schools, as this context presents diverse challenges that influence self-efficacy. The QPM may be used as a theoretical template for principals to help acknowledge and determine

their courses of action at that school. If staff capacity and engagement are already successfully established, principals will have a positive outlook when planning activities with staff. As professional learning communities gain strength, they further encourage teacher leadership and increase the focus on student achievement. However, principals must prepare remedial action if they perceive a lack of staff capacity. This active leadership will provide the potential for increased self-efficacy.

School Pathway

Staff Capacity.

The ability of the staff to meet the needs of the students has a substantial interrelated influence on both student success and the self-efficacy of the principal for accomplishing this success. Therefore, principals must identify the extent of staff capacity in both pedagogy and relational understanding, as these are essential aspects of increasing student engagement and success. When the pedagogical skill is an identified weakness in the staff, the principal may use a variety of methods for improvement, such as focused professional development (Leithwood & Louis, 2012b). The principal then encourages, facilitates, and monitors the staff's professional learning. The staff's willingness and ability to increase their repertoire of instructional strategies and approaches will impact student engagement and academic success (Gray & Streshly, 2008).

The necessity for staff to have relational acumen in low-SES schools is especially important. Students from these areas generally enter schools with significant academic readiness and social and emotional engagement concerns. Staff members who emotionally connect to their students give them a sense of belonging that promotes a positive disposition toward increased student efforts (Myers & Pianta, 2008). The ability of the teacher to create a structure of safety and

discipline within the classroom is conducive to engagement in positive learning environments (Skinner et al., 2008).

The relational understanding of staff is comprised of their abilities and willingness to interact with students to establish a relationship with them. When students feel valued and liked by their teachers, they are motivated to gain further approval and acceptance by accommodating the wishes of their teachers (Hamre et al., 2012). Principals encourage increased teacher-time with students on an extracurricular by outlining desired pro-social behaviors and encouraging individual support for those identified as vulnerable students. It is an expectation that school staff would establish and enforce clear boundaries for appropriate student behavior. This provides structure and dependability for students while simultaneously indicating that educators care about what happens to students. Additionally, staff who regularly and successfully manage student behavioral issues do not demand the unplanned time needed for constant principal intervention with students.

In this aspect of "staff capacity" of the model, principals determine the capability and willingness of staff. Whenever principals perceive staff willingness for improvement, they offer support to teachers through various strategies, including providing professional development or counseling, as well as initiating the formal process and support of teacher evaluation. When there is a lack of progress or willingness to work toward school goals, or if the skills of the teacher may be best suited elsewhere, the principal may initiate a formal evaluation that may end in the termination of a teaching certificate or act as a catalyst for teacher-initiated, principal-supported transfer.

Engagement.

The aspect of 'engagement' is directed toward the students, parents, and the wider community. Student engagement is determined on the basis of academic achievement and

emotional factors and is identified by student willingness and effort to attend school and do the work required for success. However, some SES students exhibit lower academic achievement, ineffectual study habits, truancy, and difficulty in regulating their behavior to a standard that is acceptable in the school. Principals and staff must work to create stronger connections with students in order to engage and motivate them in learning activities (Anderson et al., 2004).

Teachers and parents must work together to ensure that students possess the optimum support for success. Because parents' value systems influence the belief systems of their children (Bronfenbrenner & Evans, 2000), the probability of student success is increased when parents and staff work in partnership (Burney & Beilke, 2008; Lee & Bowen, 2006). Increasing parental engagement is a powerful strategy that can be used to influence the home and educational life of students by creating opportunities for parents and staff communication. Principals must clearly articulate their expectations that staff communicates regularly with parents. Increased parental engagement increases the level of trust between staff and parents, so communication becomes more effective (Adams et al., 2009; Carlisle et al., 2005). Greater involvement in school increases the parental belief that they can exert influence on school decision-making and perhaps value education more (Carlisle et al., 2005). Positive parental beliefs about education influence those beliefs of their children. Therefore, principals who engage parents as partners in the educational life of their children have developed an educational resource for students. Essentially, the principal should make every effort to influence ongoing communication, so both parents and school staff understand the values of each group and share their aspirations for each student.

Principal Pathway

Resourcing Basic Needs.

The QPM specifically acknowledges that in low-SES schools, the lack of basic needs of students will influence student achievement (Jensen, 2009; Kennedy Green et al., 2007). In these schools, students frequently come to school needing food, clothing, sleep, and psychological succor. It is not until these needs are met that students can be receptive to learning (Maslow, 1943). Principals will need to consider aspects of resourcing for food programs for students, such as establishing community networks and the staffing implications involved. Therefore, principals will need to demonstrate entrepreneurial expertise in order to establish initiatives and programmes that would provide for the basic needs of students in their community.

