

Principals' boundary activities and school violence: The mediating role of school management teams

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Abstract

The call for a more holistic approach to cope with school violence motivated the present study. The present model postulates that effective teamwork at the school management team level can have a positive impact on the level of school violence. Specifically, the model examined the mediating role of school management team effectiveness (in-role performance and innovation) in the relationship between the organizational-level factors of principals' internal and external boundary activities and school violence. Data was collected from a survey of 692 school members and 92 principals in Israel. The structural equation model confirmed the main hypotheses and indicated that school management team effectiveness fully mediated the relationship of principals' internal boundary activities to school violence. These results carry important practical implications for policymakers to help schools manage school violence issues. Understanding how the principals' boundary activities can enhance school management team effectiveness by facilitating improved knowledge exchange and social relationships is important and may provide a mechanism to decrease school violence. The implications of these findings for both theory and practice are discussed.

Keywords

School violence, school management teams, boundary activities, team effectiveness

Introduction

School violence is a growing problem that results in substantial costs for school systems (Cuellar et al., 2017). The growing concern with reducing school violence is not only because learning is jeopardized by the lack of a safe school environment, but also because of the monetary cost to school systems, which can be substantial, and the negative impact of school violence on teacher attitude and well-being (Skaalvik and Skaalvik, 2017; Varela et al., 2018). Much has been learned about the factors that impact school violence (Povedano et al., 2015). Research has demonstrated

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the importance of a positive atmosphere, with cohesive interpersonal relationships at all levels (Berkowitz, 2014). This research guides us to an approach that considers issues involving school violence in the context of relationships that involve not only students but faculty and staff (Eliot et al., 2010; Varela et al., 2018). Yet, the focus of attention of most research is still on understanding the conditions that enhance or limit the success of school violence prevention programs, and the typical targets of the various programs remain the individual students (Fletcher et al., 2015). Little research has addressed the broader social context and its relationship to the management of school violence (Ttofi and Farrington, 2011). The present study proposes a holistic approach to coping with and understanding violence in schools.

Empirical research shows that successful principals create conditions that promote a safe school environment, along with effective teaching and learning (Sun and Leithwood, 2017). However, traditional views of school leadership and improvement, which focus on the principal, have overlooked the potential influence of other actors with formal and informal leadership roles in improving school outcomes (Bush, 2011; Leithwood, 2016). These actors include teachers performing in leadership roles, school management teams (SMTs), and assistant principals (Bush and Glover, 2014). In this regard, recently, principal–team relationships have been found to be central factors affecting school outcomes, with an emphasis on the important role of school leaders' boundary activities in facilitating team outcomes (Benoliel, 2017; Somech and Naamneh, 2017). However, despite the increasing importance of SMTs in school management (Bush and Glover, 2014), research has typically focused on SMT outcomes without connecting the SMT outcomes to school-level outcomes in general and to school violence in particular (Mitchell et al., 2018). The goal of the present study is to address this important yet relatively unstudied issue.

This study focuses on the effectiveness of SMTs as an important agent for reducing school violence and the role of the principal's boundary activities in enhancing SMT effectiveness. This reflects the ecological system perspective, which emphasized that school system outcomes are directly related to the positive interdependencies among the school system's components, and student behavior is thus influenced by contextual factors in the school system (Bronfenbrenner, 1979). Specifically, the present model seeks to investigate the mediating role of SMT effectiveness in the relationship of the organizational-level factors of principals' boundary activities to school violence. Principals' boundary activities involve internal activities directed towards the team, aimed at sharpening the team boundary from within; and external activities directed at connecting the team to its external environment to acquire resources (Druskat and Wheeler, 2003). Accordingly, it is proposed that the principal's boundary activities (internal and external activities) promote SMT effectiveness (in-role performance and innovation), which in turn reduces school violence (see Figure 1). By applying a more systemic approach to cope with school violence, this study may contribute to the existing body of research on educational leadership by addressing the role of SMT effectiveness in promoting school outcomes.

Theoretical background and literature review

Promoting school outcomes: Principals as boundary spanners

School violence is an important issue for the whole school organization including faculty, staff, and students (Povedono et al., 2015). School violence refers to several types of violent and disruptive behavior among students. School violence also refers to behavior such as verbal abuse, as well as intimidation and threats of the type that can emotionally harm and hurt the feelings of

