Abstract

This research was designed to develop, implement, and evaluate an assessment and intervention protocol to increase problem-solving teams' (PSTs) adoption and implementation of evidence-based practices aimed at students with disruptive behavior problems. Participants included 15 PSTs. Adopting single-case design methodology, we examined whether a customized set of assessment and intervention consultant-led intervention procedures could be used to improve the activities, process, and recommendations of PSTs compared to a web-based intervention. We were interested in evaluating two variations of the problem-solving model based on the team initiated problem-solving (TIPS) approach. TIPS includes steps to successful problem solving and solution implementation for student academic and behavioral concerns. Based on visual analysis and statistical randomization tests, we found that a teleconsultation web-based model of PST intervention was not effective in improving the functioning of the PST. In contrast, a customized, consultation-led intervention model with PST facilitators that followed this approach was found to be effective in improving both the foundation and thoroughness of the PST's problem solving. Implications of future PST improvement models for practice and research are discussed.

Keywords: team decision making; problem-solving teams; problem-solving practices; procedural integrity of problem solving; data-based decision making; evidenced-based interventions

Evaluating the Effects of a Consultant-Based Intervention on Team Problem Solving Implementation: A Single-Case Intervention Design Investigation

Introduction

School problem-solving teams (PSTs) are now central to intervention implementation in schools as they are designed to address children's behavior and academic performance problems in schools. PSTs have diverse origins and multiple definitions; within the present study, we defined a PST as a group of school-based professionals organized around the common purpose of solving student behavior referral concerns brought to the team by classroom teachers. In the current research we focused on behavioral concerns, as this is a high priority for PSTs and was the primary interest of the schools that were recruited for this research. Depending on the referral priority, school-based professionals may rotate on and off the PST. For example, a speech-language pathologist may become a PST member when speech and language issues are involved. Additionally, PSTs often include a school- or district-level administrator (e.g., building principal, director of student services) and a special education teacher, particularly if the PST might eventually recommend a referral to determine special education eligibility and services (Castillo & Abiola, 2023; Dowd-Eagle & Eagle, 2014; Horner et al., 2018; Price & Jordan, 2023; Rosenfield et al., 2018).

Problem Solving and Problem-Solving Teams

The problem-solving process is an indirect service delivery model (i.e., support is provided to the teacher rather than directly to the referred student) that PSTs can utilize to develop interventions appropriate to meet a student's needs. The premise of PSTs is that group problem solving will produce better outcomes than each team member acting alone (e.g., such as individual consultation with the teacher). Through a collaborative process that utilizes the combined expertise of individual PST members, this approach allows educators to provide more effective services to students who struggle in the natural classroom environment. Problem-solving models are foundational to implementation of high-quality and research-supported interventions in schools (Kratochwill et al., 2014) and are appropriate for use within multi-tiered systems of support, response-to-intervention approaches, and positive behavior support frameworks.

Using a PST to identify and address student behavioral concerns is a recommended best practice for U.S. schools (Algozzine et al., 2016; National Association of School Psychologists, 2010). Driven partially by legislative conceptual frameworks that emphasize databased decision-making (Algozzine et al., 2016), the use of PSTs is supported by an extensive literature that has focused on guidance, recommendations, and the need for teamwork (Algozzine et al., 2016; Jorgensen et al., 1981; Marsh et al., 2010). Although team-based problem solving has been a recommended practice for many years (e.g., Bergan & Kratochwill, 1990; Berger et al., 2014; Boudett et al., 2006; Deno, 2005; Hamilton et al., 2007; Ruby et al., 2011; Spillane, 2012; U.S. Department of Education, 2009), Algozzine and colleagues (2016) emphasized that prior research has not identified effective, acceptable, and cost-efficient protocols for PSTs to utilize.

Challenges Faced by Problem-Solving Teams

School PSTs face several challenges when considering students with behavioral issues referred to the team. First, the PST typically makes decisions on behavioral evaluations and interventions for students in need, yet minimal research exists to guide the problem-solving process and integrity (Dowd-Eagle & Eagle, 2014; Kratochwill, 2006, 2007; Price & Jordan 2023; Rosenfield et al., 2018). Second, although the PST is integral to selection and implementation of evidence-based practices (EBPs), barriers to implementation may influence decisions about those practices. EBPs are those that are supported by research and typically have been vetted by a professional group or organization (e.g., American Psychological Association Task Force on Evidence-Based Practice for Children and Adolescents, 2008). Barriers to EBPs often include system issues, team and school resources, and the lack of a team problem-solving protocol to guide the process (Benishek et al., 2016; Gravois et al., 2009). These barriers have led some researchers to note that the PST cannot become fully functional until major systemic issues are addressed (e.g., Rosenfield et al., 2018). Third, within multi-tiered systems of support (MTSS) frameworks, the PST plays a significant role in identifying, selecting, implementing, and evaluating the intervention (Horner et al., 2018). Specifically, the PST process is critical to MTSS implementation because the process is intended to provide guidance for how to meet the needs of children with major behavioral issues (e.g., those who might need special education services; (Burns & Coolong-Chaffin, 2006); furthermore, the PST process is consistent with current federal mandates (e.g., IDEA).

Finally, research on school-wide positive behavior intervention and supports (SWPBIS) has identified substantial disproportionality in behavioral referrals across individuals from minoritized backgrounds (Sugai et al., 2012). The discipline students receive is determined by a host of individual, interpersonal, and institutional processes (American Psychological Association Task Force on Evidence-Based Practice for Children and Adolescents, 2008; Ash et al., 2023; Gregory et al., 2010; Ksinan, et al., 2019; Morgan et al., 2015; Santiago-Rosario et al., 2021), not the least of which is the PST, which plays an indirect role in discipline by their attempts to make recommendations to remediate the behavioral issues before more significant measures are warranted. Thus, research indicates a need for PSTs to use a systematic and evidenced-based approach to identify, refer, assess, and make treatment recommendations and monitoring student- related concerns.

Models of Team Problem Solving

There is general agreement that PSTs, regardless of a specific student's problem, are most effective when they use systematic problem-solving procedures that emphasize data-based decision making and the use of EBPs (Rosenfield et al., 2018). Our present research was, in part, designed to examine possible variations of the Team-Initiated Problem Solving (TIPS; Horner et al., 2018) approach.

Team-Initiated Problem Solving

Relatively recent research on PSTs has examined the use of the TIPS approach as a larger part of SWPBIS (Algozzine et al., 2016; Horner et al., 2018; Todd et al., 2017). This research has led to significant progress in identifying methods for improving PST functioning (Algozzine et al., 2016; Newton et al., 2012; Todd et al., 2011, 2012). The TIPS approach can be characterized as (a) focusing on a precise definition of a problem, (b) selecting contextually appropriate solutions to the identified problems, and (c) using fidelity and outcome data to determine the impact of the interventions (Horner et al., 2018). In a randomized trial study, Horner et al. provided members of PBIS teams from 38 elementary schools with TIPS workshop training. Direct observational assessment was used to document procedures, practices, and outcomes before and after the PSTs had participated in the workshop. The authors demonstrated that PST members improved problem solving, decision-making, and various meeting outcomes compared with a control condition.

The TIPS approach includes several steps designed to facilitate successful problem solving and solution implementation for student academic and behavioral concerns (see Todd et al., 2010, 2013, for an in-depth discussion). The steps are divided into seven training modules. Module 1 (Overview) describes the TIPS approach and the seven steps of the TIPS process. Module 2 (Meeting Foundations) identifies key components for the structure of PST meetings to ensure efficiency and effectiveness. Module 3 (Problem Precision) involves identifying what the problem behaviors include, where the problem behaviors occur, when they are most likely to occur, who is engaged in the behavior, and why the behaviors are continuing. Module 4 (Identifying Measurable Goals) emphasizes the use of data and involves reducing problem behavior based on the data; goals are structured to be attainable within a set timeline for achievement. Module 5 (Intervention Planning) focuses on finding a solution for the behavior and implementing the solution. Module 6 (Fidelity and Integrity) addresses implementation of the identified solution. Finally, Module 7 (Summative Evaluation Decisions) involves making decisions with integrity and determining the status of the problem. Questions PSTs examine at this stage include “Has the problem been solved?”, “Has the desired goal been achieved?”, and “What should we do next?”

TIPS has received growing research support as a model of PST effectiveness with virtually all components needed for effective problem solving (Bradshaw et al., 2010; Horner et al., 2018). The TIPS model stipulates that schools provide frequent training opportunities for PSTs (e.g., PSTs are typically trained in a professional development or “workshop” format). PSTs that are part of TIPS through their adoption of PBIS are required to meet at least twice per month to develop and practice the skills needed for effective problem solving. For example, Bradshaw et al. (2010) recruited 37 elementary schools in Maryland over 5 years. In addition to 2 monthly PST meetings, the schools agreed to 2 days of summer training and 2 in-school training days every year. The researchers examined the impact of training SWPBIS on implementation fidelity, student suspensions, office discipline referrals, and academic achievement. Although Bradshaw et al. reported that the intervention was successful, it was our experience in working with schools and data collected on recruitment of participants for the present study that many school PSTs do not meet regularly or twice per month during the school year and would not qualify to be part of such a training intervention.

Web-Based Problem-Solving Application

We were first interested in evaluation of a generic teleconsultation web-based application of TIPS alone that we refer to as *web-based team-initiated problem solving* (W-BTIPS). In effect, this intervention served as a "placebo control intervention" in which PST members were exposed only to TIPS. Moreover, traditional models of problem-solving consultation, whether with individual consultees (e.g., teacher focused, conjoint) or with PSTs, have been effective, but these "coaching" models are generally very time intensive and can be costly, especially when long-distance travel to schools is involved. In addition, these approaches require professional, ongoing contact during any consultation (Fairburn & Cooper, 2011; Miller et al., 2004; Sholomskas & Carroll, 2006; Sholomskas et al., 2005). Because components of traditional models can be barriers for PST engagement, we explored a teleconsultation web-based TIPS training as an alternative to the traditional consultation model (Fairburn & Cooper 2011; Kobak et al., 2013) while also serving as a placebo control. This strategy served as a placebo control intervention as it was focused on providing information on the TIPS approach by reviewing and explaining the purpose and components of each of seven modules to PST members.

This TIPS teleconsultation approach has involved the use of technology to provide mediator-based services and has generated recent research in this area (Bice-Urbach et al., 2018; Bice-Urbach & Kratochwill, 2016; Fischer et al., 2017, 2019; Ihorn & Arora, 2018; Zoder-

Martell et al., 2021). Teleconsultation involves the delivery of consultation services through some form of technology such as robot doubles, Zoom, or another form of communication interface. Typically, these services are delivered in a distance format that incorporates the options provided by the technology, thereby allowing services in remote or nontraditional settings. King et al. (2022) reviewed teleconsultation research and indicated that this form of consultation shows promise as a highly effective model of service delivery for school-based interventions. Although much of this research has involved individual consultee-focused consultation, Bassongthwaite et al. (2018) featured a behavioral teleconsultation approach to assist in the development of functional behavioral assessment for school PSTs. Consultants worked with eight PSTs that received challenging behavior referrals in Iowa using a three-stage teleconsultation approach. The model included in-person consultation, onsite teleconsultation, and remote teleconsultation. Although no experimental evaluation was conducted, barriers were addressed and PSTs reported satisfaction with the onsite model to develop initial skills.

Our web-based TIPS approach can be regarded as a variation of the teleconsultation framework wherein the consultation provided was primarily an asynchronous delivery of services. The asynchronous versus synchronous delivery of services involves a distinction in the way teleconsultation services are provided (Fischer, personal communication). In an asynchronous approach, the services can be web-based; consultees receive the consultation process and intervention with video models, with the option for virtual meetings to further refine the problem and intervention (that is, synchronous services layered on the process). Our research falls under a similar asynchronous distinction with some synchronous support added to the protocol. The primary research question we were interested in addressing was: Will individualized interventions designed for each school-PST be more effective in improving PST practices to identify and use EBPs to address disruptive behavior concerns than a generic asynchronous review of key problem-solving practices with TIPS?

Consultation-Based Problem-Solving Application

Our primary targeted problem-solving approach was more traditional and involved implementation of TIPS with a pyramid model of training with a consultant and was labeled as *customized consultant-based problem solving* (CC-BPS). In this approach, we selected a PST member to serve as a facilitator of the intervention (see Method section). These facilitators were provided information in manual form and asked to implement TIPS with their PST and with guidance from a consultant from the research team. Our approach extended TIPS and included a focus on the use of systematic problem-solving procedures with emphasis on data-based decision making and EBPs informed by direct observation of each PST. This approach was developed in response to evidence suggesting that PSTs may struggle to provide effective services because they do not satisfy several of the quality indicators identified and documented by Doll et al. (2005), Fuchs et al. (1990), and Meyers et al. (1996). Specifically, PSTs utilizing a poor problem solving approach could overlook (a) collecting baseline data and other data to monitor ongoing progress to describe adherence to the treatment plan (Bahr et al., 1999; Meyers et al., 1996; Telzrow et al., 2000), (b) basing the intervention plan on a hypothesized reason for the problem (Telzrow et al., 2000), and (c) documenting PST decisions and actions as well as following up on interventions to determine effectiveness (Bahr et al., 1999; Harrington & Gibson, 1986).

Focus of the Present Research

The present study sought to develop, implement, and evaluate an assessment and intervention protocol designed to increase PSTs' adoption and implementation of EBPs for students with disruptive behavior problems. We defined disruptive behavior problems as externalizing behavior such as distractibility, verbal or physical aggression, and non-compliance. Although we also monitored academic referrals to the PST, this was not the focus of data collection or outcome assessment. We were interested in evaluating individualized interventions that were a variation of the generic TIPS approach (see Todd et al., 2011, 2012, 2013, 2017). Based on these considerations, we were interested in addressing the following research question: Will individualized school-PST interventions (i.e., the CC-BPS and W-BTIPS) designed to address students with disruptive behavior disorders lead to adoption and use of a problem-solving model that implements EBIs more so than the generic asynchronous review of the content from TIPS? In the present research, these two interventions were assessed individually and not experimentally compared with each other.

Method

Recruitment and Participants

In the present study, PSTs were the primary units of intervention implementation and data analysis. However, we describe the districts and schools within which the recruited PSTs resided, as well as the individual members that made up the PSTs. Participant recruitment, implementation, and conclusion of the study occurred just prior to the onset of the COVID-19 pandemic.

