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Exploring Factors Associated with District Approaches to Identifying and Supporting Student Social, Emotional, and Behavioral Needs

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Abstract

We explored factors associated with school approaches to identify and support student social, emotional, and behavioral needs. Hypothesized mediators of the relationship between district demographic characteristics and district academic and behavioral outcomes included district administrator perceptions of problems; use of a universal behavioral support program; primary approach to identifying and supporting student needs; and perceived usability of that approach. We found that district demographic characteristics were highly associated with nearly every other indicator, with potential that district leader knowledge and beliefs could serve as a lever to engaging in more preventive approaches.

Keywords: school-based preventive frameworks; social, emotional, and behavioral; district administrator

Exploring Factors Associated with of Approaches to Identifying and Supporting Student Social, Emotional, and Behavioral Needs

Collectively referenced as social, emotional, and behavioral domains of development, student success has been linked to how well they connect, feel, and act (Chafouleas & Iovino, 2021). Negative long-term consequences of unmet social, emotional, and behavioral needs are well documented. Student behavioral infractions, for example, have been associated with decreased academic achievement and an increased likelihood of school dropout (Noltemeyer et al, 2015). Additionally, students who are identified as having a disability involving emotional disturbance are more likely to have negative post-school outcomes when compared to both non-classified peers and those with other categories of disability (Wagner & Newman, 2012). Related research has suggested negative impacts not only for students who exhibit social, emotional, and behavioral problems but also for their peers and teachers (Chang, 2009; Walker et al., 1994). The relationship between student social, emotional, and behavioral functioning and a range of academic, disciplinary, and post-school outcomes underscores the need for solutions that support schools in the implementation of strategies to effectively and efficiently meet those needs. The purpose of this study was to understand the approaches taken by schools to identify and support student social, emotional, and behavioral needs, with focus on exploring factors associated with those choices.

Schools have been called upon to enact proactive and preventive approaches to addressing social, emotional, and behavioral needs, which includes providing timely access to quality supports that are delivered within coordinated systems. One framework that has been steadily promoted with education research and policy is multi-tiered systems of support, which provides structures for organizing, delivering, and evaluating student supports. Particularly

within the past decade, schools have increasingly adopted initiatives that utilize multi-tiered support frameworks to prevent and respond to student social, emotional, and behavioral needs (Flannery et al, 2018). A primary rationale for a shift is to proactively connect students to needed social, emotional, and behavioral supports, before problems escalate rather than emphasize services in reaction to more intense behavioral challenges (National Academies of Sciences, Engineering, & Medicine, 2019). As part of a proactive and preventive approach, schools are increasingly incorporating social, emotional, and behavioral screening to provide early identification of potential need and delivery of support before the needs become more intense and difficult to address. Over the past two decades, screening of social, emotional, and behavioral needs has become a recommended practice for school-based prevention frameworks (Herman et al, 2012). Building from surveillance methods used in public health, formative assessment practices such as screening and progress monitoring in schools can be used to monitor the prevalence and incidence of social, emotional, and behavioral needs, and adjust services accordingly. Screening assessment is a recommended component given that success of prevention frameworks requires timely data to inform decisions regarding whether core services are working as intended as well as which individual or groups of students may benefit from more intensive supports. Different screening approaches to identifying and supporting student needs have been used, ranging from a targeted approach such as use of an internal referral process to a universal approach that involves proactive opportunity for every student to be evaluated. Most typically, universal approaches involve procedures such as having teachers complete a brief measure for each of the students in their class or nominate students with some degree of social, emotional, and behavioral risk. An approach involving universal screening is considered the most proactive and preventive given that every student is included in the procedures, which

provides opportunity for evaluation of gaps between expected and observed performance at both individual (i.e., student) and collective (e.g. class, grade) levels. These data then drive decisions about services, including the success of core intervention practices delivered universally. A wealth of research and related technical assistance resources exist related to proactive and preventive approaches in identification of social, emotional, and behavioral needs, technical adequacy of screening measures, and guidance on best practices for addressing needs (Kim et al, 2021). Questions remain, however, related to how schools are actually approaching use of prevention frameworks for identification and response to social, emotional, and behavioral needs. These unanswered questions limit our overall understanding as to how these prevention frameworks are being used in schools. Research available to date is sparse, particularly in relation to approaches to identification of social, emotional, and behavioral needs. For example, findings have suggested that the use of screening measures in schools to assess student social, emotional, and behavioral needs is limited, particularly at a universal level (Bruhn et al, 2014; Romer & McIntosh, 2005). Survey estimates of universal screening for social, emotional, and behavioral needs have been somewhat variable but consistently low, ranging from 2% in a sample of 1400 mental health professionals in secondary settings (Romer & McIntosh, 2005) to 13% in a sample of 454 school stakeholders (Bruhn et al., 2014).

Taken together, research is needed to fully understand how schools have incorporated prevention frameworks in their approaches to identifying and responding to social, emotional, and behavioral needs. A cornerstone to a prevention framework includes proactive screening practices that provide data on observed gaps in expected performance which are then used to determine appropriate supports at individual and school levels. That is, a key marker of the use of more proactive and preventive frameworks in school systems is the inclusion of a approach to

identifying and supporting needs that engages universal screening and facilitates school capacity to make decisions about and deliver services. In addition to understanding which approaches are taken, the work must examine factors that may be associated with those choices.

Factors Associated with Social, Emotional, and Behavioral Approaches

To effectively scale the use of prevention frameworks for identifying and supporting student social, emotional, and behavioral needs, there is need to understand factors associated with the use of approaches. Within the implementation science and related literatures, a variety of determinants have been proposed that form the basis for a theoretical framework of factors associated with choice of social, emotional, and behavioral approach. For example, Lyon and Burns (2019) summarized a conceptual model adapted from Lewis (2017) in which implementation determinants—defined as factors that "obstruct or enable" (p. 107) uptake and use of an intervention or framework—impact implementation strategies and outcomes, which in turn affect outcomes such as student social, emotional, and behavioral health, discipline, and wellness. The authors summarize several levels of implementation determinants including outer setting, inner setting, individual implementer factors, and intervention factors. Outer setting factors are described as the macro-level context including financial, political, legislative cultural, and social factors. Socioeconomic makeup of the district as well as state and district-level policy, for example, have been related to early identification of social, emotional, and behavioral needs (e.g., Authors, 2018; Author et al., 2018). The inner setting is defined as "the immediate organizational context in which implementation occurs" (p. 108). These factors can include leader knowledge of and support for using prevention-based approaches to address social, emotional, and behavioral needs. Finally, intervention-specific determinants can include

characteristics such as the complexity of the approach, usability and the fit with the implementation context (Lyon & Bruns, 2019).