Another aspect of meeting students' needs is the need for safety. This need must be met before students can feel ready to learn. It is the principals' responsibility to consider students' physical safety and security, as well as their psychological safety, to create a sense of belonging within their school. Physical safety and security come from maintaining order and structure in the school, especially in the classroom. Teachers must be aware of the need for stability and predictability and to maintain firm boundaries of acceptable behaviors for all. An important aspect of the relationship that teachers have with their students is that the teachers provide a stable learning environment enforced by clear expectations and predictable consequences. Teachers who build that stability in their classrooms have students with increased feelings of security and belonging. Therefore, principals should ensure that teachers are aware of the importance of maintaining a stable balance for students and that teachers respond appropriately to ensure that this balance is met.

Student Success.

Student success in this model has been given two major definitions. The first of these is academic success which is usually the primary factor that is measured in schools as an indicator of good leadership. The second definition of student success is for students to overcome any emotional concerns that prevent success academically and vocationally, as well as socially and emotionally. Both of these definitions of success are important, but often only academic achievement, in the form of Provincial Achievement Tests, is reported to the general public and to school communities. Schools are ranked in this manner, and principals bear this accountability. There is no doubt that academic achievement is important. It offers proof of students' self-regulation and commitment to the acquisition of skills and the application of knowledge and can lead to careers involving higher education and a higher standard of living for students. However, the focus on academic achievement as the single pathway to a university is highly limited. Instead, academic success should be held to a broader definition that incorporates success as a qualification within the technical or vocational fields. Therefore, the yearly reporting of academic success by principals to the district and to the community should incorporate a wider range of student-acquired knowledge and skills that are equally valued. Additionally, the responsibility of the district is to recognize and communicate that there are many aspects of academic achievement—those that lead to university, technical, and vocational pathways.

Principals recognize that education is a way out of poverty for low-SES students in lower SES, because it leads to a greater range of life choices. When the definition of academic success is broader, it leads to a correspondingly greater scope of opportunity for education to "make a difference" for students. This more global focus on student achievement, evidenced by the provision of support utilized by students at the school, would be dependent on students' needs. For

example, highly developed partnerships with community supports would be formally developed as part of the school plan or offered by the school district. Advocating for student mental health programs provided by trained personnel rather than educators could help alleviate barriers to academic and social success (Chan et al., 2009). Health programs, family planning programs, drug programs, and child health programs are all examples of how schools and districts can formalize these interactions.

District Pathway

An additional pathway to support for principals is through the system or school district. In this model, the responsibility for the principal selection, ongoing professional development, and multilayered support resides in the district (Honig et al., 2009). The principal has a reciprocal responsibility to optimize those given opportunities for knowledge acquisition and skill development as the preparation for principal agency. Due to the importance that was placed on the two influences from staff on principal self-efficacy — staff capacity for good teaching practices and the ability to create relationships with students and parents in low-SES communities, the results of this study offer support for the premise that low-socioeconomic-status schools should be acknowledged by the district as possessing complexities that do not occur in other schools (Hill & Craft, 2003). This suggests a need for the district to apply flexibility to its structure and practice regarding staffing - including support for teachers in the classroom so that these low-SES schools are staffed with educators who demonstrate the willingness and commitment to teach in these schools. Additionally, the district may decide to assume a system-wide responsibility for providing the structure and support for food programs for students, thereby relieving the principals of this responsibility.

Selection and Succession Planning.

Selection and succession planning is the first of two systems issues in this model. The first part is principal selection. One aspect of principal selection in low-SES schools that must be considered is principals' philosophical beliefs concerning leadership, having a moral imperative or duty of care for helping children, and possessing an understanding of quality education within that context because these beliefs are strong motivators for sustained efforts, which lead to resilience. Although it could be argued that these aspects of selection are embedded in the process for hiring any principal according to the Leadership Quality Standard, it is especially imperative that extra care be given to the selection of principals for low-SES schools. This model shows that as part of the effective and appropriate principal selection, districts should acknowledge and take into consideration the uniqueness of low-SES schools in their hiring process, where candidates should provide evidence for practice supporting a stated philosophical belief promoting a duty of care for students. Additionally, there should be evidence to support their capabilities to create quality educational programming, communicate skillfully, and exercise effective leadership with staff.

