

**Project ENHANCE: Assessing Professional Learning Needs for Implementing Comprehensive, Integrated, Three-Tiered (Ci3T) Models of Prevention**

Eric Alan Common<sup>1</sup>, Mark Matthew Buckman<sup>2</sup>, Kathleen Lynne Lane<sup>2</sup>, Wendy Peia Oakes<sup>3</sup>,  
David James Royer<sup>4</sup>, Sandra Chafouleas<sup>5</sup>, Amy Briesch<sup>6</sup>, and Rebecca Sherod<sup>2</sup>

<sup>1</sup> Education Department, School of Education & Human Services, University of Michigan - Flint

<sup>2</sup> Department of Special Education, College of Education, University of Kansas

<sup>3</sup> Mary Lou Fulton Teachers College, Arizona State University

<sup>4</sup> Department of Special Education, College of Education, University of Hawai‘i at Mānoa

<sup>5</sup> Department of Educational Psychology, Neag School of Education, University of Connecticut

<sup>6</sup> Department of Applied Psychology, Northeastern University

Eric Alan Common  <https://orcid.org/0000-0003-3775-9013>

Mark Matthew Buckman  <https://orcid.org/0000-0001-9332-0940>

Kathleen Lynne Lane  <https://orcid.org/0000-0001-6364-838X>

Wendy Peia Oakes  <https://orcid.org/0000-0002-3533-8293>

David James Royer  <https://orcid.org/0000-0003-2882-1049>

Sandra Chafouleas  <https://orcid.org/0000-0001-7166-1365>

Amy Briesch  <https://orcid.org/0000-0002-8281-1039>

Rebecca Sherod  <https://orcid.org/0000-0001-7486-9217>

**Author Note**

For inquiries regarding this article, please contact Eric Common, University of Michigan- Flint

[ecommon@umich.edu](mailto:ecommon@umich.edu) or Kathleen Lynne Lane, University of Kansas [kathleen.lane@ku.edu](mailto:kathleen.lane@ku.edu)

**Final Accepted Documents**

Common, E.A., Buckman, M.M., Lane, K.L. et al. Project ENHANCE: Assessing Professional Learning Needs for Implementing Comprehensive, Integrated, Three-Tiered (Ci3T) Models of Prevention. *Educ. Treat. Child.* 44, 125–144 (2021). <https://doi.org/10.1007/s43494-021-00049-z>

### **Abstract**

We report findings from a multi-state survey of 720 faculty and staff from 25 elementary schools in five districts across three states and geographic regions participating in an IES Network grant examining integrated tiered systems. In this pre-registered study, we replicated and extended previous inquiry examining educators' views of (a) implementation of core components of their school's comprehensive, integrated, three-tiered (Ci3T) model of prevention and (b) preference for professional learning (content and avenue). Results indicated more than half of respondents indicated high levels of implementation of core features of Ci3T across Tier 1, 2, and 3. Educators reported high levels of implementation for 10 out of 19 research-based educational practices used within tiered systems with a statistically significant relation between ratings of implemented practices and the desire for support with most practices. Respondents identified their top three areas for professional development needed in the coming year as behavior de-escalation techniques, small-group social skills instruction, and strategies for supporting students with internalizing behavior patterns. For potential professional learning avenues, respondents' top ratings were in-district, during-school workshops, course for college credit on-line, teacher collaboratives/networks, and one-to-one coaching or mentoring. There were many similarities in educators' ratings across implementation year and state. Low levels of implementation across many core Ci3T and common educational practices were reported by educators working within the most experienced schools. We conclude with a discussion of implications, limitations, and future directions.

*Keywords:* Ci3T, tiered system of supports, professional learning, technical assistance, positive behavioral interventions and supports

### **Project ENHANCE: Assessing Professional Learning Needs for Implementing Comprehensive, Integrated, Three-Tiered (Ci3T) Models of Prevention**

Educational systems and educators are charged with the remarkable task of meeting academic, behavioral, and social emotional well-being needs of all students. Educational leaders have embraced this charge through policies and practices taking a system-level response so all students have the full set of skills necessary to be prepared to advance to college and careers (Every Child Succeeds Act, 2015). Although schools continue to focus on academic achievement, 29 states now also set standards for social emotional learning—recognizing implications for educational, career, and social fulfillment—and have adopted standards for interpersonal and self-determination skills needed to navigate one’s social environment across school, career, and social settings (Positive Action, 2020).

Educational leaders enact systemic policies and practices to stimulate school improvement efforts using tiered systems. Tiered systems utilize a framework for fulfilling the school’s mission and purpose through a data informed prevention and intervention approach where increases in student need are met with responses of matched intensity (McIntosh & Goodman, 2016). For example, primary (Tier 1) prevention encompass the educational opportunities afforded to all students attending the school and is typically effective for approximately 80% of students. Secondary (Tier 2) prevention comprises strategies, practices, and programs to address targeted learning areas for approximately 10-15% of students who need more than Tier 1 provides (e.g., oral reading fluency, attention to task, initiating social interactions). Tertiary (Tier 3) interventions are the most intensive interventions for a small number of students (e.g., 5%) with the most intensive learning needs or who have multiple risk factors. Tiered systems widely used in schools today include response to intervention (RTI; D. Fuchs, Fuchs, & Compton, 2012; focused on academic domains) and Positive Behavioral Interventions and Supports (PBIS; Sugai & Horner, 2009; focused primarily on behavioral domains). As the application of tiered systems in education continues to evolve, integrated tiered systems have emerged (Institute of Education Science, 2018). For example, Interconnected Systems Framework (ISF; Barrett et. al., 2013; integrating PBIS with school-based mental health supports), Multi-Tiered System of Supports (MTSS; integrating one or more academic domains with PBIS), and the Comprehensive, Integrated, Three-tiered (Ci3T) model of prevention (Lane & Menzies, 2003; Lane, Menzies et al., 2020; addressing students’ academic, behavioral, and social needs in one coordinated model).

#### **Comprehensive, Integrated, Three-Tiered Model of Prevention**

In the Ci3T model, schools select and implement research- and evidence-based academic instruction, PBIS

to address students' behavioral learning, and a validated social skills curriculum such as Second Step<sup>®</sup> (Committee for Children, 1992) focused on developing students' social skill sets. Ci3T offers a comprehensive, integrated, data-driven prevention model with structures for monitoring system- and student-level outcomes to determine effectiveness in meeting systems-level goals and to inform instruction for students. In the Ci3T model, educators examine multiple sources of data to inform decision making, with student performance measures analyzed alongside treatment integrity and social validity data. Ci3T is a prevention model and therefore relies on the early detection of students who need more than Tier 1. Systematic academic and behavioral screening data in tandem with other school data (e.g., attendance, office discipline referrals, course progress data) are used to monitor student progress. However, to accurately interpret these data, schools examine treatment integrity data to assess the extent to which students have been afforded the planned educational experiences (Buckman et al., 2021) and social validity data to monitor stakeholders' acceptance of the procedures, goals, and outcomes. Data-informed decisions are made to inform students' educational experiences (e.g., using data to connect students to relevant, research-based Tier 2 and Tier 3 supports) and adults' experiences (e.g., using data to inform professional learning offerings to facilitate high-fidelity implementation; providing an opportunity to contribute to programmatic decisions).

Integrated tiered systems are complex, requiring effective collaboration among a variety of school-based professionals (e.g., administrators, special and general educators) and coordinated instructional delivery across multiple domains (e.g., academic, behavioral, social emotional well-being). Through our Ci3T partnership work, and in related work to develop online training to use behavioral assessments (e.g., Chafouleas et al., 2015), we have learned school teams and teachers benefit from on-demand professional learning resources to learn how to synthesize data for making systematic decisions regarding student intervention needs.

### **Professional Learning in Ci3T Models of Prevention**

Systems-change efforts are sustained most effectively when organizational structures are in place to facilitate change (Fixsen et al., 2005; Horner et al., 2017). For example, policies, data systems, and professional learning facilitate successful systems change, recognizing the need for each to adapt for initial implementation, full operation, innovation, and sustained practice phases of implementation science (Fixsen et al., 2005; Taxman & Belenko, 2012). Professional learning plays a fundamental role in the implementation of system-level change efforts, such as tiered systems (McIntosh et al., 2013), with professional learning being an essential implementation driver for high-fidelity implementation (Horner et al., 2017). Effective professional learning practices include those

focused on content and pedagogy, of sustained duration, and collaborative (Wei et al., 2009). To engage educators and minimize burden, professional learning must be relevant for their context and delivered through socially acceptable avenues (Lane, Carter, et al., 2015) across all change agents (Fixsen et al., 2009). Therefore, information is needed from educators (e.g., change agents) regarding their professional learning needs, interests, and desired avenues in order to support their implementation of their schoolwide plan.

Lane, Carter, and colleagues (2015) developed the Ci3T Professional Learning Survey to inform professional development needs (e.g., Oakes et al., 2021) by assessing educator views regarding (a) implementation of their school's Ci3T model of prevention components and (b) areas in which educators might benefit from professional learning, including desired venues (see detailed description in Method). The Ci3T Professional Learning Survey has been used to examine the professional learning needs of educators in two studies. First, Lane, Carter, et al. (2015) conducted a statewide survey of 333 school administrators to examine (a) the degree to which Ci3T practices were in place, (b) content and skills desired for additional professional learning, and (c) avenues for them to engage in these learning activities. Authors found a positive relation between the practices in place and their interest in professional learning on these practices. Administrators indicated in-district, workshops, offered during the school day and practice guides to be the most favorable avenues for accessing professional learning. Second, Oakes et al. (2021) administered the Ci3T Professional Learning Survey with 253 educators in 21 schools within a Midwestern U.S. district at the completion of a two-year IES-funded researcher-practitioner partnership. Educators reported high levels of use of Ci3T practices (higher scores at the elementary level compared to secondary level) with a positive relation between implemented practices and desires for professional learning in four areas: small-group self-determination instruction, peer-mediated support strategies, check-in/check-out, and strategies for internalizing behavior. Favored avenues were consistent with Lane, Carter, et al.'s (2015) findings with the addition of courses for college credit (on-line).

### **Purpose**

The current survey study is situated within Project ENHANCE, one of four research network grants (Integrated Multi-Tiered Systems of Support [I-MTSS]) funded by the Institute of Education Sciences to examine how to design, implement, and evaluate complex integrated systems (IES, 2018; I-MTSS, n.d.). As part of Project ENHANCE, we aimed to develop on-demand modules to assist Ci3T leadership teams with professional learning necessary to lead efforts in their schools and districts effectively and efficiently. We conducted this study during the

2019-2020 academic year to learn from stakeholders about their use of Ci3T core practices and needed professional learning related to data-informed Tier 1, 2, and 3 efforts. We gathered data using the Ci3T Professional Learning Survey to inform development of on-demand professional learning resources. We therefore extend the findings of Lane, Carter, et al. (2015) and Oakes et al. (2021) by examining the professional learning needs of educators in three geographic U.S. regions and for schools in various stages of implementation. Research on systems change efforts rooted in implementation science suggests patterns in implementation are likely to change over time (Fixsen et al., 2005) and professional learning must be responsive to these changes. It is possible these changes will meaningfully impact the needs for professional learning to promote fidelity of Ci3T implementation.

Our research questions focused on current practices in schools (Research Questions 1 and 2), resources and professional development needs (Research Questions 3-6), and preferred avenues for professional development and learning (Research Questions 7-8). Specific questions were: (1) To what extent do respondents report their schools are currently implementing features common to Ci3T models? (2) Are there differences in the extent to which these features are implemented across districts and states? And stages of implementation? (3) To what degree do respondents report their educators in their school implement practices consistent with the framework of Ci3T models of prevention and what is their desire for additional professional development support for addressing these practices? (4) What is the relation between current implementation and desire for professional development? (5) Are there differences in the extent to which respondents implement and desire professional development to support these educational practices and supports (e.g., by district, state, stages of implementation)? (6) What areas do respondents prioritize for professional development? (7) What avenues do respondents prefer for professional development to learn more about Tier 1, 2, and 3 supports within Ci3T models? (8) Are there differences in the reported potential avenues for professional development and learning (e.g., by district, state, stages of implementation)?

## Method

### Participants

Participants were 720 faculty and staff from 25 elementary schools from five districts across three states participating in an IES Network grant examining integrated tiered systems. The three states were located in the West (WA), Midwest (KS), and Northeast (VT) regions of the U.S. Most respondents were female ( $n = 651$ ; 90.54%) and White ( $n = 641$ ; 96.10%), with respondents having an average of 14.94 ( $SD = 10.04$ ; range = 0-45) years of experience in education. See supplemental Tables S1 and S2 for participant and school characteristics. In our pre-

registered plan (Lane, Buckman et al., 2020), we indicated we would invite all faculty, staff, and administrators from elementary schools participating in Project ENHANCE to complete the survey. In spring 2020, we launched the Ci3T Professional Learning Survey in 25 schools, five fewer than proposed in the pre-registration plans which committed to Washington ( $n = 6$  proposed, 5 invited, 5 actual), Kansas ( $n = 18$  proposed, 18 invited, 17 actual), and Vermont ( $n = 6$  proposed, 5 invited, 3 actual). All elementary schools were implementing Ci3T and receiving implementation support as part of Project ENHANCE.

### **Procedures**

Across districts Ci3T Leadership Teams participated each year in a university-supported year-long, five session, Ci3T Implementation Professional Learning Series (see <https://www.ci3t.org/imp>). As part of these sessions, team members analyzed their school-site data and engaged in data-informed professional learning efforts to empower teams to support their faculty and staff with implementation efforts. Data collection for the current study took place during a 14-week period in spring 2020 during the first year of a five-year IES Network grant, Project ENHANCE. Educators at each school had a period of approximately 3-4 weeks to complete the survey (see below for further details related to survey distribution). After securing university and district approvals, we used the Qualtrics online survey platform to distribute an informational letter and survey (description below) via email to all faculty and staff employed at each school. The information letter indicated the intent of this study was to assess faculty and staff's professional learning needs and preferences related to implementation fidelity and sustainability of Ci3T. All faculty and staff were aware their district was participating in Project ENHANCE to glean information from a range of implementers (initial to advanced) to inform the design, implementation, and evaluation of enhanced Ci3T professional learning materials to facilitate implementation. The informational letter emphasized the study was voluntary, the benefits and risks of participation, and the confidential nature of the results. Results were shared with schools in aggregate form (i.e., de-identified, school-level results) to inform the development of future professional learning materials, as part of a data-informed process.

At the end of the information letter in Qualtrics there was an option to participate in the study. For surveys not completed initially, participants received two prompts (approximately one week later, and prior to the end of the data collection window; Dillman et al., 2008). We distributed surveys to 1,702 individuals across five districts, with response rates as follows: Washington District 4 ( $72/221 = 32.58\%$ ), Kansas District 1 ( $206/489 = 42.13\%$ ), Kansas District 2 ( $124/308 = 40.26\%$ ), Kansas District 3 ( $222/483 = 45.96\%$ ), and Vermont District 5 ( $96/201 = 47.76\%$ ).

### ***Procedural Considerations in Regard to COVID-19***

In response to the spread of COVID-19, the World Health Organization announced on January 30, 2020 a Public Health Emergency of International Concern and declared COVID-19 a pandemic on March 11, 2020. School responses to COVID 19 (e.g., shifts to remote learning) began March 16, 2020 during the data collection window. To promote and maintain respectful and responsible inquiry (Lane, Cabell, et al., 2020), we retained our original procedures, measures, and data analytic plan with the exception of working with district and school leaders to shift distribution and reminder schedules as schools made initial adjustments during the early stages of the pandemic.

