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High School Teachers' Openness to Adopting New Practices: The Role of Personal Resources and Organizational Climate

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Abstract

Although evidence-based practices for students' social, emotional, and behavioral health are readily available, their adoption and quality implementation in schools are of increasing concern. Teachers are vital to implementation; yet, there is limited research on teachers' openness to adopting new practices, which may be essential to successful program adoption and implementation. The current study explored how perceptions of principal support, teacher affiliation, teacher efficacy, and burnout relate to teachers' openness to new practices. Data came from 2,133 teachers across 51 high schools. Structural equation modeling assessed how organizational climate (i.e., principal support and teacher affiliation) related to teachers' openness directly and indirectly via teacher resources (i.e., efficacy and burnout). Teachers with more favorable perceptions of both principal support and teacher affiliation reported greater efficacy, and, in turn, more openness; however, burnout was not significantly associated with openness. Post hoc analyses indicated that among teachers with high levels of burnout, only principal support related to greater efficacy, and in turn, higher openness. Implications for promoting teachers' openness to new program adoption are discussed.

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Compliance with Ethical Standards

Conflict of Interests: The authors declare that they have no conflict of interest. **Ethical Approval:** All procedures were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. **Informed Consent:** The analysis of the non-identifiable data was approved by the researchers' Institutional Review Board.

Keywords

openness to new practices; school organizational climate; efficacy; burnout; structural equation modeling

Schools represent an important system of care, yet dissemination and implementation of evidence-based practices (EBPs) and preventive interventions in schools are highly variable (Domitrovich et al., 2008; Han & Weiss, 2005). Although EBPs for a wide range of behavioral, social, and emotional difficulties (e.g., Positive Behavior Interventions and Supports) are readily available across grade levels, issues with adoption and implementation are a significant concern (Bradshaw, Debnam, et al., 2014; Domitrovich & Greenberg, 2000; Elias, Zins, Graczyk, & Weissberg, 2003; Spoth et al., 2013). Thus, there has been an increase in research focused on identifying factors to improve program implementation and effectiveness (Aarons, Farahnak, & Ehrhart, 2014; Domitrovich et al., 2008), with particular interest in the role of teachers. In fact, research suggests that the extent to which teachers are open and willing to try new practices generally, and EBPs in particular, may be one essential implementation precursor (Aarons, 2004). Specifically, teachers' lack of openness to adopting new practices may serve as a barrier to effective implementation; however, it may be possible to screen teachers to identify those who may be most resistant to the adoption of new practices, including EBPs, and provide coaching supports to increase their support for the innovation (Aarons, 2004; Beets et al., 2008; Han & Weiss, 2005). Moreover, teachers' level of openness is particularly important, given the revolving door of interventions in schools, as this has created increased perceived burden and resistance to EBPs (Han & Weiss, 2005).

Having a better understanding of factors that influence teachers' openness to adopting new practices may improve both high quality implementation of interventions as well as broader dissemination of EBPs (Aarons, 2005; Aarons et al., 2014). The current paper builds on prior research suggesting that individual factors as well as organizational readiness may be predictors of teachers' openness to implementing new practices (Aarons, 2005; Aarons et al., 2014). Specifically, we examined the extent to which teacher perceptions of the schools' organizational climate (i.e., principal support and teacher affiliation) and personal resources (i.e., efficacy and burnout) were associated with high school teachers' openness to adopting new practices.

Openness to Adopting New Interventions

Researchers have proposed that the implementation of interventions follows a stage-based process, which includes creating readiness, initial implementation, institutionalization, and ongoing evaluation (Adelman & Taylor, 1997). Related research by Aarons (2004, 2005) has identified four domains relating to the adoption of EBPs within the therapeutic setting, including appeal, requirements to adopt, openness to innovative practices, and perceived divergence. Akin to stakeholder buy-in, the openness domain is of particular interest because it pertains more to the implementer than the other three adoption domains, and thus may be malleable as well as applicable to the field of education (Aarons, 2005; Beets et al., 2008; Domitrovich et al., 2008; Han & Weiss, 2005).