Participants from elementary schools within a Midwestern state were recruited through two mechanisms. Districts within a 60-mile radius of a university were contacted to gauge interest in participation. Concurrently, members of a regional problem-solving consortium within the state were contacted (the local consortium was comprised of school leaders and educators from nine districts). Recruitment began in the fall of the school year and targeted districts within the consortium and surrounding areas with the goal of screening and identifying at least 14 PSTs that would qualify and be placed into three cohorts. Twenty-two schools (38 PSTs; several schools had multiple grade level PSTs teams within one school building) in nine school districts were initially recruited for the study. The screening selection criterion for PSTs to qualify for the study included evidence of a low baseline level of adopting and implementing EBPs as determined through direct observation of PST meetings using the Direct Observation Recording and Analysis II form (DORA II; Algozzine et al., 2012). The CONSORT diagram in Figure 1 outlines the number of PSTs recruited, the number of PSTs excluded, the reasons for exclusion, and the final number of PSTs included within the present study. Ultimately, 16 PSTs participated in the study from 15 schools within six school districts. One team was consolidated in Year 4 of the project from two PSTs to one PST (i.e., from grade level PSTs to one multi-grade PST). Therefore, the final number of participating PSTs was 15. All PST members included for participation in this study, including all referring teachers and parents (when present at the PST meeting), provided informed consent for their participation.

Schools

Only schools serving Grades K–5 were considered for inclusion in this study; schools that included grades beyond Grade 5 were not eligible. Nine schools resided in small, rural districts (n_{PST} = 9) and three schools were in an urban setting (n_{PST} = 6). Each building served a range of students in relationship to size, minority status, and economic disadvantage. The number of students served in the elementary schools ranged in size from 120 students (kindergarten only building) to 506 students (K–5). The districts' student populations ranged from 8% to 55% of students from minoritized backgrounds (with one urban school 70% of students from minoritized backgrounds) and from 11% to 49% economically disadvantaged (with one urban school 83% economically disadvantaged).

Within participating schools, the number of male students versus female students was similar, whereas the number of female staff was much larger than the number of male staff. The ethnicity of most students and teachers from these schools was White. The number of students proficient in English was high across most schools ($M \geq 93\%$; range = 57.5%–99.7%) and the percentage of students receiving special education services averaged 14.0% (range = 9.1%–18.1%) across participating schools. However, the percentage of students eligible for free and reduced lunch varied widely, averaging 37.9% (range = 4.5%–74.6%) across participating schools.

Problem-Solving Teams

PSTs were recruited if they included a focus on addressing student behavioral problems and implementing behavior-focused interventions. The structure and format of PSTs varied by district and school; some PSTs participating in the study served as the school's PBIS team, whereas other PSTs were grade-level or school-wide teams where a combination of support staff, administration, and teachers—representing both general and special education—collaborated for purposes of problem solving around behavioral issues for students in a specific grade (i.e., grade level) or all grades (i.e., school-wide). Two schools had PSTs that fluctuated in their composition from year-to-year and moved between grade-level and school-wide PSTs. Participating PSTs were diverse in terms of staff composition, meeting frequency, use of data, and problem-solving processes. However, all PSTs focused on behavioral issues of students in at least one grade within Grades K–5 and were typically comprised of a range of individuals, including principals, assistant principals, school psychologists, school counselors, social workers, special education teachers, educational specialists (e.g., reading specialist, math specialist, occupational therapist, physical therapist), referring general education teachers, and occasionally, parents of the child referred to the PST.

Problem-Solving Team Members

Information regarding the composition and demographics of members of the problem-solving teams was gathered via a Problem-Solving Team Member Demographic Questionnaire created for the present study. Each member of the PST, as well as one to two general education teachers who had referred a student to and/or participated in the PST process completed the questionnaire. The questionnaire was completed on two occasions, including once at the beginning of the study pre-intervention (fall) and then in late spring after they had been participating in the intervention phase of the study (i.e., post-intervention).

During the Baseline/Pre-Intervention phase (i.e., Phase 1), 120 core PST members and participating teachers from 15 schools (16 PSTs) were sent the questionnaire. Eventually, two PSTs at one school were combined that resulted in 15 PSTs. These teams averaged 5.3 members (range = 4–14 members) with most members being White (95%), female (88%), and below the age of 45 years (61%). PST members included general education teachers (29%), school psychologists (14%), school principals (14%), school counselors (11%), and various other school professionals and paraprofessionals. Most PST members had served on the team for a year or more (62%) and had spent a wide range of years (1–40 years) working in schools. Additionally, most PST members had only been on the team for 3–6 months and had less than a year of formal training in functional behavioral assessment (78%); none had certification in behavior analysis. The number of meetings PSTs held each month varied by team and included nine PSTs that met approximately every 6 days (i.e., weekly), two PSTs that met twice per month, and four PSTs that met monthly.

Problem-Solving Team Facilitators

Each PST designated a facilitator who served in the role of communicating between the research team and the PST members. There were 15 facilitators (i.e., one for each PST). These individuals communicated information to the PST on meeting logistics and in the case of the consultant-based intervention (see later in the Method section), met with the consultant to implement the PST activities. These individuals were typically school psychologists and their demographic characteristics matched those of the PST members (see above).

Consultants

Each PST was assigned a university consultant who was a member of the research team. There were 12 individuals who served as consultants over the duration of the project, ranging in age from 24 to 45 years. Most consultants were advanced graduate students in a PhD school psychology program (third or fourth-year students) and had been trained in consultation, EBPs, applied behavior analysis, and the DORA II. Consultants attended weekly meetings of the research team and were supervised by two faculty members and a research project manager hired by the researchers at the university. Consultants in the web-based condition had no direct contact with the PST and they were assigned to by the research team. Consultants in the consultation condition met with PST facilitators and actively promoted the adoption of the TIPS components, answered questions, and encouraged problem solving on each referral.

Measures

Baseline Measures

Decision Observation, Recording, and Analysis (DORA II). The DORA II (Algozzine et al., 2012) is a direct observation tool used to examine PST meeting processes and decision making for selecting and implementing EBPs. The DORA II was developed to facilitate the observation and recording of data about the decision-making skills of PSTs regarding students with problematic behaviors (Newton et al., 2009). Algozzine et al. (2016) evaluated the technical adequacy of the DORA (2012) and the DORA II (2015) and reported psychometric data that support use of the DORA II to (a) define effective and efficient PST decision making, (b) obtain inter-observer agreement that makes scores trustworthy, and (c) evaluate the level of engagement of PSTs in expected activities and the outcomes of those activities, including treatment integrity. Trained observers who served as data collectors attended the full duration of each complete PST meeting and gathered data on the DORA II components. For the present study, a modified version of the DORA II (i.e., the DORA-II-R and described more below) was developed and used during each PST meeting to examine the performance across meeting times.

Section 1 of the DORA II evaluates the *foundations* of effective PST problem solving. Within this area, observers document if (a) the meeting started and ended on time, (b) the meeting began and ended with at least 75% of the PST members present, (c) the previous meeting minutes were available for review by the PST, (d) an agenda for the meeting was available to the PST, (e) the next PST meeting was scheduled, and (f) the PST had a designated member that served as the facilitator, minute taker, and data analyst. These components are considered core features for running an effective PST focused on identifying problems and creating meaningful solutions (Algozzine et al., 2012). Further descriptions of these components can be found in the *DORA II Data Collection Protocol and Instrument Manual* (Newton et al., 2012). Data from Section 1 of the DORA II were summarized, recorded, and graphed as a Foundations score.

Section 2 of the DORA II is related to problem precision and goal identification. This domain examines the PSTs' ability to precisely *define the problem* experienced by either an individual child or a group of children. Most often, PSTs in the present study worked to develop behavioral interventions for individual children. Observers were required to assess if the problem identification process defined several core features of a behavioral concern, including (a) who was involved, (b) what the concern was, (c) where the concern was occurring, (d) when the concern was occurring, and (e) a hypothesized reason for why the behavior was occurring. This section also differentiated between academic and behavioral problems, new or old problems (i.e., student concerns that were discussed previously at a problem-solving meeting), and group or individual problems. Academic behavior data were not incorporated into the PST data analysis.

Section 3 focuses on *selecting an intervention* for addressing the defined problem. Observers identified the specific interventions that PSTs used to address problems within the school setting and indicated whether the selected intervention was an EBP from a list of EBPs generated by the project based on a thorough literature review, including selections from the Evidenced Based Intervention Network (see http://ebi.missouri.edu/). Observers also indicated if the PST considered treatment fidelity and whether the PST identified a person responsible for intervention implementation, the timeline for implementation, the method for collecting and analyzing data on treatment integrity, and the person responsible for sharing the treatment integrity data with the PST.

Section 4 of the DORA II allowed for recording when a previously reported *problem was revisited* (defined as an “old problem”). Observers then determined if the PST discussed (a) the level of implementation of the intervention plan, (b) the status of the problem (e.g., problem behavior improved or became worse), (c) data that informed the status of the problem, (d) a comparison of the problem status to the desired goal, and (e) a decision for how to move forward with the specific student or group. Each item was rated separately.

For the present study, the DORA II was modified to provide a better understanding of how PST decisions were made across meetings. In particular, Section 3 and Section 4 were expanded for the present study; hereafter, we refer to this modified version that was used in the present study as the DORA-II-R. Specifically, the summative evaluation components were modified to provide detailed information about whether the PST made a determination to retain, revise, or stop (a) implementation of the solution, (b) the goal for behavior change, and (c) the precisely defined problem for purposes of decisions related to the intervention. Additionally, due to the focus of this research on implementation of EBPs, we added an item to Section 3 of the DORA to identify whether the intervention the PST selected was an EBP (e.g., indicate whether the intervention is evidence-based).

Sections 2–4 of the DORA II-R were then analyzed as a *Thoroughness* score for each PST that included the mean for each of the following elements: (a) problem precision (PP), (b) quantitative data use (QDU), (c) identified goal (IG), (d) solution implementation plan (SIP), (e) solution implementation integrity (SII), (f) status of problem reported (SPR), and (g) summative evaluation decision (SED; see Table 1 for definitions). In addition to calculating a global Thoroughness score, separate Thoroughness scores for new (i.e., the first meeting on student/problem) and old (i.e., follow-up meeting on previous student/problem) problems were also calculated. These thoroughness calculations (i.e., Thoroughness New and Thoroughness Old problems) were refined to gain a clearer understanding of what PSTs would be expected to address when problem solving around new and old student problems. For example, PSTs discussing a new student behavioral problem would not be expected to report on student progress toward their goal. For new problems, the PP, QDU, IG, and SIP were averaged to create a

Thoroughness New score. For old problems, the SII, SPR, and SED were averaged to create a Thoroughness Old score.

Scores were also calculated for each of the four different modules added to the original DORA and present within the DORA II-R; these modules became the basis of individualized interventions for each PST. Modules for the DORA II-R were determined by dividing the DORA II-R into focused skill areas for targeting PST needs. Module 1 consisted of Section 1 from the DORA II-R (i.e., Meeting Foundations). Because the Module 1 score aligns with the Foundations score, separate analyses were not conducted on Module 1. Module 2 focused on Problem Identification, which included all parts of the problem identified (i.e., who, what, when, where, and why), whether data were used to support the problem identification, and if the PST identified student behavioral goals. Module 2 scores were derived by averaging the PP, QDU, and IG scores. Module 3 focused on whether the PST identified solutions for the student problem behavior and whether a thorough solution implementation plan was discussed. The Module 3 score was derived by using the SIP score. Module 4 focused on whether the PST revisited previously discussed student problems to determine if the selected intervention(s) were implemented, if there were changes in student behavior in response to the selected intervention, and if decisions for next steps were made based on the discussion of the old problem. Module 4 scores were derived from averaging the SII, SPR, and SED; therefore, the scores obtained through Thoroughness Old scores and the scores obtained using Module 4 formulas are the same. The Thoroughness and Module scores for each student problem discussed were averaged for each meeting to create one data point for each PST meeting/session.

Observational Measures. Project/research assistants (PAs) were trained on the DORA II-R's observational data collection procedures. These PAs were data collectors and were separate from the research team members who served as consultants. Two paid consultants led the first training session. The training lasted 9 hrs over the course of 2 days. A second training session was held by the project directors for two additional research assistants and lasted approximately 4 hrs on a single day, plus two follow-up inter-observer agreement sessions that lasted for approximately 5 hrs on a single day (9 hrs in total across the two training sessions). A third training session was held for two new observers (i.e., new hires) during the following year and lasted approximately 4 hrs on a single day plus two follow-up inter-observer agreement sessions (totaling approximately 9 hrs). Subsequent trainings were conducted as new PAs joined the research team.

All sessions followed the training manual and protocol constructed by the original DORA developers (Newton et al., 2012). Participants independently reviewed the DORA II-R protocol and completed vignettes illustrating the TIPS format for Meeting Foundations, Problem Identification, and Problem Solving. The overview and purpose of the DORA II-R TIPS agenda were discussed, practiced, and reviewed. Prior to conducting observations using the DORA II-R, observers were required to meet 80% inter-observer agreement (IOA) while shadowing with a trained observer at PST meetings. A minimum of two IOA agreements of ≥ 80% were required before an observer could independently collect data at a PST.

Each observer was assigned to one or more PSTs. Observers recorded each PST meeting using the DORA II-R and attended each meeting for their assigned PST during the Baseline and Intervention Phases. A second observer attended and collected data on a minimum of 25% of observations for each PST meeting in each Phase (i.e., Baseline and Intervention) of the single-case research design, meeting What Works Clearinghouse (WWC) standards for observer agreement checks (Kratochwill et al., 2010; Standards 4.1 and Standards 5.0). Each observer independently coded the PST meetings and codes between the two observers were compared for IOA. The IOA data were collected for 58.23% of DORA II-R protocols (36.39% for baseline, 80.07% for intervention) with an average of 89.76% agreement (85.47% for baseline, 94.05% for intervention).

Post-Intervention Measures

The social validity and acceptability of the Baseline (i.e., assessment) and Intervention Phases were evaluated post-intervention using the Treatment Rating Profile-15 (TRP-15), which was specifically modified for the present research. The TRP-15 was modified from the Treatment Acceptability Rating Form-Revised (TARF-R; Reimers & Wacker, 1988) and the Intervention Rating Profile-15 (IRP-15; Witt & Elliott, 1985). The TARF-R has been used to assess acceptability of intervention procedures and outcomes by asking individuals to rate a series of statements (e.g., “I liked the procedures used in this intervention”, “This intervention was beneficial to the person”) using a 6-point Likert-type scale (1 = *Strongly Disagree*, 6 = *Strongly Agree*). High ratings of social validity indicate that stakeholders agree that the intervention steps are necessary, appropriate, supportive of positive values, and worth the effort to attain the goal (Kazdin, 1977; Schwartz & Baer, 1991). Each individual PST member who was a consistent PST member and one to two teachers who had attended more than one PST meeting across the project timeline completed the TRP-15 acceptability rating form during the final month of the project.