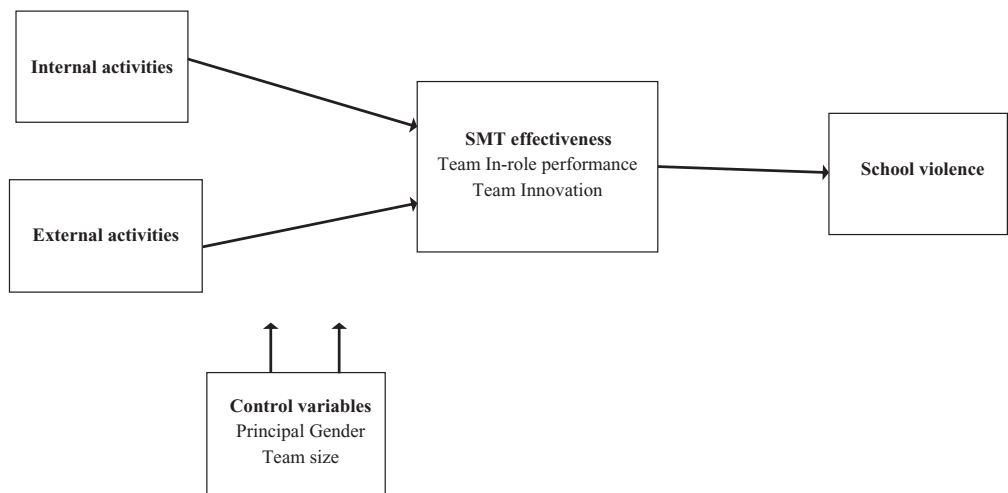


Figure 1. Research Model.
SMT Effectiveness mediates the relationship between Principal Internal and External activities and School Violence.
SMT: school management team.

others (Blaya, 2003). School violence can affect schools in several ways. First, school violence may be detrimental to student achievement and the general school climate by reducing student motivation and causing an increase in student absenteeism (Olweus and Breivik, 2014). Second, school violence can reduce student’s well-being, making it more difficult to provide coherent instruction (Valois et al., 2012). Finally, school violence is recognized as a significant source of teacher stress and burnout (Fleming et al., 2013).

Research has shown that the school system itself can provide important resources to cope with school violence (Espelage and Swearer, 2011). Therefore, based on the assumption that school violence is a systemic problem requiring a more holistic approach to school safety, the main argument of this study is that the extent of effective work at the management team level has a significant impact on the reduction of school violence. SMTs, which generally include principals, vice principals, and other key staff, are usually given responsibility for overall school performance (Bush and Glover, 2014). SMTs are even more important for principals in light of the increased emphasis on the improvement of managerial and pedagogical practices in an educational environment that is highly focused on student achievements (Leithwood, 2016). SMTs are responsible for a wide variety of subjects, including curriculum, scheduling, allocation of human resources, and coordinating student interventions involving emotional, cognitive, behavioral, and other issues (Benoliel, 2017; Wallace, 2002). However, although SMTs may have the ability to lead, the key to their effectiveness remains the manner in which that leadership is enabled (Wageman and Fisher, 2014). Thus, SMT effectiveness largely reflects the relationship between the SMT and the principal.

Educational research on SMTs have emphasized that high-performing school leadership teams that were rated as outstanding are characterized by a distributed approach to leadership, with a shared motivation towards high standards, internal cohesion, and reciprocal relationships with internal and external shareholders (Bush and Glover, 2012). Similarly, Barnett and McCormick

(2012) have indicated that principals can improve team effectiveness through direction setting, developing team leadership capacity, effective management of team operations, and the fostering of external relationships. Yet, boundary management was considered as a separate activity.

More recently, emphasis has been placed on the importance of maintaining a balance between both internal and external boundary activities to achieve better team performance, showing that both activities are equally important for promoting team effectiveness (Somech and Naamneh, 2017). For example, Somech and Naamneh (2017) have shown that the middle-leader's boundary activities, both those directed at managing the team's external environment and those directed at managing the internal team process, provide the team with the proper conditions for developing learning mechanisms that promote team outcomes. Similarly, research has indicated that principals facilitate school outcomes and team outcomes when they engage in both internal and external activities, recognizing that the team boundary requires continual management to ensure that it becomes neither too sharply delineated nor too permeable (Benoliel, 2017). In line with this vein of research and drawing upon the typology by Druskat and Wheeler (2003), it is proposed that principals' internal and external activities facilitate SMT effectiveness.

Internal activities. Leaders' internal activities are activities that involve intra-team processes occurring within the team boundary (Druskat and Wheeler, 2003). The principal's activity of *relating* involves such behaviors as building team trust and caring for team members. Trust among team members can encourage team members to share more precise information, to be more forthcoming in providing essential feedback, and to be more willing to engage in challenging conversations (Edmondson, 2012). Principals' *scouting* activities are aimed at diagnosing the attitudes of senior team members and gathering information about the needs, experiences, and difficulties of the team and its members. *Persuading* activities of principals are activities directed towards impelling the SMT members to comprehend the consequences of their actions, thereby making it easier for the principal to achieve consensus among the SMT members about priorities (Wallace, 2002). *Empowering activities* involve delegating authority and exercising flexibility about team decisions and coaching. Research has shown that through coaching and empowerment, team leaders can gather more and better knowledge from team members, which in turn reduces the usual propensity of teams to rely on shared information (Lee et al., 2012).