Much of the research on openness to adopting EBPs has been conducted in non-education fields (e.g., business settings, mental health services; Aarons & Sawitzky, 2006), but is likely also relevant to teachers. Teachers' openness is particularly important, given that teachers have ready access to students and are typically the primary implementers of interventions in schools (Beets et al., 2008; Han & Weiss, 2005). Thus, similar to mental health clinicians, teachers' beliefs, decisions, and actions greatly influence whether and how an EBP is implemented (Domitrovich et al., 2008). Having a better understanding of factors that relate to their openness would inform our understanding of adoption precursors and possible targets for promoting intervention adoption readiness, with the ultimate goal of informing how to improve the adoption of EBPs in schools. Related research has explored teacher and school factors that influence intervention implementation quality (Beets et al., 2008; Domitrovich et al., 2015; Han & Weiss, 2005; Pas, Bradshaw, Hershfeltdt, & Leaf, 2010) and that may relate similarly to teachers' openness to implementing new practices. Further, much of the implementation research has been conducted in elementary and middle schools. Although it is likely that similar patterns exist among teachers of upper grade levels, our current focus on high school teachers is an extension of prior empirical research.

Theoretical Frameworks

Several theories seek to explain how organizational conditions of the workplace contribute to employees' personal resources, as well as intrinsic motivation and engagement, and thus openness to implementation. For instance, self-determination theory posits that school conditions meeting teachers' needs for relatedness, competence, and autonomy will enhance teachers' engagement with interventions (Ryan & Deci, 2000). Thus, teachers who feel connected to peers, feel effective in meeting teaching goals, and feel respected by supervisors are likely more engaged in teaching and in making a meaningful difference for students (Ryan & Deci, 2000). Self-determination theory further highlights the importance of considering both the contribution of organizational climate and personal factors on teachers' engagement with and openness to implementation. Notably, when considering the association between organizational climate and personal factors, it has been suggested that organizational conditions can enhance or diminish teachers' personal resources. For example, the Fuller framework (1982) suggests that teachers' efficacy is improved by structural conditions such as caring relations among teachers as well as feeling supported by administrators (Fuller, Wood, Rapoport, & Dornbusch, 1982; Hoy & Woolfolk, 1993). Similarly, burnout, another important personal resource, promotes disengagement as demonstrated by the job demands-resources model, which describes how exhaustion and disengagement from work can result from stressful job demands and a lack of external and internal resources (e.g., supervisor support, colleague support; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). We leveraged these theoretical frameworks to guide the current study to examine the role of both teacher resources and organizational climate on teachers' openness to new practices. Further, we considered the interplay between these school organizational and personal resources.

The Role of Teacher Resources: Efficacy and Burnout

Teachers' efficacy and burnout have been identified as personal resources that significantly contribute to implementation fidelity (Domitrovich et al., 2008) as well as to teacher outcomes (e.g., Klassen & Chiu, 2011; Pas et al., 2010). Teacher efficacy reflects a personal belief in one's own ability to execute the tasks required by their job (Bandura, 1977) and to create an adequate learning environment (Gibson & Dembo, 1984). There is evidence that higher teacher efficacy is related to use of new strategies and greater persistence (Allinder, 1994; DeForest & Hughes, 1992; Gibson & Dembo, 1984; Ryan & Deci, 2000). For instance, upper grade teachers with high efficacy have been described as pursuing new challenges and possessing a determination to complete tasks successfully (Evers, Brouwers, & Tomic, 2002). Alternatively, when teachers are faced with challenges that they do not feel equipped to handle (e.g., experiencing low efficacy), they may feel less inclined to take on new challenges (e.g., implementing an unfamiliar practice or EBP).

Burnout results from work-related stressors and is comprised of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). The negative emotions and attitudes related to burnout can result in reduced teacher performance and apathy (Demerouti et al., 2001; Huberman, 1993; Maslach, Schaufeli, & Leiter, 2001). Similarly, teachers with higher burnout demonstrate negative attitudes towards and less willingness to implement new practices (Bibou-Nakou, Stogiannidou, & Kiosseoglou, 1999; Evers et al., 2002).

Teachers' efficacy and burnout are interrelated and likely reciprocal (Brouwers & Tomic, 2000; Skaalvik & Skaalvik, 2010). Some conceptual models suggest that low self-efficacy may lead to burnout, such that burnout is actually "a crisis in self-efficacy" (Leiter, 1992). This process may occur among teachers who recognize the importance of competence, but lack confidence in their ability (Brouwers & Tomic, 2000; Friedman & Farber, 1992; Leiter, 1992). Thus, teachers who experience a low level of mastery may feel additional stress and burnout (Chwalisz, Altmaier, & Russell, 1992; Friedman & Farber, 1992). Alternatively, teachers experiencing emotional exhaustion are likely to exhibit less capacity to teach well, which then may contribute to a decline in self-efficacy (Brouwers & Tomic, 2000). These possible reciprocal relationship patterns between teaching efficacy and burnout as well as their similar relations with school organizational climate suggest that they may function similarly when examining openness thus signifying a need to consider their interrelatedness with one another.

