Predicting preschool learning behaviors with classroom climate support for children with developmental risk

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Abstract

The current study examines the role of classroom climate in predicting learning behaviors among publicly-funded preschoolers experiencing socioeconomic disadvantage and developmental concerns ($N_{children}$ = 267, $N_{educators}$ = 97). All children were identified with developmental concerns in one or more areas (language, cognition, and/or social-emotional). Classroom interactions were observed in the first spring of preschool, and teacher-reported preschool learning behaviors (PLBs; attention/persistence, flexibility, problem-solving, cooperation, and competence motivation) were collected in the first fall of preschool and spring of year two. Structural equation models revealed that classroom emotional support and organizational support predicted end-of-preschool PLBs. Children in classrooms characterized by warmth, closeness, predictable routines, and organization showed greater levels of PLBs by year two. Classroom instructional quality did not predict PLBs over time. Results highlight importance of early care environments in fostering PLBs for children at risk, which creates opportunities for future achievement. Study limitations and future research directions are discussed.

Keywords: classroom climate; emotional support; preschool learning behaviors; early motivation development

Predicting Preschool Learning Behaviors with Classroom Climate Support for Children with Developmental Risk

In recent decades, educational psychologists have shown high interest in studying motivation in k-12 settings (Koenka, 2020; Urhahne & Wijnia, 2023), but traction gained for motivation research has been less prominent in preschool settings (Berhenke et al., 2011; Józsa & Barrett, 2018). The reason is perhaps because the focus of early childhood education has often been to promote young children's social-emotional, cognitive, and physical development so they are "school-ready" for success into k–12 years (Bierman, 2008). Examining *academic* orientation during early years may not seem urgent. However, investigating and enhancing children's learning-related motivational behaviors can be critical to set them up for future success (Gilmore et al., 2003), and instrumental in reducing opportunity gaps as kids grow older. Enabling children to demonstrate mastery orientation can sustain their learning drive and success in the long run. For example, Józsa & Barrett (2018) found that preschool mastery motivation, a multifaceted psychological construct that drives individuals to at least try or master challenging tasks or skills, predicted both grade 1 and grade 2 reading achievement, demonstrating that adaptive learning orientations in young children have long-term implications for school readiness and success. Hence, our driving research question is: *What early childhood education classroom characteristics support motivated mindsets and behaviors in young children?*

High quality preschool classrooms are linked with children's positive approaches to learning, including greater attention, persistence, flexibility, strategic and effective problem-solving skills, cooperation, and competence motivation, all of which reflect school engagement and are considered central for academic and social success (McDermott et al., 2014). Learning-related behavioral skills can be malleable through early care and education (Shoshani & Slone,

2017; Matera et al., 2021); they are foundational for school readiness and transferable to social adjustment and achievement later in life (McDermott et al., 2002; Ansari & Gershoff, 2015). These skills can provide insight into future motivational attitudes, but are understudied, particularly for children with multiple developmental risks (Duncan et al., 2007), such as low-income status or social-emotional, physical, and/or language developmental concerns. Hence, determining classroom characteristics, including classroom climate, that effectively foster positive learning approaches and behaviors for young children at risk is critical.

The current study targets observed classroom climate, focusing on teacher-child interactions in the classroom, as a key indicator of quality early childhood education (Burchinal, 2018; Pianta & Hamre, 2009), and examines links between preschool classroom climate and learning behaviors for children with early developmental and environmental risks (Barnett et al., 2015). According to the bioecological framework, early education programs can be considered part of the microsystem directly affecting the developing child, who resides at the center of layered ecological systems (Bronfenbrenner & Morris, 2006). Early education is especially important for children experiencing poverty (Yoshikawa et al., 2013). Poverty is a pervasive risk factor, which can increase children's exposure to adverse conditions such as crowded living environments, parental depression, and neighborhoods with less capital (Raver et al., 2015). Children from low income families and neighborhoods had reportedly lower levels of school readiness at school entrance (Wolf et al., 2017), and widening gaps in verbal/cognitive abilities (Beauregard et al., 2018) and math, reading, and/or attention skills (Sabol & Pianta, 2012).

Preschool children with screened developmental concerns face additional challenges, which can exacerbate opportunity gaps over time (Duncan et al., 2007; Sabol & Pianta, 2012). Early developmental concerns create vulnerability to developmental delays, and place children at

risk for increased challenges in academic settings, especially for those from low-income families (Jeon et al., 2011). However, there is evidence that public preschool experiences can ameliorate the gap in pre-academic skills. For example, Head Start programs can offer greater benefits for children who are at early disadvantage or screened with cognitive or social-emotional delay, compared to counterparts (Bloom & Weiland, 2015).