### **Measures**

The Ci3T Professional Learning Survey examines views of Ci3T practices in place and resources and professional learning needs to facilitate implementation (see Lane, Carter, et al., 2015; Oakes et al., 2021). The survey includes 109 items organized in five includes sections, with most items using a 5-point Likert-type scale: (a) implementation of core Ci3T features, (b) resources and professional learning needs around educational practices commonly implemented within Ci3T models, (c) professional learning avenues, (d) skills and behaviors essential for success, and (e) respondents' demographics. Operational definitions were not provided in order to limit completion time (Lane, Carter, et al., 2015). Given the focus of the current study, the 20 items assessing skills and behaviors essential for success were excluded from analyses. We estimated participation would take less than 45 min.

### ***Implementation of Core Ci3T Features***

Respondents rated the degree to which 25 core features of Ci3T models were being implemented across academic, behavioral, and social domains (see Table 1). Items were parallel to features in Lane, Carter, et al. (2015), including instructional and curricular considerations (e.g., selection of a school-wide social skills curriculum); procedures for teaching, reinforcing, and monitoring (including treatment integrity and student performance); and data-informed decision-making processes. Items included Tier 1 features (e.g., teaching and reinforcement; 13 items), Tier 2 and 3 features (e.g., additional supports; 4 items), and features pertaining to monitoring and data-informed decision making (8 items). Respondents rated, "To what extent is your school currently implementing this feature" using a 5-point Likert-type scale (1 = *not at all*, 3 = *somewhat*, 5 = *fully implemented*). Cronbach's alphas for the current sample were .91, .92, and .88, respectively.

### ***Resources and Professional Development Needs***

Respondents rated 19 educational practices typically implemented across the Ci3T model continuum,



featuring research-based strategies and practices for each learning domain (e.g., academic, behavioral, social; see Table 2). Items included traditional Tier 2 supports (e.g., small-group interventions), low-intensity supports (e.g., behavioral contracts), teacher-level strategies (e.g., instructional choice), as well as Tier 3 supports (e.g., intensive reading instruction; functional behavioral assessments). Respondents rated (a) the degree to which their school was implementing the practice (Table 2) and (b) their desire for additional assistance to facilitate implementation (Table 3), with correlations between constructs (Table 4). Responses included implementation (1 = *not at all*, 3 = *somewhat*, 5 = *fully*) and desire for support (1 = *no desire*, 3 = *some desire*, 5 = *strong desire*). Respondents selected three priorities for professional development in the next school year. Cronbach's alphas were .94 and .96.

### ***Professional Development Avenues***

Participants rated how likely they were to engage in 24 potential avenues for professional development (e.g., state conferences, brief 'good practice' guides; see Table 5), with options developed by Lane, Carter, et al. (2015) based on the professional development literature (e.g., Garet et al., 2001; Penuel et al., 2007). We added additional items related to project-specific professional learning avenues (e.g., interactive eBook, web-based professional learning module). The 5-point Likert-type rating scale ranged from 1 = *very unlikely*, 3 = *somewhat likely*, to 5 = *very likely*, with the assumption each opportunity was available. Cronbach's alpha was .93.

### ***Essential Demographics***

At the opening of the survey, participants provided demographic information: gender (male, female, do not identify as male or female), age, ethnicity and race, highest degree obtained, role at their school, grade levels taught, as well as experience (e.g., years in education, Ci3T leadership team membership, professional learning hours earned in 2019-2020). See supplemental Table S1 for participant characteristics.

### **Design and Analysis**

As defined in our pre-registered data analytic plan (Lane, Buckman et al., 2020), we used descriptive and inferential statistics to answer our research questions. We employed descriptive statistics to summarize (a) current practices in schools, (b) educational practices currently in place as well as desire for professional development in these areas, and (c) preferences for potential avenues for professional development. In terms of current school practices, we conducted a series of one-way ANOVAs to compare mean levels, contrasting the views of different subgroups on (a) Tier 1, (b) Tiers 2 and 3, and (c) monitoring and decision making. In our preregistration, we planned to draw comparisons across stages of implementation as well as across districts and states. However, given

the resulting sample size of 720 respondents with some districts having all schools in the same implementation phase, we focused on comparisons between stage of implementation and state, with the latter intended to examine regional differences. We used Tukey multiple comparisons ( $\alpha = .05$ ) to determine differences in mean scores for all comparisons proposed in the research questions. We included state comparison tables in supplemental files (S3-S6). Also, we computed Pearson correlation coefficients to explore relations between ratings of current implementation and desire for professional development for each educational practice ( $r$  ranges from -1.0 to 1.0). We analyzed all available data from the 720 respondents, including partially completed surveys. Visual inspection of survey completion patterns showed no clear patterns of missing item-level data. For example, respondents did not have a pattern of stopping to respond half-way through the survey.

## Results

### Implementation of Core Features

To answer the first set of research questions, we present results for core features of (a) Tier 1, (b) Tiers 2 and 3, and (c) monitoring and data-informed decision making (Table 1 Panel A). Then we explore differences in implementation of core Ci3T features according to building-level stages of implementation (see Table 1 Panel B for mean score comparisons by implementation stage and Supplemental Table S3 for comparisons by state).

#### *Core Features of Tier 1 Efforts*

More than 50% of respondents indicated a high level of implementation (ratings of 4 or 5) for each of the 13 Tier 1 features. All mean score ratings exceeded the 3.00 midpoint, with average scores ranging from 3.99 ( $SD = 1.06$ ) for an established discipline plan for responding to rule infractions to 4.72 ( $SD = 0.59$ ) for school-wide expectations for all key settings. More than 75% of respondents reported school-wide expectations for all key settings were fully implemented (rating a 5), yet monthly instruction of school-wide expectations were implemented at a lower level ( $M = 4.06$ ). In terms of social skills, 58% of respondents indicated a school-wide social skills curriculum was fully implemented (i.e., rating a 5) and the same percentage of respondents indicated they fully implemented at least monthly instruction in the social skills curriculum.

#### *Core Features of Tier 2 and 3 Efforts*

More than 80% of respondents indicated high implementation (ratings of 4 or 5) for Tier 2 and Tier 3 support for academic issues; we observed similar—although slightly lower—implementation of Tier 2 and Tier 3 behavioral or social supports. Mean scores suggested high level of implementation, ranging from 4.00 ( $SD = 1.03$ ,

Tier 3 support for behavioral or social issues) to 4.27 ( $SD = 0.86$ , Tier 2 support for academic issues).

### ***Core Features of Monitoring and Data-informed Decision-making Efforts***

Sixty-five percent or more respondents reported a high level of implementation (ratings 4 or 5) for these features. Mean scores ranged from a low of 3.86 ( $SD = 1.04$ ) for a method of gathering information from stakeholders on primary program to 4.67 ( $SD = 0.70$ ) for academic screening of all students to benchmark progress (three times per year). For all eight features, mean scores far exceeded the scale midpoint.

### **Variation in Implementation: Implementation Stage and State**

Results of a series of one-way ANOVAs contrasting ratings by school implementation stage (year 1, 2, 3, 4 and 6, respectively) on Tier 1, Tiers 2 and 3, and monitoring and data-informed decision-making features suggested relatively high and consistent implementation of most features during the first four years of implementation. For most Tier 1 features, implementation was lower for schools in the sixth year ( $Range = 3.58-4.70$ ) relative to schools in earlier stages of implementation ( $Range = 3.94 -4.73$ ), but still well above the scale midpoint. In terms of Tier 2 and Tier 3 features, there were no statistically significant differences with respect to academic supports. However, there were significant distinctions in implementation of Tier 2 and Tier 3 interventions for behavioral issues, with respondents in the second year of implementation reporting higher level of implementation relative to all other years for Tier 2 behavioral supports. For monitoring and data-informed decision-making efforts, behavior screening of all students to monitor progress three times a year was implemented with less fidelity in year 1 relative to years 2, 3, and 6. However, the mean score for year 1 implementers was still quite high at 4.20 ( $SD = 1.15$ ), with no statistically significant differences in mean scores between years 2 through 6 with respect to behavior screening. For five monitoring and decision making items, year 6 implementers reported statistically significantly lower implementation than those in earlier implementation stages, potentially suggesting waning of core features.

Results of a series of one-way ANOVAs contrasting ratings by state across three geographic regions (West, Midwest, and Northeast) on Tier 1, Tiers 2 and 3, and monitoring and data-informed decision-making features also indicated relatively high and consistent implementation of most features across states. For most Tier 1 features there were no statistically significant differences between states, with the exception of two items: differentiated instruction for academic tasks and monthly instruction in the social skills curriculum, with Midwest respondents indicating higher levels of implementation (see Supplemental Table S3). In terms of Tier 2 and Tier 3 features, there were statistically significant differences on all four features, again suggesting higher levels of implementation in the

Midwest. It is noteworthy the mean scores were well-above the scale midpoint for all three states. For monitoring and data-informed decision-making efforts, this was the area with the most distinctions between states, particularly with respect to conducting behavior screenings which showed distinctions between all geographic states.

### **Implementation and Desire for Professional Development**

Of the 19 common educational practices and supports examined (see Table 2), 50% or more respondents indicated a high level of implementation (ratings of 4 or 5) for 10 items, with mean scores as follows: small-group reading instruction ( $M = 4.59, SD = 0.64$ ), behavior intervention plans (BIP;  $M = 3.81, SD = 1.01$ ), increasing behavior-specific praise (BSP;  $M = 4.22, SD = 0.82$ ), increasing opportunities-to-respond (OTR;  $M = 3.87, SD = 0.92$ ), Check-in/ Check-out (CICO;  $M = 3.65, SD = 1.09$ ), inclusive supports ( $M = 3.74, SD = 0.98$ ), incorporating choice and preferred activities into instruction ( $M = 3.69, SD = 0.94$ ), bullying prevention ( $M = 3.75, SD = 1.04$ ), de-escalation techniques ( $M = 3.67, SD = 1.00$ ), and technology in the classroom ( $M = 4.28, SD = 0.81$ ). Only two educational practices and supports had reported implementation averages below the scale midpoint: small-group self-determination instruction ( $M = 2.89, SD = 1.28$ ) and peer-mediated support strategies ( $M = 2.76, SD = 1.22$ ). Table 2 also includes mean levels of implementation for schools at different stages of implementation.

In terms of the desire for professional learning across educational practices (see Table 3), 50% or more indicated high desire (ratings of 4 or 5) for all but five items: small-group self-determination instruction, test-taking strategies instruction, functional behavioral assessment (FBA), BSP, and CICO. All mean scores were above the scale midpoint, suggesting interest in professional learning for all practices, with particular interest in de-escalation techniques ( $M = 4.12, SD = 0.97$ ) and strategies for internalizing behaviors ( $M = 3.94, SD = 0.98$ ).

### **Relation Between Implementation and Desire for Professional Development**

Results indicated statistically significant correlations between educator ratings of currently implemented practices and desire for support for most (i.e. 13/19) educational practices and supports (see Table 4). Significant correlations were in the low-to-moderate range: 0.12 (incorporating choice and preferred activities into instruction) to 0.33 (small-group self-determination instruction and providing 1:1 reading or academic instruction).

### **Differences in Views across Implementation Stages**

We conducted a series of one-way ANOVAs contrasting educator ratings at schools in various years of implementation (years 1, 2, 3, 4, and 6) examining (a) the extent to which they were implementing educational practices and supports that might be implemented as part of Ci3T models (Table 2) and (b) desire for additional

support in addressing each of the 19 educational practices (e.g., training, coaching, print or web-based resources; Table 3). Results indicated statistically significant differences between participants from schools at different stages of implementation for the following: small-group social skills instruction  $F(4, 647) = 3.76, p = 0.005, R^2 = .023$  (6 < 2, 4), self-monitoring strategy instruction,  $F(4, 640) = 3.94, p = 0.004, R^2 = .02$  (6 < 2, 4); test-taking strategy instruction,  $F(4, 643) = 5.30, p = 0.0003, R^2 = .03$  (6 < 1, 4); peer-mediated support strategies,  $F(4, 639) = 3.77, p = 0.005, R^2 = .02$  (6 < 4); FBA,  $F(4, 630) = 7.85, p < 0.0001, R^2 = .05$  (6 < 2, 4); behavior intervention plans (BIP),  $F(4, 644) = 2.75, p = 0.028, R^2 = .02$  (6 < 2); providing 1:1 reading or academic instruction,  $F(4, 641) = 2.56, p = 0.04, R^2 = .02$  (NS); increasing BSP,  $F(4, 643) = 2.89, p = 0.02, R^2 = .02$  (6 < 2); CICO,  $F(4, 639) = 4.08, p = 0.003, R^2 = .02$  (6 < 2); inclusive supports,  $F(4, 638) = 6.93, p < 0.0001, R^2 = .04$  (6 < 2, 3; 2 > 1, 4); bullying prevention,  $F(4, 642) = 4.38, p = 0.002, R^2 = .03$  (6 < 1, 2, 4); strategies for internalizing behaviors,  $F(4, 640) = 5.86, p = 0.0001, R^2 = .04$  (6 < 2, 4); and de-escalation techniques,  $F(4, 644) = 7.98, p < 0.0001, R^2 = .05$  (6 < 2, 4; 2 > 1, 3). Multiple comparisons suggested implementation was reportedly lower for educators in schools in year six of implementation and highest for inclusive supports and de-escalation techniques for those in their second year of implementation. Results also indicated few statistically significant differences in desire for professional learning between participants at schools in different stages of implementation: FBA,  $F(4, 615) = 2.92, p = 0.02, R^2 = .02$  (6 < 4); strategies for internalizing behaviors,  $F(4, 625) = 2.46, p = 0.04, R^2 = .02$  (NS); and technology in the classroom,  $F(4, 631) = 2.89, p = 0.02, R^2 = .02$  (6 < 3), with all mean scores above the scale midpoint.

Next, we conducted a similar series of one-way ANOVAs contrasting educator ratings at schools between three states (Washington, Kansas, and Vermont) examining (a) the extent to which they were implementing educational practices and supports that might be implemented as part of Ci3T models and (b) desire for additional support with these practices (see Supplemental Table S4 and S5). Results indicated statistically significant differences between states as follows: small-group social skills instruction,  $F(2, 649) = 12.19, p < 0.0001, R^2 = .04$  (KS > WA, VT); small-group reading instruction,  $F(2, 651) = 5.05, p = 0.007, R^2 = .02$  (WA > VT); small-group self-determination instruction,  $F(2, 637) = 3.68, p = 0.03, R^2 = .01$  (KS > VT); peer-mediated support strategies,  $F(2, 641) = 4.04, p = 0.02, R^2 = .01$  (KS > VT); BIP,  $F(2, 646) = 16.84, p < 0.0001, R^2 = .05$  (1, WA > VT); BSP,  $F(2, 645) = 4.34, p = 0.01, R^2 = .01$  (KS > VT); increasing OTR,  $F(2, 639) = 4.14, p = 0.02, R^2 = .01$  (NS); CICO,  $F(2, 641) = 15.02, p < 0.0001, R^2 = .04$  (KS, WA > VT); inclusive supports,  $F(2, 640) = 18.64, p < 0.0001, R^2 = .06$  (KS > WA, VT); incorporating choice & preferred activities into instruction,  $F(2, 644) = 8.27, p = 0.0003, R^2 = .03$

(KS > WA, VT); strategies for internalizing behaviors,  $F(2, 642) = 3.68, p = 0.03, R^2 = .01$  (NS); de-escalation techniques,  $F(2, 646) = 7.16, p = 0.001, R^2 = .02$  (KS > WA, VT); and technology in the classroom,  $F(2, 651) = 5.68, p = 0.004, R^2 = .02$  (KS > WA). There was not a distinct pattern for differences; however, for 10 education practices and supports, implementation was reportedly higher in the Midwest. Results also indicated no statistically significant differences in desired professional learning between participants at schools in different geographic locales with the exception of FBA,  $F(2, 617) = 3.45, p = 0.03, R^2 = .01$  (VT > KS), which was prioritized by participants in the Northeast. The desire for professional learning was above the scale median for all practices.