The Role of School Organizational Climate

Examining the role of teachers' perceptions of a school's organizational climate is also necessary in understanding teacher resources as well as openness to adopting new practices (Aarons, 2005; Aarons et al., 2014; Fuller et al., 1982). Principals are curriculum "gatekeepers" and set priorities for the school and thus likely impact teachers' attitudes towards new practices (Hallinger & Heck, 1996; Han & Weiss, 2005). The leadership and support that principals provide is one key element of the organizational climate (Hoy & Fedman, 1987; Hoy & Hannum, 1997). The extent to which teachers feel supported directly

influences teachers' efficacy to achieve tasks as well as efforts and motivations to implement new practices (Fuller et al., 1982; Gottfredson & Gottfredson, 2002; Han & Weiss, 2005; Ryan & Deci, 2000). Not surprisingly, various studies across all grade levels have linked principal support to implementation fidelity and outcomes (Kam, Greenberg, & Walls, 2003; Payne, Gottfredson, & Gottfredson, 2006). Similarly, principal support is likely an important contributor to teachers' openness to new practices; their prioritizing (or requiring) of implementation is one of the adoption-relevant domains discussed by Aarons (2005). Principal support may further create intrinsic motivation through shared staff norms and feelings of efficacy, which in turn promotes openness (Aarons, 2005; Brimhall et al., 2015; Fuller et al., 1982). It is possible that teachers who perceive their principal's support are more motivated and open to taking risks to improve instructional quality, thus making them more open to adopting new practices or specifically EBPs. On the other hand, if teachers feel unsupported by their principal, they may view any new practices less favorably.

Another component of a positive and healthy school climate is teacher affiliation or the level of connectedness and collaboration amongst teachers (Beets et al., 2008; Hoy & Fedman, 1987; Hoy & Hannum, 1997). Research suggests that teachers who help and support each other feel empowered, develop collective efficacy, and are therefore more eager to learn and improve (Fuller et al., 1982; Goddard, Hoy, & Hoy, 2000; Ryan & Deci, 2000). Teachers who report more collaboration also show a higher level of commitment to the school and report greater efficacy (Collie, Shapka, & Perry, 2012). As a result, they may be more likely to devote necessary time and effort to help students. Further, teacher affiliation suggests trust among peers, which includes an openness to adopt interventions that peers support (Landrum, Cook, Tankersley, & Fitzgerald, 2002).

Current Study

Prior research suggests that teachers' openness to adopting new practices is likely shaped by both teacher (i.e., efficacy and burnout) and school contextual (i.e., principal support and teacher affiliation) factors. Complicating the situation is the likelihood that these factors are also interrelated with one another. For example, prior research suggests that perceptions of principal support and teacher affiliation influence teachers' feelings of efficacy and burnout (Hoy & Woolfolk, 1993; Pas, Bradshaw, & Hershfeldt, 2012). These findings highlight the importance of jointly exploring their associations with openness. The current study leveraged baseline data from a large-scale trial of a multi-tiered system of supports framework in 51 high schools (Bradshaw, Debnam, et al., 2014). We were particularly interested in whether principal support and teacher affiliation were related to teachers' ratings of openness to adopting new practices, directly and indirectly via associations with efficacy and burnout. We hypothesized that principal support, teacher affiliation, burnout, and teacher efficacy would be significantly associated with teachers' reported openness to new practices. Furthermore, we hypothesized that both efficacy and burnout would similarly impact the relationships between perceptions of organizational factors and openness (e.g., Demerouti et al., 2001; Hoy & Woolfolk, 1993; Pas et al., 2010). We controlled for teacher demographics, as prior research has demonstrated the associations between these factors and openness (e.g., Aarons, 2005) and the predictor variables of interest in the current study (e.g., Hultell, Melin, & Gustavsson, 2013; Klassen & Chiu, 2011; Purvanova & Muros,

2010). The findings of this study have potential implications for research and practice with regard to the dissemination and implementation of interventions, and ultimately EBPs, in schools and provide insight into potential targets to promote readiness and adoption by teachers.