Procedures and Design

Intervention and Consultation with PSTs

Two intervention conditions were created for the present study, consisting of a Web-Based Team Initiated Problem Solving (W-BTIPS) condition and a Customized Consultant-

Based Problem Solving (CC-BPS) condition. Following a Baseline phase (Phase 1; all PSTs), PSTs entered the Intervention Phase (see Table 2 for an overview of when each PST entered each Phase). The two intervention phases were arranged as follows: Phase 2 was implemented only for Cohort 2 and consisted of the W-BTIPS that also served as a "control condition" for further intervention comparison options. Phase 2 allowed for evaluation of whether PSTs were simply improving over time or if improvement was due to our Phase 2 intervention. Phase 3 was the CC-BPS intervention informed by each PSTs' DORA-II-R data and was implemented for Cohorts 1, 3, and then 2 (described below). During both intervention phases, PSTs continued to be assessed at each meeting using the DORA II-R as they discussed student behavioral concerns. Following Phase 3, PST core members and one to two general education teachers completed the post-intervention measure. Further description of the intervention conditions is described next.

Web-Based Team Initiated Problem Solving (W-BTIPS)

W-BTIPS Procedures. Participants assigned to the W-BTIPS training group were emailed a letter that described the process and directions to access the online website where TIPS was hosted. Each PST was assigned a consultant, but this consultant had no contact with the PST during the web-based training. In this asynchronous problem-solving teleconsultation protocol, the consultant provided each PST facilitator with materials that included a binder of printed directions, PowerPoint slides with notes, an agenda, and samples of TIPS documents. The online modules included voiced over PowerPoint slides for the seven W-BTIPS modules and an online quiz used to indicate participants' accurate completion of the W-BTIPS training modules. The seven modules included (a) an Overview of the TIPS Process, (b) Meeting Foundations, (c) Problem Precision, (d) Goals, (e) Intervention Planning, (f) Fidelity, and (g) Summative Evaluation Decisions. Each module took approximately 55 min to complete online and/or by reading through the hard copies of the materials. Within the online format, participants were able to start and stop modules before continuing.

W-BTIPS Integrity. All PSTs received the training materials and all PST facilitators completed the online course. The consultant provided the four schools' PST facilitators assigned to the WBTIPS condition with access to the W-BTIPS training and each facilitator earned a score of 90% on the W-BTIPS training quiz. All (100%) facilitators met with their PSTs to review the seven modules.

Customized Consultant-Based Problem Solving (CC-BPS)

CC-BPS Procedures. In the CC-BPS intervention, individualized interventions were formulated for each PST based on DORA II-R baseline data regarding each PSTs problem-solving procedures. Data from the DORA II-R were graphed for all baseline phases and examined. Slope, level, and trend of the data relative to the percentage of steps completed in each module of the DORA II-R were calculated across each of the DORA's four modules (Modules 1–4). The consultant then summarized these data into PST strengths and needs and reviewed these data in person with the PST facilitator to discuss the PST's strengths and needs and to collaboratively determine points of agreement or disagreement prior to presenting the same information to the entire PST. The information that was agreed upon was then discussed by the consultant and facilitator in the context of the four modules that were created (i.e., Modules 1–4) to cover primary components to emphasize as the focus of intervention. After the PST facilitator and consultant created the customized intervention plan for the PST, the consultant reviewed the same data summary information with the entire PST and asked members to assist in identifying two to three initial goals to focus on during PST meetings. Binders with information on each of the four DORA II-R modules and content regarding selecting EBPs were presented to each PST. A Team Summary Sheet was used to (a) identify the PST strengths and needs (see Appendix for example summary content we provided to Team 2.1), (b) review with the PST facilitator, and (c) jointly review with the PST (along with data graphs of the PST's progress on the DORA-II-R). The PST Summary Sheet in the Appendix also includes an additional column that was not provided to PSTs that summarizes the mechanism underlying how the research team approached the PST to teach each skill. In general, we approached the consultation as outlined and described in past publications (see Newton et al., 2012) in which the TIPS protocol is utilized with coaching, including (a) providing prompts, as necessary, for PST members to engage in the problem-solving processes; (b) praising correct implementation; (c) providing corrective feedback when necessary; and (d) answering PST members' questions. The approach for training and supporting PSTs was grounded in adult learning principles (Knowles, 1980) and behavioral and instructional consultation models (e.g., behavioral consultation [Bergan & Kratochwill, 1990]; conjoint behavioral consultation [Sheridan & Kratochwill, 2008]; and instructional consultation [Rosenfield, 1987]).

Following the development of the individualized PST intervention, the consultant attended each PST meeting to provide in-the-moment feedback and training on the modules and goals of focus. In general, at least two PST meetings were devoted to emphasizing Modules 2–4 as most PSTs had strong foundations (i.e., Module 1) or were easily able to establish them. Additionally, regardless of the specific modules of focus, the consultant consistently provided support for implementation across all modules to support systematic implementation of the problem-solving procedures. For example, if the focus of intervention was on Module 3 (i.e., Solution Identification) but the PST did not engage in discussion of Module 2 (i.e., Problem

Identification), the consultant would redirect the PST to focus first on problem identification and lead the members in a discussion regarding how to accomplish this task.

CC-BPS Integrity. Each PST was assigned a consultant and each consultant worked with a PST over the duration of the intervention phase. If for some reason the assigned consultant was unable to meet with the PST facilitator and/or PST members (e.g., assigned consultant was absent), an alternate consultant was assigned. The consultation process was divided into two stages (i.e., Preparation Stage and the Consultation Stage) and 100% of the customized interventions were documented to be presented to the PSTs.

Research Design

Single-case research design methodology was implemented in the study (Kazdin, 2021). We adopted the WWC Single-Case Design Pilot Standards (see Kratochwill et al., 2010). Features of the current What Works Clearinghouse (2022; WWC Standards 5.0) were also met in the study. We incorporated various types of randomization into the research's single-case design to enhance the study's internal and external validities (Kratochwill & Levin, 2014). Specifically, we incorporated three forms of randomization. First, the 16 PSTs (eventually leading to 15 PSTs that participated) were randomly assigned to one of three intervention cohorts (designated here as Cohorts 1, 2, and 3). Second, within each cohort, each PST was also randomly assigned to a different level (or "tier") of the design (referred to by Ferron & Levin, 2014, as case randomization). Third, for the intervention phase of the design, each PST was randomly assigned to one of two potential intervention start points (referred to as intervention start-point randomization). Because several districts had multiple schools and PSTs that participated in the project, when there was overlap in PST membership (e.g., the social worker for PST School A was the same as the social worker in PST School B), we randomly assigned both PSTs to one tier of the design, which was analyzed separately but considered as one tier. For example, in Cohort 1, there were five PSTs but two of the teams shared a social worker; therefore, they were analyzed as one tier and so there were only four tiers instead of five in the design.

The design was a randomized, restricted, replicated AB design, which includes an A and a B phase for more than one case/unit at different points in time, with the restriction that each case must be randomly assigned a different intervention start point within a prespecified range. With "sessions" rather than actual chronological data points furnishing the outcome measures for all cases, along with a restriction that there be no overlap among the cases' intervention start points, the resultant design gives the appearance of a nonconcurrent multiple-baseline design and the data are plotted in that fashion (i.e., in terms of sessions rather than actual time). When plotted with no gaps in outcome observations in either the A or B phases, and with both between-case (i.e., tier position) and within-case (i.e., intervention start point) factors randomized and therefore controlling for potential confounding variables (e.g., history, maturation, testing, researcher bias), the design is considered to have high internal and external validities (e.g., Kratochwill et al., 2022; Levin & Ferron, 2021; Slocum et al., 2022). Additionally, when analyzed via a corresponding randomization test procedure, the design also receives high marks for its statistical conclusion validity (e.g., Levin et al., 2019).

Data were collected repeatedly in three domains to allow for between-unit and within-school data analysis based on the randomization statistical tests. In Years 1 and 2, baseline data (i.e., Phase 1) were gathered for each of the three cohorts using the DORA II-R for purposes of observing PSTs' implementation of foundations and systematic problem-solving procedures (see Table 2). In Year 3, the PSTs in Cohort 2 were moved into the control intervention phase (i.e., W-BTIPS), three teams from Cohort 1 and four teams from Cohort 3 moved into the individualized intervention (i.e., CC-BPS), and all other remaining PSTs from Cohort 1 (*n* = 2) and Cohort 3 (*n* = 2) continued as baseline controls. PSTs within a cohort were also randomly assigned to intervention start points across schools. Cohort 2 was randomly assigned to the W-BTIPS. Variations in the pre-selected design and analysis had to be made resulting from school PST schedules and various logistical barriers that arose during the study (e.g., PST meeting cancelations, weather). In Year 4, the remaining PSTs in Cohort 1 and Cohort 3 were randomly assigned to three successive intervention conditions tied to the results of the DORA-II-R data (i.e., Phase 3). During Phase 3 and with the aim of increasing the adoption and implementation of EBPs, interventions were developed and implemented in staggered fashion matched to the PSTs' needs relating to problem-solving challenges. Cohort 2 received the Phase 3 intervention (CC-BPS) in Year 4. During Year 4, maintenance assessment was also conducted for Cohorts 1 and 3 who started intervention in Year 3.

Data Analysis Strategy

In the present study, we reference three separate single-case designs that included three different groups (i.e., cohorts) of PSTs and the cases within each cohort represented by the different school PSTs. Although the study was originally planned to include six teams in each cohort with a multiple-baseline design, recruitment and logistical issues resulted in the final design of five teams for Cohort 1, four teams for Cohort 2, and six teams for Cohort 3. As has already been noted, because of scheduling difficulties three (rather than the planned-for four) cohorts were included in the study to assess the replicability/generalizability of the effects obtained in a single cohort.

Data for all cohorts were collected over the same 4-year period. Data collection periods differed from one cohort to the next, as well as for the PSTs within cohorts, as each PST met on different days and differed in meeting frequency per month (e.g., some PSTs met every 6 days, other PSTs met once per month). Consequently, the various time periods when data were collected in the three designs are not represented in terms of actual dates or days, but rather as ordered sessions (i.e., Session 1…Session *N*). Because of the real-time gaps between sessions, session data are compressed in all the graphical displays and analyses presented here. These graphs appear like multiple-baseline designs with session data but are actually replicated AB designs in the analysis and visual displays.

For the primary DORA II-R outcome measures (see details below), the planned and preferred method of analysis was Koehler and Levin's (1998) *regulated randomization* test procedure that is based on two potential intervention start points for each PST in the staggered multiple-baseline design. A randomly determined stagger of between one and four observations was provided between each of the multiple-baseline design's five tiers. The regulated randomization test procedure has been shown to be among the most statistically powerful approaches relative to other randomization-test alternatives (Levin et al., 2018). Unfortunately, the specific requirements for the Koehler-Levin procedure were not satisfied for many of the present data configurations; for these situations where the requirements were not met, the less powerful, modified Revusky randomization-test procedure was implemented (Levin et al., 2018). Finally, the previously mentioned session data-compression process that was used resulted in several instances of intervention start-point overlap in two or more of the school PSTs, which is not compatible with the traditional case-staggered multiple-baseline design logic we originally planned. In those instances, and to be the most conservative in the analysis, (a) the overlap was eliminated by dropping one or more PSTs from the analysis and (b) in situations where there was a choice as to which PSTs to drop, more than one analysis was conducted to accommodate the resulting possible PST combinations, or *partitions*.

We also conducted a supplementary W-BTIPS intervention analyses involving only Cohort 2; both the between-PSTs intervention start-point stagger requirement (from two and 10 observations inclusive) and the requirement of a minimum number of complete post-intervention observations per case for all tiers were met for the Module 2 and Module 3 measures. Consequently, the Wampold-Worsham (1986) procedure that is based on a single fixed intervention start point, which is a special-case application of the Koehler-Levin randomization test procedure, was conducted on those two measures. The modified Revusky procedure was applied to the Thoroughness Old measure and no analysis was conducted on the Thoroughness New measure because of overlapping intervention start points among the PSTs. All analyses were conducted using Gafurov and Levin's (2023) open access *ExPRT* randomization test package with the data plotted and statistically analyzed by sessions.

Consistent with the randomization-test procedures' rationales for traditional multiple-baseline designs, PSTs were randomly assigned to the staggered intervention-start positions. However, because of logistical problems, the *two potential intervention start-points approach* could not be implemented for all PSTs (again due to PST schedules). For those cases where this wasn't possible, the intervention's point of implementation was based on only a single fixed-intervention start point. The data compression process mentioned earlier resulted in several instances of intervention start-point overlap in two or three of the PSTs, which is not compatible with traditional multiple-baseline design logic. In these instances, the overlap had to be eliminated by dropping one or more PSTs from the analysis. Note that when interpreting the results, these unforeseen circumstances reduced the randomization tests' statistical power.

Graphs were developed for each of the DORA II-R's modules for each PST created for the present study, including (a) Module 1 (i.e., Meeting Foundations), (b) Module 2 (i.e., Problem Identification), (c) Module 3 (i.e., Identified Solutions), (d) Module 4 (i.e., Thoroughness Old), and (e) Module 4 (i.e., Thoroughness New). Graphs were not developed for Module 1 (i.e., Meeting Foundations) as data across PSTs and cohorts were similar throughout the study and thus were not a focus of intervention. Data are reported by session with data points averaged when multiple meetings occurred in a 7-day period or multiple problems were discussed in a meeting. The Module 2 graph displays the average Module 2 score using the average of the PP, QDU, and IG scores as previously defined in Table 1. The Module 3 graph uses the average Module 3 SIP score for problems reported. The Module 4 graph displays the average Module 4 score using the average of the SII, SPR, and SED scores and is equivalent to the data used to calculate Thoroughness Old. The Thoroughness New graphs combined data from Module 2 (i.e., PP, QDU, and IG) and Module 3 (SIP). Phase change lines were added to the graphs to reflect change from baseline to the CC-BPS (consultation/coaching; Phase 3) intervention for Cohorts 1 and 3 and to reflect change from baseline to W-BTIPS (Phase 2) and W-BTIPS to CC-BPS for Cohort 2.

Results

In the presentation of the results that follow, we have organized the material by each of the intervention conditions.

CC-BPS Intervention Results (Phase 3)

Outcome data for the primary measures (i.e., Module 2, Module 3, Module 4 Thoroughness Old, and Module 4 Thoroughness New) are presented for each of the three cohorts, with representative figures provided for Cohort 1 only. Each outcome measure was analyzed using Levin et al.'s (2018) modified Revusky randomization-test procedure as applied to a change in the baseline-to-intervention phase level (i.e., mean) based on a Type I error probability (α) of .05. For each measure, a mean increase between the baseline and intervention phases was predicted and all statistical tests were directional (i.e., one-tailed). Within the included graphs and discussion, the intermittent observation sessions and the way the between-team staggers were determined by PST schedules for each measure; thus, each cohort's PSTs are not listed in the same order for each analysis.