Preschool Learning Behaviors (PLBs)

It is critical to identify *how* early childhood educators can support the upward mobility of at-risk young learners to bridge opportunity gaps (Akiba et al., 2007; Daniel, 2018). One mechanism is by helping children develop positive approaches to learning during early years (Hamlet Buchanan et al., 1998). Positive learning approaches are behaviors demonstrating interest and motivation in mastering tasks, sustained attention and persistence, flexibility with help when needed, and cooperative attitudes. They provide young children with resilience and advantages that promote long-term positive social, academic, and behavioral outcomes (Masten, 2011; McDermott et al., 2016; Ramarkrishnan & Masten, 2020; Solberg et al., 2007). Preschool learning behaviors (PLBs) have been linked with academic success, self-regulation, and school readiness, and are associated with not only cognitive abilities that support academic achievement but also social-emotional skills that facilitate learning in the classroom (Blair & Raver, 2015). Identifying how to enhance PLBs in early learning experiences will allow us to prepare young learners that face challenging conditions as they enter formal education. Supporting PLBs for children with social-emotional, language, or cognitive developmental concerns can bridge opportunity gaps as they prepare to enter school systems (Rhoad-Drogalis et al., 2018).

PLBs and higher levels of motivation are associated with better social and academic outcomes, such as improvements in language, literacy, and math achievement (Ansari &

Gershoff, 2015; Martin et al., 2013; Meng, 2015). PLBs are also associated with fewer behavior problems (Schaefer et al., 2004), positive classroom adjustment and school attendance (McDermott et al., 2016) and lower relational conflict between children and teachers in kindergarten (Mantzicopoulos, 2005).

Classroom Climate

Classroom climate refers to general classroom processes, the quality of interactions between teachers and students and among students, which all contribute to a child's learning and development. According to past research with over ten years of observations in more than 3000 early education classrooms, classroom climate includes three distinct domains: emotional support, classroom organization, and instructional support (Li et al., 2020; Pianta et al., 2008).

Emotionally supportive classrooms are characterized by a teacher's ability to create a safe, warm, and respectful atmosphere, and provide children with autonomy-supporting situations (Doll et al., 2012; Hamre & Pianta, 2007; Pianta et al., 2008). Teachers who effectively establish emotionally supportive classrooms demonstrate awareness, sensitivity, and responsiveness to the academic, social, and behavioral needs of students. Emotional support is critical for a child's adjustment and learning engagement in early childhood (Aydogan et al., 2015; Broekhuizen et al., 2016), and buffers detrimental effects of problem behaviors for students from disadvantaged backgrounds in predicting their approaches to learning (Domínguez et al., 2011).

Classroom organization describes the classroom processes that control students' behavior, time, attention, and engagement within the classroom (Downer et al., 2010; Pianta et al., 2008). In an organized classroom, teachers engage children in meaningful activities, provide substantial time for child-focused learning, create predictable routines, set clear expectations,

effectively redirect misbehavior, and ensure student productivity (Cameron et al., 2008; Pianta et al., 2008). Classroom organization is related to student academic achievement and engagement (Cameron et al., 2008; Hatfield et al., 2016). Organized clear instruction is positively related to student self-regulation, engagement, and time on-task (Rimm-Kaufman et al., 2009).

Instructional support reflects the ways teachers support and extend student learning and problem-solving (Dolezal et al., 2003) by effectively supporting students' cognitive and language development through curriculum implementation and modeling (Pianta et al., 2008). Children often exhibit improved academic and language skills in the context of high-quality instructional support (Hamre et al., 2014) and high levels of on-task behavior (Pianta et al., 2002).

These domains of classroom climate can be positively related to child social-emotional and academic outcomes (Broekhuizen et al., 2016; Hatfield et al., 2016). Emotional and instructional support have been shown to moderate the association between child risk status and academic achievement in early elementary school (Hamre & Pianta, 2005), suggesting the importance of examining these underlying processes for children with developmental concerns in early childhood. Additionally, high quality instructional support and classroom organization have been linked to self-regulation, motivation, and engagement in young children (Rimm-Kaufman et al., 2009; Pianta et al., 2002). Greater emotional support in the classrooms is positively related to preschool students' inhibitory control (Hatfield et al., 2016), social and adaptive behaviors (Broekhuizen et al., 2016), use of learning strategies and attention/persistence (Hu et al., 2017), and engagement (Havik & Westergard, 2020). Further, research shows that classroom quality is linked to engagement of children with developmental concerns, such as attention, affect, and persistence (Coelho et al., 2019). Thus far, however, no direct association between classroom

emotional support and competence motivation, such as attention, affect, and persistence has been found.