Implementation determinants may be conceptualized as malleable or "modifiable" versus fixed or "unmodifiable" (Bruns et al., 2019). For example, certain factors, such those found in the outer context (e.g. available funding, district socioeconomic status) may be considered more fixed whereas other factors such as staff knowledge and beliefs can be more malleable. In the next section, we summarize outer setting, inner setting, and intervention-specific implementation factors of focus in the present study. We outline alignment with theorized implementation determinants presented by Lyon and Bruns (2019). Specifically, we review factors hypothesized to be associated with choice of a social, emotional, and behavioral approach, focusing on (a) district characteristics (outer setting determinants), (b) leader knowledge and attitudes (inner setting determinants), and (c) usability (intervention-specific determinants). Rationale for these hypothesized choices is provided next.

District demographic characteristics. A substantial research base connects academic and behavioral outcomes to contextual-level characteristics such as the percentages of students in poverty, the number of students qualifying for free and reduced lunch, (Lacour, & Tissington, 2011; Raver, Gershoff, & Aber, 2007), and student race/ethnicity (Bali & Alvarez, 2004; Gregory et al, 2010; Vanneman et al, 2009). These district characteristics represent an important outer setting determinant. Often discussed in the context of "the achievement gap" literature, student poverty, race/ethnicity, and their alarming associations with key academic and behavioral outcomes such as decreased standardized test scores, increased rates of discipline, and increased risk for drop-out have been a central focus in the literature (Bohrnstedt et al, 2015; Skiba et al, 2002). An ecological approach that considers the broad, interrelated impact of variables such as

neighborhood characteristics, parenting factors, and personal/school-based access to resources may also be included (Bohrnstedt et al., 2015; Gregory et al., 2010; Lee, & Wong, 2004).

With regard to proactive and preventive approaches to meeting social, emotional, and behavioral needs, there is more limited understanding as to how these characteristics interact with others. Given the described connections to student outcomes, however, there is rationale for including district demographic characteristics as a determinant in our exploration.

Leader knowledge and beliefs. An important aspect of inner setting implementation determinants is school- and district-level leader knowledge and support. For example, a recent systematic review and meta-analysis found that leadership behaviors produce moderate to large positive effects on student achievement, teacher well-being, instructional practices, and organizational health of the school (Liebowitz & Porter, 2019). In addition, a body of research speaks more generally to the influence of school administrator leadership types (transformational, instructional, etc.) on teacher attitudes, teacher and school-based practices, and student outcomes (Robinson et al, 2008; Waters et al, 2003). Successful school- and district-level leaders weigh available information in relation to adaptations for their context, and use specific leadership practices to set directions, develop their workforce, and design the organization (Leithwood et al, 2004).

Research has shown that principal knowledge and attitudes relate to specific school-based practices such as school discipline (e.g., Heilbrun et al, 2015; Mukuria, 2002) and inclusion of students with disabilities (Praisner, 2004; Villa et al, 1996). In the study by Praisner (2004), for example, principal knowledge of special education concepts and positive experiences working with students with disabilities was found to predict more favorable views regarding student general education inclusion which, in turn, was associated with a higher percentage of students

with disabilities being placed in these inclusive, least restrictive settings. Related, work by Skiba and colleagues (2014, 2015) has supported the critical role of school leader attitudes in disciplinary outcomes, finding principal attitudes to be among the factors most strongly associated with suspension frequency as well as racial disproportionality. In addition, their results indicated lower suspension rates in schools in which principals indicated willingness to implement alternative prevention strategies with less reliance on exclusionary practices.

Related to these findings, the relevance of school leader support in the sustainment of prevention frameworks for social, emotional, and behavioral needs is illustrated in a study by McIntosh and colleagues (2014) which evaluated facilitators and barriers related to the implementation of a widely-scaled preventive framework, school-wide positive behavior interventions and supports (SWPBIS). Results indicated that school leader support, as defined by the level of priority that administrators placed on SWPBIS practices, was found to be the most important factor in both initial implementation and sustainability over time. As another example, Coffey and Horner (2012) found school leader support to be the strongest predictor of both implementation and implementation fidelity of SWPBIS, which has been shown to directly impact the success of such initiatives in improving student outcomes (Horner et al., 2009). Overall, these studies provide evidence to suggest that leaders may have a critical role in decisions regarding selection and support for approaches to identifying and supporting student social, emotional, and behavioral needs. Thus, leader knowledge and beliefs were hypothesized to serve as an important determinant in the current exploration.

Usability. Another relevant inner setting determinant is usability. Usability is defined as "the extent to which a system, product or service can be used by the specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use"

(International Organization for Standardization, 2018). Usability is a concept that extends beyond static consideration (e.g., user-friendliness) to contributions that can lead to sustainable implementation. That is, usability encompasses factors that establish human learnability as well as satisfaction and ease of use.

Evaluation of usability is widespread in areas such as development of products and services, with more recent extension in education with focus on particular innovations; for example, characteristics of a specific assessment or intervention, such as format, time to complete, complexity (e.g., Author et al, 2009). Education researchers have found usability be a relevant construct related to the successful implementation of both interventions and assessments (e.g., Authors, 2021; Authors, 2013; Neugebauer et al, 2016). The study by Neugebauer and colleagues (2016), for example, examined influences of facets of usability on vocabulary intervention, finding potential explanatory power of systems-levels factors such as school climate on universal student performance whereas perceived feasibility predictive of student performance receiving more intensive vocabulary support. Taken together, work to explore the associations between usability and approaches taken by schools to identify and support student social, emotional, and behavioral, needs is warranted, and thus included in this exploration.

Purpose of Study

Research is needed that examines not only what approaches are taken in schools to identify and support student social, emotional, and behavioral needs, but also the factors associated with those choices. Exploration regarding if and how the chosen approach and these factors are associated with academic and behavioral outcomes can drive directions on strategies for supporting the use of proactive and preventive practices in schools. In this study, school district approaches to identify and support student social, emotional, and behavioral needs were

explored in relation to determinants of those choices, and ultimately district academic and behavioral outcomes. The primary research question was as follows: Do district leader (a) perceptions of student social, emotional, and behavioral needs, (b) use of universal behavioral support practices, and (c) current approach to social, emotional, and behavioral identification and support mediate the relationship between district demographic characteristics and district academic and behavioral outcomes? Specifically, mediators of the relationship between district demographic characteristics and district academic and behavioral outcomes included district administrator perceptions of social, emotional, and behavioral problems; use of a universal behavioral support program; primary approach to identifying and supporting student social, emotional, and behavioral needs; and perceived usability of those approaches. As shown in Figure 1, the mediating pathways begin by hypothesizing that district administrators' perceptions of problems predict the use of a universal behavioral support program, approach to identifying and supporting student needs, and perceptions of usability of those approaches to risk identification and support. Mediating district administrators' perceptions of social, emotional, and behavioral SEB problems and their perceptions of usability of school-based approaches to risk identification and support include the actual use of a universal behavioral support program and approach to identifying and supporting student needs.