Method

Participants

Data for this study were collected from 2,133 general and special education teachers across 51 high schools in 12 school districts in Maryland. These data were collected as a baseline measure of a large-scale trial of a multi-tiered system of supports framework to promote positive student behavior in high schools (Bradshaw, Debnam, et al., 2014). Participating schools included a diverse student population with a minority rate of 43% ($SD=25.09$) and mean student enrollment of 1,294.08 ($SD=474.25$). Approximately two thirds of the teachers were female and the majority was White. The ages of the teachers were evenly distributed across the age ranges of 20 to 60 years. The majority of the teachers was general education teachers, has been teaching more than 4 years, and was teaching multiple grade levels. See Table 1 for additional teacher demographic characteristics.

Procedure

Teachers completed the *Maryland Safe and Supportive Schools (MDS3) School Climate Survey* (Bradshaw, Debnam, et al., 2014; Bradshaw, Waasdorp, Debnam, & Johnson, 2014) during spring baseline and for three annual spring follow-ups to examine changes in school climate over time. The data for this study are from the baseline data collection. Recruitment was conducted first at the district level by the State Department of Education. Once a district enrolled, school principals were approached with information about the study and asked to sign letters of commitment to participate in the study when interested. Teachers within all participating schools were notified that they would have the opportunity to complete an anonymous survey regarding the school climate and their own experiences and perceptions. The survey was administered through a secure, password-protected website. The data collection was anonymous, voluntary, and confidential. The analysis of the non-identifiable data was approved by the researchers' Institutional Review Board.

Measures

All teachers at participating schools were given the opportunity to complete the *MDS3 School Climate Survey* (Bradshaw, Waasdorp, et al., 2014). The survey was developed by the Johns Hopkins Center for the Prevention of Youth Violence in collaboration with project partners to assess perceptions related to school climate. All measures were based on previously-published measures, some of which needed to be adapted or abbreviated given the scale of the project (for details, see Bradshaw, Debnam, et al., 2014). All scale response options in the current study were on a 4-point Likert scale from *strongly disagree* to *strongly agree*. All scales were calculated by averaging the relevant item responses. Alphas from the current study are reported below.

Openness to adopting new practices—Teachers rated their level of openness to adopting new practices and willingness to use structured and/or manualized interventions through four items. Items were adapted from the openness to innovative practices domain of the Evidence-Based Practice Attitude Scale (Aarons, 2004). Items included “If I received training in an intervention or practice that was new to me, I would likely adopt,” “I am willing to try new types of programs, interventions, and classroom practices, even if I have to follow a program manual,” “I would not use a manualized intervention or practice” (reverse coded), and “If I received training in an intervention/practice that was new to me, I would likely adopt it if it was being used by colleagues who were happy with it.” Higher scores indicated more openness ($\alpha = .65$).

Teacher efficacy—Teachers provided perceptions of their ability to handle student behavior problems on four items. These four items were adapted from the Teacher Efficacy Scale (Hoy & Woolfolk, 1993), and included “I can manage almost any student behavior problems.” The format of the items was changed from questions to statements and slight wording adjustments were made; fewer items are included than on the original Teacher Efficacy Scale. This adapted scale was used in another randomized controlled study (see Bradshaw, Pas, Goldweber, Rosenberg, & Leaf, 2012). Higher scores reflected greater self-efficacy ($\alpha = .82$).

Professional burnout—Teacher perceptions of burnout were measured using 4 items from the emotional exhaustion scale from the Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1996). The items were “I feel like I am at the end of my rope,” “I feel burned out from my work,” “I feel emotionally drained from my work,” and “I feel used up at the end of the work day.” Higher scores indicated more teacher burnout ($\alpha = .90$).

School organizational climate—Teacher perceptions of the school organizational climate were assessed using two scales from the Organizational Health Inventory (Hoy & Fedman, 1987). Six items measured teachers’ assessment of principal support (e.g., “The principal at this school lets faculty and staff know what is expected of them”; $\alpha = .93$). Four items assessed teachers’ perceptions of teacher affiliation (e.g., “There is a feeling of trust and confidence among the staff”; $\alpha = .91$). Higher scores reflected more principal support and teacher affiliation.

Teacher demographics—Participating teachers responded to a series of questions regarding their basic demographic characteristics, including gender and age. With regard to age, participants endorsed one of five age categories (see Table 1). Participants were also asked to report on their race/ethnicity. Additionally, participants were asked to report on their role in the school (general education, specialized course [e.g., music, art, gym], or special education), and select from four categories reflecting years of tenure in current role (1st year, 1–3 years, 4–8 years, 9 or more years).