External activities. Principals' external activities include activities aimed at building relationships, representing the team to external stakeholders, acquiring resources and support, and scanning the environment for information that is essential for achieving the team's goals (Druskat and Wheeler, 2003). The environment is often defined as every component external to the system's boundary (Immergart and Pilecki, 1973). Accordingly, the SMT's external environment may include stakeholders residing both within the school (e.g., other school teams) and outside the school (e.g., parents, community, district employees, government agencies; Ng, 2013).

Relating involves the principal activities of building positive connections and enacting bridging strategies with the team's external environment both within and outside the school building (Dipaola and Tschannen-Moran, 2005). Research indicates that consistency and unity between school teams and school districts is more likely to occur when principals engage effectively in bridging and buffering activities (Honig and Hatch, 2004). The principal's external activities of *scouting* involves scouting for information from external stakeholders in order to detect important environmental events that could threaten the SMT's activities. External *persuading activity* involves obtaining external support for the SMT, presenting the team to other teams and stakeholders in a way that maintains the benefits of the team, and makes the most of the support available to the team (Druskat and Wheeler, 2003).

Principals' internal and external activities and SMT effectiveness

In investigating SMT effectiveness, the study focuses on SMT in-role performance and SMT innovation. *In-role performance* refers to the extent to which a team accomplishes its objectives of improving academic results and produces the planned and expected results (Muijs and Harris, 2007). *Innovation* refers to the introduction or application (within a team) of concepts, procedures, or practices that are new to the team and intended to be beneficial (West, 2002).

Internal activities and SMT effectiveness. Effective teams require the capacity to produce acceptable outcomes with the capacity to work together in the future (Zaccaro et al., 2009). Principal's internal activities involve building trust and caring for senior members' needs. These activities have been shown to be essential for open collaboration among teachers, with research indicating that trust is a central characteristic of any working relationship (Tschannen-Moran, 2014). Trust enables team members to overcome uncertainty about their peers, thereby facilitating positive interactions enhancing team performance (Braun et al., 2013). By contrast, absence of trust leads team members to prioritize personal interests over team tasks and goals (Cheung et al., 2016). Therefore, through internal activities, principals may promote an environment where senior teachers can converse openly about both understandings and doubts regarding new practices enhancing team effectiveness (Edmondson, 2012). Moreover, such close internal contact with senior members may not only provide greater mission clarity, but may also improve principals' ability to communicate their experiences, facilitating team task work by promoting teamwork, aligning team efforts with school goals, and showing consideration for senior members. This is important because consultation with colleagues is often limited to discussion regarding ideas and materials, as well as the clarification of teaching activities and the content of testing (Cheng and Ko, 2009).

Furthermore, principals' internal activities involve the generation of solutions, the maintenance of a unified team direction when members encounter problems, and the creation of a shared vision and shared understandings (Zaccaro et al., 2009). Shared understandings and shared mental models represent the agreement among members regarding their internal and external work environments (Lee et al., 2010). This provides senior members with a common frame of reference that can guide teachers and facilitate the ongoing exchange of knowledge (Schechter and Atarchi, 2014), crucial to enhancing innovation. Similarly, shared mental models enable members to work in unison (DeChurch and Mesmer-Magnus, 2010). In this regard, research has indicated that clear and accepted roles enable the team members to work cooperatively through the achievement of shared goals (Muijs and Harris, 2007). Moreover, effective information exchange enhances coordination among team members, facilitating exploitation of new opportunities central for innovative perspective implementation (Edmondson and Harvey, 2017). This is because the ideas of individuals become meaningful, legitimate, and integrated in their own cognitive maps, enabling convergent thinking. The principal's internal activities can therefore encourage senior members to share their learning experiences, enabling the transmission of practical knowledge (Kurland et al., 2010) and thereby enhancing SMT effectiveness.

Hypothesis 1a: Principals' internal activities are positively associated with SMT effectiveness.

External activities and SMT effectiveness. Previous research has suggested that managers create the conditions and support necessary for the effective creation and implementation of innovative

ideas by acknowledging that interactions with the external team environment are important for team effectiveness (Ancona and Bresman, 2007; Edmondson and Harvey, 2017). Principals who build positive relationships between SMT and external stakeholders and promote opportunities for cooperation create optimal conditions for information exchange across the team boundary (Tschannen-Moran, 2014), introducing new perspectives and enhancing team effectiveness (Easterby-Smith and Lyles, 2003). Moreover, scouting and exchanging information both within and outside the team boundary has been shown to enhance cooperation with external stakeholders (Majchrzak et al., 2012). This, in turn, enables team members to create new perspectives by combining knowledge acquired in other contexts, thereby enhancing team effectiveness (Edmondson and Harvey, 2017). Therefore, principals' external activities aimed at building relationships but also aimed at acquiring and securing external resources for the SMT can contribute to team innovation and performance by exposing team members to diverse ideas.