Method

Participants and Data Sources

The sample for this study included a nationally representative set of public school district administrators (N = 1330), who participated in a 2015-16 survey focused on administrators' perceptions of social, emotional, and behavioral issues as well as their current approach to identifying and supporting student social, emotional, and behavioral needs and factors associated

with those approaches. Detailed information about the survey methods, including the instruments, can be found in Authors (2018). All survey procedures were conducted under a university-approved HSIRB protocol.

The nationally representative sample was drawn from the universe of public school districts in the 2013-14 U.S. Department of Education National Center on Education Statistics Common Core of Data Local Education Agency database. Superintendents from the 12,315 eligible districts in our sample frame received mailed invitation letters providing brief explanations of the project and procedures and offering study findings as a participation incentive. Invitations were followed by phone calls and emails that included the link to the online survey. The invitation requested that the district administrator who holds primary responsibility for decisions regarding social, emotional, and behavioral standards and programs serve as a participant. If the superintendent believed an alternate colleague at the district level should complete the survey, the alternate was contacted to participate.[1] From the initial sample, 1,330 district-level administrators [Superintendents (60%), Assistant Superintendents/Pupil Services/Special Education/ Curriculum Directors (32%), Other district administrators (8%)] completed the District Administrator Survey, Of those responses, 60% of the respondents held the title of district superintendent whereas the remainder held district-level leadership roles (e.g. assistant superintendent, director of pupil services).

To establish a nationally representative dataset of U.S. public school districts, weights were then applied to adjust for nonresponse across census region, urbanicity, and district size.

[1] We evaluated the measurement invariance of the measurement model and invariance of the regression coefficients in the structural model based on the district administrator role (superintendent vs non-superintendent; where non-superintendent included roles for director of pupil services, director of special education, director of curriculum, director of assessment and accountability, and other/unspecified). We found that scalar invariance in the measurement model was tenable and that the model fit (and regression coefficients) of the structural model did not change in a multiple-group structural equation model.

The distribution of district characteristics as they occur in the population, final sample, and final sample adjusting for non-response are reported in Authors et al (2021): see Table 1 of that manuscript. In addition, Author et al (2021) provide complete information the sample and respondent selection, including an online Methodology Appendix. As the unweighted study sample characteristics closely matched the population of US school districts, minimal weighting (.45 to 2.75) was required to adjust for nonresponse across census region, urbanicity, and district size.

Additional demographic, behavioral, and academic data were secured from the 2015-2016 National Center for Education Statistics ED*Facts* data (NCES); the 2015-2016 United States Department of Education Office for Civil Rights Data Collection (CRDC); and 2015-2016 school year data from the Stanford Education Data Archive (SEDA; Reardon et al., 2018)[2]. The next section provides a summary of the model-building approach and statistical analyses used in this study, followed by a descriptions of how the constructs in this study were operationalized using the national survey and external data sources.

Model Building Approach and Statistical Analysis

A theoretical model was constructed to characterize district administrator responses. See Figure 1. The theoretical model hypothesizes that district behavioral and academic outcomes are associated with district demographic characteristics (i.e., DDC – see next section for specific construct definitions), which are mediated by district administrator perceptions of student behavioral problems (PSEBP), use of universal behavioral practice (BPP), current approach to identification and support (BAP), and perceived usability of the current approach (DURP). We conducted a series of structural equation models using Mplus (Jöreskog, 1970; Kline, 2015;

[2] The SEDA data is from when students were tested in the spring of the 2015-2016 academic year.

Muthén & Muthén, 2015) to evaluate a measurement-model based on the operationalized constructs for the theoretical model and the theoretical model. The parameters for each of these models were estimated using maximum likelihood (ML) estimation[3] and standardized with the STDYX option in Mplus. To evaluate the fit of the different structural equation models in this investigation, we used several fit indexes. Hu and Bentler (1999) recommended using at least three goodness-of-fit indices to evaluate whether a model demonstrates adequate fit. In this study, the goodness-of-fit of each model is evaluated using the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). The four fit indices, among the many universally unagreed upon criteria for evaluating model fit, are considered as demonstrating good or adequate fit when the RMSEA $\leq .05$, the CFI and TLI are greater than ≥ 0.95, and when the SRMR $\leq .06$ (Hu & Bentler, 1999). Lastly, the Chi-Square tests of model fit are reported even though the chi-square tests are affected by sample size as well as model fit (Cheung & Rensvold, 2002).

Operationalized Constructs for Theoretical Model

District Demographic Characteristics (DDC). The DDC latent variable was modeled using indicators or manifest variables of percent child poverty, percent non-white, and percent free-lunch. Percent child poverty is a measure of the percentage of households across the district with 5-17-year olds in poverty. Percent non-white measures the percentage of non-white students

[3] We used Bayesian and Monte Carlo Integration estimation in Mplus to fit each model described herein treating BAP and BPP as categorical. In both cases, the point estimates for the parameters were nearly identical to the point estimates for the parameters using ML estimation and treating BAP and BPP as continuous. Given that Bayesian and Monte Carlo analyses with categorical indicators do not provide usable measures of model fit for model comparison (e.g., the deviance information criterion is not available in Mplus using Bayesian estimation with categorical indicators), and that the point estimates for the parameters were largely unchanged, we decided to use the results from ML estimation with BAP and BPP treated as continuous. For discussion on the availability of the deviance information criterion for Bayesian estimation with categorical indicators in Mplus, see Muthén and Muthén (2010).

across the district. Percent free-lunch measures the percentage of students that receive free-lunch across the district, and represents a valid choice for capturing student educational disadvantage (Domina et al., 2018). Greater levels of DDC are indicative of districts with higher child poverty, more non-white residents, and more students receiving free-lunch. The data for the three DDC indicators were taken from the 2015-2016 national survey of district administrators (percent non-white) and the 2015-2016 SEDA data (percent child poverty, free-lunch).

Perceptions of Social, Emotional and Behavioral Problems (PSEBP). From the 2015-2016 national survey, district administrator perceptions about student social, emotional, and behavioral problems was operationalized as a latent variable by using three five-point Likert-scale items as manifest indicators. The Likert-scales for the items ranged from 1 to 5 where 1 indicates "do not agree at all" and 5 indicates "completely agree." The three items ask district administrators about their personal beliefs regarding whether student behavioral problems were (1) a concern, (2) a priority, and (3) could be addressed by using school-based social, emotional, and behavioral screening procedures. The degree to which district administrators perceive that student behavioral problems were a concern was moderately correlated with both whether they believe social, emotional, and behavioral problems were a priority ($\rho = 0.53$) and could be addressed using screening procedures at a school ($\rho = 0.58$). There was also a moderate correlation between the degree to which district administrators believed that student behavioral problems were a priority and could be addressed using screening procedures at a school ($\rho = 0.44$). Higher scores on the latent variable for PSEBP characterize district administrator responses which were more likely to agree that social, emotional, and behavioral problems were a concern, a priority, and could be addressed using screening procedures at school.