Overview of Analyses

After computing basic descriptive and correlational analyses, we conducted latent variable structural equation modeling (SEM; Bollen, 1989) in Mplus 7.3 (Muthén & Muthén, 1998–

2014) to test our primary hypotheses. First, a measurement model of the five constructs assessed (i.e., principal support, teacher affiliation, efficacy, burnout, and openness) was fit using a confirmatory factor analysis in Mplus. Model fit indices included the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). For RMSEA, a value of less than 0.06 indicate a good fit (Hu & Bentler, 1999). For the CFI and TLI, a value of 0.90 or higher is considered acceptable fit (Bentler & Bonett, 1980), with those closer to 0.95 considered to be a well-fitting model (Hu & Bentler, 1999). All items had ordinal response categories and therefore WLSMV (weighted least squares mean- and variance- adjusted) estimation was applied. The level of missing data was minimal; 78% of teachers had complete data, 13% were missing one item, 8% were missing 2 to 5 items, and less than 2% were missing more than 5 items. In total, there were 22 items included in these analyses. A pairwise present approach was used to estimate scores for teachers with missing information by using all teachers with observations on a pair of variables (Muthén & Muthén, 1998–2014); thus missing data on variables were excluded for specific estimates but 2,130 (99.9%) of teachers were retained in the analyses.

After confirming the fit of the measurement model, we conducted an SEM in which ratings of openness was the outcome variable of interest, and efficacy, burnout, principal support, and teacher affiliation were the predictor variables; the indirect effects of the organizational climate factors, by way of their influence on efficacy and burnout, were also modeled (see Figure 1). Based on literature demonstrating the interrelatedness of efficacy and burnout (e.g., Leiter, 1992), these variables were allowed to covary. Mplus utilizes the multivariate delta method to test the indirect effect for significance (Bishop, Fienberg, & Holland, 1975). The same fit indices described above were utilized. All analyses accounted for the clustering of teachers within schools by applying the *complex* approach, which estimates the model for the whole sample, correcting for possible inflation of estimated standard errors caused by the clustering of teachers within schools. We used this approach because teachers were nested within school and school-level contextual factors were of interest, despite the low intra-class correlation (ICC = 0.013). Standardized coefficients are reported. The SEM included teacher demographic variables (gender, race, age, role, and years in role) as covariates influencing reported openness as well as efficacy and burnout. Gender was coded as female = 0 and male = 1. Given the relatively small sample of non-White teachers (see Table 1), we coded race/ethnicity as non-White = 0 and White = 1. The age, role, and number of years in role data were dummy-coded; 60 years or older (age), general education teacher (role), and 9 or more years (years in role) served as the reference groups.

Results

Descriptive Analyses

Prior to fitting the latent variable model, we computed the means, standard deviations, and correlations for each variable (see Table 2). Perceptions of principal support and teacher affiliation were moderately correlated with each other ($r = .58, p < .001$). Further, both variables were correlated with efficacy and burnout (r s range from .17 to .41, all p s $< .001$); teachers with positive school organizational climate ratings reported greater efficacy and lower burnout. There also was a significant correlation between efficacy and burnout ($r = -$.

28, $p < .001$). Lastly, all variables were significantly correlated with reported openness to new practices (r s range from $-.12$ to $.21$, all p s $< .001$). These correlations reflect small to moderate associations.

Latent Variable Structural Equation Model

Measurement model—A confirmatory factor analysis was performed to evaluate the five factors (teacher affiliation, principal support, efficacy, burnout, openness). Results indicated a good fit (RMSEA = .041, CFI = .984, TLI = .982) with factor loadings ranging from .41–.95.

Direct Effects—Results indicated this model fit the data well (RMSEA = .025, CFI = .987, TLI = .985). Principal support ($\beta = 0.194$, $p < .001$), teacher affiliation ($\beta = 0.063$, $p = .033$), and efficacy ($\beta = 0.195$, $p < .001$) had a direct effect on self-reported openness, while the direct effect of burnout was non-significant. The direct effects of principal support and teacher affiliation on efficacy ($\beta = 0.248$, $p < .001$; $\beta = 0.079$, $p = .017$, respectively) and burnout ($\beta = -0.305$, $p < .001$; $\beta = -0.192$, $p < .001$, respectively) were also significant.

Indirect Effects—Both of the indirect effects of principal support and teacher affiliation through efficacy were significant ($\beta = 0.048$, $p < .001$; $\beta = 0.015$, $p = .021$, respectively). Teachers with higher perceptions of principal support and teacher affiliation reported higher levels of efficacy, and, in turn, higher ratings of openness. Neither of the indirect effects through burnout was significant. The effects presented here controlled for demographic variables (see Table 3 and Figure 1 for full results).