The literature suggests that a leader who cultivates openness, considers new ideas, and fosters an open exchange of ideas will generally help the team to reach its potential for innovation and performance (Kohn et al., 2011). This is because the integration of diverse cognitive resources helps team members acquire new understandings, facilitates innovative thinking, and produces better results (Mitchell and Boyle, 2015). Thus, through external activities, principals can foster knowledge sharing across the SMT boundary, which facilitates effectiveness by enabling team members to effectively explore, integrate, and synthesize diverse information (Salas et al., 2008). By connecting the team to its external environment, principals can play a visible role in helping team members to fulfill their roles effectively.

Hypothesis 1b: Principals' external activities are positively associated with SMT effectiveness.

SMT effectiveness and school violence

Research has acknowledged that the capacity of schools to cope with violence relies on their ability to involve all school internal and external stakeholders in the process (Hernandez and Seem, 2004). Also, research has emphasized that those schools that promote social relations and are characterized by internal and external collaboration as well as teamwork, experience less school violence than bureaucratically structured schools (Payne et al., 2003). Research suggests that the main social structure delineates the nature and flow of resources to individuals in the network, which can facilitate positive activity by facilitating the flow of resources among teachers (Daly et al., 2014). Indeed, social relationships among faculty staff facilitate appropriate access to more resources of information and knowledge, thereby enhancing organizational flexibility and the educational process (Schechter and Atarchi, 2014).

The intra- and inter-team links that characterize practices of effective SMTs can provide a flexible and organic structure that enables senior team members and faculty members to better share resources and ideas among different modules, such as school departments and grade levels, improving knowledge flows within the school (Senge, 2012). Such a structural arrangement can help identify students' needs by giving principals and administrators access to critical information regarding behavioral problems and violent incidents in the classroom (Schildkamp et al., 2016). Also, each senior member benefits from a social, cognitive, and emotional support system as they work in cooperation to solve school violence issues and meet the various emotional and instructional needs of their students (Somech and Oplatka, 2009).

Furthermore, as school violence issues have become more complex and more frequent, the synergy of experts from different disciplines can provide senior teachers with resources and knowledge necessary to engage in continual adjustments to cope with and prevent school violence (Ferrazzi, 2009). For example, effective school violence prevention programs that involve team members from several functional backgrounds (e.g., school psychologists, counselors, and administrators) have been shown to result in improved student behavior and student self-control (D'Andrea, 2004). Ease in transferring knowledge among SMT members can help convert new personal ideas and knowledge into innovative procedures contributing to school effectiveness and reducing school violence issues. Indeed, teacher teamwork enhances knowledge sharing, develops teaching pedagogies and practices, and promotes educational change (Daly, 2010)—all of which enables the establishment of professional growth development that, in turn, benefits the quality of the school work environment, reducing violence (Hadar and Brody, 2013). Hence:

Hypothesis 2: SMT effectiveness is negatively related to school violence.

Finally, as the above discussion indicates, the present study proposes that SMT effectiveness will mediate the relationship of principals' internal and external activities to school violence. This study postulates an integrative model: principals' internal and external activities function to influence school violence through the mechanism of SMT effectiveness (in-role performance and innovation). School violence may be reduced primarily through the effect of the principal's internal and external activities on SMT effectiveness. Therefore, it is suggested that SMT effectiveness serves as a vehicle whereby the principal's internal and external activities affect school violence.

Hypothesis 3a: SMT effectiveness will mediate the relationship of principals' internal activities to school violence.

Hypothesis 3b: SMT effectiveness will mediate the relationship of principals' external activities to school violence.

Method

Participants

Data was collected from 92 SMTs and their principals, and faculty staff from 92 schools randomly chosen in Israel. Overall, 692 school members and 92 principals participated. Sixty percent of the schools studied were elementary schools, 11% were middle schools, and 29% were high schools. In the present sample, the average SMT was composed of 21% grade-level coordinators, 20% school counselors, 17% deputy heads, 14% educational advisors, 11% disciplinary coordinators, and 10% coordinators. Team size ranged from 3 to 10 with an average of 5.79 ($SD = 1.93$).

Of the principals who participated in the study, 79% were women. Their average age was 49.28 years old ($SD = 6.67$), and their average tenure as principal at the present school was 9.28 years ($SD = 7.74$). Of the senior members ($N = 293$), 91% of the participants were women; their average age was 43.93 years ($SD = 9.05$), and their average tenure at the present school was 10.33 years ($SD = 7.00$). As for the teachers ($N = 399$), 87% were women; their average age was 44.01 years old ($SD = 9.68$), and their average tenure at the present school was 11.6 years ($SD = 9.50$).