### **Priorities for Professional Development**

Respondents rated their top three areas for professional learning in the coming year. Approximately 20% of respondents selected de-escalation techniques and 11% selected small-group social skills instruction as their top priority. For the second priority, 16% of respondents selected de-escalation techniques and 11% selected strategies for internalizing behaviors (e.g., cognitive restructuring). For the third priority, again de-escalation techniques (12%) and strategies for internalizing behaviors (9%) were most valued.

### **Preferences for Professional Development Avenues**

When providing input on their preferred avenues for professional development to learn about Tier 1, 2, and 3 supports within Ci3T models, the most popular endorsements were participate in in-district, during-school workshops ( $M = 4.04, SD = 1.08$ ; see Table 5), course for college credit on-line; ( $M = 3.61, SD = 1.16$ ), and teacher collaboratives/ networks ( $M = 3.44, SD = 1.05$ ). A number of other avenues were rated well-above the scale midpoint. In-district, weekend workshops was by far the least preferred avenue ( $M = 1.82, SD = 1.04$ ).

### **Differences in Preferred Avenues**

Results of a series of one-way ANOVAs contrasting educator ratings at schools in various years of implementation (years 1, 2, 3, 4, and 6) indicated several similar preferences, based on the assumption that these options were actually available. There were statistically significant differences for out-of-district workshops,  $F(4, 641) = 3.07, p = 0.02, R^2 = .02$  (6 < 2, 4); course for college credit (on-line),  $F(4, 642) = 5.03, p = 0.001, R^2 = .03$  (1 < 4); course for college credit (on-campus),  $F(4, 640) = 4.83, p = 0.001, R^2 = .03$  (1, 6 < 4); state conferences,  $F(4, 640) = 8.47, p < 0.0001, R^2 = .05$  (1, 2, 3, 4 < 6); nation conferences,  $F(4, 643) = 3.32, p < 0.01, R^2 = .02$  (6 < 1, 4); and webinars,  $F(4, 641) = 4.42, p = 0.002, R^2 = .03$  (6 < 4).

Results also indicated statistically significant differences in desired professional learning between

participants in schools in different states: in-district, after-school workshop,  $F(2, 645) = 11.39, p < 0.0001, R^2 = .03$  (WA > KS); out-of-district workshops,  $F(2, 643) = 3.47, p = 0.03, R^2 = .01$  (WA > KS); summer institutes (week long),  $F(2, 646) = 3.35, p < 0.04, R^2 = .01$  (NS); course for college credit (on-line),  $F(2, 644) = 11.65, p < 0.0001, R^2 = .03$  (VT > KS, WA); course for college credit (on-campus),  $F(2, 642) = 13.32, p < 0.0001, R^2 = .04$  (VT > KS > WA); state conferences,  $F(2, 642) = 4.19, p = 0.02, R^2 = .01$  (WA > KS); webinars,  $F(2, 643) = 4.44, p = 0.01, R^2 = .01$  (WA > KS); and teacher study groups or “learning circles,”  $F(2, 645) = 4.68, p = 0.01, R^2 = .01$  (VT > KS).

### Discussion

Professional learning continues to be an important component of implementing and sustaining complex, integrated systems such as Ci3T. As part of this pre-registered study funded by IES, to better understand how to provide enhanced professional learning for integrated tiered systems, we invited educators from 27 elementary schools in various stages of Ci3T implementation representing five districts from three states. In Ci3T models, on-going data-informed professional learning is a hallmark characteristic of the implementation process. Given the complexities of the teaching enterprise and often-limited resources, it is particularly important educators be provided a full scope of professional learning resources in terms of content and via multiple avenues to meet individualized, on-going, changing professional learning needs (Lane, Carter, et al., 2015; Oakes et al., 2021). Part of accomplishing this lofty goal is understanding patterns of implementation and professional learning priorities across initial implementation, full operation, innovation, and sustained practice (Fixsen et al., 2008). As such, we sought current implementation of core Ci3T features and common educational practices and supports from educators, as well as their professional learning content and avenue preferences.

#### Implementation: Ci3T Core Features

We examined the degree to which core Ci3T components were implemented across three tiers of prevention. Similar to Oakes et al. (2021), most educators indicated high implementation levels across Tier 1 features, with the highest ratings identified for having school-wide expectations for all key settings. Interestingly, across this study and its two predecessors, educators reported higher levels of implementing monthly instruction using the school-wide social skills curriculum than monthly instruction on school-wide expectations (Lane, Carter, et al., 2015; Oakes et al., 2021). Based on this finding, it may be a priority to create professional learning content focused on use of integrated lesson planning, which involves inclusion of academic (tied to core instruction), behavioral (tied to school-wide expectations), and social (tied to validated social skills curriculum) objectives within

a lesson or unit (Lane, Menzies et al., 2020). Similarly, professional learning may be needed to support school leaders in creating structures (e.g., procedural integrity checklist, instructional schedule) to facilitate instruction on school-wide expectations throughout the year (Oakes et al., 2021).

Across Tier 2 and Tier 3 core features, respondents in the present study rated implementation of social-emotional and behavioral Tier 2 and 3 supports lower than Tier 2 and Tier 3 academic supports. Yet mean implementation ratings of social-emotional and behavioral interventions were nevertheless consistently above the scale midpoint. These findings were consistent with previous studies. Across studies, patterns in educators' implementation of Tier 2 and 3 supports highlight areas for both celebration and refinement. It is promising that there appears to be an increasing emphasis on academic, behavioral, and social-emotional Tier 2 and 3 supports in the more recent studies (i.e., Oakes et al., 2021 and the present study). Yet based on consistently lower ratings of behavioral and social-emotional supports relative to academic supports, there appears to be an opportunity to use professional learning to assist educators in implementing these supports for students who may need behavioral and social-emotional supports beyond what is provided at Tier 1, particularly in response to supporting students during COVID-19 (Chafouleas et al., 2020).

With respect to core Ci3T features related to monitoring and data-informed decision-making, findings again highlight successes and areas to target in future professional learning offerings within integrated tiered systems such as Ci3T. For instance, implementation of monitoring and data-informed decision-making features were higher in this three-geographic region sample relative to findings reported by Oakes et al. (2021). Across regions and range of implementation levels, the lowest implemented feature was a method of gathering information from stakeholders on primary programs ( $M = 3.86$ ), whereas the highest implemented feature was academic screening to benchmark progress ( $M = 4.67$ ). These findings were identical to patterns found by Oakes et al. (2021), with the exception mean values for these items were slightly higher in the present sample.

The consistent, relatively lower scores for collecting information from stakeholders were initially surprising given the emphasis on data-informed decision-making within Ci3T. Ci3T implementation involving collection of Tier 1 programmatic data (e.g., treatment integrity, social validity). Each of the schools involved in the present study participated in collection of treatment integrity and social validity data two times per year (i.e., fall, spring) to ensure availability of feedback on fidelity of the primary (Tier 1) plan. Findings suggested professional learning is needed to provide clarity around these systems-level procedures for monitoring, including how, when, and why these



measures are administered, and how these data are used to inform decisions at the school, classroom, and student level-levels. Empowering educators to collect and use these data, as well as gathering feedback from other stakeholders (e.g., families) to support work within integrated, tiered systems, is an important next step.

Regarding differences between ratings at various stages of implementation, we observed statistically significantly lower ratings for educators in schools in the sixth year of implementation relative to schools in earlier stages. We also noted that, despite being lower in schools in the sixth year of implementation, ratings across phases were consistently well above the scale midpoint. Differences in the most experienced schools may reflect innovations occurring as practices become adapted to fit within the unique context of a school or district's organizational structure (Taxman & Belenko, 2012). Another possibility is certain core features have waned over time, potentially due to turnover in school personnel, initiative fatigue, a gradual release of formalized university-led supports, or the need for professional learning materials aimed specifically at schools in the sustainability phase (e.g., refresher trainings, formalized onboarding for new faculty and staff). Alternatively, expectations may have shifted, and these ratings may indicate there is a desire or need for more advanced systems and training to facilitate various features of Ci3T such using data to connect students to Tier 2 and 3 supports and using schoolwide data to monitor treatment integrity and social validity, as well as to inform professional learning offerings.

### **Implementation: Common Educational Practices and Supports**

In terms of educational practices and supports implemented, results were highly comparable to previous studies with small-group reading instruction, BIP, BSP, increased OTR, incorporating choice and preferred activities into instruction, bullying prevention, and technology in the classroom all reportedly implemented at a high level. In addition, the current sample of respondents also reported high levels of implementation of Check-in/Check-out, inclusive supports, and de-escalation techniques.

Although this sample reported higher levels of implementation of most educational practices and supports relative to Oakes et al. (2021), small-group self-determination instruction and peer-mediated supports remained implemented at relatively low levels. Given the importance of self-determined behaviors and social competencies with peers, these will be important areas for future inquiry to support implementation as part of regular school practices. Given the integrated nature of Ci3T, we encourage research teams to explore efficient methods of developing intervention techniques that will carefully attend to generalizing self-determination and social competencies throughout and beyond the school day. For example, as with social skills instruction, it would be wise

to communicate with educators the specific skills taught in the small-group setting so teachers and other adults could be watching for use or application of specific skills taught. When recognized, adults can provide BSP (which was implemented at a very high level in this sample,  $M = 4.22$ ) to acknowledge students for generalized use of targeted skills beyond small group settings (Common et al., 2019).

In terms of educator desire for additional professional learning around common educational practices and supports, respondents indicated a high desire for most practices. De-escalation techniques, strategies for internalizing behaviors, small-group reading instruction, bullying prevention, and technology in the classroom were rated highest, whereas small-group self-determination instruction, test-taking strategy instruction, FBA, BSP, and CICO were rated lowest in terms of desirability. Similar to Oakes et al. (2021), most educators indicated they were open to professional learning, as evidenced by all mean scores falling above the scale midpoint. There was also a positive relation between educator ratings of currently implemented practices and desire for support for most practices and support (13/19), similar to administrators' views in Lane, Carter, et al. (2015) and divergent from Oakes et al. (2021), which showed only significant positive relations for four practices. Although significant, correlations were small across studies, though findings suggested educators are interested in increasing knowledge of interventions of which they already have some level of familiarity.

Regarding differences between educators' ratings of common educational practices and supports across implementation year, patterns suggest implementation was lower for educators working within the most experienced schools (i.e., year 6). In terms of differences between educators across states, implementation tended to be higher in districts in Kansas. This may be due to the close proximity to a large university prioritizing research on evidence-based practices and inclusive supports. In contrast, most practices were not rated differently with regard to a desire for professional learning by school's implementation year or locale. Notable differences in implementation of educational practices and desire for additional support highlighted the need to assess professional learning through data-informed processes to individualize content and avenues of professional learning.

### **Professional Learning Preferences**

Clear priorities were related to students' behavioral and social well-being: de-escalation techniques (Colvin & Scott, 2015), social skills instruction (Common et al., 2019), and strategies for internalizing behaviors (Vannest et al., 2015). De-escalation techniques were also the top-rated professional learning priority reported by Oakes et al. (2021). These results are reaffirming in that educators across all three studies conducted to date are implementing

educational practices and supports for the whole child (Table 2) and have a desire for professional learning related to supporting students' behavioral and social well-being, particularly at Tiers 2 and 3 (Table 3).

Educators most commonly preferred in-district during-school workshops, course for college credit (on-line), and teacher collaboratives/ networks as avenues for professional learning, and were least likely to prefer in-district weekend workshops being least preferred. The most and least preferred avenues were similar with Lane et al. (2015) and Oakes et al. (2021). Other highly preferred avenues in the current study included webinars (i.e., web-based presentations), brief "good practice" guides, multi-media presentations, one-to-one coaching or mentoring, and web-based professional learning modules. Further, educators across years of implementation reported similar preferences for professional development avenues, with the exception of out-of-district workshops, course for college credit, conferences, and webinars with educators from schools in their fourth-year rating high preferences in comparison to those from school buildings in their first or sixth year. Conversely, schools in their sixth-year preferred national conferences more so than educators from schools in all other implementation years. This may suggest professional learning needs shift as schools change from implementation phases associated with innovating and sustaining practices over time (Fixsen et al., 2005; Taxman & Belenko, 2012). Additionally, findings highlight the desirability of technology-based professional learning experiences (e.g., webinars, web-based professional learning modules) as well as opportunities to interact with others (e.g., collaboratives, coaching).

Educators across states were also similar in their reported preferences for professional development avenues, with the exception of in-district, after-school workshop, out-of-district workshops, course for college credit (on-line and on-campus), state conferences, webinars, and teacher study groups or "learning circles." Washington showed greater interest in in-district, after-school workshop and webinars and less interest in course for college credit (on-campus) in comparison to Kansas. Vermont showed greater interest in teacher study groups or "learning circles" in comparison to Kansas and greater interest in course for college credit (on-line) in comparison to Kansas and Washington. Districts in Kansas were in the same state as the lead University of Project ENHANCE; proximity to the university suggests there may be differences in accessibility to professional learning resources and research opportunities for districts near and far from partnering universities (Lane, Oakes, et al., 2017). This may be an important consideration in interpreting these comparisons.

### **Limitations and Future Directions**

We encourage readers to interpret results relative to the following considerations. First, as noted in earlier

published studies (Lane, Carter, et al., 2015; Oakes et al., 2021), this particular measure does not include operational definitions of each term. We refrained from this level of precision due to potential concerns with extending the time that would be necessary for respondents to complete an already lengthy survey. Therefore, educators' familiarity with these concepts may impact ratings of features, practices, and professional learning avenues. For example, educators indicated the feature least implemented for monitoring and decision-making was a method for gathering information from stakeholders on the primary program. Notably, each school included in this study had procedures in place to collect treatment integrity and social validity data from faculty and staff, which directly related to this item. Yet individual educators may not have considered or been aware of these data when responding, emphasizing the need for supporting school leaders in collecting, using, and sharing programmatic data (e.g., treatment integrity and social validity) as part of efforts to implement Ci3T. This example also exemplifies the importance of school leaders providing professional learning, context (e.g., the *why*), and transparency (e.g., sharing data) as part of implementing Ci3T and other tiered systems. Without purposeful information sharing and instruction, some stakeholders may have perceived features (e.g., data collection) as disconnected from the system.

Second, low levels of awareness of some research-based practices, particularly those commonly associated with special education rather than general education, may have impacted ratings of implementation and desirability of professional learning for some strategies and programs (e.g., self-determination instruction, FBA). This emphasizes the need for strong researcher-practitioner partnerships to share information about research- and evidence-based practices that can be used as intensive interventions regardless of students' eligibility, as well as collaboration between general and special educators to increase knowledge and access to these practices across the tiers. Future inquiry may involve assessing whether differences in implementation and professional learning preferences occur between school staff with various roles, and how those patterns shift over time.

Next, in this replication and extension study we conducted numerous statistical analyses with significant testing to answer the eight pre-registered questions. Type I error is a possibility when conducting many significance tests. Therefore, results should be interpreted with caution. Additionally, inferential statistics used in the present study indicated whether differences occurred between groups (i.e., implementation stage, state). We did not, however, conduct additional testing to examine the magnitude of differences. Although educator responses from schools in the sixth year of implementation indicated lower implementation across several features, responses were consistently above the scale midpoint, suggesting these features were still largely in place even if not rated as high

as in schools in earlier stages. Future inquiry may seek to quantify the magnitude of statistically significant differences to assess the extent to which they are practically significant.