Purpose of Study

To this end, classroom climate plays a vital role in children's development. Past literature proposes that for children to demonstrate intrinsically motivated behaviors, basic needs of competence, autonomy, and relatedness must be supported (Deci & Ryan, 2000). Naturally, classroom emotional, instructional, and organizational supports could contribute to children's motivated learning behaviors as they offer structure, behavior management, competence and autonomy formation, relatedness, and trust to foster PLBs (Jang et al., 2010; Jennings & Greenberg, 2009). The current study aimed to investigate the classroom climate of classrooms for preschoolers from low-income families who also screened for at least one type of developmental concern (social-emotional, cognitive, or language delay), and examined whether classroom climate domains predicted PLBs over the course of two years. We hypothesized that positive classroom climate domains (emotional support, classroom organization, and instructional support) would predict increased PLBs for young children with developmental concerns from families with low income.

Method

The current study uses secondary data from a larger randomized controlled trial exploring the efficacy of a partnership-oriented intervention for preschool children with developmental concerns, their parents, and educators. More information on the intervention and results are available in Sheridan et al. (2019) and Knoche et al. (2023).

Setting

The study took place in 94 publicly funded preschool classrooms operated through 13 school systems or agencies in a rural Midwestern state. Classrooms were housed in 62 different school/agency sites located in communities ranging in population from 269 to 258,379. Classrooms operated during the academic year for 4 or 5 days each week, for 4 hours each day, averaging between 18 and 20 children, ranging in age from 3 to 5 years. The study adhered to all ethical standards approved by the Institutional Review Board at University of Nebraska-Lincoln.

Participants

Participants were 267 children and families and 97 early childhood educators from a randomized control trial study (Sheridan et al., 2019). Eligibility criteria for the study included (a) the child was enrolled in two years of publicly funded preschool based on socioeconomic status and/or developmental concerns; (b) the child received a standard score of 90 or below on ≥ one subscale of a developmental screener assessing conceptual, language, and social skills (DIAL-4; Mardell-Czudnowski & Goldenberg, 2011); and (c) the parent could complete assessments in English or Spanish. All ECEs and parents of child participants provided consent. Detailed recruitment and screening procedures are in Knoche et al. (2023). Experimental condition of participants was controlled for in all analyses of the current study (analytic approaches are detailed below).

Children

Children were in the same classroom with the same educator for two years of preschool. Children were 39 to 54 months old during fall of the first year of preschool (M_{age} = 46.0 months; SD_{age} = 3.7). The majority were White/non-Hispanic, and slightly over half were boys. Thirty percent of children had an Individualized Education Program (IEP). For 45% of children, a

parent, educator, or other adult had expressed concern about the child having a developmental delay. Table 1 details baseline child and family demographic information.

Table 1. Baseline Child and Family Demographic Information

	Overall (*N = 267)*
Mean Age (*SD*)	46.0 (3.7) months (range = 39-54 months)
Gender	
Male	56.1%
Female	43.9%
Race	
White	70.5%
Black	4.1%
American Indian/Native Alaskan	1.6%
Asian	0.4%
Native Hawaiian/ Pacific Islander	0.0%
Two or more races	12.3%
Other	11.1%
Developmental concern (from parent/other adult)	44.9%
Ethnicity	
Latinx/Hispanic	30.1%
Parent highest level of education	
< High school diploma	23.0%
High school diploma/GED	28.5%
Some training beyond HS/no degree	25.5%
Two-year degree	12.8%
Four-year or more degree	10.2%
Parent preferred language	
English	82.4%
Spanish	17.6%

Getting Ready (GR) intervention	
Experimental	54.7%
Control	45.3%

Educators

Early childhood educators (ECEs) primarily identified as female, White, non-Hispanic or Latinx, with an average age of 37.4 years (*SD* = 10.8 years). Table 2 details ECE demographic characteristics.

Table 2. Demographic Information of ECEs

	Overall (*N* = 93)
Mean Age in years (*SD*)	37.35 (10.81)
Mean Length of Employment (in months)	74.2 (80.3)
Mean Classroom Teaching Experience (in years)	8.76 (7.84)
Mean Early Childhood Teaching Experience (in years)	7.99 (6.44)
Gender: Female	98.90%
Race	
White	96.90%
Black	0.00%
American Indian/ Native Alaskan	1.00%
Asian	2.10%
Native Hawaiian/ Pacific Islander	0.00%
Two or more races	0.00%
Other	0.00%
Ethnicity	
Hispanic/Latinx	3.20%

Level of Education	
Two-Year College Degree	14.30%
Four-Year College Degree or More [a]	84.90%
Early Childhood Teaching Endorsement/Certificate	71.00%
Another Type of Endorsement or Certification	51.70%
Child Development Associate Credential	21.30%

Note. $N_{Experiment} = 48$; $N_{Control} = 49$.
[a] Nearly all ECEs were certified.