Procedure

To test the proposed relationships, a multi-source survey design from a sample of SMTs, the principals, and school faculty was used. Data was collected from three sources to minimize problems associated with same source bias (Avolio et al., 1991). Data collection was performed in several steps. After the research project was approved by the Ministry of Education, schools were randomly chosen from a list provided by the Ministry of Education. First the principal was contacted and the research aim was presented. Anonymity for participants was guaranteed and the significance of candid answers was stressed. Second, senior team members were asked to address principals' internal and external activities scale; principals gauged senior team effectiveness through a survey of team in-role performance and team innovation; and teachers answered the school violence questionnaire.

Measures

Principals' internal and external activities. Senior team members answered the Team Leader Questionnaire originally developed by Druskat and Wheeler (2003), adapted and validated for schools by Benoliel (2012). *External activities:* This consisted of 17 items, e.g.: "How often does the principal gather information from parts of the school environment (such as parents, district, educational ministry) that may contribute to the team decision-making process?"; $\alpha = 0.93$. Under this, we have: *relating* (four items) ($\alpha = 0.83$); *scouting* (six items) ($\alpha = 0.89$); and *persuading* (seven items) ($\alpha = 0.92$). *Internal activities:* This consisted of 14 items, e.g.: "How often does the principal gather information about the strength and weaknesses of the team?"; $\alpha = 0.90$. Under this, we have: *relating* (four items) ($\alpha = 0.84$); *scouting* (four items) ($\alpha = 0.89$); *persuading* (four items) ($\alpha = 0.84$); and *empowering* (two items) ($\alpha = 0.84$). Senior members responded on a 5-point Likert scale ranging from (1) *Never* to (5) *Always*.

Team effectiveness. Principals used a three-item scale adapted from Settoon, Bennett, and Liden (1996), to assess *in-role performance* with respect to an overall evaluation of the team's job performance, role fulfilment, and professional competence (e.g.: "The team adequately fulfils assigned duties"; $\alpha = 0.78$). *Innovation* was assessed by a five-item scale adapted from West and Wallace (1991) reflecting the extent of team-initiated changes in the previous six months, for each of four job areas: work objectives, working methods, teaching methods, and development of skills (e.g.: "The team developed innovative ways of accomplishing work objectives"; $\alpha = 0.87$). These dimensions have been validated in the educational and Israeli context (Somech and Drach-Zahavy, 2007). Principals used a 5-point Likert scale ranging from (1) *Strongly disagree* to (5) *Strongly agree*.

School violence. A 15-item scale adapted from Erhard (2000) measured school violence; e.g.: "A student was caught pushing/kicking/hitting another student"; $\alpha = 0.74$. Teachers answered using a 5-point Likert scale ranging from (1) *Strongly disagree* to (5) *Strongly agree*.

Control variables. Team size and the principal's gender were chosen as control variables. Previous studies showed that team size affects team processes and performance (Hülshager et al., 2009). Regarding principal's gender, research acknowledged that women tend to be oriented towards personal relationships, and thus more likely than male principals to value and build close relationships with teachers, students, and community members, whereas men tend to adopt a more autocratic and goal-oriented leadership style (Gronn, 2003).

Level of analysis

In the research hypotheses, the school is identified as the unit of analysis. Therefore, SMT effectiveness (innovation and team in-role performance) were measured at the team level by surveying the principal. Principals' internal and external activities were represented by an aggregate of senior member responses and school violence was an aggregate of the responses of individual teachers. High within-team agreement was established to justify using the team average as an indicator of team-level variables; a value of 0.70 or greater is suggested as a "good" amount of within-group interrater agreement (rWG; James et al., 1993). All scales exceeded this level (see Table 1). Then, before aggregating individual-level scores to the group level by mean, intra-class correlations (ICC) were calculated. ICC(1) reflects the extent of within- versus between-group variability, and ICC(2) provides an estimate of the reliability of the group means (Bliese, 2000). As indicated by Bliese (2000), ICC(1) generally ranges from 0 to 0.50 with a median of 0.12. As shown in Table 1, the results support the use of the average scores as organizational measures.

Data analysis

The theoretical model was tested with structural equation modeling (SEM, using the AMOS 21.0 program). Because SEM is primarily based on model fitting and selection, several statistics were used to specify how well the estimated models described the input data set. The full mediation model was tested according to the SEM approach suggested by James, Mulaik and Brett (2006) because of the following: First, both full and partial mediation are tested. For partial mediation, a direct path is added from the initial factor to the outcome factor. Second, a simultaneous test of the significance of both the path from an initial factor to a mediator and the path from the mediator to an outcome (the test SEM applies) provides, relative to other approaches, the best balance of type-I error rates and exhibits greater statistical power (MacKinnon et al., 2002).