Associations between demographics with openness—Some significant relations between demographic factors and ratings of openness emerged. Men reported less openness to new practices than women. Teachers with the most experience (i.e., nine or more years) reported less openness than all other teachers. Role, age, and race/ethnicity were not significantly related to ratings of openness. See Table 3 for these covariate findings.

Post Hoc Analyses

The established interrelatedness between efficacy and burnout as suggested by their significant correlation in the current study and as found in previous literature guided the hypothesis that both would similarly be associated with teachers' ratings of openness. However, burnout did not demonstrate a significant direct or indirect relationship with teachers' reported openness to adopting new practices when efficacy was included in the model. Thus, post hoc analyses were conducted to further examine the lack of findings related to burnout and our post hoc hypothesis that for teachers with high burnout, their openness would be less influenced by school organizational factors than teachers with low burnout. Specifically, we removed burnout as a non-significant predictor and instead examined whether teachers' level of burnout moderated the indirect relationship between efficacy and openness that was revealed in the original analyses. We created a dichotomous variable for burnout (i.e., 0 = low and 1 = high) using the response scale of 1 to 4. Teachers with a score of 1.00–2.49 (i.e., showing that they, on average, disagreed with the burnout statements) were coded as low burnout and those with a score of 2.50–4.00 were coded as

high burnout (i.e., on average, they reported agreeing with the burnout statements). Prior to fitting this post hoc model, we conducted invariance testing of the full measurement model (i.e., configural, metric, and scalar; Chen, 2007; Meredith, 1993) across the two groups of high and low burnout teachers. The difference between the fit indices for the models was used to evaluate noninvariance using the following criteria: a decrease in CFI of at least 0.010 and an increase in RMSEA of at least 0.015 or an increase in SRMR of at least 0.01 (Chen, 2007; Meredith, 1993). Analyses confirmed configural, metric, and scalar invariance across the low and high burnout groups. Having this confirmation, we were comfortable comparing the paths between teachers with low and high burnout.

We fit the SEM model separately for teachers with low and high burnout (see Figure 2). Results from these post hoc analyses indicated that this model also fit the data (RMSEA = .029, CFI = .988, TLI = .987). For teachers with low levels of burnout, the findings were similar to the a priori model. Specifically, principal support and teacher affiliation continued to demonstrate direct effects on reported openness ($\beta = 0.183, p < .001$; $\beta = 0.126, p = .010$, respectively) and were directly related to efficacy ($\beta = 0.226, p < .001$; $\beta = 0.112, p = .025$, respectively). The direct effect of efficacy on ratings of openness was still significant ($\beta = 0.291, p < .001$). Again, the indirect effects of both principal support and teacher affiliation through efficacy were significant ($\beta = 0.066, p < .001$; $\beta = 0.033, p = .028$, respectively). In other words, for teachers with low levels of burnout, higher perceptions of teacher affiliation and principal support continued to be related to higher levels of efficacy, and, in turn, greater self-ratings of openness.

In contrast, for the high burnout group, only principal support had a direct effect on reported openness ($\beta = 0.176, p = .001$) and related to efficacy ($\beta = 0.182, p < .001$), whereas teacher affiliation was neither directly nor indirectly significant. Efficacy continued to relate to ratings of openness ($\beta = 0.093, p = .008$). Finally, only the indirect effect of principal support through efficacy was significant ($\beta = 0.017, p = .016$). Therefore, for teachers with high levels of burnout, only more positive perceptions of principal support were related to high levels of efficacy, and in turn, higher reported openness. The effects presented here controlled for demographic variables.

Discussion

Extant literature has examined variability in dissemination and implementation, as well as factors relating to implementation fidelity, highlighting the need for identifying modifiable pre-implementation factors (e.g., implementer openness to new practices). Specifically, there has been limited research examining how teachers' perceptions shape their level of openness to adopting new practices. This study aimed to fill this gap by focusing specifically on teachers and exploring the influence of teachers' school organizational climate and personal resource perceptions in relation to openness to adopting new practices. Teachers' ratings of their resources and school climate were all moderately intercorrelated as expected based on previous research and they had smaller associations with reported openness. The SEM results indicated a well-fitting model and that principal support, teacher affiliation, and teacher efficacy are significantly related to ratings of openness. Post hoc testing implied that

burnout may be an important variable to consider, and the interplay of burnout with efficacy may be of relevance.