District Behavioral Programming Practice (BPP). District BPP is an observed dummy variable from the 2015-16 national survey that indicates whether the district administrator noted the district had a universal social, emotional, and behavioral program at either the elementary and secondary level (1 indicates that the district did have a universal program at either the elementary and secondary level; 0 indicates that the district did not have a program at either level). Universal social, emotional, and behavioral programs were defined as those used with a majority of students in the school, and could include both social, emotional, and behavioral frameworks (e.g., School-Wide Positive Behavior Supports) and/or packaged programs (e.g., Second Step). The BPP construct describes the universal behavior support practices in a district.

District Behavioral Approach to Problems (BAP). District BAP is an observed ordinal indicator from the 2015-16 national survey as to how the district administrator characterized their district's primary approach to identifying and supporting student social, emotional, and behavioral needs. The options provided to respondents were conceptualized as existing along a continuum from no approach to the most proactive approach to early risk identification and support. At one end of the continuum were districts that could not identify an approach taken to identify and support the social, emotional, and behavioral student needs (i.e. 1 – No approach). Next were those districts that reported relying on external referral for assistance with student social, emotional, and behavioral problems, such as to an outside consultant or agency (i.e. 2 – External). Third were those districts that used internal referral to address social, emotional, and behavioral problems being exhibited by students, such as to a student assistance team (i.e. 3 – Internal). Lastly were those districts that used a universal approach to proactively identify and address student social, emotional, and behavioral needs (i.e. 4 - Screening). This included districts that either reported completing brief screening measures for every student or only for

those students who were nominated by their teachers for exhibiting social, emotional, and behavioral problems. The BAP construct describes districts social, emotional, and behavioral approach to identification and support.

District Usage Rating Profile (DURP). District administrators participating in the 2015-2016 national survey completed the Usage Rating Profile for Supporting Students' Behavioral Needs (URP-NEEDS: Author et al, 2018). The URP-NEEDS was created to evaluate perceptions of usability surrounding school-based approaches to social, emotional, and behavioral risk identification and support. The URP-NEEDS consists of 24 items designed to assess five underlying factors: *Willingness to Change* (i.e., the degree to which school personnel are open and willing to try new strategies and procedures), *Knowledge* (i.e., the degree to which school personnel are confident in their ability to carry out the social, emotional, and behavioral approach), *Feasibility* (i.e., the degree to which school personnel believe the total time required to carry out the social, emotional, and behavioral approach is manageable), *Family-School Collaboration* (i.e., the degree to which collaboration and communication with families is needed to support usage of the social, emotional, and behavioral approach), and *External Support* (i.e., the degree to which connections to community agencies are necessary to implement the social, emotional, and behavioral approach). Further information on the measure can be found in Authors (2019). For the current study, only the scale scores for district administrator responses to the Willingness to Change (10 items), Knowledge (4 items), and Feasibility (4 items) sections of the URP-NEEDS portion of the national survey[4] were used to construct the DURP latent variable. Thus, only the scale scores for Willingness to Change, Knowledge, and Feasibility were used as manifest (observed) indicators of the DURP latent variable.

[4] The scale scores for Family-School Collaboration and External Support were dropped from the DURP factor because of low factor loadings in a measurement model for the DURP factor.

District Behavioral Outcomes (DBO). The DBO latent variable was comprised of 2015-2016 CRDC district level measures of percent absenteeism, percent multiple out-of-school suspensions (MOOS), percent single-out-of-school suspensions (SOOS), and percent in-school suspensions (ISS). Higher scores on the DBO latent variable indicate more negative behavioral outcomes for a district.

District Academic Outcomes (DAO). The DAO latent variable was comprised of measures of the district average freshman graduation rate, the average district math performance in the 8th grade, and the average district English and language arts performance in the 8th grade. The average freshman graduation rate in the district is from the 2015-2016 ED*Facts* data[5]. The measures of math and English and language arts performance in the 8th grade are from the 2015-2016 SEDA data. The math and English language performance measures are in a cohort-standardized scale (for details on the cohort-standardized scale see Reardon et al., 2018).

Results

Descriptive statistics that provide a representation of the national landscape of social, emotional, and behavioral approaches to identification and support (BAP) and universal behavior support practice (BPP) can be found in Table 1. The most common social, emotional, and behavioral approach (BAP) reported by district administrators is to utilize internal referral or teaching intervention (62.33%). Furthermore, the most common district behavioral programming practice (BPP) included a universal program at either the elementary or the secondary school level (58.12%). The distribution of BAP and BPP, however, varied across the nation. For instance, in the South, district administrators reporting external referral as their BAP

[5] Due to data privacy, ED*Facts* sometimes reports graduation rates with a range. In these case, the lowest number of the range was chosen.

was nearly twice as common (19.68%) as district administrators in either the Northeast (7.91%), Midwest (9.80%), or West (8.54%). Furthermore, nearly half of the district administrators from the South (45.08%) reported their BPP as having no universal screening program at either the elementary or the secondary school level.[5]

Measurement Model. The correlations, means, and standard deviations for the variables used in the measurement and theoretical models of this study can be found in Table 2. The measurement model consisted of 18 observed variables. From those 18 variables, 2 constructs in this study were treated as observed variables in the theoretical model (BAP, BPP) whereas 16 of the observed variables were used to construct the five operationalized constructs (i.e., DDC, DURP, PSEBP, DBO, and DAO). The 16 dependent variables used to construct the five operationalized constructs in the measurement model are listed in Table 2 with a Y index. The two observed indicators treated as observed in the theoretical structural equation model are included in the measurement model as correlates of the latent constructs. These exogenous indicators in the measurement model are listed in Table 2 with an X index. The pattern of standardized factor loadings for the measurement model can be found in Table 3. The loadings are all moderate to considerably large ranging from 0.387 to 0.979. As shown in Table 4, correlations are low among the constructs; in fact, one correlation is roughly zero (DBO and BAP), with many others close to zero. However, several constructs do have sizable correlations. For instance, the district demographic characteristics (DDC) and district academic outcomes (DAO) constructs had a strong negative correlation (ρ = -0.86); suggesting that district demographics involving higher socioeconomic disadvantage and percentages of non-white are strongly associated with lower academic performance in those districts. Similarly, the district demographic characteristics (DDC) and district behavior outcomes (DBO) constructs had a

strong positive correlation (ρ = 0.65), indicating that district demographics involving higher socioeconomic disadvantage and percentages of non-white were strongly associated with greater negative behavioral outcomes. District behavioral (DBO) and academic (DAO) constructs had a moderate negative correlation (ρ = -0.59). That is, higher negative behavioral outcomes for a district were moderately associated with lower academic performance. The goodness-of-fit indexes for the measurement model are reported in Table 5. The model demonstrated good fit according to the CFI/TLI (0.966/0.955), SRMR (0.039), and RMSEA (0.041). The chi-square was statistically significant, χ^2 (116) = 377.339, p < 0.01.