Data Collection

ECEs completed an online or paper survey that included questions about baseline demographic information (Time 1; T1) and reported on students' learning behaviors in the fall during the child's first preschool year (T1) and in the spring during the child's second preschool year (Time 3; T3). Observations of classroom climate were conducted during the spring of the child's first preschool year (Time 2; T2) by trained coders cycles (measurement details provided below). ECEs were compensated for their time and participation.

Study Variables and Measures

Classroom Climate

The Classroom Assessment Scoring System-PreK (CLASS) is an observational system used to assess three domains of classroom climate involving teacher-student interactions (measured at T2). Coders attended trainings from certified CLASS trainers and were recertified annually upon evaluation of coder reliability against master CLASS coders. Classroom observations occurred during four 20-minute cycles. Dimensions were assessed on a 7-point scale. Final scores were calculated by averaging across dimension scores for each domain. The Emotional Support domain ($\alpha = .91$) comprises dimensions of positive and negative climate, teacher sensitivity, and regard for student perspectives to assess a teacher's ability to support

social and emotional functioning in the classroom. The Instructional Support domain (α = .86) included dimensions of concept development, feedback quality, and language modeling to assess a teacher's ability to efficaciously implement curricula to support cognitive and language development. The Classroom Organization domain (α = .87) encompassed dimensions of behavior management, productivity, and instructional learning formats as practices that organize and manage student's behavior, time, and attention in the classroom. CLASS has previously been used with children with delayed development who attend publicly funded preschools (Beecher et al., 2018).

Preschool Learning Behaviors

The Preschool Learning Behaviors Scale (PLBS) assessed children's learning-related behaviors and approaches. Educators responded via a 3-point Likert-type scale (0 = *doesn't apply*; 2 = *most often applies*). Items were summed to create raw scores, which were converted to *t*-scores (*M* = 50*, SD* = 10). The Competence Motivation subscale (11 items; *α* = .85) assessed children's commitment to take on and finish tasks/activities successfully. The Attention/Persistence subscale (9 items; *α* = .85) assessed children's ability to focus attention and persist with difficult tasks. The Attitudes Towards Learning subscale (7 items; *α* = .75) assessed children's openness to being helped, ability to deal with frustration, and desire to please the teacher. Previous research has demonstrated adequate internal consistency (*α* = .75-.88) and test-retest reliability for subscales (*α* = .80-.94; McDermott et al., 2002). Further, a validation study conducted with Head Start preschools demonstrated external validity and support for the three-factor structure (McDermott et al., 2012). PLBS has been used with children attending publicly funded preschools (Leow & Wen, 2017), as well as children with developmental concerns (Sawyer et al., 2022).

Analytic Approach

IBM *SPSS* 27 was used to analyze descriptive statistics for demographic information. Following, we assessed estimated descriptive statistics and correlations of our key variables (see Table 3 on p. 15) in M*plus* v. 8.6. We then used three structural equation models (SEM; Models 1-3) to examine whether each T2 CLASS domain (i.e., Emotional Support, Instructional Support, Classroom Organization) predicted latent factor T3 PLB (which included three subscale composites: competence motivation, attention/persistence, and attitudes toward learning). Models adjusted for baseline (T1) PLBs, classroom level variance (clustering effects using robust standard errors), covariates (detailed below), and missing data (Muthén & Muthén, 1998-2017). Then we assessed one SEM for each CLASS domain. Model fit indices included *CFI* $\geq .90$, *RMSEA* $\leq .08$, and *SRMR* $\leq .08$ (Hu & Bentler, 1999; Brown, 2015). We interpreted effect sizes for parameter estimates using standardized coefficients (βs) per Cohen's (1992) recommendations (small = .14, medium = .36, large = .51).

We used full information maximum likelihood (FIML; Enders, 2010) to impute missing information from available data. FIML assumes that data were missing at random and allows cases to be retained from any participant who provided data at T1 during model estimations (Snijders & Bosker, 1999), so we could capitalize on the full sample ($N = 267$).

Covariates

We controlled for intervention group status and included additional covariates in our statistical models: parent preferred language, parent highest level of education, teachers' classroom teaching experience, experimental condition from the larger randomized control trial, and PLBS subscale scores (T1) for each PLB composite (see Figures 1–3 below for model details).