Module 2

Cohort 1. Cohort 1's Module 2 data, based on a five-tier ($N = 5$) nonconcurrent AB design, are plotted in Figure 2, which also includes the baseline (A) and intervention (B) phase means and the baseline phase standard deviation. Except for Team 2 and considerable within-case variability throughout, there was an increase in each series' level (i.e., mean) that is generally coincident with the transition from the baseline phase to the intervention phase's start point. The modified Revusky randomization test identified a statistically significant increase between the baseline and intervention phases ($p = .0167$) based on a sample of 960 total outcomes in the randomization distribution. In alternative terms, this means either that the obtained outcome was the 16th most extreme (i.e., .0167 x 960) in the statistical test's randomization distribution, or that the outcome was the 16th most incompatible with the hypothesis that there was no difference in the baseline- and intervention-phase levels.

Parker and Vannest's (2009) non-overlap of all pairs (NAP) nonparametric effect sizes for the five teams were .58, .69, .74, .20, and .18 for Teams 1.1–1.5, respectively (*Mdn* NAP = .58). In *ExPRT*, these NAP effect sizes are rescaled so that they represent proportions that range from 0 (i.e., complete overlap between the baseline and intervention data outcome distributions) to 1 (i.e., no overlap between the baseline and intervention outcome distributions). *ExPRT* provides a rescaled NAP effect size because someone unfamiliar with this metric is likely to look at an original Parker-Vannest NAP measure of .50 through the perspective of standard correlation indices, which would represent "moderate" nonoverlap between the two phases' outcomes. However, a Parker-Vannest NAP of .50 represents complete overlap between the two phases' outcomes. With the rescaled NAP measure, 0 represents complete overlap between the two phases' outcomes, .50 represents moderate overlap, and 1.00 represents complete nonoverlap. We can convert the Parker-Vannest NAP (NAP_{PV}) to the rescaled NAP (NAP_R), in that $NAP_R = (NAP_{PV} – .50) \times 2$; to convert NAP_R to NAP_{PV}, $NAP_{PV} = (NAP_R/2) + .50$. Thus, the median NAP of .58 indicates that there is almost 60% non-overlap between the baseline- and intervention-phase distributions, in this case with the latter distribution yielding higher scores.

The same basic results information will now be presented in abbreviated form for the other cohorts and outcome measures. To simplify the amount of information that could be presented in graphic form, we summarize the outcomes that might otherwise be presented in a large number of redundant graphs.

Cohort 2. The modified Revusky randomization test revealed no statistically significant differences between the baseline and intervention phase levels ($p = .0625$ based on 96 randomization-distribution outcomes) with PST NAPs of .68, .83, .50, and .82 ($Mdn = .75$) for Teams 2.1–2.4, respectively, with all effect sizes favoring the intervention phase. Although these values are relatively large, they are based on a small sample of randomization-distribution outcomes (96), resulting in low statistical power to detect a between-phase level change.

Cohort 3. The modified Revusky randomization test revealed a statistically significant level increase between the baseline and intervention phases ($p = .01$ based on 2880 randomization-distribution outcomes), with PST NAPs of .73, .81, .52, .64, .67, and .70 (*Mdn* = .685 for Teams 3.1–3.6, respectively, again all favoring the intervention phase.

Summary. For the Module 2 DORA II-R measure, two of the three cohorts experienced a statistically significant increase in level following the introduction of the CC-BPS intervention. For those two cohorts that experienced a statistically significant increase in levels, the medians of the individual NAP measures were .58 (Cohort 1) and .685 (Cohort 3), indicating that about 60% of the baseline and intervention outcome distributions were non-overlapping.

Module 3

Cohort 1. The data for the five PSTs from Cohort 1 are plotted in Figure 3. As with the Module 2 data, the graphs show that with the PSTs from this cohort, there were increases in the cases' outcome-measure levels that are coincident with the introduction of the intervention phase. The modified Revusky randomization test revealed a statistically significant level increase between the baseline and intervention phases (p = .002 based on 1920 randomization-distribution outcomes), with PST NAPs of .55, .93, .54, .33, and .49 (*Mdn* = .54) for Teams 1.1–1.5, all favoring the intervention phase. Although PST 1.2's NAP of .93 is extremely large (representing only 7% distributional overlap between the intervention and baseline phases), this value includes only four intervention outcomes in its calculation, all of which were tied with the highest baseline observation of 50%.

Cohort 2. For Cohort 2, the modified Revusky randomization test revealed no statistically significant differences between the baseline and intervention phase levels (p = .90 based on 96 randomization-distribution outcomes), with PST NAPs of .63, .16, .79, and .50 (*Mdn* = .565) for Teams 2.1–2.4, respectively, all favoring the intervention phase. The modified Revusky large statistically nonsignificant p-value of .90 can be attributed mainly to the low outcome-observation values that were produced by PSTs 2.2–2.4 in the first few sessions immediately following the introduction of the intervention.

Cohort 3. The modified Revusky randomization test revealed that despite negligible effects for Team 3.5, there was a statistically significant increase in level between the baseline and intervention phases ($p = .003$ based on 2880 randomization-distribution outcomes), with PST NAPs of .86, .93, .48, .43, .01, and .53 (*Mdn* = .505) for Teams 3.1–3.6, with all teams except Team 3.5 (NAP = .01) favoring the intervention phase.

Summary. For the Module 3 measure, two of the three cohorts (i.e., Cohort 1 and Cohort 3) experienced a statistically significant increase in levels following the introduction of the CC-BPS intervention. For those two cohorts the medians of the individual NAP measures were .54 and .51, respectively.

Module 4 (Thoroughness Old)

Cohort 1. Data for Cohort 1 ($N = 5$), Module 4 (Thoroughness Old) are plotted in Figure 4. The modified Revusky randomization test revealed no statistically significant differences between the baseline and intervention phase levels ($p = .11$ based on 480 randomization-distribution outcomes), with respective PST NAPs of 1.00, .79, 0, .36 (B < A), and .35 (*Mdn* = .35) for Teams 1.1–1.5, respectively, with all except the third (Team 1.3 NAP = 0) and fourth PSTs (Team 1.4 NAP = .36) favoring the intervention phase. However, the lower intervention-phase "means" for Team 1.3 and Team 1.4 are based on only two and one outcome measures, respectively. From Figure 4, the between-team variation in the NAP effect sizes was substantial for this Thoroughness Old measure.

Cohort 2. The modified Revusky randomization test revealed no statistically significant differences between the baseline and intervention phase levels ($p = .83$ based on $N = 3$ teams and

12 randomization-distribution outcomes), with PST NAPs of .86, .38, and .91 (*Mdn* = .38) for PSTs 2.1–2.3, respectively, with the first NAP of .86 favoring the baseline phase. There was only one outcome observation for Team 2.1 and there were only two observations for Team 2.2. Again, the between-PST variation in effect sizes was substantial for this measure. More importantly, with only 12 total permutations in the randomization-test distribution, it was not possible to obtain a statistically significant intervention effect based on $\alpha = .05$, with the lowest possible one-tailed *p*-value being 1/12 = .08.

Cohort 3. Given the intermittent observation sessions and the unsystematic way the between-PST staggers had to be derived for each measure, for some measures it was possible to build different design partitions for the same. Two different data partitions were possible for Cohort 3 with the Module 4 (Thoroughness Old) measure. We report the results of both partitions here to assess the robustness of the randomization test's statistical conclusions.

Partition 1. The modified Revusky randomization test revealed no statistical differences between the baseline and intervention phase levels ($p = .21$ based on $N = 4$ PSTs and 96 randomization-distribution outcomes), with PST NAPs of .76, .03 (B < A), .17, and .07 (*Mdn* = .12) for Teams 1.1–1.4, respectively, with the second NAP of .03 favoring the baseline phase.

Partition 2. The modified Revusky randomization test revealed no statistically significant differences between the baseline and intervention phase levels ($p = .125$ based on $N = 4$ PSTs and 96 randomization-distribution outcomes), with PST NAPs of .76, .69, .51, and .07 (*Mdn* = .60) for Teams 1.1–1.4, respectively, all favoring the intervention phase.

Accordingly, the modified Revusky test results associated with the two different data partitions were quite consistent. At the same time, a descriptively greater degree of distributional non-overlap between the two phases may be seen in the second partition than in the first.

Summary. For the Module 4 (i.e., Thoroughness Old) measure, no statistically significant baseline-to-intervention phase increases in level were observed for any of the three cohorts.

Module 4 (Thoroughness New)

Cohort 1. Data for Cohort 1 (N = 4 PSTs), Module 4 (Thoroughness New) are plotted in Figure 5. The modified Revusky randomization test revealed no statistically significant differences between the baseline and intervention phase levels (p = .41 based on 96 randomization-distribution outcomes), with PST NAPs of .45, .33, .23, and .73 (*Mdn* = .39) for Teams 1.1–1.4, respectively, all favoring the intervention phase.

Cohort 2. The modified Revusky randomization test revealed a statistically significant level increase between the baseline and intervention phases (p = .02 based on 48 randomization-distribution outcomes), with PST NAPs of .73, .93, .72, .71 (*Mdn* = .725), for Teams 1.1–1.4, respectively, all favoring the intervention phase for each of the PSTs, and especially for Team 2.2. Additionally, a statistical difference in phase levels was detected with a small number of randomization-test permutations (i.e., 48).

Cohort 3. As with the Module 4 (Thoroughness Old) measure, two different data partitions of the Thoroughness New data were possible for Cohort 3, therefore we report the results of both partitions here to assess the robustness of the randomization test's statistical conclusions.

Partition 1. The modified Revusky randomization test revealed a statistically significant level increase between the baseline and intervention phases (p = .025 based on 480 randomization-distribution outcomes), with PST NAPs of .88, .64, .17, .70, and .56 (*Mdn* = .64) for Teams 1.11.5, respectively, all favoring the intervention phase.

Partition 2. The modified Revusky randomization test revealed a statistically significant level increase between the baseline and intervention phases (p = .004 based on 480 randomization-distribution outcomes), with PST NAPs of .88, .64, .91, .70, and .56 (*Mdn* = .67) for Teams 1.1–1.5, respectively, all favoring the intervention phase.

Thus, the modified Revusky test results associated with the two different data partitions were quite consistent.

Research Question Summary

For the Thoroughness New measure, two of the three cohorts (i.e., Cohort 2 and Cohort 3) experienced a statistically significant increase in level following the introduction of the CC-BPS intervention. For the three cohorts, the medians of the individual NAP measures were sizable: .72 (Cohort 2), .64 (Cohort 3’s Partition 1), and .70 (Cohort 3’s Partition 2), thereby indicating that more than 60% of the baseline and intervention outcome distributions were non-overlapping. Various examples of the types of interventions selected by PSTs at baseline are included in Table 3, which also includes examples of selected interventions after Phase 3 was implemented for the CC-BPS condition.

W-BTIPS Intervention Results

We note here that the W-BTIPS (i.e., Phase 2) teleconsultation intervention was administered only to Cohort 2. As Phase 2 was implemented prior to the main intervention (i.e., Phase 3) for Cohort 2, the two interventions are potentially confounded based on order, which needs to be considered when interpreting the results. As was mentioned earlier, for the supplementary W-BTIPS intervention analyses involving only Cohort 2, the between-PSTs intervention start-point stagger requirement was met for the Module 2 and Module 3 measures. Consequently, the Wampold-Worsham procedure based on four PSTs and a single fixed-intervention start point (resulting in 24 possible permuted outcomes) was conducted for those two measures. With such a small number of possible outcome permutations (i.e., 24), there was very little power to detect levels change. The modified Revusky test was conducted on the Module 4 (Thoroughness Old) measure and no randomization-test analysis was possible on the Module 4 (Thoroughness New) measure because of overlapping intervention start points among the PSTs.

Module 2

For Cohort 2, Module 2, the Wampold-Worsham randomization test revealed no statistically significant differences between the baseline and intervention phase levels (p = .46 based on 24 randomization-distribution outcomes), with PST NAPs of .73, .42, .18, and .64 (*Mdn* = .53) for Teams 2.1–2.4, respectively, all favoring the intervention phase (see Figure 6).

Module 3

For Cohort 2, Module 3, the Wampold-Worsham randomization test revealed no statistically significant differences between the baseline and intervention phase levels (p = .42 based on 24 randomization-distribution outcomes), with PST NAPs of .63, .52, .35, and .37 (*Mdn* = .445) for Teams 2.1–2.4, respectively, all favoring the intervention phase (see Figure 7).

Module 4 (Thoroughness Old)

For the Cohort 2, Module 4 (Thoroughness Old) measure, the modified Revusky randomization test (based on 24 randomization-distribution outcomes) revealed no statistically significant differences between the baseline and intervention phase levels insofar as the former level exceeded the latter, with PST NAPs of .50 (B < A), .27, .22 (B < A), and .13 for Teams 2.1–2.4, respectively, with the first (Team 2.1) and third (Team 2.3) PSTs favoring the baseline phase (*Mdn* = .045).

Module 4 (Thoroughness New)

No formal randomization-test analysis was conducted on this analysis because three of the four PSTs ended up with the same intervention start point—namely, Session 15. The PST NAPs were .45, .40, .80, and .63 for Teams 2.1–2.4, respectively, all favoring the intervention phase (*Mdn* = .54).

Research Question Summary

The W-BTIPS intervention (administered to Cohort 2 in the context of the main CC-BPS Intervention) resulted in no baseline-to-intervention increases in levels for the four outcome measures examined here. Due to the small number of randomization outcomes that comprised the W-BTIPS analyses, the evidence bearing on these expectations must be regarded as inconclusive.

Acceptability Scores

The acceptability of the intervention procedures was assessed using the modifications described to the TARF-R and the IRP-15 to create the TRP-15. A total of 64 PST members across 14 PSTs completed the TRP-15. Across all teams, 13 of the 15 questions were rated on average as a 5 (*agree*) except for Question 5 ("The team functioning was of great enough concern to warrant the use of this intervention"), which was rated an average of 3.81 (*slightly agree*) and Question 14 ("The intervention was disruptive to carry out"), which was rated an average of 2.1 (*disagre*e). Results indicated that individual PST members (*M* = 4.77, range = 1–6) and PSTs (Cohort 1 *M* = 4.88, range = 2–6; Cohort 2 *M* = 4.53, range = 1–6; Cohort 3 *M* = 4.93, range = 2–6) found the intervention approach to be acceptable, would recommend its use to other PSTs and agreed that it was not disruptive to implement as part of everyday PST practices.

Discussion

Baseline assessment indicated that PSTs rarely used a complete problem-solving process to identify EBPs as interventions to implement. For example, as summarized in the Appendix, most PSTs were able to identify the problem (i.e., what) but not where, when, or why the problem was occurring during baseline PST meetings. PSTs typically did not use data to inform assessment or intervention identification, nor did they identify goals or specify a treatment integrity or a progress-monitoring plan. Interventions were not always identified by the PST, but when they did identify one or more, the interventions were often not classified as evidenced based as defined by the present study's criteria.