Theoretical model. As previously noted, the theoretical model is depicted in Figure 1. The theoretical model including statistically significant standardized parameter estimates is shown in Figure 2. The goodness-of-fit indexes of the theoretical model are reported in Table 5, and the standardized parameter estimates in the theoretical model are reported in Table 6. The fit indexes of the theoretical model were identical to those of the measurement model as the theoretical model is a just-identified structural equation model. Accordingly, the theoretical model demonstrated adequate fit according to each of the indexes. As shown in Table 6, there were 10 statistically significant effects with a p-value less than 0.05, which are highlighted in Figure 2.

Results indicate that district demographic characteristics (DDC) had a strong effect on both district academic outcomes (DAO, β = -0.82) and district behavioral outcomes (DBO, β = 0.65). That is, districts with higher percentages of students receiving free-lunch, living in poverty, and of non-white race demonstrated lower district academic outcomes (DAO) and higher negative district behavioral outcomes (DBO). Specifically, the results indicate that a one

standard deviation increase in DDC results in a -0.82 standard deviation decrease in DAO and a 0.65 standard deviation increase in DBO, on average.

Results also indicate that district demographic characteristics (DDC) had a marginal effect on universal behavior support practice (BPP, β = -0.10), social, emotional, and behavioral approach to identification and support (BAP, β = -0.10), and district administrator usability scores (DURP, β = -0.07). That is, districts with higher percentages of students receiving free-lunch, in poverty, and of non-white race were slightly less likely to report using universal behavioral programming practices (BPP), less likely to engage in proactive approaches to identifying and supporting student social, emotional, and behavioral needs (BAP), and more likely to have district administrators with lower usability scores (DURP, i.e., less willingness to change; less knowledge of social, emotional, and behavioral screening approaches; less likely to believe social, emotional, and behavioral approaches were feasible). Specifically, the results indicate a one standard deviation increase in DDC resulted in a -0.10 standard deviation decrease in BPP, a -0.10 standard deviation decrease in BAP, and a -0.07 standard deviation decrease in DURP, on average.

After controlling for district demographic characteristics (DDC), results of the theoretical model indicate that perceptions of social, emotional, and behavioral problems (PSEBP) had a marginal effect on universal behavioral programming practices (BPP, β = 0.19) and district behavioral outcomes (DBO, β = 0.07). In other words, as district administrator perceptions of social, emotional, and behavioral problems increased so did their likelihood of using universal behavioral programming practices as well as the likelihood of the district having negative DBO (e.g., more suspensions or absenteeism). Specifically, the results indicate a one standard

deviation increase in PSEBP resulted in a 0.19 standard deviation increase in BPP and a 0.07 standard deviation increase in DBO.

After controlling for district demographic characteristics (DDC) and perceptions of social, emotional, and behavioral problems (PSEBP), results indicate that use of universal behavioral programming practices (BPP) was marginally correlated with universal behavioral support practice (BAP, $\beta = 0.12$). In other words, if a district reported having universal behavioral programming practices (BPP), they were also likely to use universal behavioral support practices (BAP). In addition, after controlling for district demographic characteristics (DDC) and perceptions of social, emotional, and behavioral problems (PSEBP), results indicate that universal behavioral programming practices (BPP) had a marginal effect district administrator usability scores (DURP, $\beta = 0.16$) as did universal behavioral support practice (BAP, $\beta = 0.15$). That is, if a district reported having universal behavioral programming practices (BPP) or universal behavioral support practices (BAP), district administrators were more likely to have greater usability scores (DURP). Specifically, the results indicate a one standard deviation increase in BPP resulted in a 0.16 increase in DURP, on average, and a one standard deviation increase in BAP resulted in a 0.15 increase in DURP, on average.

Discussion

The purpose of this study was to explore factors associated with choice of a district approach to identifying and supporting student social, emotional, and behavioral needs. Specific exploration focused on whether inner context (perceptions of student social, emotional, and behavioral needs; use of universal behavioral support practices; approach to identification and support) and intervention-specific (usability of the approach) factors mediate the relationship between district demographic characteristics and district academic and behavioral outcomes.

Overall, results did not fully support our hypothesized model in that the final model demonstrated that district demographic characteristics were highly associated with nearly every other indicator. Other effects, however, are potentially notable and provide implications for work in supporting implementation of recommended proactive and preventive approaches.

It is first important to again highlight that district demographic characteristics were associated with almost all of the indicators, and served as particularly strong and direct indicators of district behavioral and academic outcomes. Current results are consistent with a substantial research base that connects school characteristics such as the percentages of students in poverty, the number of students qualifying for free and reduced lunch, (Lacour & Tissington, 2011; Raver et al, 2007), and student race/ethnicity (Bali & Alvarez, 2004; Gregory et al, 2010; Vanneman et al, 2009) to academic and behavioral outcomes. The consistency of findings across studies emphasizes the critical need for investigations into malleable factors that have potential to reduce the connection, such as use of proactive and preventive approaches to identifying and supporting student needs. Results from the current study indicate that much more work is needed to understand inner context and intervention-specific factors that can facilitate use of proactive and preventive approaches. For example, in the current study, districts with higher educational disadvantage were least likely to use universal behavioral programming practices and were least likely to use more proactive social, emotional, and behavioral approaches for identifying and supporting students. In addition, administrators in districts with higher educational disadvantage perceived lower usability of their primary approach to identifying and supporting student social, emotional, and behavioral needs. Future work is needed to dive deeper into those reasons, including a full spectrum of determinants, such as outer context resources (e.g. policies, funding) that serve to facilitate or impede choice of approach and characteristics of implementation.