Table 3. Estimated Descriptive Statistics and Correlations for Key Study Variables

Variable	*M* (*SD*)	1	2	3	4	5	6	7	8
1. Emotional Support	6.29 (.59)	—							
2. Instructional Support	3.15 (.97)	.46***	—						
3. Classroom Organization	5.77 (.84)	.80***	.37***	—					
4. Competence Motivation (T1)	43.00 (9.09)	.07	.03	-.06	—				
5. Attention/Persistence (T1)	45.98 (12.27)	.06	.04	.01	.69***	—			
6. Attitudes Towards Learning (T1)	46.38 (8.83)	.00	-.04	-.07	.61***	.78***	—		
7. Competence Motivation (T3)	47.09 (9.17)	.30**	.06	.20*	.62***	.46***	.40***	—	
8. Attention/Persistence (T3)	51.04 (10.84)	.13	-.05	.15	.58***	.77***	.65***	.68***	—
9. Attitudes Towards Learning (T3)	52.24 (6.57)	.05	.07	-.04	.16	.22*	.24**	.33**	.39***

Note. $N = 267$ as we used FIML to estimate these statistics.

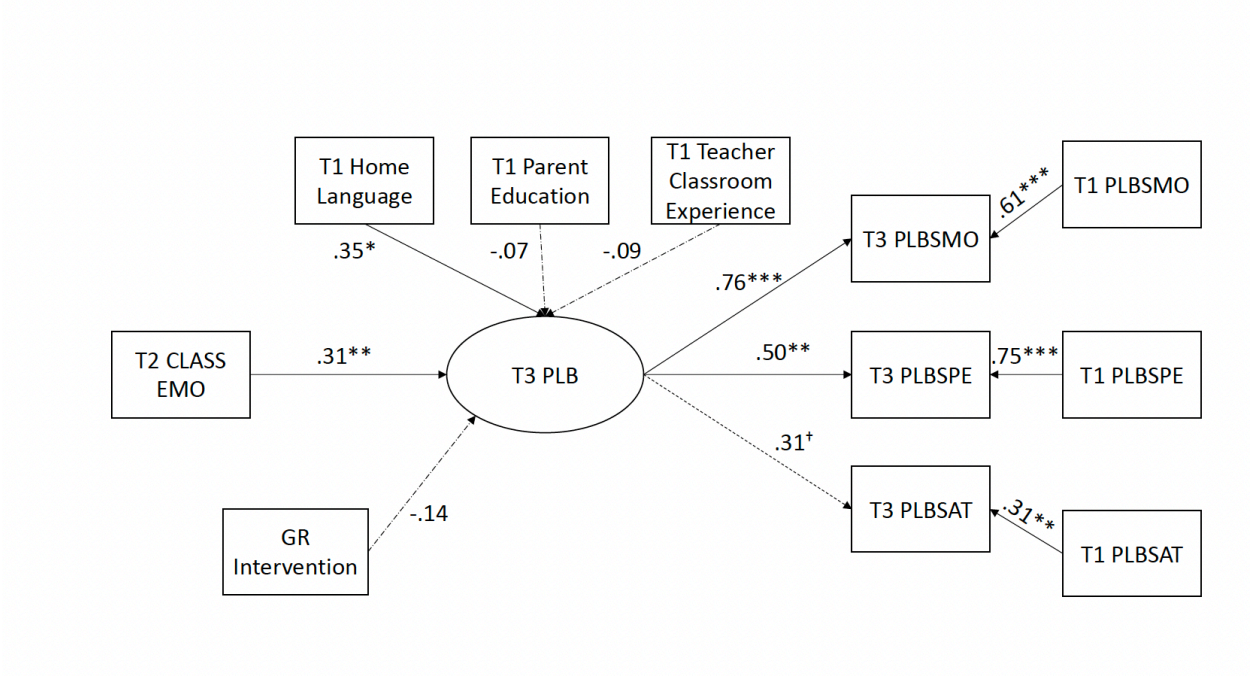
*$p < .05$. **$p < .01$. ***$p < .001$.

Results

Classroom Emotional Support

Results from Model 1 (Figure 1) showed that the emotional support domain significantly predicted the PLB latent factor, such that each unit increase in emotional support yielded .59 unit increase in PLB (b = .586, SE = .22, p = .020, β = .307), with a small-to-medium effect size (Cohen, 1992). The model yielded good fit, with $\chi^2(N = 267, df = 17) = 23.921$, p = .12, RMSEA = .039, 90% CI: [.000, .073], CFI = .951, and SRMR = .036. The total variance explained in this model for PLB was R^2 = .219 (p = .044). The total variance explained for each subscale was R^2 = .902 (p = .001) for competence motivation, R^2 = .758 (p < .001) for attention/persistence, and R^2 = .183 (p = .061) for attitudes for learning.