Relatedly, we encourage caution in generalizing findings. We did not use random sampling to collect responses, as the purpose of this study was to assess professional learning needs to create resources to support implementation. Further, one district previously participated in a similar professional learning survey as part of an IES researcher-practitioner partnership grant (Oakes et al., 2021), collecting data from K-12 educators three years prior. It is possible some respondents in the current sample provided input from the previous study. However, this study focused exclusively on the elementary experience. Given the focus on needs assessment to inform professional learning, with attention to professional learning related to implementation stage or region may be idiosyncratic to the districts and schools from which data were collected. Nevertheless, overall findings provide a cross sectional view of professional learning needs from a diverse sample in terms of region and implementation stage. Further studies may replicate these data collection procedures and analyses using a broader and potentially randomly selected sample, as was the case in Lane, Carter, et al. (2015), to investigate more generalizable findings.

Lastly, the present study assessed participant responses to each professional learning method individually rather than asking for preferences relative to one another. Future inquiry may advance findings by asking participants to rank order their preferences (e.g., select your top three preferred professional learning preferences). This added specificity may assist researchers as well as school and district leaders in using data-informed decision-making to not only determine content, but also to prioritize how the content is provided. Additionally, gathering data on the extent to which educators actually participated in each type of professional learning avenue (e.g., “have you participated in out-of-district workshops in the past three years?”) may be beneficial. For example, gathering these additional data on educator preferences and patterns of use may reveal untapped areas in which professional learning innovation can occur. Avenues with high interest but low usage may benefit from further development. Or, combinations of preferred avenues may be explored, such as developing approaches to integrate social and technological elements of professional learning (e.g., teacher collaborative networks linked through social media; earning of micro-credentials which may be used to earn college credits or as skills to list on a résumé). Future inquiry may assess the extent to which data-informed, synergistic approaches can be leveraged to promote engagement and sustained behavioral change (e.g., adopting evidence-based practices).

## **Summary**

Lessons learned over the last two decades of Ci3T inquiry (Lane & Menzies, 2003; Lane, Menzies, et al., 2020) have led to the development and refinement of the Ci3T model. As part of the model's emphasis on data-informed decision making, Project ENHANCE is affording us the opportunity to develop professional learning resources to support Ci3T implementation at scale. Overall, more than half of educators in this study indicated high levels of implementation across core features of Ci3T as well as research-based strategies, practices, and programs. For many of these common practices there were significant relations between implementation and desire for support. One strength of this replication and extension study is the exploration of differences across stages of implementation as well as geographic regions across three states, as well as incorporation of open science practices in our study's procedures to build confidence in findings presented (Cook et al., 2016). This information will be used to inform professional learning materials to facilitate a wide range of professional learning avenues, including resources to support workshops, web-based learning, learning groups, and coaching—including materials which could be embedded in university micro-credentials or badges. Our commitment to professional learning to promote sustained implementation of socially valid practices is guided by a commitment to empower school systems with the skills and resources to move from initial implementation to sustainability (Fixsen et al., 2005). Research in implementation of tiered systems suggests it can take from three to five years for schools to reach a high degree of fidelity (McIntosh, Mercer, Nese et al., 2015). Results from this study, in addition to the professional learning needs around systematic screening (Briesch et al., 2021) and leadership (Royer et al., 2021) within integrated tiered systems will be used to inform future professional learning offerings that will be developed to enhance and sustain Ci3T implementation.

## **Declarations**

### **Funding**

This research was supported in part by the Institute of Education Sciences Integrated MTSS Grant (R324N190002). Opinions expressed herein are those of the authors and do not necessarily reflect the position of the U.S. Department of Education, and such endorsements should not be inferred.

### **Conflicts of interest/Competing interests**

Authors have no conflicts of interest associated with conducting this study or in the preparation of this manuscript, the funding agency is listed in the acknowledgements, and all APA ethical standards were followed.

### **Availability of data and material**

Data and materials, please contact corresponding authors, Eric Common, Mark Buckman, or Kathleen Lane for data and survey instrument.

### **Code availability**

Data and materials, please contact corresponding authors, Eric Common, Mark Buckman, or Kathleen Lynne Lane for copy of code.

### **Ethics approval**

We received district and from across university Human Research Protection Program/ Institutional Review Boards and districts prior to beginning study procedures.

### **Consent to participate**

As part of this study, we are using an informational letter to invite all faculty and staff to participate in this voluntary study and complete a one-time survey following approved procedures.

### **Consent for publication**

This manuscript is original, has not been previously published, all authors approve this submission.

### References

- Barrett, S., Eber, L., & Weist, M. (Eds.;2013). *Advancing educational effectiveness: Interconnecting school mental health and school-wide positive behavior support*.  
<https://www.pbis.org/common/cms/files/Current%20Topics/Final-Monograph.pdf>.
- Briesch, A. M., Chafouleas, S. M., Iovino, E. A, Abdulkerim, N, Sherod, R. L., Lane, K. L., Oakes, W. P., Common, E. A., & Royer, D. J., (2021). Exploring directions for professional learning to enhance behavior screening within a Comprehensive, Integrated Three-Tiered Model of Prevention. *Manuscript in preparation*.
- Buckman, M. M. (2021). *Treatment integrity in tiered systems* [Doctoral dissertation, University of Kansas]. ProQuest Dissertation and Theses Global.
- Chafouleas, S. M., Koriakin, T. A., Iovino, E. A., Bracey, J., Marcy, H. M. (2020, July, 6). *Responding to Covid-19: Simple strategies anyone can use to foster an emotionally safe school environment*. Collaboratory on School and Child Health. <https://csch.uconn.edu/wp-content/uploads/sites/2206/2020/07/CSCH-Report-Responding-to-COVID-19-Simple-Strategies-7-6-20.pdf>
- Chafouleas, S. M., Riley-Tillman, T. C., Jaffery, R., Miller, F. G., & Harrison, S. E. (2015). Preliminary investigation of the impact of a web-based module on Direct Behavior Rating accuracy. *School Mental Health*, 7(2), 92-104. <https://doi.org/fs5p>
- Colvin, G., & Scott, T. M. (2015). *Managing the cycle of acting-out behavior in the classroom*. Corwin Press.
- Committee for Children (1992). *Second Step: A Violence Prevention Curriculum*. Author.
- Common, E. A., Buckman, M. M., Lane, K. L., Leko, M., Royer, D. J., Oakes, W. P., & Allen, G. E. (2019). Exploring solutions to address students' social competencies to facilitate school success: A usability and feasibility study. *Education and Treatment of Children*, 42(4), 489-514. <https://doi.org/fs5q>
- Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web- or internet-based surveys. *Educational and Psychological Measurement*, 60(6), 821–836. <https://doi.org/b6spkj>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2008). *Internet, mail, and mixed-model surveys: The tailored design method* (3rd ed.). John Wiley & Sons.
- Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). <https://www.congress.gov/bill/114th-congress/senate-bill/1177>
- Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. 2005. *Implementation research: A*



- synthesis of the literature*. University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).
- Fixsen, D. L., Blase, K. A., Naoom, S. F., & Wallace, F. (2009). Core implementation components. *Research on Social Work Practice, 19*(5), 531-540. <https://doi.org/c3hxnk>
- Fuchs, L. S., Fuchs, D., & Compton, D. L. 2012. Smart RTI: A next-generation approach to multilevel protection. *Exceptional Children, 78*(3), 236-279. <https://doi.org/drdrw>
- Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*(4), 915-945. <https://doi.org/cvm7rq>
- Horner, R. H., Sugai, G., & Fixsen, D. L. (2017). Implementing effective educational practices at scales of social importance. *Clinical Child and Family Psychology Review, 20*(1), 25-35. <https://doi.org/fs5r>
- Institute of Education Sciences. (2018) *Request for applications: Research networks focus on critical problems of policy and practice in special education* (CFDA 84.324N). U.S. Department of Education.
- Integrated Multi-Tiered System of Support (n.d.). Integrated Multi-Tiered System of Support: Overview. <https://mtss.org/overview/>
- Lane, K. L., Buckman, M., Schatschneider, C., Oakes, W., Common, E. A., Briesch, A., Royer, D., & Chafouleas, S. (2020, March 1). *Project ENHANCE: Assessing professional learning needs for Ci3T*. <https://osf.io/x78jk>
- Lane, K. L., Cabell, S.Q., & Drew, S. V. (2020). A productive scholar's guide to respectful, responsible inquiry during the COVID-19 pandemic: Moving forward. *Manuscript in review*.
- Lane, K. L., Carter, E., Jenkins, A., Magill, L., & Germer, K. (2015). Supporting comprehensive, integrated, three-tiered models of prevention in schools: Administrators perspectives. *Journal of Positive Behavior Interventions, 17*(4), 209-222. <https://doi.org/f7pt23>
- Lane, K. L., & Menzies, H. M. (2003). A school-wide intervention with primary and secondary levels of support for elementary students: Outcomes and considerations. *Education and Treatment of Children, 26*, 431-451.
- Lane, K. L., Menzies, H. M., Oakes, W. P., & Kalberg, J. R. (2020). *Developing a schoolwide framework to prevent and manage learning and behavior problems* (2nd ed.). Guilford Press.
- McIntosh, K., Goodman, S. (2016). *Integrated multi-tiered systems of support: Blending RTI and PBIS*. Guilford Press.

McIntosh, K., Mercer, S. H., Hume, A. E., Frank, J. L., Turri, M. G., & Mathews, S. (2013). Factors related to sustained implementation of schoolwide positive behavior support. *Exceptional Children, 79*(3), 293-311.

Oakes, W. P., Lane, K. L., Royer, D. J., Buckman, M. M., Common, E. A., Allen, G. E., & Cantwell, E. D. (2021).

Supporting the installation of comprehensive, integrated, three-tiered (Ci3T) models of prevention: Educator perspectives. *Manuscript in review*.

Positive Action. (2020, August). *Social emotional learning (SEL) standards in all 50 states*.

<https://www.positiveaction.net/blog/sel-standards>

Royer, D. J., Oakes, W. P., Chafouleas, S. M., Briesch, A. M., Lane, K. L., Buckman, M. M., Sherod, R. L. (2021).

Project ENHANCE Component 2: Leadership – Interviews and Focus Groups. Manuscript in preparation.

Sugai, G., & Horner, R. H. (2009). Responsiveness-to-intervention and school-wide positive behavior supports:

Integration of multi-tiered system approaches. *Exceptionality, 17*(4), 223-237. <https://doi.org/frftrq>

Taxman, F. S., & Belenko, S. (2012). *Implementing evidence based practices in community corrections and addiction treatment*. Springer.

Vannest, K., Reynolds, C. R., Kamphaus, R. W. (2015). *BASC™-3 Intervention Guide & Materials (BASC™-3 Intervention)*. Pearson.

Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional development in the United States: Trends and challenges*. National Staff Development Council.

<https://learningforward.org/docs/default-source/pdf/nsdcstudytechnicalreport2010.pdf?sfvrsn=0>

**Table 1***Panel A: Ratings of Features of Three-Tiered Models Currently Being Implemented*

Feature	Years implementing (% responding)					Total N = 720 M (SD)
	1	2	3	4	5	
<b>Tier 1: Instruction and Reinforcement</b>						
A common curriculum for core academic areas	0.00	1.04	5.36	27.68	65.92	4.58 (0.64)
Instruction linked to district and Common Core state standards	0.00	0.30	5.07	21.94	72.69	4.67 (0.58)
Differentiated instruction for academic tasks	0.30	2.11	16.54	41.65	39.40	4.18 (0.80)
A school-wide social skills curriculum (e.g., Positive Action, Connect With Kids, Second Step)	0.45	2.24	11.64	27.91	57.76	4.40 (0.81)
Monthly (minimum) instruction in the social skills curriculum	0.75	1.95	13.17	26.35	57.78	4.38 (0.84)
A Schoolwide Positive Behavioral Interventions and Supports (PBIS) program	0.15	0.30	6.14	21.71	71.71	4.65 (0.62)
School-wide expectations for all key settings	0.15	0.74	4.17	16.96	77.98	4.72 (0.59)
An established discipline plan for responding to rule infractions that do occur	3.60	5.56	18.47	33.03	39.34	3.99 (1.06)
Individual classroom management systems in addition to school-wide systems	0.30	2.53	12.07	38.45	46.65	4.29 (0.80)
Instruction in school-wide behavioral expectations (at least once per month)	1.81	5.58	19.76	30.92	41.93	4.06 (1.00)
A system for students to receive reinforcement for meeting expectations	0.30	1.35	8.68	24.10	65.57	4.53 (0.73)
Adults providing behavior-specific praise when allocating reinforcers	0.30	1.35	9.27	36.02	53.06	4.40 (0.74)
A range of reinforcers for acknowledging students who meet expectations	0.76	3.02	15.26	35.50	45.47	4.22 (0.87)
<b>Tier 2 and 3 Supplemental Supports</b>						
Tier 2 support (also called secondary support) for academic issues	0.61	3.03	14.24	32.58	49.55	4.27 (0.86)
Tier 2 support (also called secondary support) for behavioral or social issues	1.81	5.88	18.70	34.54	39.06	4.03 (0.99)
Tier 3 support (also called tertiary support) for academic issues	0.46	4.10	14.72	30.35	50.38	4.26 (0.89)
Tier 3 support (also called tertiary support) for behavioral or social issues	1.98	7.29	19.91	30.85	39.97	4.00 (1.03)
<b>Monitoring and Decision Making</b>						
Academic screening of all students to benchmark progress (at 3x per year)	0.77	0.93	5.71	15.90	76.70	4.67 (0.70)
Behavior screening of all students to monitor progress (at 3x per year)	2.32	2.78	12.06	15.30	67.54	4.43 (0.97)
Monthly team meetings to examine data and address implementation issues	1.50	4.36	15.49	25.41	53.23	4.25 (0.97)
A method of analyzing academic data to identify students for Tier 2/3	0.91	1.67	14.87	33.69	48.86	4.28 (0.84)
A method of analyzing behavioral data to identify students for Tier 2/ 3	1.52	4.57	18.57	34.40	40.94	4.09 (0.95)
A method of gathering information from stakeholders on primary program	2.93	6.17	25.77	32.56	32.56	3.86 (1.04)
A method of ensuring the primary (Tier 1) program is implemented as planned	1.22	5.03	18.60	35.37	39.79	4.07 (0.94)
A feedback procedure for modifying the plan annually	2.13	5.17	22.95	32.67	37.08	3.97 (1.00)

*Note.* Percentages are based on the number of participants who completed the given item.