Efficacy, but not burnout, was significantly related to teachers' level of openness. The findings regarding efficacy were consistent with our hypothesis that teachers' feelings of competence in their ability to meet job expectations would be linked with greater self-reported openness (Allinder, 1994; Evers et al., 2002; Ryan & Deci, 2000). In contrast, although burnout was expected to be negatively associated with openness, it was not when efficacy was also included in the model. Similarly, while perceptions of principal support and teacher affiliation were both related to efficacy and burnout, they were only associated with openness indirectly via efficacy. The associations between the organizational climate factors and teacher resources aligned with prior research highlighting the importance of teachers' perceptions of a healthy school climate in the development of teacher efficacy (Fuller et al., 1982; Hoy & Woolfolk, 1993), as well as the prevention of burnout (e.g., Demerouti et al., 2001). Further, the significant findings for principal support corresponds to literature evaluating implementers' openness to EBPs in related fields (Aarons, 2005; Brimhall et al., 2015; Han & Weiss, 2005), as well as the importance of principal support for implementation fidelity (e.g., Kam et al., 2003).

Due to the surprising non-significant burnout finding when efficacy was accounted for, despite the established interrelatedness of efficacy and burnout (Brouwers & Tomic, 2000; Leiter, 1992), post hoc analyses explored whether the school organizational climate variables and efficacy related to openness to new practices differently for teachers with a low versus high level of burnout. The findings of this model suggested that there may be fewer associations with openness for teachers experiencing higher levels of burnout. In other words, the association between school organizational factors and openness may vary for teachers depending on their level of burnout. Principal support was a key variable related to teaching efficacy and thus openness, and this held true regardless of teachers' level of burnout. On the other hand, teacher affiliation directly and indirectly related to openness through efficacy only for teachers with low levels of burnout. The more complex processes by which efficacy and burnout may interact and relate to openness are an area for additional research. Although these findings are exploratory, literature supports the possibility that peer support is not enough for those who are experiencing more burnout, and, that teachers experiencing burnout may rely on supportive principals to set standards and guidelines to foster openness (Littrell, Billingsley, & Cross, 1994; Rhodes, Camic, Milburn, & Lowe, 2009).

Study Limitations

Although the current study utilized data from 2,133 teachers in 51 high schools, the data reflect perceptions of high school teachers from one state and the sample lacked diversity in some demographic indicators. However, this lack of diversity among teachers is similarly reflected in national data (Goldring, Gray, & Bitterman, 2013). It is unknown whether similar patterns would emerge among K-8 teachers, particularly given the limited research in high school. Additional research on openness to new practices would benefit from replication of these analyses in other geographic locations with a more diverse teaching

force including both general and special education teachers, and with further examination of teacher demographic variables.

Another study design limitation is that the data were collected at only one time point, thereby preventing the evaluation of changes over the school year or the drawing of causal inferences. All of the data were collected through teacher self-report, and thus may have shared method variance; however, the best way to collect data on their openness to adopting new practices as well as efficacy and burnout is to ask teachers directly. The openness scale used in this study was an abbreviated version of a longer scale, which also had a lower alpha than has previously been observed (Aarons, 2004), and was not specific to new practices that are evidence-based though did ask specifically about manualized interventions. Finally, although research in other fields suggests that openness is likely an important precursor to implementation, implementation fidelity at the teacher level was not collected in the larger research study and therefore this outcome could not be examined.

Conclusions and Implications for Schools

The current study highlights the important relationship between school organizational climate and teacher resources with openness to adopting new practices. Specifically, principal support, teacher affiliation, and efficacy are the significant variables. Though burnout was not significant, the post hoc analyses imply it still may be an important factor to consider. These findings have several implications for mental health personnel and administrative leadership involved in the dissemination and implementation of EBPs within school settings. School administration should consider the role of both the broader organizational structure within schools and teachers' own personal resources, particularly efficacy, on teachers' openness to implementing new school programming. Teachers are part of a larger organization and the results from the current study corroborate other research regarding how teachers' attitudes and resources are reflective of the organization in which they work. Thus, it is important for administrators to assess both the school climate and teachers' resources to determine readiness and need for support. School administrators should be attuned to their influence on teachers' burnout, efficacy, and openness and leverage positive principal leadership to promote adoption of EBPs. Mental health providers within schools provide specific expertise into many of these constructs and they can support leadership in creating a more positive school environment. When perceived as more collaborative, approachable, and inclusive of teacher voice, principals create an environment in which teachers feel that they can adequately meet the demands of their job and, in turn, are more open to trying new practices. Finally, providing the infrastructure to assess such factors (e.g., assessment tools) is an important issue for local and state education agencies to address and for mental health providers to support through advocacy and technical assistance.