In the present study, the full mediation model describes the relationship between the principals' internal and external activities (initial variables) and SMT effectiveness (mediating variable), and between SMT effectiveness (mediating variable) and school violence (outcome variable). To support the full mediation model (Model 1), Model 1 was compared to a partially mediated model (Model 2), which is the same model but with additional paths: from the initial variables (principals' internal and external activities) to the outcome variable of school violence (Model 2). In order to gauge model fit, several goodness-of-fit indices were used (absolute and relative indices; Joreskog and Sorbom, 1996). The c^2 values, which provide a statistical basis for comparing the relative fit of nested models, were reported. A significant improvement in the fit of the fully mediated model over the partially mediated model would confirm the mediation effects of the principal's boundary activities.

Finally, the Bootstrapping procedure, based on a bootstrap sample size of 2000, was employed to ascertain the presence of indirect effects (Preacher and Hayes, 2008). The bootstrapping approach to analyze indirect effects is recommended when testing for mediation in small samples due to biased variance and standard error estimates using conventional mediation approaches (Hayes, 2013). The approach is mentioned as a way to avoid power problems caused by asymmetries and other non-normality issues associated with directly estimating indirect effects (Shrout and Bolger, 2002).

Table 1. Means, SDs, range (minimum–maximum), *r*WG, ICC(1), ICC(2), and correlation matrix of study's variables.

	<i>M</i> (<i>SD</i>)	Minimum	Maximum	<i>r</i> WG	ICC(1)	ICC(2)	1	2	3	4	5	7	8
1 Internal activities	4.22 (0.40)	3.13	4.94	0.89	0.28	0.55	1	0.74***	0.23*	0.25*	–0.15	0.25*	–0.26**
2 External activities	4.20 (0.38)	2.89	5.00	0.92	0.25	0.51		1	0.10	0.21*	–0.17	0.26*	–0.18 ⁺
3 SMT effectiveness—team performance	4.27 (0.52)	2.67	5.00						1	0.46***	–0.18*	–0.01	–0.19
4 SMT effectiveness – team innovation	3.81 (0.65)	2.40	5.00							1	–0.12	0.04	–0.13
5 School violence	1.36 (0.21)	1.02	2.07	0.97	0.26	0.61					1	–0.03	0
7 Team size	5.77 (1.90)											1	–0.06
8 Principal's gender	1.14 (0.35)												1

Note: *N* = 92. Gender was coded 1 = Female; 2 = Male.

M: mean; *SD*: standard deviation; *ICC*: intra-class correlation; *r*WG: interrater agreement; SMT: school management team.

⁺*p* < 0.1; **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

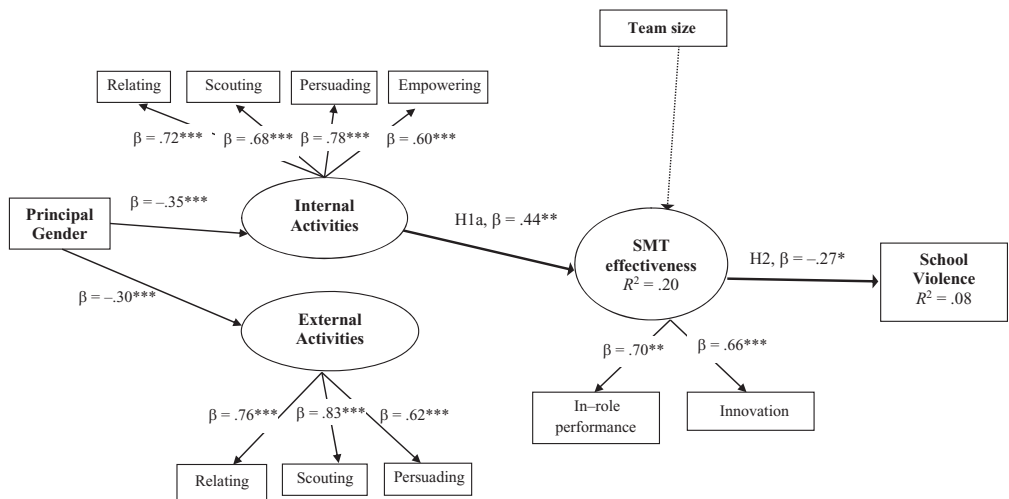


Figure 2. SEM results for the proposed model – full mediation Model 1. Standardized parameter estimates for the theoretical model; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ($c2/df = 1.18$; $c2(48) = 56.64$; $CFI = 0.974$; $TLI = 0.964$; $IFI = 0.975$; $RMSEA = 0.044$). SEM: structural equation modeling; SMT: school management team; df : degrees of freedom; CFI : Confirmatory Factor Analysis; TLI : Tucker Lewis index; IFI : Incremental Fit index; $RMSEA$: Root Mean Square Error of Approximation.

Results

Table 1 presents the means, SD, intercorrelations matrix, rWG, and ICC for all key variables included in the analysis.