**Table 1**

*Panel B: Mean Score Comparisons Between Implementation Stages: Ratings of Features of Three-Tiered Models Currently Being Implemented*

Feature	Years implementing						Significance testing	MC
	Total	1	2	3	4	6		
	<i>N</i> = 720 <i>M</i> ( <i>SD</i> )	<i>n</i> = 156 <i>M</i> ( <i>SD</i> )	<i>n</i> = 127 <i>M</i> ( <i>SD</i> )	<i>n</i> = 80 <i>M</i> ( <i>SD</i> )	<i>n</i> = 233 <i>M</i> ( <i>SD</i> )	<i>n</i> = 124 <i>M</i> ( <i>SD</i> )		
<b>Tier 1: Instruction and Reinforcement</b>								
A common curriculum for core academic areas	4.58 (0.64)	4.58 (0.71)	4.67 (0.58)	4.55 (0.65)	4.64 (0.58)	4.42 (0.70)	$F(4, 667) = 2.81,$ $p = 0.03, R^2 = 0.02$	6 < 2,4
Instruction linked to district and Common Core state standards	4.67 (0.58)	4.73 (0.58)	4.73 (0.53)	4.72 (0.51)	4.65 (0.60)	4.53 (0.64)	$F(4, 665) = 2.55,$ $p = 0.04, R^2 = 0.02$	6 < 1
Differentiated instruction for academic tasks	4.18 (0.80)	4.25 (0.75)	4.27 (0.75)	4.13 (0.71)	4.22 (0.84)	3.93 (0.83)	$F(4, 660) = 3.78,$ $p = 0.005, R^2 = 0.02$	6 < 1,2,4
A school-wide social skills curriculum (e.g., Positive Action, Connect With Kids, Second Step)	4.40 (0.81)	4.39 (0.77)	4.49 (0.72)	4.64 (0.64)	4.51 (0.77)	3.99 (0.98)	$F(4, 665) = 10.89,$ $p < .0001, R^2 = 0.06$	6 < 1,2,3,4
Monthly (minimum) instruction in the social skills curriculum	4.38 (0.84)	4.34 (0.80)	4.46 (0.80)	4.57 (0.70)	4.48 (0.78)	4.06 (1.03)	$F(4, 663) = 6.42,$ $p < .0001, R^2 = 0.04$	6 < 2,3,4
A Schoolwide Positive Behavioral Interventions and Supports (PBIS) program	4.65 (0.62)	4.70 (0.53)	4.67 (0.58)	4.67 (0.61)	4.67 (0.61)	4.50 (0.78)	NS	
School-wide expectations for all key settings	4.72 (0.59)	4.69 (0.61)	4.70 (0.57)	4.77 (0.52)	4.74 (0.57)	4.70 (0.66)	NS	
An established discipline plan for responding to rule infractions that do occur	3.99 (1.06)	4.19 (0.93)	4.04 (1.00)	4.07 (0.89)	4.02 (1.04)	3.58 (1.29)	$F(4, 661) = 6.04,$ $p < .0001, R^2 = 0.03$	6 < 1,2,3,4
Individual classroom management systems in addition to school-wide systems	4.29 (0.80)	4.41 (0.66)	4.23 (0.84)	4.26 (0.78)	4.37 (0.75)	4.05 (0.94)	$F(4, 666) = 4.25,$ $p = 0.002, R^2 = 0.03$	6 < 1,4
Instruction in school-wide behavioral expectations (at least once per month)	4.06 (1.00)	4.07 (0.98)	4.18 (0.91)	3.94 (0.96)	4.17 (1.00)	3.78 (1.09)	$F(4, 658) = 3.63,$ $p = 0.006, R^2 = 0.02$	6 < 2,4
A system for students to receive reinforcement for meeting expectations	4.53 (0.73)	4.52 (0.73)	4.60 (0.63)	4.29 (0.82)	4.60 (0.75)	4.49 (0.72)	$F(4, 663) = 2.76,$ $p = 0.03, R^2 = 0.02$	4 > 2; 2 > 3
Adults providing behavior-specific praise when allocating reinforcers	4.40 (0.74)	4.41 (0.69)	4.50 (0.65)	4.32 (0.70)	4.47 (0.72)	4.21 (0.88)	$F(4, 664) = 3.21,$ $p = 0.01, R^2 = 0.02$	6 < 2,4
A range of reinforcers for acknowledging students who meet expectations	4.22 (0.87)	4.23 (0.85)	4.30 (0.87)	4.04 (0.77)	4.33 (0.82)	4.01 (0.98)	$F(4, 657) = 3.66,$ $p = 0.01, R^2 = 0.02$	6 < 4

**Tier 2 and 3 Supplemental Supports**

Tier 2 support (also called secondary support) for academic issues	4.27 (0.86)	4.21 (0.89)	4.42 (0.72)	4.23 (0.96)	4.27 (0.85)	4.23 (0.91)	NS	
Tier 2 support (also called secondary support) for behavioral or social issues	4.03 (0.99)	3.97 (1.02)	4.37 (0.80)	3.94 (0.99)	4.02 (0.97)	3.85 (1.08)	$F(4, 658) = 4.90,$ $p = 0.0007, R^2 = 0.02$	2 > 1,3,4,6
Tier 3 support (also called tertiary support) for academic issues	4.26 (0.89)	4.13 (0.97)	4.43 (0.81)	4.22 (0.96)	4.27 (0.89)	4.26 (0.79)	NS	
Tier 3 support (also called tertiary support) for behavioral or social issues	4.00 (1.03)	3.89 (1.05)	4.37 (0.85)	4.02 (0.98)	3.90 (1.11)	3.91 (1.0)	$F(4, 653) = 5.04,$ $p = 0.0005, R^2 = 0.03$	2 > 1,4,6
<b>Monitoring and Decision Making</b>								
Academic screening of all students to benchmark progress (at 3x per year)	4.67 (0.70)	4.59 (0.64)	4.76 (0.55)	4.81 (0.47)	4.62 (0.80)	4.67 (0.77)	NS	
Behavior screening of all students to monitor progress (at 3x per year)	4.43 (0.97)	4.20 (1.15)	4.59 (0.81)	4.66 (0.65)	4.36 (1.03)	4.54 (0.84)	$F(4, 642) = 4.41,$ $p = 0.002, R^2 = 0.03$	1 < 2,3,6
Monthly team meetings to examine data and address implementation issues	4.25 (0.97)	4.14 (1.07)	4.43 (0.87)	4.19 (0.99)	4.27 (0.92)	4.17 (1.02)	NS	
A method of analyzing academic data to identify students for Tier 2/3	4.28 (0.84)	4.24 (0.78)	4.34 (0.84)	4.21 (0.84)	4.39 (0.83)	4.09 (0.92)	$F(4, 654) = 2.78,$ $p = 0.03, R^2 = 0.02$	6 < 4
A method of analyzing behavioral data to identify students for Tier 2/3	4.09 (0.95)	4.01 (0.95)	4.20 (0.90)	4.00 (0.85)	4.25 (0.89)	3.81 (1.09)	$F(4, 652) = 4.87,$ $p = 0.001, R^2 = 0.03$	6 < 2,4
A method of gathering information from stakeholders on primary program	3.86 (1.04)	3.91 (1.02)	3.90 (0.97)	3.76 (0.96)	4.02 (0.98)	3.50 (1.18)	$F(4, 643) = 5.09,$ $p = 0.001, R^2 = 0.03$	6 < 1,2,4
A method of ensuring the primary (Tier 1) program is implemented as planned	4.07 (0.94)	4.06 (0.93)	4.23 (0.84)	3.97 (0.85)	4.20 (0.93)	3.76 (1.07)	$F(4, 651) = 5.10,$ $p = 0.001, R^2 = 0.03$	6 < 2,4
A feedback procedure for modifying the plan annually	3.97 (1.00)	4.08 (0.94)	4.19 (0.82)	3.74 (1.00)	4.09 (1.00)	3.53 (1.09)	$F(4, 653) = 9.59,$ $p < 0.0001, R^2 = 0.06$	6 < 1,2,4

Note. Percentages are based on the number of participants who completed the given item. MC refers to multiple comparisons significant testing

**Table 2***Educational Practices and Supports Currently Implemented by Implementation Stage*

	Extent of implementation (% responding)					Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	Years implementing				
	Not at all 1	2	Some- what 3	4	Fully 5		1 <i>n</i> = 156 <i>M</i> ( <i>SD</i> )	2 <i>n</i> = 127 <i>M</i> ( <i>SD</i> )	3 <i>n</i> = 80 <i>M</i> ( <i>SD</i> )	4 <i>n</i> = 233 <i>M</i> ( <i>SD</i> )	6 <i>n</i> = 124 <i>M</i> ( <i>SD</i> )
<b>Instruction, strategies, and programs</b>											
Small-group social skills instruction*	5.67	11.20	33.90	25.77	23.47	3.50 (1.13)	3.38 (1.18)	3.71 (1.02)	3.38 (1.16)	3.64 (1.15)	3.26 (1.09)
Small-group reading instruction	0.15	0.31	6.42	27.06	66.06	4.59 (0.64)	4.67 (0.62)	4.60 (0.64)	4.59 (0.55)	4.56 (0.69)	4.51 (0.61)
Small-group self-determination instruction	19.84	15.78	32.03	20.16	12.19	2.89 (1.28)	2.96 (1.26)	2.90 (1.26)	2.92 (1.29)	3.00 (1.25)	2.56 (1.32)
Self-monitoring strategy instruction*	8.99	14.73	37.67	26.67	11.94	3.18 (1.11)	3.17 (1.10)	3.25 (1.08)	3.14 (1.13)	3.34 (1.08)	2.84 (1.10)
Test-taking strategy instruction*	6.94	12.96	32.87	28.40	18.83	3.39 (1.14)	3.60 (1.03)	3.30 (1.16)	3.33 (1.23)	3.52 (1.09)	3.02 (1.18)
Behavioral contracts	4.59	14.70	33.84	28.33	18.53	3.42 (1.09)	3.45 (1.14)	3.38 (1.12)	3.26 (1.09)	3.53 (1.07)	3.27 (1.02)
Peer-mediated support strategies*	19.72	20.81	32.61	17.24	9.63	2.76 (1.22)	2.75 (1.27)	2.82 (1.24)	2.72 (1.28)	2.94 (1.17)	2.40 (1.15)
Functional behavior assessments (FBA)*	10.55	16.85	31.18	23.46	17.95	3.21 (1.22)	3.12 (1.30)	3.36 (1.20)	3.17 (1.13)	3.46 (1.16)	2.70 (1.18)
Behavior intervention plans (BIP)*	2.31	8.32	23.27	38.06	28.04	3.81 (1.01)	3.79 (1.03)	4.08 (0.88)	3.71 (1.00)	3.78 (1.07)	3.68 (0.97)
Providing 1:1 reading or academic instruction*	9.75	16.56	24.30	24.77	24.61	3.38 (1.28)	3.22 (1.33)	3.29 (1.29)	3.49 (1.26)	3.58 (1.23)	3.23 (1.29)
Increasing behavior-specific praise to students*	0.62	2.31	14.20	40.43	42.44	4.22 (0.82)	4.14 (0.82)	4.36 (0.80)	4.19 (0.81)	4.29 (0.80)	4.05 (0.84)
Increasing opportunities-to-respond for students	1.25	5.14	26.64	39.72	27.26	3.87 (0.92)	3.78 (0.99)	3.92 (0.95)	3.83 (0.84)	3.99 (0.86)	3.72 (0.92)
Check-in/Check-out (CICO)*	4.97	8.23	28.73	33.07	25.00	3.65 (1.09)	3.60 (1.15)	3.92 (1.01)	3.68 (1.20)	3.67 (1.09)	3.36 (0.98)
Inclusive supports*	2.33	6.53	30.02	36.55	24.57	3.74 (0.98)	3.58 (1.07)	4.08 (0.87)	3.92 (0.91)	3.74 (0.95)	3.50 (0.96)
Incorporating choice & preferred activities into instruction	0.93	9.74	29.98	38.49	20.87	3.69 (0.94)	3.63 (0.90)	3.66 (1.05)	3.56 (1.01)	3.79 (0.94)	3.66 (0.83)
Bullying prevention*	2.78	9.12	25.50	35.24	27.36	3.75 (1.04)	3.85 (1.03)	3.89 (0.96)	3.75 (0.94)	3.80 (1.08)	3.39 (1.06)

Strategies for internalizing behaviors (e.g., cognitive restructuring)*	5.74	16.43	34.42	25.89	17.52	3.33 (1.12)	3.24 (1.14)	3.55 (1.01)	3.25 (1.20)	3.49 (1.11)	2.95 (1.07)
De-escalation techniques*	1.69	10.32	30.66	34.21	23.11	3.67 (1.00)	3.50 (1.04)	4.03 (0.90)	3.48 (1.04)	3.76 (0.95)	3.42 (0.97)
Technology in the classroom	0.15	1.68	16.51	33.79	47.86	4.28 (0.81)	4.20 (0.87)	4.25 (0.82)	4.26 (0.73)	4.29 (0.79)	4.38 (0.78)

*Note.* Percentages are based on the number of participants who completed the given item. \*Indicates statistically significant differences between means following multiple comparison significant testing.

**Table 3***Desire for Professional Development on How to Implement Educational Practices by Implementation Stage*

	Desire for support (% responding)					Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	Years implementing				
	No desire 1	2	Some desire 3	4	Strong desire 5		1 <i>n</i> = 156 <i>M</i> ( <i>SD</i> )	2 <i>n</i> = 127 <i>M</i> ( <i>SD</i> )	3 <i>n</i> = 80 <i>M</i> ( <i>SD</i> )	4 <i>n</i> = 233 <i>M</i> ( <i>SD</i> )	6 <i>n</i> = 124 <i>M</i> ( <i>SD</i> )
Instruction, strategies, and programs											
Small-group social skills instruction	3.94	6.78	33.28	31.55	24.45	3.66 (1.04)	3.50 (1.13)	3.74 (0.91)	3.71 (0.94)	3.67 (1.11)	3.70 (0.99)
Small-group reading instruction	4.91	6.80	25.00	29.75	33.54	3.80 (1.12)	3.71 (1.25)	4.02 (1.02)	3.73 (0.96)	3.86 (1.12)	3.63 (1.14)
Small-group self-determination instruction	5.09	8.43	39.11	29.41	17.97	3.47 (1.04)	3.46 (1.04)	3.50 (1.05)	3.45 (0.93)	3.51 (1.10)	3.38 (0.98)
Self-monitoring strategy instruction	2.56	6.72	36.00	35.68	19.04	3.62 (0.95)	3.64 (0.96)	3.62 (0.93)	3.71 (0.84)	3.62 (1.03)	3.54 (0.89)
Test-taking strategy instruction	6.62	8.68	35.65	31.70	17.35	3.44 (1.08)	3.53 (1.13)	3.45 (1.04)	3.62 (0.89)	3.43 (1.12)	3.26 (1.08)
Behavioral contracts	5.19	8.65	33.33	31.45	21.38	3.55 (1.08)	3.45 (1.15)	3.58 (1.06)	3.55 (1.01)	3.64 (1.12)	3.50 (0.97)
Peer-mediated support strategies	4.47	9.89	33.97	31.74	19.94	3.53 (1.06)	3.43 (1.10)	3.57 (1.03)	3.55 (1.00)	3.62 (1.08)	3.42 (1.01)
Functional behavior assessments (FBA)*	7.42	9.52	34.03	28.71	20.32	3.45 (1.14)	3.29 (1.22)	3.54 (1.09)	3.56 (0.99)	3.59 (1.18)	3.21 (1.04)
Behavior intervention plans (BIP)	3.80	8.07	26.74	34.18	27.22	3.73 (1.06)	3.68 (1.12)	3.80 (0.94)	3.81 (0.94)	3.74 (1.14)	3.65 (1.05)
Providing 1:1 reading or academic instruction	6.40	12.16	28.80	29.92	22.72	3.50 (1.15)	3.34 (1.19)	3.57 (1.08)	3.57 (1.07)	3.58 (1.17)	3.45 (1.20)
Increasing behavior-specific praise to students	12.36	11.09	30.74	26.94	18.86	3.29 (1.24)	3.36 (1.20)	3.35 (1.25)	3.11 (1.22)	3.34 (1.28)	3.14 (1.23)
Increasing opportunities-to-respond for students	5.58	8.93	28.23	35.73	21.53	3.59 (1.09)	3.56 (1.14)	3.71 (1.01)	3.60 (0.98)	3.61 (1.15)	3.43 (1.05)
Check-in/Check-out (CICO)	8.90	10.49	34.66	27.66	18.28	3.36 (1.16)	3.26 (1.18)	3.45 (1.10)	3.53 (1.17)	3.41 (1.21)	3.19 (1.08)
Inclusive supports	3.98	7.01	28.66	35.19	25.16	3.71 (1.04)	3.60 (1.15)	3.91 (1.00)	3.77 (0.95)	3.68 (1.06)	3.62 (0.96)
Incorporating choice & preferred activities into instruction	4.58	5.85	27.80	37.60	24.17	3.71 (1.04)	3.65 (1.09)	3.87 (0.96)	3.56 (0.97)	3.76 (1.07)	3.60 (1.02)
Bullying prevention	3.95	7.58	27.17	29.70	31.60	3.77 (1.09)	3.71 (1.14)	3.67 (1.15)	3.94 (0.97)	3.88 (1.13)	3.68 (0.97)



Strategies for internalizing behaviors (e.g., cognitive restructuring)*	1.90	5.24	23.97	35.08	33.81	3.94 (0.98)	3.82 (1.04)	4.01 (0.91)	4.02 (0.97)	4.05 (0.96)	3.75 (0.97)
De-escalation techniques	2.21	3.31	18.93	31.55	44.01	4.12 (0.97)	4.06 (1.02)	4.26 (0.91)	4.18 (0.81)	4.12 (1.02)	4.00 (0.98)
Technology in the classroom*	5.50	9.43	23.43	28.14	33.49	3.75 (1.17)	3.69 (1.20)	3.87 (1.04)	3.97 (0.99)	3.80 (1.26)	3.46 (1.18)

*Note.* Percentages are based on the number of participants who completed the given item. Model outcomes are reported in text. \*Indicates statistically significant differences between means following multiple comparison significant testing.