Although the hypothesized model was not supported with regard to mediators of the relationship between district demographic characteristics and district academic and behavioral outcomes, findings did suggest potential mechanisms for change. In particular, leader knowledge and beliefs may hold potential to serve as a lever to engaging in more proactive and preventive approaches for identifying and supporting social, emotional, and behavioral needs. Although effects were marginal, results suggested that the more likely that district administrators viewed social, emotional, and behavioral problems as a concern to be prioritized and addressed, the more likely their districts were to have universal behavioral programming practices. In addition, districts with universal behavioral programming practices were also more likely to engage a more preventive approach to risk identification and support as well have higher perceived usability of the current approach. Related, district administrators were more likely to indicate higher usability scores when the approach to identification and support was more preventive. These indicators, along with usability of the approaches, identify leader knowledge and beliefs as potential key levers to supporting district movement toward a proactive and preventative approach that could, in turn, improve behavioral and academic outcomes.

Taken together, results from the current study suggest district administrator knowledge and beliefs may play an important role in driving use of a proactive and preventive approach to identifying and supporting social, emotional, and behavioral needs. Indicators such as leader knowledge about, prioritization of, and perceived usability (willingness, feasibility) of strategies to address social, emotional, and behavioral needs can be malleable. As such, promising directions for improved student outcomes might include determining appropriate supports for facilitating leader knowledge, skills and attitudes about social, emotional, and behavioral domains (Author et al, 2022). The missing connection between those practices and approaches,

and their perceived usability, to behavior and academic outcomes in the current study suggest that exploration of the influence of implementation supports could be beneficial. Findings add to the growing body of literature that implementation determinants can be important and could interact with each other in facilitating or impeding outcomes (Lyon & Bruns, 2019; Moullin et al, 2019). Although exploratory, results from this study suggest that school district leadership may be critical in areas such as the immediate context in which use occurs and workforce development. And although not evaluated in the current study, recent research has suggested that outer context such as policies, funding, and interorganizational networks may also be associated with use of social, emotional, and behavioral screening approaches in school districts (Author et al, 2018). For example, Author and colleagues (2018) found that state department of education documents provided limited guidance regarding the use of universal social, emotional, and behavioral screening approaches whereas a follow-up study by Authors (2018) identified a disconnect between state-level guidance and district-reported social, emotional, and behavioral screening practices.

Overall, the lack of prediction from approaches to identifying and supporting student social, emotional, and behavioral needs to district academic and behavioral outcomes found in this study may not be unexpected in the current national landscape of social, emotional, and behavioral approaches in schools. Instead, results highlight the potential need for and benefit of understanding multi-level influences on the effective uptake and sustainment of preventive social, emotional, and behavioral approaches in schools. Focus on building technically accurate social, emotional, and behavioral assessments or interventions alone, for example, is likely insufficient in improving outcomes. Work to date has identified a continuum of evidence-based strategies for supporting student social, emotional, and behavioral needs. The body of evidence

exists to support proactive and preventive approaches, yet those strategies do not appear to be widely engaged by school districts across the country. Directions forward must harness research, policy, practice levers through attention to implementation factors, with one potentially important area of focus including leader knowledge and beliefs. Research efforts forward can then be advanced from inclusion of determinants, strategies, and outcomes as a path to improved student outcomes.

Limitations and Future Directions

Although the study affords a first exploration of factors associated with the social, emotional, and behavioral approaches used in U.S. public schools, limitations are noted. First, it is important to note that data related to current practices were drawn from district administrator reports and also from a limited set of survey items in order to reduce rater fatigue. Broad questions, for example, were included to solicit information about approaches to identifying and supporting social, emotional, and behavioral needs; these items did not allow for comprehensive evaluation of the supports provided across a continuum of universal to intensive needs. For example, the usability items asked district leaders to provide aggregated response for the district, which may present challenge in larger districts that may have greater variability across schools or for which the district administrator may not have detailed knowledge about the approaches in use. In addition, the national scale of this study precluded capacity to dive deeper into particular topics or directly evaluate school-level perceptions as well as fidelity of implementation of practices. Second, as previously noted, the variables used within the model likely do not capture all possible determinants associated with choice of approach. Although a range of variables were considered for inclusion, the ultimate selection was somewhat limited by those that could represent public schools across the country, and those for which administrative data were

available. As one example, the average freshman graduation rate was not a perfect measure of the graduation rate in districts as it suppressed data for some school districts and reported ranges for the data that decrease the total variability of the graduation rates.

Another potential limitation of this study relates to the construction of the district approach to social, emotional, and behavioral identification and support (BAP) and universal behavioral programming practice (BPP) variables. For the BAP variable, we requested that participants select one option that best represented the primary approach in the district, and those approaches were treated as ordinal in our analyses. These directions could blur the lines between actual practice as well as possibly account for the lack of relationship to district academic and behavioral outcomes. Related, noted regional differences should be explored in future research, such a contextual factors (e.g. political ideology) and targeted responsibilities of the district administrator role.

In addition, for the BPP variable, we decided to include only those districts that indicated the use of universal programming at either the secondary and elementary levels. In addition, our data sources did not provide the opportunity to include indications related to fidelity of implementation, and thus, even if districts indicated particular practices or approaches, we do not have information regarding the degree to which it was implemented as intended. Future research may consider alternative options for included variables, as well as opportunity to evaluate how decisions about approaches play out over time and in relation to outer context factors. Despite the limitations, results provide directions for future research regarding perceptions about and use of preventive social, emotional, and behavioral approaches in schools. For example, continuing to build our understanding of factors associated with choice of social, emotional, and behavioral practices, such as the role of district leaders in decisions regarding selection and sustainment,

could provide increased insight into strategies to support implementation of recommended approaches, which also could inform how such approaches relate to student outcomes.

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Table 1

The national landscape of practices

Behavioral Assessment Practice					
	None	External Referral	Internal Referral or Teaching Intervention	Familiar Adult or Screening for All	Missing
	35 (2.63)	153(11.5)	829 (62.33)	189 (14.21)	124(9.32)

Behavioral Assessment Practice					
	None	External Referral	Internal Referral or Teaching Intervention	Familiar Adult or Screening for All	Missing
Northeast	5 (1.58)	25 (7.91)	230 (72.78)	35 (11.08)	21 (6.65)
Midwest	16 (3.20)	49 (9.80)	302 (60.40)	80 (16.00)	53 (10.60)
South	8 (2.54)	62 (19.68)	170 (53.97)	45 (14.29)	30 (9.52)
West	6 (3.02)	17 (8.54)	127 (63.82)	29 (14.57)	20 (10.05)

Behavioral Programming Practice			
	None	Universal Program	Missing
	413 (31.05)	773 (58.12)	144(10.83)

Behavioral Programming Practice			
	None	Universal Program	Missing
Northeast	69 (21.84)	213 (67.41)	34 (10.76)
Midwest	139 (27.80)	307 (61.40)	54 (10.80)
South	142 (45.08)	143 (45.40)	30 (9.52)
West	63 (31.66)	110 (55.28)	26 (13.07)

Notes. Percentages based on the 1,330 districts that participated in the study are in parentheses. Universal program includes a universal program at either the elementary or the secondary school level. For region and practice cross tabulations, the row percentages are reported.