Guided by the need to promote effective problem solving among PST members, we developed, implemented, and evaluated intervention protocols designed to increase PSTs' use of systematic, evidence-based problem-solving procedures to support the adoption and implementation of EBPs for students with disruptive behavior problems. We adopted a problem-solving model based on the TIPS approach that has shown promise in prior research on PSTs (e.g., Todd et al., 2011, 2012, 2013, 2017). In particular, when we adopted TIPS intervention steps that were divided into seven training modules, we found that although a web-based teleconsultation (i.e., W-BTIPS; Phase 2) version was generally ineffective in promoting problem solving among PST members (as reflected in no statistically significant changes on the DORA II-R outcome measures), the consultant version (i.e., CC-BPS) of the TIPS was generally effective on diverse DORA II-R outcome measures. For example, during Phase 3, intervention selection examples included evidence-based interventions tied to the results of a functional behavioral assessment (e.g., functional communication training, differential reinforcement of appropriate behavior, behavioral contracts with identified reinforcers informed by a preference assessment) as well as video-modeling, self-monitoring, and direct instruction on social skills in small groups that generalized to the classroom. In particular, on the Module 2 measure, two of the three cohorts experienced a statistically significant increase in implementation level following the CC-BPS intervention; PSTs were utilizing data and fully identifying the problem behavior (i.e., who, what, where, when, and why) and identifying goals. For the Module 3 measure, two of the three cohorts experienced a statistically significant increase and PSTs started specifying (a) the components of treatment, (b) how integrity of the plan would be monitored, and (c) a plan for progress monitoring and revisiting previous students and progress monitoring data at subsequent PST meetings. Although for the Module 4 (Thoroughness Old) measure no statistically significant baseline-to-intervention phase increases in level were observed for any of the three cohorts, some PSTs revisited old problems by reporting on progress and revising intervention plans if needed. For the Thoroughness New measure, two of the three cohorts experienced a statistically significant increase in level following the introduction of the CC-BPS intervention. Overall, these findings suggest that the CC-BPS was somewhat successful and support prior research on the TIPS approach.

Implications for Research

There are several implications of this research for future investigations. Like traditional problem-solving consultation, we argue that the implementation of a PST problem-solving process is necessary for successful adoption and implementation of EBPs (Dowd-Eagle & Eagle, 2014; Price & Jordan, 2023; Rosenfield, 1992, 2014). Although there is a growing understanding of the methods for facilitating the adoption and implementation of EBPs in community mental health (e.g., Castillo & Abiola, 2023), there has been more limited application in educational settings (e.g., APA Task Force on Evidence-Based Practice for Children and Adolescents, 2008;

Kazak et al., 2010; Kratochwill & Hoagwood, 2006; Rosenfield et al., 2018). Our research, and that of a growing body of research examining PSTs (e.g., Algozzine et al., 2016), suggests that without intervention, PSTs have a lower likelihood of implementing EBPs for students that need interventions. Our research also supports the need for future studies on (a) critical elements that have the potential to promote the use of research evidence by PSTs and (b) variations of a consultant-mediated problem-solving process like the one used in the present study (Buck et al., 2003; Rosenfield et al., 2018; Telzrow et al., 2000).

Our training protocol included knowledge of how and where to access EBPs that are relevant to prevention and intervention work with students. One would surmise that most school-based professionals have been trained in EBPs in their undergraduate or graduate education, but historically, this has not been the case (Hicks et al., 2014; Kratochwill, 2007). Moreover, few training guides have been produced and even fewer have focused on the professional development needed to advance research uptake in this area (Rosenfield et al., 2018). Our manualized approach was helpful to PSTs to implement interventions with students referred to the PST, but only when a consultant was involved. It would appear that knowledge development must be supplemented with consultation/coaching to promote the implementation of EBPs by PSTs (e.g., Becker & Stirman, 2011; Fixsen et al., 2005; Gettinger et al., 2019; Joyce & Showers, 2002; Rakovshik & McManus, 2010; Reddy, 2023). Variations of this support should be the focus of future research (Erchul, 2023).

Our findings on the teleconsultation web-based intervention, although preliminary, could be perceived as disappointing. However, the teleconsultation option adopted in the present study can be regarded as an asynchronous problem-solving protocol with no formal contact by the consultant during the time the PST viewed the training materials. Increasing virtual contact with the consultant may improve the outcome considerably, as has been suggested by Bassingthwaite et al. (2018). Also, compared to in-person training, teleconsultation more broadly and web-based trainings in particular are generally cost effective, time efficient, allow PST members to access the training materials remotely, and provide flexible access options (Kobak et al., 2013), thereby permitting repetitive engagement with the content (Fairburn & Cooper, 2011). Web-based training has also been found to increase participants' knowledge of a topic area and professionals' level of comfort implementing the intervention in their practice (Kobak et al., 2013). Professional organizations in psychology (e.g., American Psychological Association) routinely use web-based training as a medium to provide professional development to their members (Kuriyan et al., 2017). Although not evaluated in the EBP arena, Norcross and colleagues (2017) published a textbook that features web-based EBP training options hosted by Oxford Press (https://global.oup.com/us/companion.websites/9780190621933/videos/). Despite these trends, it may be that with the complexity of PST processes, some on-site ongoing consultation/coaching may be necessary, at least in the initial phases of training. We are currently exploring how teleconsultation web-based training can be integrated with a traditional consultation process.

Implications for Practice

Our research has important implications for the practice of school psychology and associated work with PSTs. First, it was surprising to find that many schools we tried to recruit for the present study did not have PSTs, or if they reported having a PST, members seldom met to engage in problem solving on referrals. Thus, it was disappointing to learn that after many years of advocacy for RtI and SWPBIS implementation, that multiple schools had no PSTs designed to address student, teacher, and family concerns. Formation of a PST is critical to address academic and behavioral issues in the school and should be a priority. Where possible, statewide initiatives to establish school PSTs, as occurred in Iowa, seem ideal to support the process (e.g., Bassingthwaite et al., 2018). Second, it is important that school psychologists proactively adopt problem-solving protocols for working with their colleagues on a PST. Most PSTs at baseline did not rely on data to inform decisions and the resulting interventions were neither evidenced-based nor well planned. At baseline, many PSTs did not establish a plan to monitor and report back on progress; instead, they often had a “one-and-done” conversation about the student until the next identified referral point. On a positive note, for the practice of problem-solving consultation, our results indicate that it is possible to improve PST performance and increase PSTs’ uptake of EBPs and consistent use of the problem-solving process. In fact, from the outset, PSTs were eager for assistance and guidance to improve the process they were using. Our research provides some insight to how this might be accomplished, such as through a heavy resource commitment and well-trained consultants who are able to devote considerable time to PST activities.

Limitations and Future Directions

There are limitations to our research that should be addressed in future investigations and that impact interpretation of the results. First, we learned that this is a very challenging area of research due to recruitment, training, and effort issues. Working within a school’s calendar and culture considerably impacted our measurement and design. Schools face major challenges. For example, PSTs could not always meet when scheduled, schedules were often changed for various reasons that are systemic to schools as systems, it was not always possible for some individuals to attend PST meetings, and weather issues (e.g., snowstorms) or other factors (e.g., school event celebrations) frequently interfered with scheduled meetings. For instance, a consultant would be on their way to a PST meeting only to learn that the leader decided to cancel the meeting due to other priorities in the school. These factors affected the research protocol schedule and design, as reflected in the results that we presented.

Our research methodology also had limitations. As noted in the Method section, we originally proposed a concurrent, randomized, multiple-baseline design to meet or exceed the WWC Standards (4.1/5.0). However, the challenges in working with the PSTs necessitated adopting alternative single-case design methodologies for evaluation of the interventions (i.e., randomized nonconcurrent replicated AB designs). Specifically, due to the elongated timeline in scheduling PST meetings, we had to move to a nonconcurrent design methodology; despite these issues, we were able to utilize a scientifically credible randomized single-case design and accompanying randomization test procedures to analyze the data (e.g., Kratochwill & Levin, 2014; Levin et al., 2019). Future researchers might consider randomized between-group methodology if they are able to recruit adequate sample sizes, noting that the PST would be the appropriate unit of analysis, and not the number of PST members.

Another limitation of our research is that we were unable to conduct systematic follow-up to determine whether the PSTs continued to engage in the protocols that we set up for the intervention. The end of the school academic term, changes in administration in our schools, and ever-evolving PST membership presented substantial challenges in this area, as did the lack of funding resources to assess long-term follow up in a comprehensive manner.

Future researchers will need to consider which aspects of this resource-intensive model have the most potential to improve PSTs and what additional supports are needed to adopt other aspects that were not as successful. In addition, we need to evaluate over the long term whether PSTs can generalize and utilize the new practices that have been modeled, prompted, and reinforced in the absence of the consultant. Finally, future researchers could develop and test alternative models of support that may rely more on teleconsultation or video modeling to provide an overview and breakdown of the problem-solving process that PSTs can refer to as part of ongoing professional development. Our work with a variety of PSTs emphasized that the PST members frequently recognized that their efforts fall short of the ideal. These PST members were eager for guidance and assistance—and are capable of change—to improve the problem-solving process and achieve more positive outcomes for students.

References

Algozzine, B., Newton, J. S., Horner, R. H., Todd, A. W., & Algozzine, K. M. (2012). Development and technical characteristics of a team decision-making assessment tool: Decision observation, recording and analysis (DORA). *Journal of Psychoeducational Assessment*, *30*, 237–249. https://doi.org/10.1177/0734282911423884

Algozzine, B., Horner, R. H., Todd, A. W., Newton, J. S., Algozzine, K., & Cusumano, D. (2016). Measuring the process and outcomes of team problem solving. *Journal of Psychoeducational Assessment*, *34*(3) 211–229. https://doi.org/10.1177/0734282915592535

American Psychological Association Task Force on Evidence-Based Practice for Children and Adolescents. (2008). *Disseminating evidence-based practice for children and adolescents: A systems approach to enhancing care*. American Psychological Association.

Ash, T. L., Helminen, E. C., Yamashita, S., & Felver, J.C. (2023). Teachers' anti-black biases in disciplinary decisions: The role of mindfulness. *Journal of School Psychology, 96*, 75–87. https://doi.org/10.1016/j.jsp.2022.11.003.

Bahr, M. W., Whitten, E., Dieker, L., Kocarek, C. E., & Manson, D. (1999). A comparison of school-based intervention teams: Implications for educational and legal reform. *Exceptional Children*, *66*(1), 67–83. https://doi.org/10.1177/001440299906600105

Bassingthwaite, B. J., Graber, J. E., Weaver, A. D., Wacker, D. P., White-Staecker, D., Bergthold, S., & Judkins, P. (2018). Using teleconsultation to develop independent skills of school-based behavior teams in functional behavior assessment. *Journal of Educational and Psychological Consultation, 28*(3), 297–318. https://doi.org/10.1080/10474412.2018.1431548

Becker, K. D., & Stirman, S. W. (2011). The science of training in evidence-based treatment in the context of implementation programs: Current status and prospects for the future. *Administration and Policy in Mental Health and Mental Health Services*, *38*, 217–222. https://doi.org/10.1007/s10488-011-0361-0

Benishek, L. E., Gregory, M. E., Hodges, K., Newell, M., Hughes, A. M., Marlow, S., Lacerenza, C., Rosenfield, S., & Salas, E. (2016). Bringing the science of team training to school-based teams. *Theory Into Practice*, *55*, 111–118. https://doi.org/10.1080/00405841.2016.1148987

Bergan, J. R., & Kratochwill, T. R. (1990). *Behavioral consultation and therapy.* Plenum Press.

Berger, J., Yiu, H., Nelson, D., Vaganek, M., Rosenfield, S., Gravois, T., & Hong, V. (2014). Teacher utilization of instructional consultation teams. *Journal of Educational and Psychological Consultation, 24*, 211–238. https://doi.org/10.1080/10474412.2014.917931

Bice-Urbach, B. J., & Kratochwill, T. R. (2016). Teleconsultation: The use of technology to improve evidence-based practices in rural communities. *Journal of School Psychology*, *56*, 27–43. https://doi.org/10.1016/j.jsp.2016.02.001

Bice-Urbach, B., Kratochwill, T. R., & Fischer, A. (2018). Teleconsultation: Application to provision of consultation services for school consultants. *Journal of Educational and Psychological Consultation, 28*(3), 255–278. https://doi.org/10.1080/10474412.2017.1389651

Boudett, K. P., City, E. A., & Murnane, R. J. (2006). *Data wise: A step-by-step guide to using assessment results to improve teaching and learning*. Harvard Education Press.

Bradshaw, C. P., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of schoolwide positive behavioral interventions and supports on student outcomes: Results from a randomized controlled effectiveness trial in elementary schools. *Journal of Positive Behavior Interventions*, *12*, 133–148. https://doi.org/10.1177/1098300709334798

Buck, G. H., Polloway, E. A., Smith-Thomas, A., & Cook, K. W. (2003). Prereferral intervention processes: A survey of state practices. *Exceptional Children*, *69*, 349–360. https://doi.org/10.1177/001440290306900306

Burns, M. K., & Coolong-Chaffin, M. (2006). Response-to-intervention: The role of and effect on school psychology. *School Psychology Forum: Research in Practice*, *1*, 3−15.

Castillo, J.M. & Abiola, I. (2023), Multitiered systems of support: Principles for school psychologists. In P. Harrison, S. Proctor, & A. Thomas (Eds), *Best practices in school psychology VII* (pp. 43–58). National Association of School Psychologists.

Deno, S. L. (2005). Problem-solving assessment. In R. Brown-Chidsey (Ed.), *Assessment for intervention: A problem-solving approach* (pp. 10–40). Guilford Press.

Doll, B., Haack, K., Kosse, S., Osterloh, M., Siemers, E., & Pray, B. (2005). The dilemma of pragmatics: Why schools don't use quality team consultation practices. *Journal of Educational and Psychological Consultation, 16*, 127−155. https://doi.org/10.1207/s1532768xjepc1603_1

Dowd-Eagle, S., & Eagle, J. (2014). Team-based school consultation. In P. L. Harrison & A. Thomas (Eds.), *Best practices in school psychology: Data-based and collaborative decision making* (pp. 450–472). National Association of School Psychologists.

Erchul, W. P. (2023). As we coach, so shall we consult: A perspective on coaching research in education. Journal of School Psychology, 96, 88-94. https://doi.org/10.1016/j.jsp.2022.10.004

Fairburn, C. G., & Cooper, Z. (2011). Therapist competence, therapy quality, and therapist training. *Behaviour Research and Therapy*, *49*(6-7), 373–378. https://doi.org/10.1016/j.brat.2011.03.005

Ferron, J. M., & Levin, J. R. (2014). Single-case permutation and randomization statistical tests: Present status, promising new directions. In T. R. Kratochwill & J. R. Levin (Eds.), *Single-case intervention research: Methodological and statistical advances* (pp. 153–183). American Psychological Association.