**Table 4**

*Relation Between Educational Practices and Supports Currently Implemented and Desire for Professional Development on How to Implement Educational Practices*

Instruction, strategies, and programs	Pearson <i>r</i>	<i>p</i> value	<i>n</i>
Small-group social skills instruction	0.03	0.39	631
Small-group reading instruction	-0.07	0.06	629
Small-group self-determination instruction	0.33	<.0001	624
Self-monitoring strategy instruction	0.25	<.0001	622
Test-taking strategy instruction	0.27	<.0001	630
Behavioral contracts	0.23	<.0001	633
Peer-mediated support strategies	0.30	<.0001	621
Functional behavior assessments (FBA)	0.31	<.0001	616
Behavior intervention plans (BIP)	0.13	0.0012	628
Providing 1:1 reading or academic instruction	0.33	<.0001	622
Increasing behavior-specific praise to students	0.05	0.19	627
Increasing opportunities-to-respond for students	0.18	<.0001	623
Check-in/Check-out (CICO)	0.17	<.0001	626
Inclusive supports	0.19	<.0001	624
Incorporating choice & preferred activities into instruction	0.12	0.0021	629
Bullying prevention	0.06	0.14	627
Strategies for internalizing behaviors (e.g., cognitive restructuring)	0.14	0.0004	625
De-escalation techniques	0.07	0.08	630
Technology in the classroom	-0.06	0.16	634

**Table 5***Potential Avenues for Professional Development and Learning by Implementation Stage*

Avenue	Percentage of educators providing each rating					Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	Years implementing				
	Very unlikely 1	2	Somewhat likely 3	4	Very likely 5		1 <i>n</i> = 156 <i>M</i> ( <i>SD</i> )	2 <i>n</i> = 127 <i>M</i> ( <i>SD</i> )	3 <i>n</i> = 80 <i>M</i> ( <i>SD</i> )	4 <i>n</i> = 233 <i>M</i> ( <i>SD</i> )	6 <i>n</i> = 124 <i>M</i> ( <i>SD</i> )
In-district, during-school workshops	3.83	3.53	22.39	25.31	44.94	4.04 (1.08)	3.90 (1.15)	4.12 (0.98)	4.26 (1.02)	4.06 (1.14)	3.96 (0.98)
In-district, after-school workshops	21.30	19.75	36.88	15.28	6.79	2.67 (1.17)	2.69 (1.19)	2.74 (1.19)	2.66 (1.12)	2.72 (1.15)	2.44 (1.17)
In-district, weekend workshops	53.48	20.87	18.24	5.41	2.01	1.82 (1.04)	1.78 (1.08)	1.86 (1.09)	1.97 (1.08)	1.86 (1.03)	1.65 (0.92)
Out-of-district workshops*	15.02	17.03	34.37	24.46	9.13	2.96 (1.18)	2.98 (1.21)	3.06 (1.14)	3.11 (1.10)	3.02 (1.21)	2.61 (1.10)
Summer institutes (week-long)	18.18	17.26	36.52	18.80	9.24	2.84 (1.20)	2.85 (1.23)	2.78 (1.16)	2.75 (1.14)	2.95 (1.22)	2.71 (1.17)
Course for college credit (on-line)*	7.57	7.26	27.82	31.53	25.81	3.61 (1.16)	3.31 (1.19)	3.49 (1.25)	3.73 (1.19)	3.84 (1.12)	3.59 (1.00)
Course for college credit (on-campus)*	19.84	19.84	30.54	18.29	11.47	2.82 (1.27)	2.55 (1.27)	2.80 (1.30)	2.79 (1.17)	3.10 (1.28)	2.64 (1.17)
State conferences*	11.32	16.43	36.12	24.34	11.78	3.09 (1.15)	3.18 (1.12)	3.06 (1.17)	3.27 (1.15)	3.27 (1.14)	2.55 (1.05)
National conferences (out of state)*	21.60	18.36	27.01	19.44	13.58	2.85 (1.33)	2.91 (1.33)	2.88 (1.34)	2.94 (1.44)	2.98 (1.34)	2.44 (1.17)
Webinars (i.e., web-based presentations)*	7.89	11.76	32.66	29.57	18.11	3.38 (1.14)	3.30 (1.15)	3.42 (1.21)	3.46 (1.10)	3.58 (1.13)	3.04 (1.04)
Transition-focused websites	14.38	20.06	39.49	18.96	7.11	2.84 (1.11)	2.71 (1.10)	2.86 (1.09)	2.92 (1.10)	2.97 (1.15)	2.70 (1.03)
Teacher study groups or “learning circles”	8.18	14.66	35.96	26.85	14.35	3.25 (1.12)	3.12 (1.21)	3.28 (1.08)	3.16 (1.12)	3.41 (1.10)	3.09 (1.07)
Teacher collaboratives/networks	5.87	10.66	32.15	36.48	14.84	3.44 (1.05)	3.36 (1.12)	3.40 (1.06)	3.47 (0.84)	3.53 (1.10)	3.38 (0.98)
Teacher-research workgroups	11.32	15.81	39.07	24.34	9.46	3.05 (1.11)	2.99 (1.11)	3.04 (1.12)	3.00 (1.06)	3.11 (1.16)	3.03 (1.04)
One-to-one coaching or mentoring	8.96	12.67	33.38	29.52	15.46	3.30 (1.15)	3.28 (1.18)	3.22 (1.22)	3.37 (0.93)	3.38 (1.18)	3.22 (1.07)
Committee or task force involvement	11.49	17.70	37.89	24.84	8.07	3.00 (1.10)	2.86 (1.05)	3.04 (1.14)	3.08 (1.11)	3.13 (1.13)	2.86 (1.04)

Articles from professional journals	13.45	21.64	34.62	21.48	8.81	2.91 (1.15)	2.81 (1.14)	2.88 (1.22)	2.95 (1.03)	3.05 (1.17)	2.75 (1.07)
Books and published curricula	12.73	22.36	35.09	21.12	8.70	2.91 (1.13)	2.85 (1.08)	2.86 (1.23)	3.00 (1.02)	3.05 (1.18)	2.70 (1.05)
Electronic research and practice briefs	14.84	21.88	36.41	19.22	7.66	2.83 (1.13)	2.84 (1.13)	2.75 (1.16)	2.84 (1.12)	2.94 (1.18)	2.68 (1.01)
Brief “good practice” guides	7.74	12.69	30.80	34.52	14.24	3.35 (1.11)	3.27 (1.06)	3.29 (1.26)	3.44 (1.02)	3.37 (1.13)	3.41 (1.00)
Interactive eBook (≈ 50 pages)	13.66	19.88	34.16	23.91	8.39	2.93 (1.15)	2.83 (1.11)	2.83 (1.24)	2.97 (1.08)	3.08 (1.18)	2.87 (1.06)
Multi-media presentations	7.47	10.73	34.37	36.24	11.20	3.33 (1.05)	3.18 (1.06)	3.41 (1.12)	3.41 (0.99)	3.36 (1.06)	3.32 (0.98)
Screencast videos (e.g., Camtasia)	10.08	13.02	37.52	29.77	9.61	3.16 (1.09)	3.05 (1.06)	3.13 (1.12)	3.22 (1.16)	3.25 (1.10)	3.11 (1.05)
Web-based professional learning module	8.53	11.78	34.73	32.40	12.56	3.29 (1.10)	3.21 (1.09)	3.35 (1.18)	3.25 (1.05)	3.38 (1.12)	3.14 (0.98)

*Note.* Percentages are based on the number of participants who completed the given item. \*Indicates statistically significant means. Model outcomes are reported in text.

## SUPPLEMENTAL FILES

**ARTICLE TITLE:**

Project ENHANCE: Assessing Professional Learning Needs for Implementing Comprehensive, Integrated, Three-Tiered (Ci3T) Models of Prevention

**JOURNAL TITLE:** Education and Treatment of Children (manuscript submitted for review)**AUTHOR NAMES:** Eric Alan Common, Mark Matthew Buckman, Kathleen Lynne Lane, Wendy Peia Oakes, David James Royer, Sandra Chafouleas, Amy Briesch, Rebecca Sherod**CORRESPONDING AUTHOR – AFFILIATION AND EMAIL:** Eric Common, University of Michigan - Flint [ecommon@umich.edu](mailto:ecommon@umich.edu) or Kathleen Lynne Lane, University of Kansas, [kathleen.lane@ku.edu](mailto:kathleen.lane@ku.edu)**Table S1***Panel A. Participant Demographics by Years of Implementation*

Variable/level	Years implementing					Total sample N = 720
	1 n = 156	2 n = 127	3 n = 80	4 n = 233	6 n = 124	
Gender % (n)						
Male	7.05 (11)	11.02 (14)	6.25 (5)	12.07 (28)	6.45 (8)	9.18 (66)
Female	92.95 (145)	88.98 (113)	93.75 (75)	87.50 (203)	92.74 (115)	90.54 (651)
Do not identify as male or female	0 (0)	0 (0)	0 (0)	-	-	-
Age M (SD)	41.39 (11.38)	39.59 (12.06)	45.18 (11.36)	42.66 (12.10)	43.06 (11.71)	42.19 (11.87)
Ethnicity and race % (n)						
Hispanic	12.99 (20)	7.26 (9)	3.80 (3)	5.26 (12)	5.65 (7)	7.19 (51)
American Indian / Alaska Native	5.04 (7)	3.39 (4)	5.26 (4)	0.47 (1)	4.17 (5)	3.15 (21)
Asian or Asian / Pacific Islander	1.44 (2)	0 (0)	2.63 (2)	0.47 (1)	2.50 (3)	1.20 (8)
Black	5.76 (8)	0 (0)	1.32 (1)	1.87 (4)	1.67 (2)	2.25 (15)
White	93.53 (130)	97.46 (115)	97.37 (74)	97.20 (208)	95.00 (114)	96.10 (641)
Other	2.16 (3)	0 (0)	2.63 (2)	1.40 (3)	0.83 (1)	1.35 (9)
Highest Degree Obtained % (n)						
High school diploma	5.23 (8)	3.94 (5)	3.80 (3)	10.82 (25)	0.81 (1)	5.89 (42)
Associate's degree / technical	5.23 (8)	1.57 (2)	3.80 (3)	5.19 (12)	1.63 (2)	3.79 (27)
Bachelor's degree	35.95 (55)	40.94 (52)	40.51 (32)	36.80 (85)	46.34 (57)	39.41 (281)
Master's degree	26.80 (41)	44.09 (56)	36.71 (29)	30.74 (71)	34.15 (42)	33.52 (239)
Master's degree + 30	26.14 (40)	6.30 (8)	13.92 (11)	13.85 (32)	13.01 (16)	15.01 (107)
Doctoral, Education specialist, J.D. degree	0.65 (1)	3.15 (4)	1.27 (1)	2.60 (6)	4.07 (5)	2.38 (17)
Role (non-mutually exclusive) % (n)						
Administrator	4.52 (7)	3.15 (4)	2.50 (2)	2.59 (6)	3.23 (4)	3.20 (23)
Teacher	65.16 (101)	65.35 (83)	68.75 (55)	57.76 (134)	62.10 (77)	62.67 (450)
Special education teacher	10.97 (17)	11.02 (14)	6.25 (5)	11.64 (27)	13.71 (17)	11.14 (80)
Inclusion	35.29 (6)	57.14 (8)	60.00 (3)	29.63 (8)	43.75 (7)	40.51 (32)

Resource/Interrelated	52.94 (9)	57.14 (8)	80.00 (4)	62.96 (17)	87.50 (14)	65.82 (52)
Self-contained class	17.65 (3)	28.57 (4)	20.00 (1)	29.63 (8)	18.75 (3)	24.05 (19)
Self-contained school	5.88 (1)	0 (0)	0 (0)	7.41 (2)	0 (0)	3.80 (3)
Gifted	0 (0)	0 (0)	0 (0)	3.70 (1)	6.25 (1)	2.53 (2)
Other	17.65 (3)	21.43 (3)	0 (0)	7.41 (2)	6.25 (1)	11.39 (9)
Staff (instructional)	15.48 (24)	11.02 (14)	12.50 (10)	15.95 (37)	16.94 (21)	14.76 (106)
Staff (non-instructional)	3.87 (6)	4.72 (6)	7.50 (6)	11.64 (27)	5.65 (7)	7.24 (52)
Other	6.45 (10)	9.45 (12)	8.75 (7)	5.17 (12)	5.65 (7)	6.69 (48)
Teacher certified in area/subject currently teaching % ( <i>n</i> )	86.13 (118)	91.60 (109)	95.65 (66)	86.29 (170)	89.09 (98)	88.77 (561)
Grade-level taught (non-mutually exclusive) % ( <i>n</i> )						
Early childhood	2.82 (4)	4.27 (5)	4.23 (3)	0.95 (2)	0 (0)	2.14 (14)
Pre-kindergarten	3.52 (5)	13.68 (16)	14.08 (10)	6.19 (13)	0 (0)	6.74 (44)
Kindergarten	40.85 (58)	40.17 (47)	42.25 (30)	37.14 (78)	44.25 (50)	40.28 (263)
1	40.85 (58)	40.17 (47)	42.25 (30)	38.57 (81)	46.02 (52)	41.04 (268)
2	42.96 (61)	45.30 (53)	45.07 (32)	39.05 (82)	42.48 (48)	42.27 (276)
3	44.37 (63)	44.44 (52)	40.85 (29)	39.52 (83)	47.79 (54)	43.03 (281)
4	45.07 (64)	29.06 (34)	39.44 (28)	43.81 (92)	47.79 (54)	41.65 (272)
5	44.37 (63)	28.21 (33)	35.21 (25)	45.71 (96)	42.48 (48)	40.58 (265)
6	0.70 (1)	12.82 (15)	21.13 (15)	27.62 (58)	0 (0)	13.63 (89)
Mixed	4.23 (6)	2.56 (3)	0 (0)	3.33 (7)	0.88 (1)	2.60 (17)
Experience						
Current school <i>M (SD)</i>	6.54 (6.47)	6.19 (8.45)	7.87 (7.10)	6.90 (7.92)	7.59 (7.02)	6.92 (7.49)
Current district <i>M (SD)</i>	8.70 (7.48)	6.39 (7.12)	9.41 (7.23)	8.16 (8.07)	9.67 (9.12)	8.35 (8.00)
Anywhere <i>M (SD)</i>	13.65 (9.48)	13.05 (9.93)	17.52 (9.91)	15.26 (10.00)	16.22 (10.55)	14.94 (10.04)
Ci3T leadership team member % ( <i>n</i> )	25.49 (39)	24.60 (31)	31.58 (24)	20.81 (46)	27.87 (34)	24.68 (174)
Professional learning earned 2019-2020 <i>M (SD)</i>	36.39 (70.95)	35.97 (30.36)	27.90 (21.95)	32.68 (34.09)	45.34 (106.62)	35.43 (57.96)

*Note.* Years implementing refers to the number of years Ci3T implementation has been in place at the school-level. Dash (-) data not reported due to small *n*.