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Figure 1. Path diagram for direct and indirect effects on openness to adopting new practices. Standardized coefficients are depicted. Dashed lines represent an indirect effect. Model controls for demographic covariates. * $p < .05$, ** $p < .01$.

Figure 2. Post hoc path diagrams for direct and indirect effects on openness to adopting new practices. Standardized coefficients are depicted. Dashed lines represent an indirect effect. Both models control for demographic covariates. * $p < .05$, ** $p < .01$.

Table 1

Descriptive Information on Teacher Participants (N = 2,133)

Teacher Characteristics	N (%)
Gender	
Female	1362 (63.9)
Male	771 (36.1)
Age	
20–30 years	544 (25.5)
31–40 years	536 (25.2)
41–50 years	449 (21.1)
51–60 years	444 (20.8)
60+ years	157 (7.4)
Race	
White	1851 (86.8)
Black/African American	157 (7.4)
Hispanic/Latino	32 (1.5)
Asian/Pacific Islander	29 (1.4)
Native American/American Indian/Native Hawaiian	6 (.3)
Other	57 (2.7)
Teacher Role	
General Education Teacher	1864 (87.4)
Special Education Teacher	269 (12.6)
Grade	
9 th Grade	316 (14.8)
10 th Grade	269 (12.6)
11 th Grade	171 (8.0)
12 th Grade	147 (6.9)
Multiple Grades/Other	1230 (57.7)
Tenure in Role	
1st year	129 (6.1)
1–3 years	231 (10.8)
4–8 years	613 (28.8)
9 or more years	1158 (54.3)
Burnout	
Low	989 (46.7)
High	1130 (53.3)

Note. Low burnout represents teachers with an emotional exhaustion score of 1.00–2.49 and high burnout represents teachers with an emotional exhaustion score of 2.50–4.00.

Table 2

Descriptive Statistics of Study Variables

	Mean (SD)	1	2	3	4	5
1. Teacher Affiliation	3.00 (.61)					
2. Principal Support	2.92 (.75)	.58*				
3. Efficacy	3.01 (.55)	.17*	.23*			
4. Burnout	2.50 (.76)	-.36*	-.41*	-.28*		
5. Openness	3.05 (.42)	.15*	.21*	.16*	-.12*	

Note. All scale responses were a 4-point Likert scale from 1 to 4. Values in parentheses across the diagonal are coefficients of internal consistency (Cronbach alpha [α]) for each subscale).

* $p < .001$

Table 3

Standardized Path Coefficients for Structural Equation Model

Outcome Variable	Predictor Variable	Model	
		Estimate (SE)	P
Efficacy	Principal Support	0.248 (0.033)	<.001
	Teacher Affiliation	0.079 (0.033)	.017
Burnout	Principal Support	−0.305 (0.028)	<.001
	Teacher Affiliation	−0.192 (0.030)	<.001
Openness	Principal Support	0.194 (0.035)	<.001
	Teacher Affiliation	0.063 (0.030)	.033
	Efficacy	0.195 (0.024)	<.001
	Burnout	0.013 (0.023)	.578
	Male	−0.154 (0.023)	<.001
	White	0.008 (0.024)	.744
	20–30 years	−0.061 (0.045)	.177
	31–40 years	−0.012 (0.042)	.772
	41–50 years	−0.006 (0.044)	.899
	51–60 years	0.061 (0.038)	.108
	Special Education Teacher	0.056 (0.033)	.089
	1 st year	0.164 (0.030)	<.001
	1–3 Years	0.106 (0.033)	.001
	4–8 Years	0.122 (0.032)	<.001
	Indirect Effect (Efficacy → Principal Support)	0.048 (0.009)	<.001
	Indirect Effect (Efficacy → Teacher Affiliation)	0.015 (0.007)	.021
	Indirect Effect (Burnout → Principal Support)	−0.004 (0.007)	.579
	Indirect Effect (Burnout → Teacher Affiliation)	−0.002 (0.005)	.585

Note. Significant ($p < .05$) results are bolded. Age, role, and years as a teacher are all dummy coded; the excluded reference groups are 61 and older, general educator; and 9 or more years of experience, respectively. All demographic variables were also controlled for as covariates for efficacy and burnout.