They also should be aware of the constraints for success that may be present in low-SES schools and possess the personality and skill for entrepreneurship in accessing alternate resources. The district selection committee can make a deliberately informed choice to select the candidate with the skills to be most successful in their appointed school. The preselection processes would involve an ongoing identification among school staff for potential leaders who have demonstrated that they possess the moral imperative for helping students.

It is important that these schools should be staffed first with the best-qualified leaders rather than be the leftover schools that are available for the newly appointed principals. In their decision-

making, the administrative staffing process would have to negotiate more carefully between principal choice and the profiles of needed knowledge, skills, and ability that are created by schools to indicate the requirements of their principals.

Succession planning focuses on the system development of professional expertise to increase the capacity of the knowledge, skills, and attributes (KSAs) for each principal to establish and sustain optimal conditions in low-SES environments. In order to support this development, a regularly scheduled program of professional development focused specifically on these selected leaders would increase the skills needed for them to feel successful.

District Support.

District support to principals must be ongoing and sustained, Formal mentorship programs can be established by the district for newly appointed principals and for those moving into the district in order to effectively socialize them into district principalship (Scott, 2010; Zepeda et al., 2012). Therefore, the choice of mentors for novice principals should be made with discrimination and with the mutual understanding that low-SES schools pose a unique complexity within the district. Mentorship programs will be successful if newly appointed principals are paired with experienced colleagues who are personally committed to ongoing participation in principal development, as well as also have the time and availability to provide support. However, because mentors who are also practicing principals may not be able to make themselves available during critical circumstances, the district could make provision for the establishment of a position of "district principal". With extensive leadership experience and no school of their own to run, these leaders would be immediately available for principals in crisis or to assist efforts in prioritizing and goal-setting. This non-evaluative district support would bolster and improve decision-making

for the principal, who may be more comfortable requesting such support than from their direct superordinate.

Peer support is an important component of leaders' support (Daly & Finnigan, 2011; Rutter, 2007). Principals informally and often seek out colleagues for the sharing of information and advice. In this model, the district will establish formalized smaller groups of principals who deal with similar concerns and common issues. This means these meetings are organized and preplanned with principal input into their content and would afford the expertise, time, and attention of district personnel to deal with important common issues. The crucial issue of this model is the district acknowledgment that low-SES schools have complex concerns that are specific to them, as often the concerns of principals in these schools are not addressed or discussed in depth in larger meetings where the purposes are to deal with the more universal district concerns. These meetings would allow for the required time for discussion, thus providing authentic and needed support. Additionally, principals seek colleagues whom they trust in order to build informal, supportive structures for themselves, and principals could draw upon their colleagues based upon judgments they form from observing interactions within the larger formalized group.

District superintendents or personnel should be an additional source of system support (Spanneut & Ford, 2008). In this model, the purpose of the superintendent is to support and monitor as well as evaluate. Their relationships with each principal would result from communicating clear expectations of responsibilities and having regular interaction with principals and availability for conferencing, as well as being trustworthy and professional. In addition to offering acknowledgments for positive performance, which are the source of self-efficacy beliefs, superintendents use good judgment and knowledge of the individual's character to effectively and

supportively remediate inadequate performance by offering more extensive district resources to the principal to encourage future success (Acton, 2018).

Personal Pathway

Building Resilience.

The Personal pathway in the Quadratic Pathways Model focuses on the responsibility of individual principals to maintain their own health and well-being. Principals must constantly manage stressful situations at school, which may involve potentially conflictual interactions with the families of those students who have contravened the expectations of the school. Another major concern for principals is being able to adequately complete all the requirements of the job in the time that is available to them (Acton, 2018). Stress may evidence itself physiologically with poor eating habits, reduced fitness levels, and illness. Principals should be aware of how their bodies and minds react to stress and take the necessary measures to maintain good health (Hanewald, 2011). Principals, who wish to sustain their ability to effectively work in schools, must balance their home and professional lives, ensure maintenance of their physical and psychological health, and thereby also uphold their emotional well-being (Gillespie et al., 2007).

Principals utilize various strategies for the prevention or alleviation of stress which may include the feeling of loss of available time for social lives or families. Developing positive coping mechanisms will help to ensure an acceptable balance in their lives. This study found a strong example of a coping strategy to separate or compartmentalize their professional and private lives. Another effective strategy is to promote involvement in activities of personal interest which heighten personal energy that provides sustenance during times of anxiety.

Given that stress is built into the job when one is interacting with and evaluating others, principals can expect stressful situations to occur. Principals may successfully manage stress

through shared leadership. Building the capacity of both the administrative team and lead teachers so they are trustworthy and capable of dealing with some decision-making (Hallinger & Heck, 1996) would alleviate stress for principals. Administrative assistants can be extremely helpful in expediting the selected yearly documents that are required for principals to review and update. Principals may also take a proactive approach to build capacity in teachers for dealing with problematic student behavioral issues and establish guidelines for teachers that delineate the sharing of these responsibilities among personnel.