Fischer, A. J., Bloomfield, B. S., Clark, R. R., McClelland, A. L., & Erchul, W. P. (2019). Increasing student compliance with teacher instructions using telepresence robot problem-solving teleconsultation. *International Journal of School & Educational Psychology, 7(sup1)*, 158–172. https://doi.org/10.1080/21683603.2018.1470948.

Fischer, A.J., Dart, E.H., Radley, K.C., Richardson, D., Clark, R., & Wimberly, J. (2017). An evaluation of the effectiveness and acceptability of teleconsultation. *Journal of Educational and Psychological Consultation, 27*, 437–458. https://doi.org/10.1080/10474412.2016.1235978

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature* [Florida Mental Health Institute Publication #231]. University of South Florida, Louis de la Parte Florida Mental Health Institute, National Implementation Research Network.

Fuchs, D., Fuchs, L. S., Bahr, M. W., Fernstrom, P., & Stecker, P.M. (1990). Prereferral intervention: A prescriptive approach. *Exceptional Children*, *56*, 493–513. https://doi.org/10.1177/001440299005600602

Gafurov, B. S., & Levin, J. R. (2023, Feb.). *ExPRT* (*Excel Package of Randomization Tests): Statistical analyses of single-case intervention data; Current version 4.3*. http://ex-prt.weebly.com

Gettinger, M., Kratochwill, T. R., & Lindner, A. (2019). *Teacher training and coaching manual. Unpublished manual*. Wisconsin Center for Education Research, University of Wisconsin–Madison.

Gravois, T. A., Groff, S., & Rosenfield, S. (2009). Teams as value-added consultation services. In T. B. Gutkin & C. R. Reynolds (Eds.), *The handbook of school psychology* (4th ed., pp. 808–820). Wiley.

Gregory, A., Skiba, R., & Noguera, P. (2010). The achievement gap and the discipline gap: Two sides of the same coin? *Educational Researcher*, *39*, 59–68. https://doi.org/10.3102/0013189X09357621

Hamilton, L. S., Stecher, B. M., Marsh, J., McCombs, J. S., Robyn, A., Russell, J., Naftel, S., & Barney, H. (2007). *Implementing standards-based accountability under No Child Left Behind: Responses of superintendents, principals, and teachers in three states*. RAND.

Harrington, R. G. & Gibson, E. (1986). Preassessment procedures for learning disabled children: Are they effective? *Journal of Learning Disabilities*, *19,* 538–541. https://doi.org/10.1177/002221948601900904

Hicks, T. B., Shahidullah, J. D., Carlson, J. S., & Palejwala, M. H. (2014). Nationally Certified School Psychologists’ use and reported barriers to using evidence-based interventions in schools: The influence of graduate program training and education. *School Psychology Quarterly, 29*(4), 469–487. https://doi.org/10.1037/spq0000059

Horner, R. H., Newton, J. S., Todd, A. W., Algozzine, B., Algozzine, K., Cusumano, D., & Preston, A. (2018). A randomized waitlist controlled analysis of team-initiated problem solving professional development and use. *Behavioral Disorders* (*4*)*,* 444–456. https://doi.org/10.1177/0198742917745638

Ihorn, S. M., & Arora, P. (2018). Teleconsultation to support the education of students with visual impairments: A program evaluation. *Journal of Educational and Psychological Consultation, 28(3)*, 319–341. https://doi.org/10.1080/10474412.2018.1425878

Jorgensen, J. D., Scheier, I. H., & Fautsko, T. F. (1981). *Solving problems in meetings*. Nelson-Hall.

Joyce, B., & Showers, B. (2002). *Student achievement through staff development (3rd ed.)*. Association for Supervision and Curriculum Development.

Kazak, A. E., Hoagwood, K., Weisz, J., Hood, K., Kratochwill, T. R., Vargas, L. A., & Banez, G. A. (2010). A meta-systems approach to evidence-based practice for children and adolescents. *American Psychologist*, *65*, 85–97. https://doi.org/ 10.1037/a0017784

Kazdin, A. E. (1977). Assessing the clinical or applied importance of behavior change through social validation. *Behavior Modification*, *1*(4), 427–452. https://doi.org/10.1177/014544557714001

Kazdin, A. E. (2021). *Single-case research designs: Methods for clinical and applied settings* (3rd ed.). Oxford University Press.

King, H. C., Bloomfield, B. S., Wu, S., & Fischer, A. J. (2022): A systematic review of school teleconsultation: Implications for research and practice. *School Psychology Review*, *51*(2), 237–256. https://doi.org/10.1080/2372966X.2021.1894478

Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy*. Cambridge Adult Education.

Kobak, K. A., Craske, M. G., Rose, R. D., & Wolitsky-Taylor, K. (2013). Web-based therapist training on cognitive behavior therapy for anxiety disorders: A pilot study. *Psychotherapy*, *50*(2), 235–247. https://doi.org/10.1037/a003050568

Koehler, M. J., & Levin, J. R. (1998). Regulated randomization: A potentially sharper analytical toll for the multiple-baseline design. *Psychological Methods*, *3*(2), 206-217. https://doi.org/10.1037/1082-989X.3.2.206

Kratochwill, T. R. (2006). Evidence-based interventions and practices in school psychology: The scientific basis of the profession. In R. Subotnik & H. Walberg (Eds.), *The scientific basis of educational productivity* (pp. 229–267). American Psychological Association.

Kratochwill, T. R. (2007). Preparing psychologists for evidence-based practice: Lessons learned and challenges ahead. *American Psychologist, 62*, 826–843. https://doi.org/10.1037/0003-066X.62.8.829

Kratochwill, T. R. Altschaefl, M. A., & Bice-Urbach, B. (2014). Best practices in school-based problem solving consultation: Applications in prevention and intervention systems. In A. Thomas & P. Harrison (Eds.), *Best practices in school psychology VI* (pp. 461–482). National Association of School Psychologists.

Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2010). *Single case designs technical documentation*. https://www.ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf

Kratochwill, T. R., & Hoagwood, K. (2006). Evidence-based interventions and system change: Concepts, methods, and challenges in implementing evidenced-based practices in children's mental health. *Child and Family Policy and Practice Review, 2,* 12–16.

Kratochwill, T. R. & Levin, J. R. (2014). *Single-case intervention research: Methodological and statistical advances*. American Psychological Association.

Kratochwill, T. R., Levin, J. R., Morin, K. L., & Lindström, E. R. (2022). *Examining and enhancing the methodological quality of nonconcurrent multiple-baseline designs* [Unpublished manuscript]. University of Wisconsin–Madison.

Ksinan, A. J., Vazsonyi, A. T., Jiskrova, G. K., & Peugh, J. L. (2019). National ethnic and racial disparities in disciplinary practices: A contextual analysis in American secondary schools. *Journal of School Psychology, 74*, 106–125. https://doi.org/10.1016/j.jsp.2019.05.003.

Kuriyan, A. B., Altszuler, A. R., Comer, J. S., & Pelham, W. E., Jr. (2017). Disseminating evidence-based practices for child and adolescent mental health: A web-based initiative. *Evidence-Based Practice in Child and Adolescent Mental Health*, *2*, 54–67 http://dx.doi.org/10.1080/23794925.2017.1286958

Levin, J. R., & Ferron, J. M. (2021). Different randomized multiple-baseline models for different situations: A practical guide for single-case intervention researchers. *Journal of School Psychology*, *86*, 169–177.

Levin, J. R., Ferron, J. M., & Gafurov, B. S. (2018). Comparison of randomization-test procedures for single-case multiple-baseline designs. *Developmental Neurorehabilitation*, *21*(5), 290–311. https://doi.org/10.1080/17518423.2016.1197708

Levin, J. R., Kratochwill, T. R., & Ferron, J. M. (2019). Randomization procedures in single-case intervention research contexts: (Some of) "the rest of the story." *Journal of the Experimental Analysis of Behavior*, *112*, 334–348.

Marsh, J. A., McCombs, J. S., & Martorell, F. (2010). How instructional coaches support data-driven decision making: Policy implementation and effects in Florida middle schools. *Educational Policy*, *24*, 872–907. https://doi.org/10.1177/0895904809341467

Meyers, B., Valentino, C. T., Meyers, J., Boretti, M., & Brent, D. (1996). Implementing prereferral intervention teams as an approach to school-based consultation in an urban school system. *Journal of Educational and Psychological Consultation*, *7*, 119–149. https://doi.org/10.1207/s1532768xjepc0702_2

Miller, W. R., Yahne, C. E., Moyers, T. B., Martinez, J., Pirritano, M. (2004). A randomized trial of methods to help clinicians learn motivational interviewing. *Journal of Consulting and Clinical Psychology, 72*, 1050–1062. https://doi.10.1037/0022-006X.72.6.1050

Morgan, P. L., Farkas, G., Hillemeier, M. M., Mattison, R., Maczuga, S., Li, H., & Cook, M. (2015). Minorities are disproportionately underrepresented in special education. *Educational Researcher, 44*, 278–292. https://doi.org/10.3102/0013189X15591157

National Association of School Psychologists. (2010). *Model for comprehensive and integrated school psychology services*. Author. https://www.nasponline.org/x40589.xml

Newton, J. S., Horner, R. H., Algozzine, R. F., Todd, A. W., & Algozzine, K. M. (2009). Using a problem-solving model to enhance data-based decision making in schools. In W. Sailor,

G. Dunlap, G. Sugai, & R. Horner (Eds.), *Handbook of positive behavior support* (pp. 551–580). Springer. https://doi.org/10.1007/978-0-387-09632-2_23

Newton, J. S., Horner, R. H., Todd, A. W., Algozzine, B., & Algozzine, K. M. (2012). A pilot study of a problem-solving model for team decision making. *Education and Treatment of Children, 35*, 25–49. https://doi.org/10.1353/etc.2012.0001

Norcross, J. C., Hogan, T. P., Koocher, G. P., & Maggio, L. A. (2017). *Clinician's guide to evidence-based practices: Behavioral health and addictions (2nd ed.)*. Oxford University Press.

Parker, R. I., & Vannest, K. J. (2009). An improved effect size for single case research: Non-overlap of all pairs (NAP). *Behavior Therapy*, *40*(4), 357–367. https://doi.org/10.1016/j.beth.2008.10.006

Price, K.W. & Jordan, K.B. (2023). Best practices in leading productive meetings of school professionals. In P. Harrison, S. Proctor, & A. Thomas (Eds), *Best practices in school psychology* VII (pp. 335–346. National Association of School Psychologists.

Rakovshik, S., & McManus, F. (2010). Establishing evidence-based training: A review of current empirical findings and theoretical guidance. *Clinical Psychology Review*, *30*(5), 496–516. https://doi.org/10.1016/j.cpr.2010.03.004

Reddy, L. A. (2023). Advancing the science of coaching in education: An introduction to the special issue. Journal of School Psychology, 96, 36–40. https://doi.org/10.1016/j.jsp.2022.10.003

Reimers, T. M., & Wacker, D. P. (1988). Parents' ratings of the acceptability of behavioral treatment recommendations made in an outpatient clinic: A preliminary analysis of the influence of treatment effectiveness. *Behavioral Disorders*, *14*(1), 7–15. https://doi.org/10.1177/019874298801400104

Rosenfield, S. (1987). *Instructional consultation*. Erlbaum.

Rosenfield, S. (1992). Developing school-based consultation teams. *School Psychology Quarterly, 7*, 22–46.

Rosenfield, S. (2014). Best practices in instructional consultation and instructional consultation teams. In P. L. Harrison & A. Thomas (Eds.), *Best practices in school psychology: Data-based and collaborative decision making* (pp. 509–539). National Association of School Psychologists.

Rosenfield, S., Newell, M., Zwolski, S., & Benishek, L. E. (2018). Evaluating problem-solving teams in K-12 schools: Do they work? *American Psychologist*, *73*, 407–419. https://doi.org/10.1037/amp0000254

Ruby, S. F., Crosby-Cooper, T., & Vanderwood, M. L. (2011). Fidelity of problem solving in everyday practice: Typical training may miss the mark. *Journal of Educational and Psychological Consultation, 21*, 233–258. https://doi.org/10.1080/10474412.2011.598017

Santiago-Rosario, M. R., Whitcomb, S. A., Pearlman, J., & McIntosh, K. (2021). Associations between teacher expectations and racial disproportionality in discipline referrals. J*ournal of School Psychology*, *85*, 80–93. https://doi.org/10.1016/j.jsp.2021.02.004.

Schwartz, I. S., & Baer, D. M. (1991). Social validity assessments: Is current practice state of the art? *Journal of Applied Behavior Analysis*, *24*(2), 189–204. https://doi.org/10.1901/jaba.1991.24-189

Sheridan, S. M., & Kratochwill, T. R. (2008). *Conjoint behavioral consultation: Promoting family-school connections and interventions*. Springer.

Sholomskas, D. E., & Carroll, K. M. (2006). One small step for manuals: Computer-assisted training in twelve-step facilitation. *Journal of Studies on Alcohol*, *67*(6), 939–945. https://doi.org/10.15288/jsa.2006.67.939

Sholomskas, D. E., Syracuse-Siewert, G., Rounsaville, B. J., Ball, S. A., Nuro, K. F., & Carroll, K. M. (2005). We don't train in vain: A dissemination trial of three strategies of training clinicians in cognitive-behavioral therapy. *Journal of Consulting and Clinical Psychology*, *73*(1), 106–115. https://doi.org/10.1037/0022-006X.73.1.106

Slocum, T. A., Pinkelman, S. E., Joslyn, P. R., & Nichols, B. (2022). Threats to internal validity in multiple-baseline design variations. *Perspectives on Behavior Science*, *45*, 619–638. https://doi.org/10.1007/s40614-022-00326-1

Spillane, J. P. (2012). Data in practice: Conceptualizing the data-based decision-making phenomena. *American Journal of Education*, *118*(2), 113–141. https://doi.org/10.1086/663283

Sugai, G., O'Keeffe, B. V., & Fallon, L. M. (2012). A contextual consideration of culture and school-wide positive behavior support. *Journal of Positive Behavior Interventions*, *14*, 197–208. https://doi.org/10.1177/1098300711426334

Telzrow, C. F., McNamara, K., & Hollinger, C. L. (2000). Fidelity of problem-solving implementation and relationship to student performance. *School Psychology Review, 29*, 442–461.

Todd, A. W., Algozzine, B., Horner, R. H., Preston, A. I., Cusumano, D., & Algozzine, K. (2017). A descriptive study of school-based problem-solving. *Journal of Emotional and Behavioral Disorders*, 27(1), 14–24. https://doi.org/10.1177/1063426617733717

Todd, A. W., Newton, J. S., Algozzine, K., Horner, R. H., & Algozzine, B. (2013). *The team initiated problem solving (TIPS II) training manual*. Educational and Community Supports, University of Oregon.