Figure 1. Preschool learning behaviors (PLB) predicted by emotional support in the classroom (CLASS EMO)



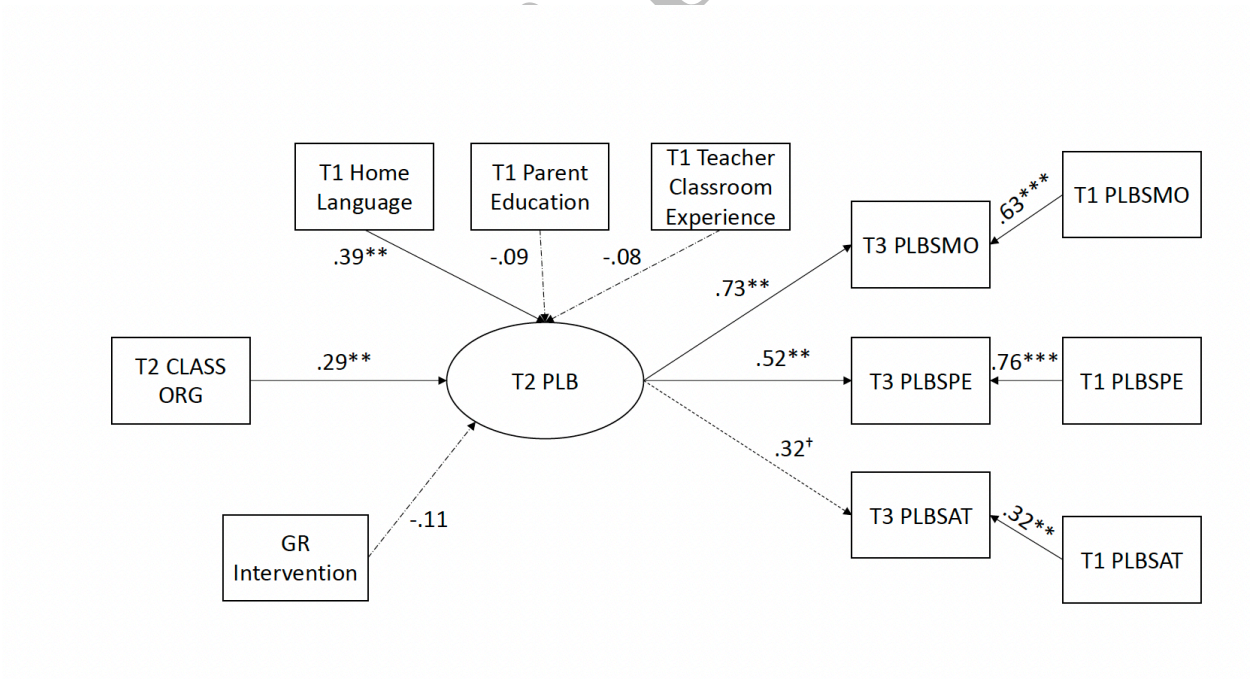
Note. PLBSMO = Competence Motivation; PLBSPE = Attention/Persistence; PLBSAT = Attitudes Towards Learning. β = standardized regression coefficients.

$^{\dagger}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Classroom Organization

Results from Model 2 (Figure 2) showed that the classroom organization domain significantly predicted the PLB latent factor, such that each unit increase in classroom organization yielded .39 unit increase in PLB (b = .387, SE = .146, p = .008, β = .287), with a small-to-medium effect size (Cohen, 1992). The model yielded fair fit, with $\chi^2(N = 267, df = 17) = 28.962$, p = .035, RMSEA = .051, 90% CI: [.014, .083], CFI = .917, and SRMR = .039. The total variance explained in this model for PLB was R^2 = .222 (p = .032). The total variance explained for each subscale was R^2 = .846 (p = .004) for competence motivation, R^2 = .784 (p < .001) for attention/persistence, and R^2 = .191 (p = .051) for attitudes for learning.