Table 2

The matrix of correlations, means, and standard deviations for the manifest indicators in the theoretical model

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	X1	X2
Y1	1.00																	
Y2	.48	1.00																
Y3	.36	.59	1.00															
Y4	-.01	.11	.12	1.00														
Y5	.07	.17	.19	.69	1.00													
Y6	.06	.23	.22	.59	.40	1.00												
Y7	.04	.03	.06	.04	-.02	.03	1.00											
Y8	-.07	-.04	-.06	.06	.05	.01	.36	1.00										
Y9	-.10	-.04	-.07	.12	.06	.07	.33	.77	1.00									
Y10	.01	.02	.04	-.06	-.07	-.01	-.38	-.72	-.66	1.00								
Y11	.03	.04	.11	-.04	-.08	.03	-.25	-.60	-.56	.77	1.00							
Y12	.07	.09	.09	-.02	-.03	.10	-.29	-.45	-.45	.57	.49	1.00						
Y13	.10	.09	.13	-.03	.00	.05	-.33	-.46	-.45	.50	.50	.51	1.00					
Y14	.08	.04	.10	.02	.03	.08	-.31	-.49	-.49	.59	.51	.49	.73	1.00				
Y15	-.01	-.02	.03	-.02	.00	.04	-.20	-.34	-.30	.46	.38	.33	.47	.51	1.00			
Y16	.05	.10	.08	.02	.01	.06	-.30	-.31	-.29	.34	.30	.14	.42	.31	.27	1.00		
X1	.02	.08	.07	.17	.08	.09	-.01	.06	.03	-.08	-.09	.04	.05	.01	-.08	-.02	1.00	
X2	.12	.15	.16	.24	.16	.16	-.03	.07	.04	-.09	-.07	-.02	.04	.00	-.08	.10	.11	1.00
M	4.49	4.46	4.19	3.82	4.13	3.72	83.81	0.01	0.00	50.43	16.99	26.99	1.59	2.67	4.93	13.14	2.97	0.65
SD	0.73	0.70	0.86	0.92	0.85	1.02	11.99	0.36	0.44	22.56	9.53	26.59	2.33	2.61	5.49	9.87	0.63	0.48

Notes. Y – indicates the variables are dependent in the measurement model. X – indicates the variables are exogenous in the measurement model. Variables: Y1 – PSEBP indictor concern, Y2 – PSEBP indicator priority, Y3 – PSEBP indicator screening, Y4 – DURP indicator for knowledge, Y5 – DURP indicator for willingness, Y6 – DURP indicator for feasibility, Y7 – DAO indicator for freshman graduation rate (CCD), Y8 – DAO indicator for 8th Grade English Language Arts Performance (SEDA), Y9 – DAO indicator for 8th Grade Mathematics Performance (SEDA), Y10 – DDC indicator for Percent Free-Lunch (CCD), Y11 – DDC indicator for Child Poverty (CCD), Y12 – DDC indicator for percent non-white (CCD), Y13 – DBO indicator for percent multiple out-of-school suspensions, Y14 – DBO indicator for percent single out-of-school suspensions, Y15 – DBO indicator for percent in-school suspensions, Y16 – DBO indicator for percent absenteeism, X1 – BAP, X2 – BPP; *M* – Mean*, SD* – Standard Deviation.

Table 3

The pattern of standardized loadings for the measurement model

Latent Variable by Indicators	Estimate	S.E.	Est./S.E.	Two-Tail P-Value
DDC				
% Free-Lunch	0.932	0.009	106.764	0.00
% Child-Poverty	0.809	0.012	68.101	0.00
% Non-White	0.563	0.020	27.642	0.00
DURP				
Knowledge	0.979	0.023	43.159	0.00
Willingness	0.676	0.022	30.102	0.00
Feasibility	0.587	0.024	24.228	0.00
PSEBP				
Concern	0.636	0.022	29.401	0.00
Priority	0.832	0.020	41.322	0.00
Screening	0.704	0.021	33.540	0.00
DBO				
% Absent	0.441	0.026	16.933	0.00
% Multiple OSS	0.846	0.013	66.034	0.00
% Single OSS	0.884	0.012	73.934	0.00
% ISS	0.524	0.024	21.869	0.00
DAO				
Freshman Graduation Rate	0.387	0.030	12.722	0.00
8th ELA Scores	0.905	0.010	87.879	0.00
8th Math Scores	0.890	0.011	81.869	0.00

Notes. Latent variables are presented in boldface; DAO = District Academic Outcomes; DBO = District Behavioral Outcomes; DDC = District Demographic Characteristics; DURP = District Usage Rating Profile; PSEBP = Perceptions of Social, Emotional, and Behavioral Problems.

Table 4

Correlations among Constructs in the Measurement Model

	DDC	**PSEBP**	**DURP**	**DAO**	**DBO**	BAP	BPP
DDC	1.00						
PSEBP	0.02	1.00					
DURP	-0.10	0.08	1				
DAO	-0.86	-0.01	0.13	1			
DBO	0.65	-0.10	-0.06	-0.59	1		
BAP	-0.10	0.06	0.18	0.07	-0.01	1	
BPP	-0.10	0.19	0.19	0.10	-0.00	0.13	1

Notes. Latent variables are presented in bold-face. BAP = Behavioral Assessment Practices (ordinal variable of district primary approach to identifying and supporting student social, emotional, and behavioral needs); BPP = Behavioral Programming Practices (dichotomous variable where 1 = No universal screening program and 0 = Universal screening program at either the elementary or secondary level); DAO = District Academic Outcomes; DBO = District Behavioral Outcomes; DDC = District Demographic Characteristics; DURP = District Usage Rating Profile; PSEBP = Perceptions of Social, Emotional, and Behavioral Problems.

Table 5

Goodness-of-Fit Indexes for Latent Variable Models

	Chi-square	CFI/TLI	SRMR	RMSEA
Measurement Model	377.339 (116) = < 0.01	0.966/0.955	0.039	0.041
Theoretical Model	377.339 (116) = < 0.01	0.966/0.955	0.039	0.041

Notes. CFI – Comparative Fit Index; TLI – Tucker-Lewis Index; SRMR – Standardized Root Mean Square Residual; RMSEA – Root Mean Square Error of Approximation.