Ci3T = comprehensive, integrated, three-tiered model of prevention

Panel B: Participant Demographics by State

Variable/level	State			Total N = 720
	Washington n = 72	Kansas n = 552	Vermont n = 96	
Gender % (n)				
Male	9.72 (7)	8.15 (45)	14.74 (14)	9.18 (66)
Female	90.28 (65)	91.67 (506)	84.21 (80)	90.54 (651)
Do not identify as male or female	0.0 (0)	-	-	-
Age M (SD)	40.28 (12.37)	41.78 (11.67)	46.29 (11.95)	42.19 (11.87)
Ethnicity and race % (n)				
Hispanic	18.31 (13)	6.97 (38)	0.0 (0)	7.19 (51)
American Indian / Alaska Native	0.0 (0)	4.00 (21)	0.0 (0)	3.15 (21)
Asian or Asian / Pacific Islander	3.33 (2)	0.95 (5)	1.22 (1)	1.20 (8)
Black	1.67 (1)	2.48 (13)	1.22 (1)	2.25 (15)
White	96.67 (58)	96.00 (504)	96.34 (79)	96.10 (641)
Other	1.67 (1)	1.14 (6)	2.44 (2)	1.35 (9)
Highest degree Obtained % (n)				
High school diploma	4.23 (3)	5.30 (29)	10.53 (10)	5.89 (42)
Associate's degree / technical	5.63 (4)	3.47 (19)	4.21 (4)	3.79 (27)
Bachelor's degree	30.99 (22)	42.41 (232)	28.42 (27)	39.41 (281)
Master's degree	15.49 (11)	35.83 (196)	33.68 (32)	33.52 (239)
Master's degree + 30	43.66 (31)	10.24 (56)	21.05 (20)	15.01 (107)
Doctoral, Education specialist, J.D. degree	0.0 (0)	2.74 (15)	2.11 (2)	2.38 (17)
Role (non-mutually exclusive) % (n)				
Administrator	4.17 (3)	2.90 (16)	4.21 (4)	3.20 (23)
Teacher	68.06 (49)	62.79 (346)	57.89 (55)	62.67 (450)
Special education teacher	6.94 (5)	11.80 (65)	10.53 (10)	11.14 (80)
Inclusion	20.00 (1)	43.75 (28)	30.00 (3)	40.51 (32)
Resource/Interrelated	60.00 (3)	64.06 (41)	80.00 (8)	65.82 (52)
Self-contained class	20.00 (1)	28.13 (18)	0.0 (0)	24.05 (19)
Self-contained school	20.00 (1)	1.56 (1)	10.00 (1)	3.80 (3)
Gifted	0.0 (0)	3.13 (2)	0.0 (0)	2.53 (2)
Other	0.0 (0)	10.94 (7)	20.00 (2)	11.39 (9)
Staff (instructional)	15.28 (11)	14.70 (81)	14.74 (14)	14.76 (106)
Staff (non-instructional)	6.94 (5)	6.72 (37)	10.53 (10)	7.24 (52)
Other	8.33 (6)	6.53 (36)	6.32 (6)	6.69 (48)
Teacher certified in area/subject currently teaching % (n)	86.89 (53)	88.86 (438)	90.91 (70)	88.77 (561)
Grade-level taught (non-mutually exclusive) % (n)				
Early childhood	1.54 (1)	2.19 (11)	2.35 (2)	2.14 (14)

Pre-kindergarten	1.54 (1)	7.95 (40)	3.53 (3)	6.74 (44)
Kindergarten	44.62 (29)	38.77 (195)	45.88 (39)	40.28 (263)
1	44.62 (29)	39.76 (200)	45.88 (39)	41.04 (268)
2	52.31 (34)	40.56 (204)	44.71 (38)	42.27 (276)
3	52.31 (34)	41.75 (210)	43.53 (37)	43.03 (281)
4	52.31 (34)	40.56 (204)	40.00 (34)	41.65 (272)
5	50.77 (33)	38.57 (194)	44.71 (38)	40.58 (265)
6	0.0 (0)	13.52 (68)	24.71 (21)	13.63 (89)
Mixed	1.54 (1)	2.78 (14)	2.35 (2)	2.60 (17)
Experience				
Current school <i>M (SD)</i>	5.03 (6.23)	6.53 (7.05)	10.59 (9.50)	6.92 (7.49)
Current district <i>M (SD)</i>	7.19 (6.91)	7.92 (7.76)	11.70 (9.25)	8.35 (8.00)
Anywhere <i>M (SD)</i>	11.89 (8.64)	14.58 (10.05)	19.19 (9.80)	14.94 (10.04)
Ci3T leadership team member % ( <i>n</i> )	35.21 (25)	23.66 (128)	22.58 (21)	24.68 (174)
Professional learning earned 2019-2020 <i>M (SD)</i>	35.18 (80.68)	35.74 (57.50)	33.85 (43.72)	35.43 (57.96)

*Note.* Dash (-) data not reported due to small *n*. Ci3T = comprehensive, integrated, three-tiered model of prevention



**Table S2***School Characteristics**Panel A: State 1 (Washington – District 1)*

Variable	School 1	School 2	School 3	School 4	School 5
State	WA	WA	WA	WA	WA
District	1	1	1	1	1
Grades served	K-5	K-6	K-7	K-8	K-9
Enrollment <i>N</i>	NA	222	666	446	418
Locale	NA	Rural: Distant	Town: Distant	Rural: Fringe	Town: Distant
Student:teacher ratio	NA	0.1	0.1	0.1	0.1
Students who are English language learners	NA	65.32	41.29	58.97	57.89
Students with disabilities	NA	13.51	14.56	22.65	20.81
Economically disadvantaged	NA	91.89	91.59	81.39	82.54
Student race/ethnicity					
American Indian/Alaska Native	NA	0	0	0	0
Asian	NA	0	0	0.22	0
Black	NA	0	0.3	0.89	0
Hispanic	NA	91.44	89.49	88.34	88.76
Native Hawaiian/Pacific Islander	NA	0	0	0	0
White	NA	8.11	9.46	10.31	10.77
Multi-racial	NA	0.45	0.6	0.22	0.48
Other	NA	--	--	--	--
State assessment					
Math	NA	32.4	37.5	35.4	48.2
English language arts	NA	22.9	32.4	24.7	38.2

*Panel B: State 2 (Kansas – District 2)*

Variable	School 6	School 7	School 8	School 9	School 10	School 11
State	KS	KS	KS	KS	KS	KS
District	2	2	2	2	2	2
Grades served	PK-6	PK-6	PK-6	PK-3	4-6	PK-6
Enrollment <i>N</i>	412	579	527	440	336	512
Locale	Rural: Distant	Suburb: Midsize	Suburb: Midsize	Suburb: Midsize	Rural: Fringe	City: Midsize
Student:teacher ratio	13.32	14.11	15.11	11.44	12.15	13.82
Students who are English language learners	0.24	4.28	4.05	2.31	0.6	4.55
Students with disabilities	9.38	16.88	9.81	18.58	16.96	10.06
Economically disadvantaged	33.5	22.6	17.1	68.2	63.4	28.3
Student race/ethnicity						
American Indian/Alaska Native	--	--	--	--	--	--
Asian	--	--	--	--	--	--
Black	1.5	6.7	3.6	6.8	6	7.6
Hispanic	7	6	5.3	6.1	6.8	8.8
Native Hawaiian/Pacific Islander	--	--	--	--	--	--
White	85.9	70.6	77	73.9	72.6	65
Multi-racial	--	--	--	--	--	--
Other	5.6	16.6	14	13.2	14.6	18.6
State assessment						
Math	43.4	50.82	52.67	43.26	23.28	50.17
English language arts	48.08	52.36	57.38	30.76	36.1	62.8

*Panel C: State 2 (Kansas – District 3)*

Variable	School 12	School 13	School 14	School 15*	School 16	School 17
State	KS	KS	KS	KS	KS	KS
District	3	3	3	3	3	3
Grades served	K-5	K-5	K-5	K-5	K-5	K-5
Enrollment <i>N</i>	230	522	463	388	386	208
Locale	City: Small	City: Small	City: Small	City: Small	City: Small	City: Small
Student:teacher ratio	10.75	17.82	15.23	16.51	14.09	11.37
Students who are English language learners	17.39	6.7	8.64	3.39	3.11	0.48
Students with disabilities	16.09	7.85	15.77	18.3	17.1	13.46
Economically disadvantaged	41.3	10.9	45.6	42.8	47.9	50
Student race/ethnicity						
American Indian/Alaska Native	--	--	--	--	--	--
Asian	--	--	--	--	--	--
Black	4.8	3.1	3.9	6.4	7.8	8.7
Hispanic	17	4.8	13.8	9.3	8.5	4.3
Native Hawaiian/Pacific Islander	--	--	--	--	--	--
White	58.3	74.1	65.2	65.5	64.2	72.6
Multi-racial	--	--	--	--	--	--
Other	20	18	17.1	18.8	19.4	14.4
State assessment						
Math	39.02	69.05	45.55	48.1	30.32	47.7
English language arts	48.29	68.19	43.31	44.86	41.89	50.45

*Panel D: State 2 (Kansas – District 4)*

Variable	School 18	School 19	School 20	School 21	School 22	School 23
State	KS	KS	KS	KS	KS	KS
District	4	4	4	4	4	4
Grades served	PK-5	PK-5	PK-5	PK-5	PK-5	PK-5
Enrollment <i>N</i>	683	385	501	242	376	499
Locale	City: Midsize	City: Midsize	City: Midsize	City: Midsize	City: Midsize	City: Midsize
Student:teacher ratio	12.82	12.73	12.25	10.4	13.78	12.05
Students who are English language learners	8.33	1.63	9.18	14.96	0.83	15.18
Students with disabilities	19.01	26.33	23.55	32.6	25	24.49
Economically disadvantaged	67.8	65.5	78.6	88.4	64.6	82.2
Student race/ethnicity						
American Indian/Alaska Native	--	--	--	--	--	--
Asian	--	--	--	--	--	--
Black	23.1	16.9	15.8	12.8	14.1	7.4
Hispanic	24	16.4	28.3	27.7	14.9	44.1
Native Hawaiian/Pacific Islander	--	--	--	--	--	--
White	38.2	52.2	43.7	49.2	57.4	38.1
Multi-racial	--	--	--	--	--	--
Other	14.6	14.5	12.2	10.3	13.6	10.4
State assessment						
Math	29.77	54.81	33.2	25.65	37.8	36.23
English language arts	36.58	45.77	29.2	23.42	40.73	22.5

Panel E: State 3 (Vermont – District 5)

Variable	School 24*	School 25	School 26*	School 27	School 28
State	VT	VT	VT	VT	VT
District	5	5	5	5	5
Grades served	PK-5	PK-5	PK-5	PK-6	PK-6
Enrollment N	325	525	175	260	255
Locale	Rural	Rural	Rural	Rural	Rural
Student/ Teacher Ratio	18	23	17	15	14
Students who are ELL	.	0.19	1.14	1.15	.
Students w/ disabilities	25.21 (2018)	21.83 (2018)	10.88 (2016)	16.29 (2018)	12.50 (2018)
Economically disadvantaged	88.92	90.67	60.57	71.54	61.18
Students' Race/Ethnicity					
American Indian/Alaskan Native	0	0	0	0	0
Asian	1.54	0	2.86	0.77	0.39
Black	2.15	1.52	2.86	0	0.39
Hispanic	2.46	5.52	1.14	3.08	3.53
Native Hawaiian/Pacific Islander	0	0	0	0	0
White	90.77	88.57	89.71	95.38	94.12
Multi-Racial	3.08	4.38	3.43	0.77	1.57
Other	0	0	0	0	0
State assessment					
Math	11	10	.	.	27
ELA	21	23	.	.	50

Note. Source = National Center for Education Statistics, Common Core Data 2018-2019 and state school report card data 2018-2019. Data are reported separately for ethnicity (i.e., Hispanic) and race. State assessment = percentage reported for students scoring at or above expectations. \* = schools invited but did not participate.

**Table S3***Mean Score Comparisons between States: Ratings of Features of Three-Tiered Models Currently Being Implemented*

Feature	Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	State			Significance testing	MC
		Washington <i>n</i> = 72 <i>M</i> ( <i>SD</i> )	Kansas <i>n</i> = 552 <i>M</i> ( <i>SD</i> )	Vermont <i>n</i> = 96 <i>M</i> ( <i>SD</i> )		
<b>Tier 1: Instruction and Reinforcement</b>						
A common curriculum for core academic areas	4.58 (0.64)	4.76 (0.55)	4.57 (0.65)	4.53 (0.64)	NS	
Instruction linked to district and Common Core state standards	4.67 (0.58)	4.81 (0.47)	4.67 (0.59)	4.60 (0.62)	NS	
Differentiated instruction for academic tasks	4.18 (0.80)	4.13 (0.78)	4.22 (0.77)	3.94 (0.93)	$F(2, 662) = 4.73,$ $p = 0.01, R^2 = .01$	KS > VT
A school-wide social skills curriculum (e.g., Positive Action, Connect With Kids, Second Step)	4.40 (0.81)	4.22 (0.85)	4.42 (0.80)	4.47 (0.84)	NS	
Monthly (minimum) instruction in the social skills curriculum (e.g., Positive Action, Connect With Kids, Second Step)	4.38 (0.84)	4.13 (0.81)	4.42 (0.84)	4.39 (0.86)	$F(2, 665) = 3.35,$ $p = 0.04, R^2 = .01$	KS > WA
A Schoolwide Positive Behavioral Interventions and Supports (PBIS) program	4.65 (0.62)	4.70 (0.49)	4.65 (0.63)	4.59 (0.69)	NS	
School-wide expectations for all key settings	4.72 (0.59)	4.75 (0.47)	4.72 (0.60)	4.67 (0.64)	NS	
An established discipline plan for responding to rule infractions that do occur	3.99 (1.06)	4.16 (0.90)	4.00 (1.09)	3.79 (0.99)	NS	
Individual classroom management systems in addition to school-wide systems	4.29 (0.80)	4.39 (0.63)	4.28 (0.81)	4.22 (0.82)	NS	
Instruction in school-wide behavioral expectations (at least once per month)	4.06 (1.00)	3.91 (1.05)	4.10 (0.98)	3.93 (1.07)	NS	
A system for students to receive reinforcement for meeting expectations	4.53 (0.73)	4.47 (0.77)	4.56 (0.69)	4.45 (0.92)	NS	
Adults providing behavior-specific praise when allocating reinforcers	4.40 (0.74)	4.31 (0.74)	4.43 (0.72)	4.33 (0.84)	NS	
A range of reinforcers for acknowledging students who meet expectations	4.22 (0.87)	4.07 (0.86)	4.26 (0.86)	4.10 (0.90)	NS	
<b>Tier 2 and 3 Supplemental Supports</b>						
Tier 2 support (also called secondary support) for academic issues	4.27 (0.86)	4.11 (0.86)	4.34 (0.84)	4.00 (0.93)	$F(2, 657) = 7.46,$ $p = 0.001, R^2 = .02$	KS > VT
Tier 2 support (also called secondary support) for behavioral or social issues	4.03 (0.99)	3.81 (1.00)	4.12 (0.97)	3.71 (0.99)	$F(2, 660) = 8.31,$ $p = 0.0003, R^2 = .02$	KS > WA, VT
Tier 3 support (also called tertiary support) for	4.26 (0.89)	4.07 (0.99)	4.32 (0.85)	4.06 (1.00)	$F(2, 656) = 4.77,$	KS > VT