Todd, A. W., Horner, R. H., Berry, D., Sanders, C., Bugni, M., Currier, A., Potts, N., Newton, J. S., Algozzine, B., & Algozzine, K. (2012). A case study of team-initiated problem solving addressing student behavior in one elementary school. *Journal of Special Education Leadership, 25,* 81–89.

Todd, A. W., Horner, R. H., Newton, J. S., Algozzine, R. F., Algozzine, K. M., & Frank, J. L. (2011). Effects of team-initiated problem solving on decision making by schoolwide behavior support teams. *Journal of Applied School Psychology*, *27*, 42–59. https://doi.org/10.1080/15377903.2011.540510

Todd, A. W., Newton, J. S., Horner, R. H., Algozzine, B., & Algozzine, K. (2010). *Team-initiated problem solving trainer-of-trainers manual*. Educational and Community Supports, University of Oregon.

U.S. Department of Education. (2009). *Implementing data-informed decision making in schools: Teacher access, supports, and use.* U.S. Department of Education, Office of Planning, Evaluation, and Policy Development.

Wampold, B., & Worsham, N. (1986). Randomization tests for multiple-baseline designs. *Behavioral Assessment*, *8*, 135–143. https://doi.org/10.3758/BRM.41.2.477

What Works Clearinghouse. (2022). What Works Clearinghouse procedures and standards handbook, version 5.0. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance (NCEE).

Witt, J. C., & Elliott, S. N. (1985). Acceptability of classroom intervention strategies. In T. R. Kratochwill (Ed.), *Advances in school psychology* (Vol. 4, pp. 251–288). Erlbaum.

Zoder-Martell, K. A., Floress, M. T., Schiuchetti, M. B., Markelz, A. M., & Sayyeh, L. (2021). Teachers' willingness to use a telepresence robot for consultation with students with autism spectrum disorder. *Contemporary School Psychology*, 1–15. https://doi.org/10.1007/s40688-021-00359-4.

Table 1

Descriptions of DORA II Data by Module

Module	DORA Data Elements	Description of DORA Data Element
1	Foundations	Measures structural elements of problem solving, including if PSTs have an agenda, start and end their meetings on time, if PST members are present at the beginning and end of meetings, and if the PST has defined roles
2	Problem Precision (PP)*	Measures if the PST precisely defines student problems, including identifying elements related to who, what, where, when, and why problems are occurring
	Quantitative Data Use (QDU)*	Measures if the PST utilizes quantitative data to analyze student problems
	Identified Goal (IG)*	Measures if the PST sets a goal for student behavior change that includes elements of both what change is expected and the timeline for change
3	Solution Implementation Plan (SIP)*	Measures if the PST selects EBPs, indicates who will implement the intervention and a timeline, and elements related to treatment integrity, including what data will be collected, who will collect data, and when it will be collected and reported to the team
4	Solution Implementation Integrity (SII)**	Measures the extent to which PST selected interventions were implemented (or not implemented) for previously discussed student problems
	Status of Problem Reported (SPR)**	Measures if the PST reports change in student behavior and the direction of change in student behavior for previously discussed problems
	Summative Evaluation Decision (SED) **	Measures if the PST revisited and made decisions surrounding precisely defined problems, goals, and solutions for previously discussed student problems

*Comprised Thoroughness New score (PP, QDU, IG and SIP)
**Comprised Thoroughness Old Score (SII, SPR, and SED)

Table 2

Problem Solving Teams Entry into Baseline and Intervention Phases

	YEAR 1		**YEAR 2**		**YEAR 3**		**YEAR 4**	
PSTs	**Fall**	**Spring**	**Fall**	**Spring**	**Fall**	**Spring**	**Fall**	**Spring**
Cohort 1								
Team 1.1	Screening	Phase 1	Phase 1	Phase 1	Phase 3			
Team 1.2	Screening	Phase 1	Phase 1	Phase 1	Phase 3			
Team 1.3	Screening	Phase 1	Phase 1	Phase 1		Phase 3		
Team 1.4	Screening	Phase 1	Phase 1	Phase 1			Phase 3	
Team 1.5	Screening	Phase 1	Phase 1	Phase 1				Phase 3
Cohort 2								
Team 2.1	Screening	Phase 1	Phase 1	Phase 1	Phase 2		Phase 3	
Team 2.2	Screening	Phase 1	Phase 1	Phase 1		Phase 2	Phase 3	
Team 2.3	Screening	Phase 1	Phase 1	Phase 1		Phase 2		Phase 3
Team 2.4	Screening	Phase 1	Phase 1	Phase 1		Phase 2		Phase 3
Cohort 3								
Team 3.1	Screening	Phase 1	Phase 1	Phase 1	Phase 3			
Team 3.2	Screening	Phase 1	Phase 1	Phase 1	Phase 3			
Team 3.3	Screening	Phase 1	Phase 1	Phase 1		Phase 3		
Team 3.4	Screening	Phase 1	Phase 1	Phase 1		Phase 3		
Team 3.5	Screening	Phase 1	Phase 1	Phase 1			Phase 3	
Team 3.6	Screening	Phase 1	Phase 1	Phase 1			Phase 3	

Note. Phase 1 = Baseline; Phase 2 = W-BTIPS Placebo Intervention; Phase 3 = CC-BPS Individualized Intervention.

Table 3

Comparison of PST Interventions Selected at Baseline vs Phase 3

Intervention Examples at Baseline	Intervention Examples in Phase 3
• “Keep an eye on him” and provide positive support to teacher & students/Monitor • Check-in/check-out (without specification or individualization) • Teach appropriate expected behavior as a replacement skill • Social skills instruction/help • Focus on positive behaviors • Club meeting before school for positive support • Standing desk and elastic band for movement • Teach “stop, breathe, listen” • Have police pick up and bring to school each day • Referral for an individual education plan • In school suspension/suspend student more to get parents more involved at school • Sensory breaks to chew items of choice/putty • Allow to have safe space in Principals office to work/Take naps in behavior office • 1:1 instruction or small group • Switch classrooms/Change location/Change teachers • Self-help strategies • Communicate more with mom • Recommend medication/adjustment	• Scheduled breaks with functional communication training to request break instead of inappropriate behavior • Behavioral contract with identified preferred items to earn • Video modeling for target skills not fully in repertoire • Choices of preferred items to earn for work completion prior to beginning work • Direct teaching of social skills in small group then practice within classroom • Self-monitoring • Intervention matching results of functional behavioral assessment • Differential reinforcement of appropriate behavior • check-in-check out or Individualized check-in-check out • Behavior contract • Social Academic Instructional Groups • Visual schedule with previewing • Choice card to earn recess • Zones of regulation • Daily behavior chart with earned rewards • Peer partner • Restorative Justice circle

- No solution discussed often mention student name and never identify a solution
- More time to complete assignments
- Forever PBIS plan (no indication of what this was)
- View movie of what appropriate language is
- Schedule breaks
- Intervention Examples at Baseline
- “Keep an eye on him” and provide positive support to teacher & students/Monitor
- Check-in/check-out (without specification or individualization)
- Teach appropriate expected behavior as a replacement skill
- Social skills instruction/help
- Focus on positive behaviors
- Gradual release from work responsibility
- Love and Logic

Figure 1

CONSORT Diagram for Recruitment

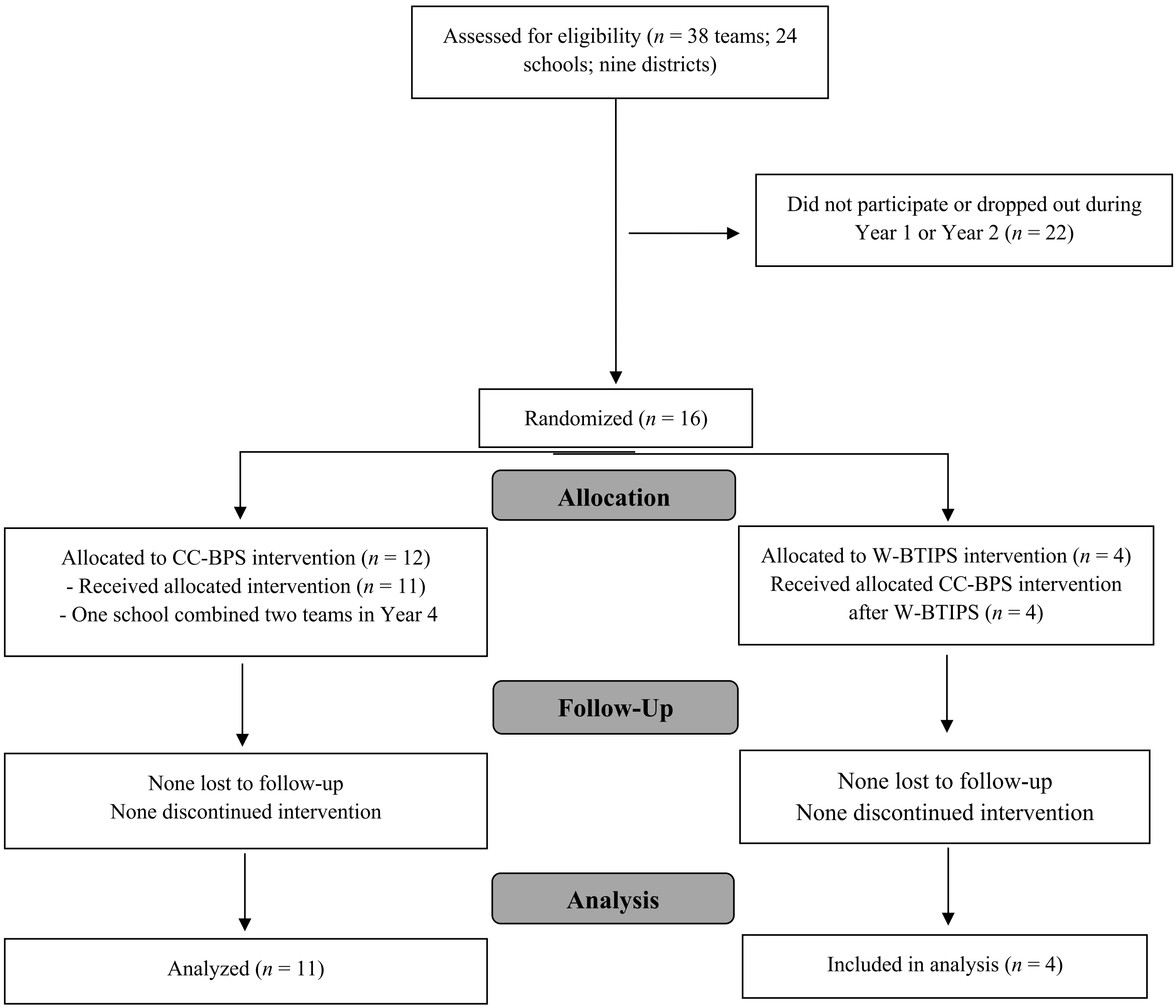


Figure 2. *Customized Consultant-Based Problem-Solving Graphs and Summary Data for Cohort 1, Module 2: Average of DORA Scores per Meeting (Problem Precision, Quantitative Data Use, Identified Goal Scores for New Problems)*