Table 6

Pattern of Standardized Loadings for the Structural Parameters in Theoretical Model

Structural Path	Estimate	S.E.	Est./S.E.	Two-Tail P-Value
PSEBP ON				
DDC	0.024	0.033	0.729	0.466
BAP ON				
DDC	-0.100	0.030	-3.302	<0.01
PSEBP	0.059	0.033	1.817	0.069
BPP ON				
DDC	-0.103	0.030	-3.437	<0.01
PSEBP	0.188	0.033	5.766	<0.01
DURP ON				
DDC	-0.070	0.032	-2.215	0.027
PSEBP	0.043	0.038	1.125	0.261
BPP	0.159	0.032	4.980	<0.01
BAP	0.148	0.035	4.256	<0.01
DAO ON				
DDC	-0.821	0.031	-26.537	<0.01
PSEBP	0.007	0.026	0.271	0.786
DURP	0.045	0.026	1.702	0.089
DBO	-0.056	0.038	-1.495	0.135
BPP	0.012	0.025	0.485	0.628
BAP	-0.026	0.024	-1.073	0.283
DBO				
DDC	0.654	0.023	28.975	<0.01
PSEBP	0.073	0.030	2.423	0.015
DURP	-0.013	0.030	-0.422	0.673
BPP	0.047	0.029	1.604	0.109
BAP	0.043	0.027	1.584	0.113
BAP WITH BPP	0.116	0.031	3.767	<0.01

Notes. Latent variables are presented in boldface. BAP and BPP are observed categorical indicators that are treated as continuous. ML estimation in Mplus was used to estimate the parameters in the theoretical model. The data was found to have statistically significant skew and kurtosis. MLR estimation was explored but the point estimates were nearly identical and no evidence of statistical significance was altered. Therefore, the decision was made to use ML estimation. BAP = Behavioral Assessment Practices; BPP = Behavioral Programming Practices; DAO = District Academic Outcomes; DBO = District Behavioral Outcomes; DDC = District Demographic Characteristics; DURP = District Usage Rating Profile; PSEBP = Perceptions of Social, Emotional, and Behavioral Problems.

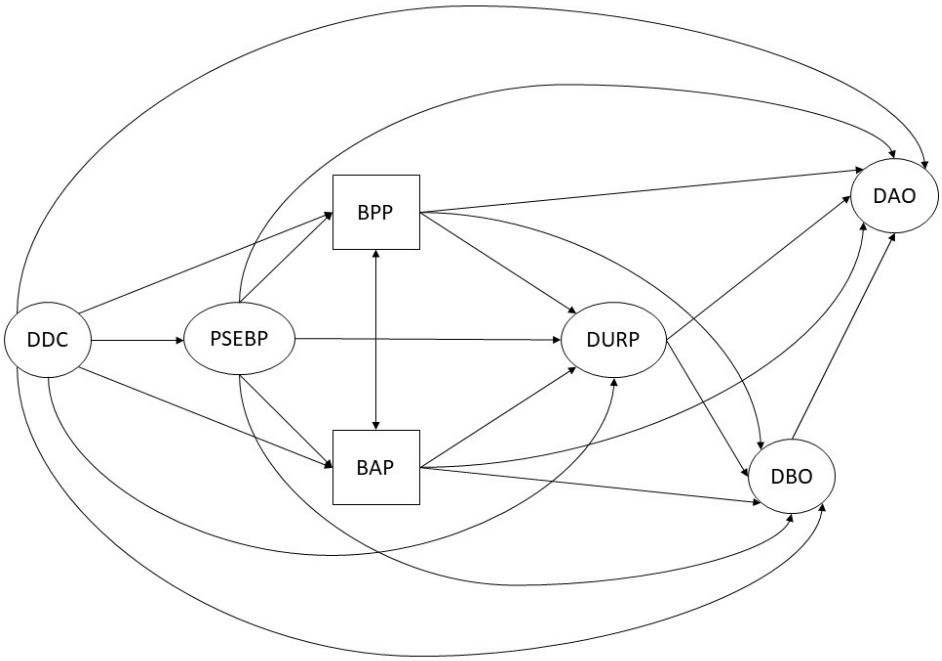

Figure 1. The theoretical model. Manifest indicators for the latent variables are omitted for clarity and these can be found in Table 2. Circles indicate latent constructs whereas squares indicate observed variable constructs. BAP = Behavioral Assessment Practices; BPP = Behavioral Programming Practices; DAO = District Academic Outcomes; DBO = District Behavioral Outcomes; DDC = District Demographic Characteristics; DURP = District Usage Rating Profile; PSEBP = Perceptions of Social, Emotional, and Behavioral Problems.

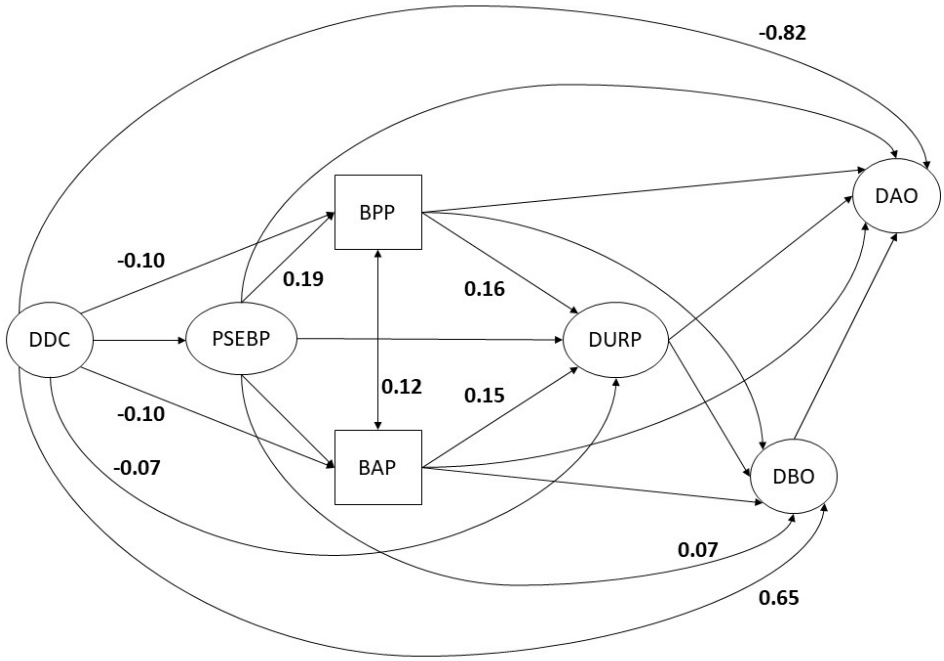

Figure 2. The theoretical model with statistically significant ($p < 0.05$) standardized parameter estimates. Circles indicate latent constructs whereas squares indicate observed variable constructs. BAP = Behavioral Assessment Practices; BPP = Behavioral Programming Practices; DAO = District Academic Outcomes; DBO = District Behavioral Outcomes; DDC = District Demographic Characteristics; DURP = District Usage Rating Profile; PSEBP = Perceptions of Social, Emotional, and Behavioral Problems.