Figure 2. Preschool learning behaviors (PLB) predicted by classroom organization (CLASS ORG)



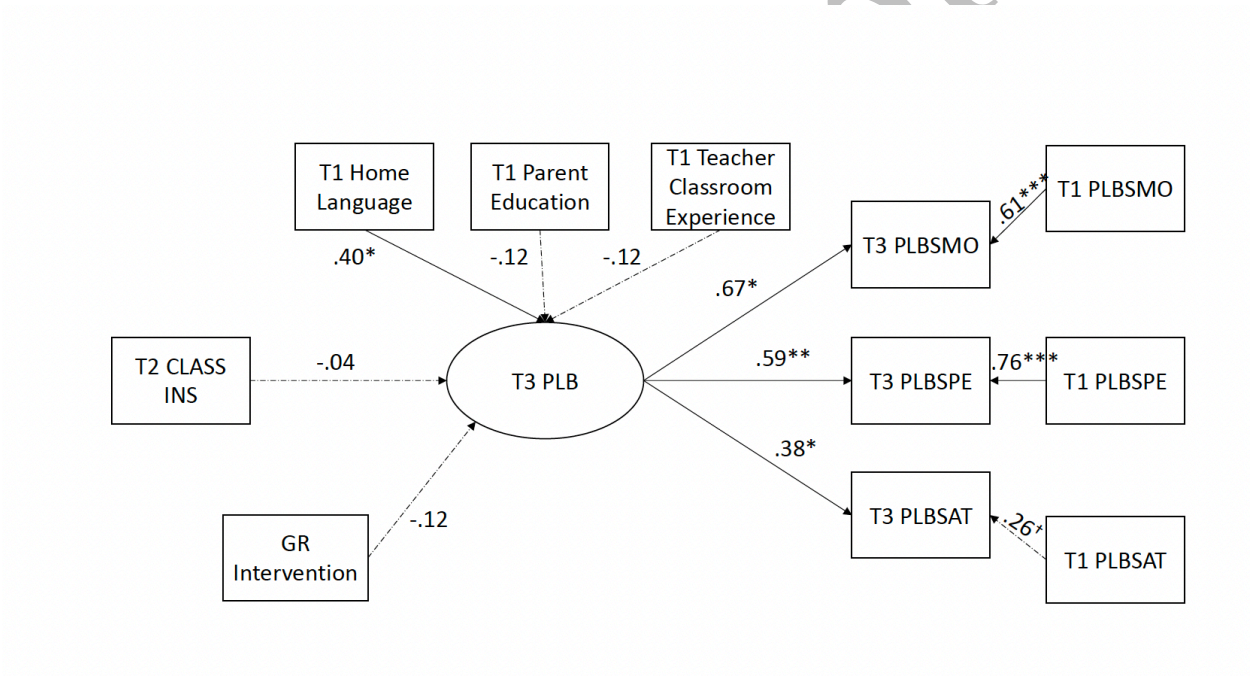
Note. PLBSMO = Competence Motivation; PLBSPE = Attention/Persistence; PLBSAT = Attitudes Towards Learning. β = standardized regression coefficients.

$^{\dagger}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Classroom Instructional Support

Results from Model 3 (Figure 3) with classroom instructional support domain as predictor yielded fair model fit, with $\chi^2(N = 267, df = 17) = 38.050$, $p = .0024$, RMSEA = .068, 90% CI: [.039, .097], CFI = .848, and SRMR = .039. However, classroom instructional support did not significantly predict the PLB latent factor.

Figure 3. Preschool learning behaviors (PLB) predicted by instructional support in the classroom (CLASS INS)



Note. PLBSMO = Competence Motivation; PLBSPE = Attention/Persistence; PLBSAT = Attitudes Towards Learning. β = standardized regression coefficients.

$^{\dagger}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Discussion

Strengths and Significance

Both emotional and organizational supports in the classroom were shown to foster PLBs (competence motivation, attention/persistence, and attitudes toward learning) over time in our sample of young children with one or more developmental risks. Emotionally safe environments may make young learners more comfortable to try new things, focus, exert effort, persist, avoid aggression upon frustration, and accept help if needed. Young children have the need for warm responsive adult figures in their lives (Bergin & Bergin, 2009). Results indicated that educators could play an important role in creating a safe environment enabling children to freely explore and pay attention (Commodari, 2013), and overcome the environmental or developmental strain experienced by children. When teachers are emotionally supportive, they tend to have closer relationships with their students (Howes et al., 2008; Moen et al., 2019), which may be the most effective way teachers can enhance children's cognitive, academic, and social skills (Burchinal et al., 2011; Copple & Bredekamp, 2009). Our findings further support research that demonstrates how nurturing relationships and sense of relatedness can be critically important for encouraging motivated learning behaviors (Deci & Ryan, 2000; Schunk et al., 2012), particularly via classroom environments.

In addition to warm relationships with an adult, a predictable environment has long been linked with resilience, cognitive development, self-regulation, and other positive child outcomes (Bronson & Bronson, 2001). The effectiveness of classroom organization may be attributed to maximizing learning time, effectively pacing teaching, and preventing boredom. Being organized allows educators to focus on teaching, rather than getting materials and resources prepared and has been linked with motivation and engagement of young children (Rimm-Kaufman et al., 2009). Classroom organization may also keep educators from being trapped in negative cycles of interaction with students. In organized classrooms, teachers maximize

opportunities by keeping students engaged (Jang et al., 2010). Findings from the current study suggest that creating these classroom characteristics can benefit young learners' long-term PLBs that may have lasting implications for development.