academic issues					$p = 0.01, R^2 = .01$	
Tier 3 support (also called tertiary support) for behavioral or social issues	4.00 (1.03)	3.81 (1.06)	4.09 (1.00)	3.56 (1.12)	$F(2, 655) = 11.07,$ $p < 0.0001, R^2 = .03$	KS > VT
<b>Monitoring and Decision Making</b>						
Academic screening of all students to benchmark progress (at 3x per year)	4.67 (0.70)	4.47 (0.69)	4.71 (0.67)	4.57 (0.83)	$F(2, 645) = 4.36,$ $p = 0.01, R^2 = .01$	KS > WA
Behavior screening of all students to monitor progress (at 3x per year)	4.43 (0.97)	3.81 (1.22)	4.54 (0.86)	4.24 (1.15)	$F(2, 644) = 18.97,$ $p < 0.0001, R^2 = .06$	KS > VT > WA
Monthly team meetings to examine data and address implementation issues	4.25 (0.97)	3.9 (1.13)	4.34 (0.92)	3.94 (1.03)	$F(2, 662) = 11.54,$ $p < 0.0001, R^2 = .03$	KS > WA, VT
A method of analyzing academic data to identify students for Tier 2/3	4.28 (0.84)	4.18 (0.76)	4.32 (0.82)	4.11 (1.01)	NS	
A method of analyzing behavioral data to identify students for Tier 2/ 3	4.09 (0.95)	3.88 (0.95)	4.15 (0.94)	3.89 (1.01)	$F(2, 654) = 4.33,$ $p = 0.01, R^2 = .01$	NS
A method of gathering information from stakeholders on primary program	3.86 (1.04)	3.73 (1.07)	3.91 (1.01)	3.63 (1.13)	$F(2, 645) = 3.21,$ $p = 0.04, R^2 = .01$	NS
A method of ensuring the primary (Tier 1) program is implemented as planned	4.07 (0.94)	3.97 (0.88)	4.11 (0.94)	3.94 (1.02)	NS	
A feedback procedure for modifying the plan annually	3.97 (1.00)	3.98 (0.94)	4.01 (0.99)	3.73 (1.10)	NS	

*Note.* Percentages are based on the number of participants who completed the given item. \*Indicates statistically significant differences between state means on a given item. MC refers to multiple comparisons significant testing; NS refers to nonsignificant results.

**Table S4***Educational Practices and Supports Currently Implemented by State*

	Extent of implementation (% responding)					Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	State		
	Not at all 1	2	Somewhat 3	4	Fully 5		WA <i>n</i> = 72 <i>M</i> ( <i>SD</i> )	KS <i>n</i> = 552 <i>M</i> ( <i>SD</i> )	VT <i>n</i> = 96 <i>M</i> ( <i>SD</i> )
Instruction, strategies, and programs									
Small-group social skills instruction*	5.67	11.20	33.90	25.77	23.47	3.5 (1.13)	3.00 (1.22)	3.62 (1.08)	3.22 (1.20)
Small-group reading instruction*	0.15	0.31	6.42	27.06	66.06	4.59 (0.64)	4.78 (0.49)	4.58 (0.62)	4.45 (0.79)
Small-group self-determination instruction*	19.84	15.78	32.03	20.16	12.19	2.89 (1.28)	2.71 (1.26)	2.96 (1.27)	2.60 (1.30)
Self-monitoring strategy instruction	8.99	14.73	37.67	26.67	11.94	3.18 (1.11)	2.98 (1.13)	3.22 (1.10)	3.07 (1.13)
Test-taking strategy instruction	6.94	12.96	32.87	28.40	18.83	3.39 (1.14)	3.33 (1.02)	3.43 (1.14)	3.22 (1.21)
Behavioral contracts	4.59	14.70	33.84	28.33	18.53	3.42 (1.09)	3.54 (1.11)	3.41 (1.09)	3.33 (1.06)
Peer-mediated support strategies*	19.72	20.81	32.61	17.24	9.63	2.76 (1.22)	2.55 (1.17)	2.84 (1.23)	2.49 (1.20)
Functional behavior assessments (FBA)	10.55	16.85	31.18	23.46	17.95	3.21 (1.22)	3.08 (1.30)	3.23 (1.24)	3.20 (1.10)
Behavior intervention plans (BIP)	2.31	8.32	23.27	38.06	28.04	3.81 (1.01)	3.73 (1.05)	3.92 (0.96)	3.26 (1.06)
Providing 1:1 reading or academic instruction	9.75	16.56	24.30	24.77	24.61	3.38 (1.28)	3.26 (1.21)	3.39 (1.31)	3.44 (1.18)
Increasing behavior-specific praise to students*	0.62	2.31	14.20	40.43	42.44	4.22 (0.82)	4.11 (0.75)	4.27 (0.83)	4.01 (0.77)
Increasing opportunities-to-respond for students*	1.25	5.14	26.64	39.72	27.26	3.87 (0.92)	3.69 (0.92)	3.92 (0.92)	3.67 (0.88)
Check-in/Check-out (CICO)	4.97	8.23	28.73	33.07	25.00	3.65 (1.09)	3.52 (1.17)	3.76 (1.05)	3.08 (1.11)
Inclusive supports*	2.33	6.53	30.02	36.55	24.57	3.74 (0.98)	3.30 (1.00)	3.87 (0.96)	3.35 (0.85)
Incorporating choice & preferred activities into instruction*	0.93	9.74	29.98	38.49	20.87	3.69 (0.94)	3.44 (0.88)	3.77 (0.93)	3.40 (0.98)
Bullying prevention	2.78	9.12	25.50	35.24	27.36	3.75 (1.04)	3.76 (1.00)	3.79 (1.04)	3.51 (1.06)
Strategies for internalizing behaviors (e.g., cognitive restructuring)*	5.74	16.43	34.42	25.89	17.52	3.33 (1.12)	3.10 (1.09)	3.40 (1.11)	3.13 (1.11)
De-escalation techniques*	1.69	10.32	30.66	34.21	23.11	3.67 (1.00)	3.34 (1.05)	3.75 (0.97)	3.46 (1.02)
Technology in the classroom*	0.15	1.68	16.51	33.79	47.86	4.28 (0.81)	4.03 (0.92)	4.33 (0.78)	4.14 (0.82)

*Note.* Percentages are based on the number of participants who completed the given item. \*Indicates statistically significant differences between state level

means.



**Table S5***Desire for Professional Development on How to Implement Educational Practices by State*

	Desire for support (% responding)					Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	State		
	No desire 1	2	Some desire 3	4	Strong desire 5		WA <i>n</i> = 72 <i>M</i> ( <i>SD</i> )	KS <i>n</i> = 552 <i>M</i> ( <i>SD</i> )	VT <i>n</i> = 96 <i>M</i> ( <i>SD</i> )
Instruction, strategies, and programs									
Small-group social skills instruction	3.94	6.78	33.28	31.55	24.45	3.66 (1.04)	3.51 (1.09)	3.68 (1.01)	3.67 (1.17)
Small-group reading instruction	4.91	6.80	25.00	29.75	33.54	3.80 (1.12)	3.85 (1.19)	3.80 (1.10)	3.79 (1.22)
Small-group self-determination instruction	5.09	8.43	39.11	29.41	17.97	3.47 (1.04)	3.43 (1.04)	3.49 (1.03)	3.37 (1.11)
Self-monitoring strategy instruction	2.56	6.72	36.00	35.68	19.04	3.62 (0.95)	3.67 (0.90)	3.65 (0.93)	3.43 (1.11)
Test-taking strategy instruction	6.62	8.68	35.65	31.70	17.35	3.44 (1.08)	3.55 (1.05)	3.45 (1.06)	3.31 (1.19)
Behavioral contracts	5.19	8.65	33.33	31.45	21.38	3.55 (1.08)	3.40 (1.17)	3.56 (1.04)	3.61 (1.22)
Peer-mediated support strategies	4.47	9.89	33.97	31.74	19.94	3.53 (1.06)	3.32 (1.09)	3.54 (1.04)	3.59 (1.12)
Functional behavior assessments (FBA)*	7.42	9.52	34.03	28.71	20.32	3.45 (1.14)	3.37 (1.18)	3.41 (1.12)	3.75 (1.15)
Behavior intervention plans (BIP)	3.80	8.07	26.74	34.18	27.22	3.73 (1.06)	3.72 (1.08)	3.71 (1.06)	3.82 (1.09)
Providing 1:1 reading or academic instruction	6.40	12.16	28.80	29.92	22.72	3.50 (1.15)	3.46 (1.10)	3.51 (1.15)	3.48 (1.24)
Increasing behavior-specific praise to students	12.36	11.09	30.74	26.94	18.86	3.29 (1.24)	3.35 (1.12)	3.28 (1.26)	3.29 (1.28)
Increasing opportunities-to-respond for students	5.58	8.93	28.23	35.73	21.53	3.59 (1.09)	3.68 (1.06)	3.59 (1.08)	3.49 (1.20)
Check-in/Check-out (CICO)	8.90	10.49	34.66	27.66	18.28	3.36 (1.16)	3.22 (1.21)	3.37 (1.14)	3.43 (1.21)
Inclusive supports	3.98	7.01	28.66	35.19	25.16	3.71 (1.04)	3.45 (1.11)	3.75 (1.02)	3.62 (1.11)
Incorporating choice & preferred activities into instruction	4.58	5.85	27.80	37.60	24.17	3.71 (1.04)	3.70 (1.02)	3.72 (1.04)	3.64 (1.09)
Bullying prevention	3.95	7.58	27.17	29.70	31.60	3.77 (1.09)	3.72 (1.05)	3.77 (1.10)	3.85 (1.10)
Strategies for internalizing behaviors (e.g., cognitive restructuring)	1.90	5.24	23.97	35.08	33.81	3.94 (0.98)	3.72 (0.96)	3.96 (0.97)	3.99 (1.03)
De-escalation techniques	2.21	3.31	18.93	31.55	44.01	4.12 (0.97)	3.98 (0.98)	4.14 (0.97)	4.09 (1.00)
Technology in the classroom	5.50	9.43	23.43	28.14	33.49	3.75 (1.17)	3.92 (0.99)	3.75 (1.17)	3.61 (1.31)

*Note.* Percentages are based on the number of participants who completed the given item. \*Indicates statistically significant differences between state level means

on a given item. Model outcomes are reported in text.

**Table S6***Potential Avenues for Professional Development and Learning by State*

Avenue	Percentage of educators providing each rating					Total <i>N</i> = 720 <i>M</i> ( <i>SD</i> )	State		
	Very unlikely	Somewhat likely		Very likely	WA <i>n</i> = 72 <i>M</i> ( <i>SD</i> )		Kansas <i>n</i> = 552 <i>M</i> ( <i>SD</i> )	Vermont <i>n</i> = 96 <i>M</i> ( <i>SD</i> )	
	1	2	3	4	5				
In-district, during-school workshops*	3.83	3.53	22.39	25.31	44.94	4.04 (1.08)	3.82 (1.21)	4.09 (1.02)	3.92 (1.25)
In-district, after-school workshops*	21.30	19.75	36.88	15.28	6.79	2.67 (1.17)	3.24 (1.07)	2.56 (1.16)	2.83 (1.17)
In-district, weekend workshops	53.48	20.87	18.24	5.41	2.01	1.82 (1.04)	1.88 (1.13)	1.81 (1.03)	1.81 (1.03)
Out-of-district workshops	15.02	17.03	34.37	24.46	9.13	2.96 (1.18)	3.31 (1.06)	2.92 (1.17)	2.91 (1.24)
Summer institutes (week-long)*	18.18	17.26	36.52	18.80	9.24	2.84 (1.20)	3.07 (1.20)	2.77 (1.18)	3.03 (1.24)
Course for college credit (on-line)*	7.57	7.26	27.82	31.53	25.81	3.61 (1.16)	3.29 (1.17)	3.56 (1.17)	4.11 (0.98)
Course for college credit (on-campus)*	19.84	19.84	30.54	18.29	11.47	2.82 (1.27)	2.33 (1.23)	2.79 (1.25)	3.35 (1.23)
State conferences*	11.32	16.43	36.12	24.34	11.78	3.09 (1.15)	3.45 (1.02)	3.03 (1.16)	3.16 (1.14)
National conferences (out of state)	21.60	18.36	27.01	19.44	13.58	2.85 (1.33)	3.13 (1.24)	2.82 (1.34)	2.81 (1.30)
Webinars (i.e., web-based presentations)*	7.89	11.76	32.66	29.57	18.11	3.38 (1.14)	3.70 (0.90)	3.31 (1.17)	3.54 (1.13)
Transition-focused websites	14.38	20.06	39.49	18.96	7.11	2.84 (1.11)	2.89 (1.05)	2.82 (1.09)	2.92 (1.23)
Teacher study groups or “learning circles”*	8.18	14.66	35.96	26.85	14.35	3.25 (1.12)	3.39 (1.15)	3.17 (1.12)	3.54 (1.06)
Teacher collaboratives/networks	5.87	10.66	32.15	36.48	14.84	3.44 (1.05)	3.55 (1.07)	3.43 (1.05)	3.41 (1.08)
Teacher-research workgroups	11.32	15.81	39.07	24.34	9.46	3.05 (1.11)	3.17 (1.06)	3.02 (1.11)	3.10 (1.17)
One-to-one coaching or mentoring	8.96	12.67	33.38	29.52	15.46	3.30 (1.15)	3.46 (1.12)	3.29 (1.15)	3.20 (1.16)
Committee or task force involvement	11.49	17.70	37.89	24.84	8.07	3.00 (1.10)	3.20 (0.94)	2.96 (1.12)	3.10 (1.07)
Articles from professional journals	13.45	21.64	34.62	21.48	8.81	2.91 (1.15)	2.91 (0.98)	2.89 (1.16)	2.98 (1.18)
Books and published curricula	12.73	22.36	35.09	21.12	8.70	2.91 (1.13)	3.02 (0.98)	2.88 (1.15)	2.95 (1.17)
Electronic research and practice briefs	14.84	21.88	36.41	19.22	7.66	2.83 (1.13)	3.08 (1.00)	2.78 (1.14)	2.91 (1.15)
Brief “good practice” guides	7.74	12.69	30.80	34.52	14.24	3.35 (1.11)	3.52 (0.84)	3.33 (1.14)	3.32 (1.14)
Interactive eBook (≈ 50 pages)	13.66	19.88	34.16	23.91	8.39	2.93 (1.15)	3.09 (0.96)	2.89 (1.15)	3.06 (1.24)
Multi-media presentations	7.47	10.73	34.37	36.24	11.20	3.33 (1.05)	3.54 (0.85)	3.32 (1.08)	3.25 (1.03)
Screencast videos (e.g., Camtasia)	10.08	13.02	37.52	29.77	9.61	3.16 (1.09)	3.42 (0.9)	3.12 (1.12)	3.20 (1.03)
Web-based professional learning module	8.53	11.78	34.73	32.40	12.56	3.29 (1.10)	3.57 (0.83)	3.25 (1.12)	3.28 (1.14)

*Note.* Percentages are based on the number of participants who completed the given item. \*Indicates statistically significant differences between state level means on a given item. Model outcomes are reported in text.