Hypothesis test and overall model fit

The SEM in Figure 2 summarizes the hypothesized fully mediated model. The results of Model 1 (full mediation) showed a good fit to the data ($c2/df = 1.18$; $c2(48) = 56.64$; $CFI = 0.974$; $TLI = 0.964$; $IFI = 0.975$; $RMSEA = 0.044$). The fit of the proposed hypothesized model (Model 1) was compared against a competitive model to see if it offered significant gains in explanatory power; a partially mediated model for school violence was used (Model 2). Specifically, the proposed alternative model, Model 2, tested a possible direct effect between internal activities and school violence. This alternative model—the partial one (Model 2)—showed goodness-of-fit indices ($c2/df = 1.16$; $c2(47) = 54.83$; $CFI = 0.976$; $TLI = 0.967$; $IFI = 0.978$; $RMSEA = 0.043$); however, the difference in fit was not significant ($\Delta\chi^2(1) = 1.81, p > 0.10$). These results suggested that the fully mediated model (Model 1) fits the data better than the partially mediated model (Model 2).

In the present study, team size and principal gender were used as control variables in testing all the hypotheses. The control variable of principal gender was significant. Internal activities explained 20% of variance in SMT effectiveness and SMT effectiveness explained 8% of the variance in school violence. Findings (see Figure 2) showed that internal activities were positively correlated to SMT effectiveness ($\beta = 0.44, p < 0.01$), confirming Hypothesis 1a. However, no significant relationship was found between external activities and SMT effectiveness, which is not

Table 2. Result of SEM and bootstrapping for predicting the relationship of internal activities to SMT effectiveness (mediator) on school violence (outcome variable).

Mediation pathway	Bootstrapping				
	X-M	M-Y	Mediation	Confidence interval	
	Path <i>a</i>	Path <i>b</i>	effect	upper	lower
Internal activities → SMT effectiveness → School violence	0.44**	−0.27*	−0.28*	−0.01	−3.66

* $p < 0.05$; ** $p < 0.01$.

SEM: structural equation modeling; SMT: school management team.

in line with Hypothesis 1b. Regarding the relationship between SMT effectiveness and school violence (Hypothesis 2), the findings indicate that SMT effectiveness was negatively correlated to school violence ($\beta = -0.27$, $p < 0.05$), confirming Hypothesis 2.

According to Hypothesis 3, SMT effectiveness will serve as a mediator in the relations of principal internal and external activities to school violence. Only the indirect path (internal activities – SMT effectiveness – school violence) proved significant, in line with Hypothesis 3a, with SMT effectiveness fully mediating the relationship of internal activities and school violence. As mentioned above, to provide a more rigorous test of whether the mediated effect found in the model was statistically significant, bootstrap analyses were performed (Shrout and Bolger, 2002). The indirect effect of internal activities via SMT effectiveness on school violence was -0.28 (lower bound = -3.66 , upper bound = -0.01 , $p = 0.041$) confirming the results (Table 2).

Discussion

Feeling safe in school has become a major issue throughout the world, and research has shown that a feeling of safety is a fundamental requirement for effective teaching and learning (Fernet et al., 2012; O'Malley et al., 2015). The call for a more holistic approach to cope with school violence (Berkowitz, 2014; Cohen et al., 2009) motivated the present study by showing the importance of exploring the relationship of context and school outcomes from a team-based perspective. The present model postulated that effective teamwork at the management level would affect school violence. Specifically, the present model examined the mediating role of SMT effectiveness in the relationship of the organizational-level factors of principals' internal and external activities with regard to school violence.

First, the findings presented herein provide support for the proposed linkages in the model and support the proposition that principals' internal activities of building team trust, promoting senior member empowerment, and strengthening internal team cooperation and cohesion, all contribute to SMT effectiveness. Furthermore, the findings showed that SMT effectiveness is a mechanism that mediates between the principal internal activities and school violence. Overall, these research findings suggest that effective SMT work can provide structures to facilitate interconnectedness and interdependency within schools and the practices necessary for knowledge exchange, creating a more lateral flow of information that can contribute to the reduction of school violence (Gregory et al., 2012). An improved information flow can facilitate a shared cognitive system among school

faculty, promoting an open exchange of opinions that can contribute to the SMT's ability to positively address student cognitive and behavioral issues.

These results provide additional support to previous research that has argued for reorganizing schools into professional networks of relationships when dealing with school violence issues. These previous researches have shown how faculty relationships, among other things, can influence the levels of school violence (Eliot et al., 2010; Mitchell et al., 2018). According to the social network perspective, the patterns of interactions within social units strongly influenced individual attitudes and behaviors (Kilduff and Krackhardt, 2008). Because they tend to enhance the exchange of knowledge, positive social interactions among SMT members can enhance the ability of the SMT to operate as a platform for knowledge sharing and improved social relationships in schools for reducing school violence. Knowledge sharing and social relationships are important mechanisms for teacher innovation and school development, and the SMT seems to be a good vehicle to enable the enlargement of overlapping knowledge. These findings deepen our understanding of the importance of SMT effectiveness in relation to school violence.