Another form of stress can be found in schools where principals carry a timetabled teaching load. Principals will often do this because they possess the required expertise, because they wish to continue a direct connection with students, or because they must teach to provide teachers with the necessary contractual time free from teaching. Often, when emergency situations arise, both teachers and students are negatively affected by the lost teacher (principal) and instructional time. If principals must teach, careful timetabling can lessen the impact on students and teachers.

Principals possess varied skills and experience when dealing with the many forms of conflict, so they must also be aware of any personal shortcomings and seek to gain skills in those specific areas (Osterman & Kottkamp, 1993). Principals are personally responsible for seeking professional development for themselves in required knowledge and skills categories. This is important as the acquisition of knowledge in and of itself can not only reduce stress but also improve an individual's perception of control in stressful situations (Bandura, 1997).

Implications of the Quadratic Pathways Model

This conceptualization of the Quadratic Pathways Model has adapted the key influences of principal self-efficacy in low-socioeconomic-status schools and has developed these into essential indices for sustained effective leadership. For principals, it could be used as a model to design

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necessary leadership practices while redefining their current actions as those leading to instructional leadership in order to build positive self-efficacy beliefs. School districts may choose this model in the creation of indices for informed principal selection, assuming acknowledgment of the necessary supports for principals' high efficacy beliefs. Formally structured supports, such as a mentorship program or ongoing professional development, will not only provide increased expertise for school leaders but will indicate a strong district willingness to support their appointed principals.

In this present research study, all principals wished to enact their roles as instructional leaders. Even though instructional leadership actions were identified by the questionnaire that was used (Tschannen-Moran & Gareis, 2004) as well as earlier scales (Hallinger & Murphy, 1987) and studies (Leithwood, Harris et al., 2020), these principals identified instructional leadership with those actions that focused on facilitating teacher professional development so that teaching was more effective and students made academic gain. These principals identified those components of staff lack of capacity for pedagogical ability and relational acumen; student, parent, and community engagement; and even providing for students' basic needs as negative influences on their self-efficacy for leadership, often because of the amount of time and energy that was expended when dealing with the concerns that emerged from these factors. They envisioned that the unplanned time needed for necessary principal intervention during these negative circumstances prevented the exercise of effective instructional leadership.

This research study proposes an expanded interpretation of instructional leadership practices focused on removing the barriers to student achievement. For low-SES schools, the deliberate, expected, and planned allocation of school resources, providing for students' basic needs, is a necessary precursor to student success. Therefore, we contend that principals' actions

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that are focused on supporting these student needs are enactments of instructional leadership. Additionally, managing negative staff issues and promoting school engagement for students, parents, and within the community are topics that exemplify instructional leadership. Consequently, principals must consider themselves successful as instructional leaders when they engage in these actions.

To improve and sustain leaders' high self-efficacy, leaders should engage in intentional actions which have been broadly defined by the Quadratic Pathways Model. Therefore, sharing a vision and goal-setting with the school community will provide needed benchmarks for success that will inform self-efficacy beliefs. The principal agency is focused on what is now recognized as instructional leadership. This allows principals to feel incremental successes as they follow these broadly defined pathways, which provide supports for principals' resilience.

This expanded definition of instructional leadership is focused on ongoing change and improvement. When principals engage staff commitment to improvement in pedagogy together with a shared vision of the organization, it provides the basis for the transformation of staff into leaders. Additionally, when principals show with congruent actions their values and beliefs to their followers, these authentic leadership practices allow the evolution of growth for themselves and others. Therefore, instructional leadership involves operationalizing needed change by exercising agency. The self-efficacy beliefs of leaders act as a motivator for action and an evaluator of success, necessary change, and continuance as a leader in the school (Skaalvik, 2020). Changing a negative perspective from detriments to essential practices helps principals acknowledge they are indeed setting the stage for student success by already exercising instructional leadership.

Conclusion

The Quadratic Pathways Model offers the possibility for role clarification for principals and facilitates the creation of long-term goals, along with offering an expanded interpretation of instructional leadership for principals. This model also illustrates the necessity for supports for principals and acknowledges the essential conditions to maintain and increase principal self-efficacy. Therefore, the Quadratic Pathways Model illuminates the necessary components for sustained high self-efficacy for principals, which results in increased success and resilience, and which also results in success for students in this highly complex context.

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