Both findings coincide with the bioecological framework, linking classroom climate with the developing children's PLBs through proximal processes of teacher-child interactions that are embedded within the microsystem of a child's ecological systems (Bronfenbrenner & Morris, 2006; Hu et al., 2017). Our work also supports a person-in-context perspective that situates the whole child in their respective social ecology, suggesting that teachers' socially attuned classroom management may promote better adjustment for children with diverse needs (Farmer et al., 2019).

No significant relationship was found between instructional support and PLBs. This finding may indicate that PLBs are not necessarily related to the quality or complexity of teaching strategies. Though past research has shown strong associations between instructional support and academic outcomes (such as cognitive and language development), our findings suggest that support for PLBs require classroom interactions other than those focused exclusively on curricula and instruction.

Implications for Practice and Policy

Approximately 80% of young children spend much of their day in non-parental childcare (Snyder & Dillow, 2015), meaning that ECEs are uniquely situated to play a significant role in fostering positive learning behaviors and motivation by providing an emotionally warm environment, and predictable structured learning time. This opportunity for early intervention may be particularly salient for children with developmental concerns (Sands & Meadan, 2023) as supporting children's school adjustment in preschool prepares children for success in

kindergarten and later grades (Pianta et al., 2009). PLBs like competence motivation are a critical, yet often under considered, domain of school readiness (Józsa et al., 2018). Fortunately, for preschoolers at developmental and environmental risk, learning behaviors and attitudes are relatively malleable, suggesting that early intervention may be beneficial for preschool children experiencing difficulties with classroom behavior (McDermott et al., 2002), especially prior to the transition to kindergarten (Ansari & Gershoff, 2015). We believe current findings support professional development programs and further inform policy to improve on directions and resources that facilitate use of effective and equitable classroom practices.

Limitations and Future Directions

Our study is not without limitations. First, the study sampled ECEs and families, from publicly funded early childhood classrooms in one Midwestern state, of child participants with one or more developmental concerns. The sample limits the generalizability of our results. Further, over a quarter of the children in our sample were from Hispanic/Latinx backgrounds, however, the majority of ECEs were of White, non-Hispanic backgrounds. The nature of the study being secondary research constrains our ability to consider teacher-child interactions that highlights not just emotional but also cultural responsivity/sensitivity (Romero & Reyes, 2022) as an important predictor or covariate. Particularly, early education classroom climate for children of racial/ethnically diverse backgrounds can depend on educators' cultural responsivity and sensitivity to equitable classroom practices to elicit strengths-based interactions with each student (Harry & Klingner, 2007). However, the current study did not have an *a priori* design to measure and adjust for this variable. Beyond CLASS, we suggest future research to utilize new tools that assess these nuanced interactions between teachers and students most suitable for the growingly diverse population (Curenton et al., 2020; Guerrero-Rosada et al., 2021). We

acknowledge the importance of utilizing a strengths-based approach for historically marginalized populations to enhance equity in early childhood education for future investigations (National Association for the Education of Young Children, 2019).

Further, classroom climate assessments depended on CLASS as an observational measure. CLASS observations were completed on one day for each teacher involved in our study, providing only a snapshot instead of comprehensive outlooks of each classroom. Consistent versus variable emotional support is important for children's development (e.g., Zinsser et al., 2013). Hence, future research could ensure more than one snapshot of classroom climate assessment. Children's PLBs were also limited to teacher-reported data. Future work could include measures such as observations that specifically examine teachers' behaviors, differentiating children's behaviors from teachers' behaviors, and one child's experiences from another's (Athanases & de Oliveria, 2014; Berhenke et al., 2011; Early et al., 2010).

Methodologically, our study adjusted for baseline (T1) PLBs as covariates in our models to predict T3 outcomes but did not examine longitudinal growth. We argue that investigating in the development of PLBs over multiple time points is valuable for prevention and intervention work and suggest that future research assess growth trajectories in PLBs and motivation (Grimm et al., 2016).

Conclusion

The present study builds upon the extant literature by demonstrating the importance of warm, organized, and predictable classrooms in developing PLBs among children who are at both socioeconomic and developmental risk. Cultivating at-risk children's PLBs is deemed critical as it can lead to academic benefits and bridged educational opportunities down the road. The

current findings highlight the importance of establishing emotionally supportive and organized classrooms to support children's learning.

Disclosure Statement

The authors report there are no competing interests to declare.

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