Second, analysis also showed that principals' internal activities were positively correlated to SMT effectiveness. However, external activities were not correlated to SMT effectiveness. This finding was surprising but might be explained by the functional structure of the SMT. A SMT typically consists of senior personnel such as the principal, assistant principals, and other key school officials. In the present sample, the average SMT was composed of grade-level coordinators, school counselors, deputy heads, and educational advisors. These members frequently interact with internal stakeholders (e.g., other teams within the school) and external stakeholders (Paisley and Milsom, 2006). In this regard, research indicated that middle-leaders and school counselors work with school faculty, cooperate with parents, and engage with school district representatives to implement school-level reforms (Somech and Naamneh, 2017). Consequently, as the SMT members are likely to actively maintain a connection with external stakeholders seeking external resources and information, this may not create a need for the principal to engage in external activities.

With respect to the positive relationship between internal activities and SMT effectiveness, these results are in line with previous research indicating that principals play a critical role in building, supporting, and improving SMT teamwork and processes (Barnett and McCormick, 2012; Bush and Glover, 2012). Internal activities directed at building team trust enhance senior teachers' readiness to openly share their expertise and knowledge, promoting SMT effectiveness (Tschannen-Moran, 2014). This can be especially important because SMT members may also be involved in management decisions on behalf of other faculty members (Harris, 2013), and may face tension between team goals and functional priorities. This situation can create tension between the team member's identity and responsibilities as an individual and his or her role as a member of the SMT or a disciplinary or grade-level team (Li et al., 2013). In this type of situation, the principal can play a constructive role by stepping in to reduce biases among members and to enhance willingness to consider the contributions of diverse members. Perhaps an emphasis on internal activities promotes the cohesion and the formation of a common team identity that helps maintain a tight boundary around the team, enabling senior members to achieve a higher level of effectiveness.

Finally, the research findings showed that internal activities are positively related to SMT effectiveness, which in turn is negatively related to school violence. These results align with the argument by Bush (2011) and Bush and Glover (2012), that high performing leadership teams enhance "leadership density," and influence faculty staff and students as much as a principal alone

would do. It seems that although the responsibilities of SMT members include managerial responsibility, they are also in direct contact with students, and are able to rapidly identify both academic and social issues that can affect student disruptive behaviors and school violence (Hernandez and Seem, 2004). For example, some SMT members such as subject coordinators and educational advisors can better identify student issues, while others such as school counselors can take the information and create interventions when necessary to cope with school violence issues (Canady et al., 2012). These findings provide additional support for a distributive approach to leadership (Bush and Glover, 2014) where the SMT plays a significant role in enhancing school outcomes and reducing school violence.

Limitations and future studies

Several limitations of the study warrant further attention in future research. First, the data was self-reported and therefore subject to bias. However, previous research suggests that self-reported data is not as limited as previously believed, and people often accurately appraise their social environment (Alper et al., 1998). Second, the cross-sectional design of the present study raises the issue of causality. The data cannot provide direct evidence of causal links between internal and external activities and SMT effectiveness. Conceivably, the causal order could be reversed. Nor can reciprocal causality be ruled out. Future research should use longitudinal designs to further validate the causal inferences suggested in the current study. Third, the effect size of the overall model is rather small. These methodological limits may call for caution in generalizing conclusions. The results need to be replicated and confirmed in a future study to a larger sample, to gain a deeper understanding of the role of SMT effectiveness as a mediator on the relationship of principals' boundary activities to school outcomes and school violence. Finally, this study examined only selected antecedent and outcome variables. Future studies should extend the inquiry to additional antecedents of school violence. School climate, for example, is another antecedent to school violence (Alavi and McCormick, 2004). As for school outcomes, of course, the value of schools' educational quality is broader; thus, a comprehensive value-added framework for school evaluation also needs to encompass measures related to numerous other aspects of a school's mission, processes, and outcomes. Future studies should examine school outcomes by utilizing both quantitative and qualitative approaches.

Managerial implications

Evidence has emphasized not only the importance of a team-based approach to school management and school violence issues, but also the fact that SMTs are becoming key actors in reducing school violence. Team-based organizational structures in schools reflect the widely shared democracy and pragmatic belief that distributive leadership through teamwork offers the potential to achieve outcomes that cannot be achieved by individuals working in isolation (Bush, 2011). The present results may offer insights into how principal's boundary activities affect SMT effectiveness and how SMT effectiveness can influence school violence levels. The present study may therefore have implications for policies involving the design and implementation of leadership skills and practices. Because effective school functioning in reducing violence is predicated on team characteristics, understanding leadership activities that enhance SMT effectiveness is an important question for school managers. The main implication to be drawn from the present research is that to deal with school violence by focusing exclusively on the phenomena is not

sufficient; a work environment that encourages teamwork and facilitates knowledge exchange and social relationships can provide a mechanism to reduce students' disruptive behaviors.

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