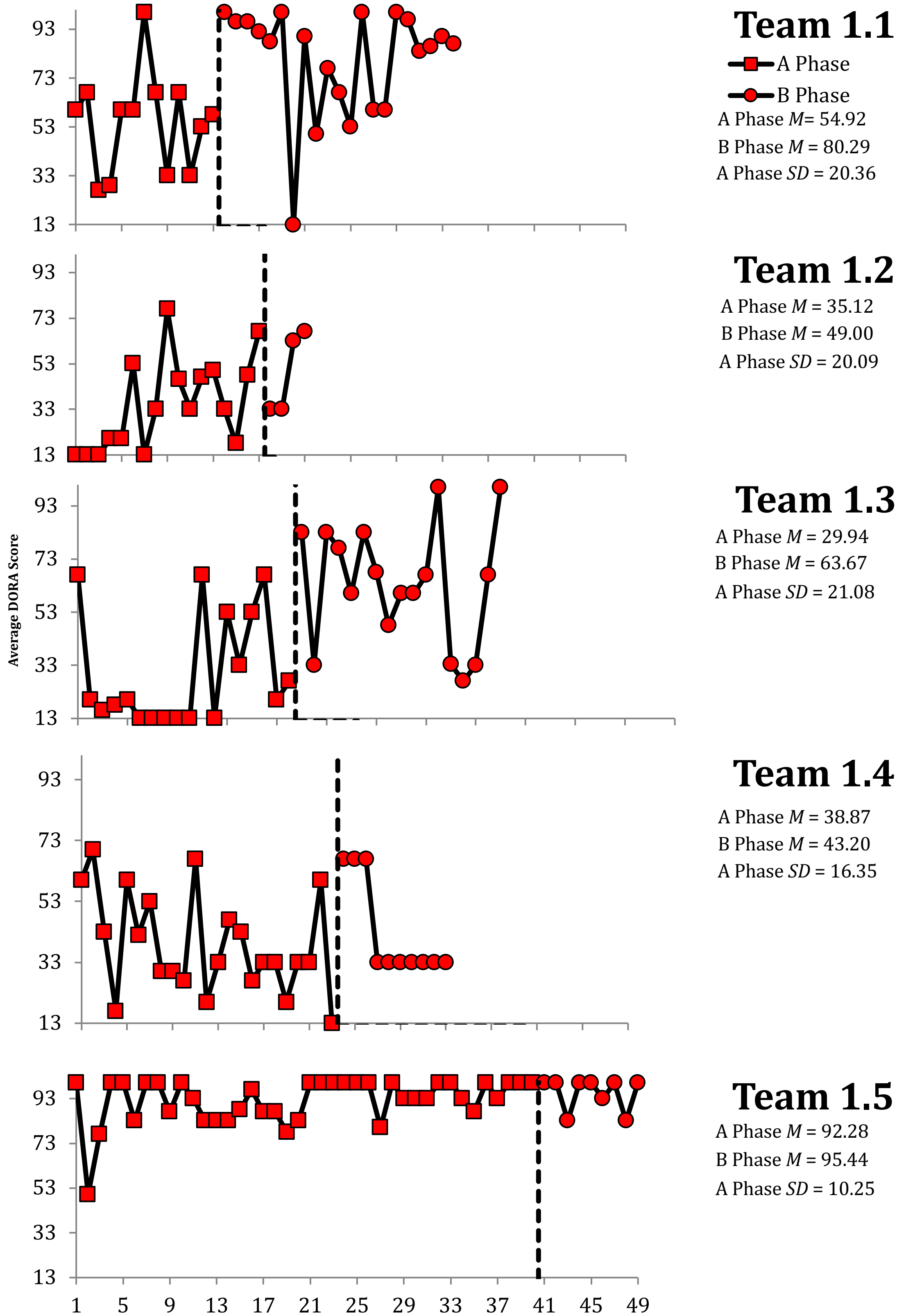
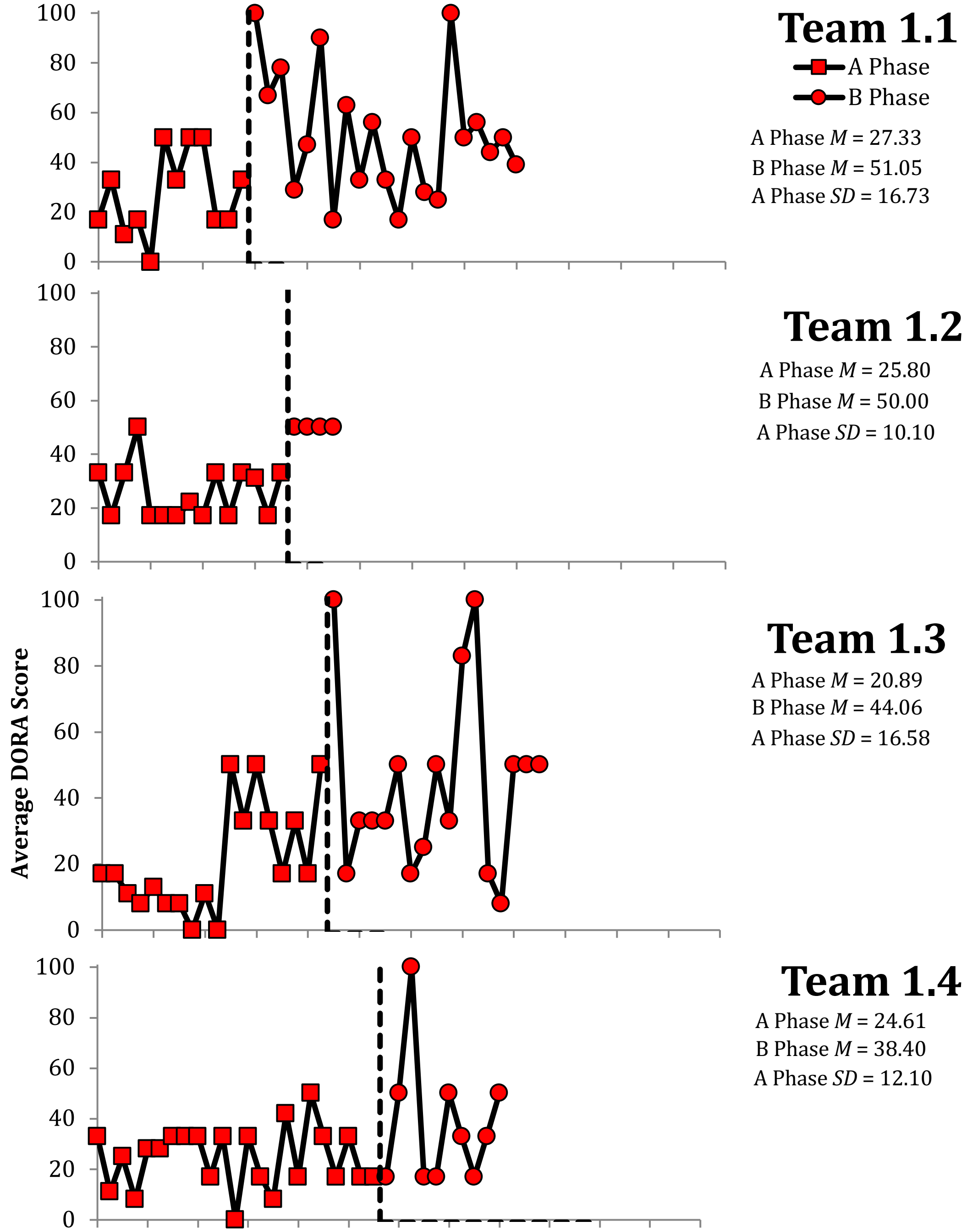
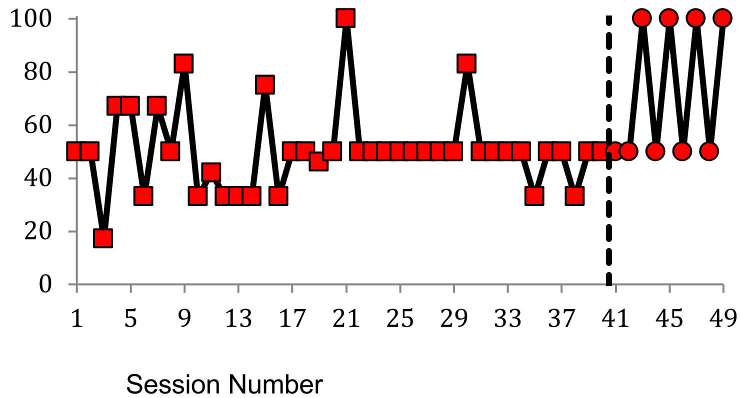


Figure 3. *Customized Consultant-Based Problem-Solving Graphs and Summary Data for Cohort 1, Module 3: Average of DORA Scores per Meeting (Solution Implementation Plan for New Problems)*



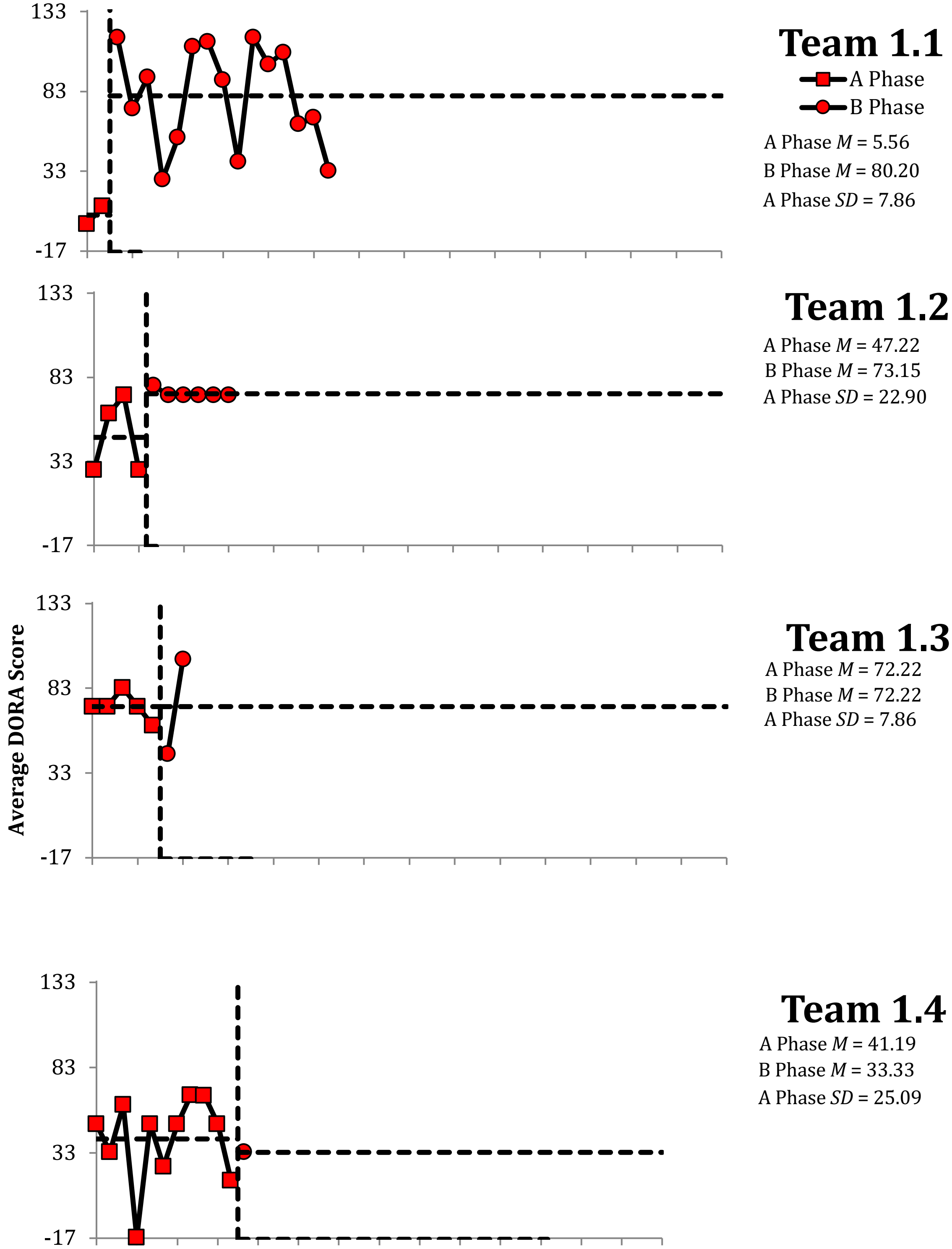


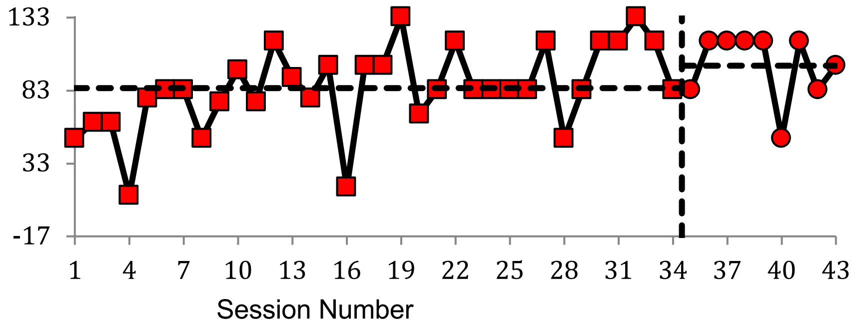
Team 1.5

A Phase *M* = 50.28
B Phase *M* = 72.22
A Phase *SD* = 15.73

Figure 4

Customized Consultant-Based Problem-Solving Graphs and Summary Data for Cohort 1, Module 4 (Thoroughness Old): Average of DORA Scores per Meeting (Solution Implementation Integrity, Status of Problem Reported, and Summative Evaluation Decision for Old Scores)





Team 1.5

A Phase M = 84.64
B Phase M = 100.00
A Phase SD = 28.69

Figure 5. *Customized Consultant-Based Problem-Solving Graphs and Summary Data for Cohort 1, Module 4 (Thoroughness New): Average of DORA Scores per Meeting (Problem Precision, Quantitative Data Use, Identified Goal, and Solution Implementation Plan Scores for New Problems)*

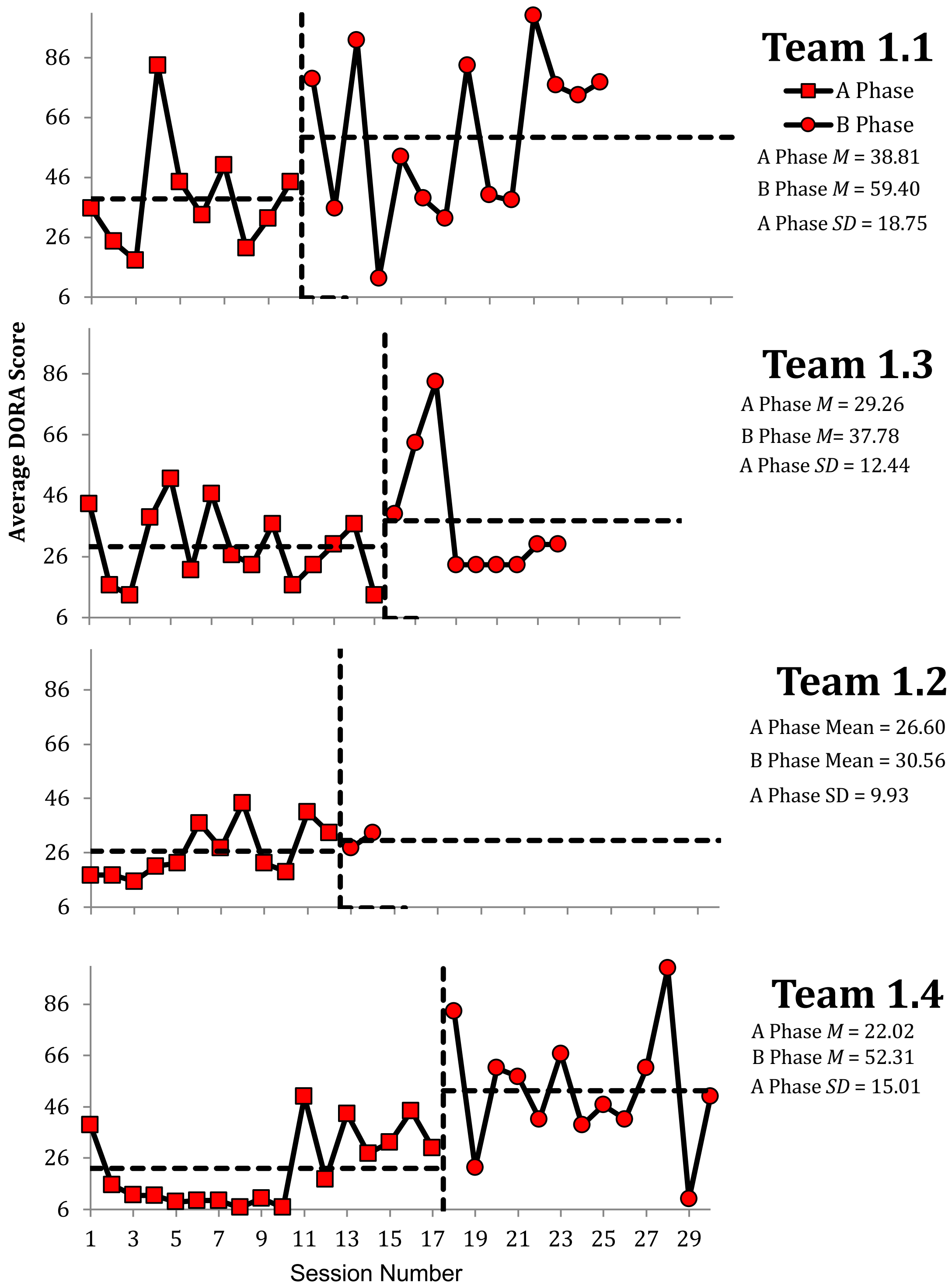


Figure 6. *Web-based TIPS Intervention (Non-Individualized Intervention) Graphs and Summary Data for Cohort 2, Module 2: Average DORA Scores per Meeting (Problem Precision, Quantitative Data Use, and Identified Goal Scores for New Problems)*

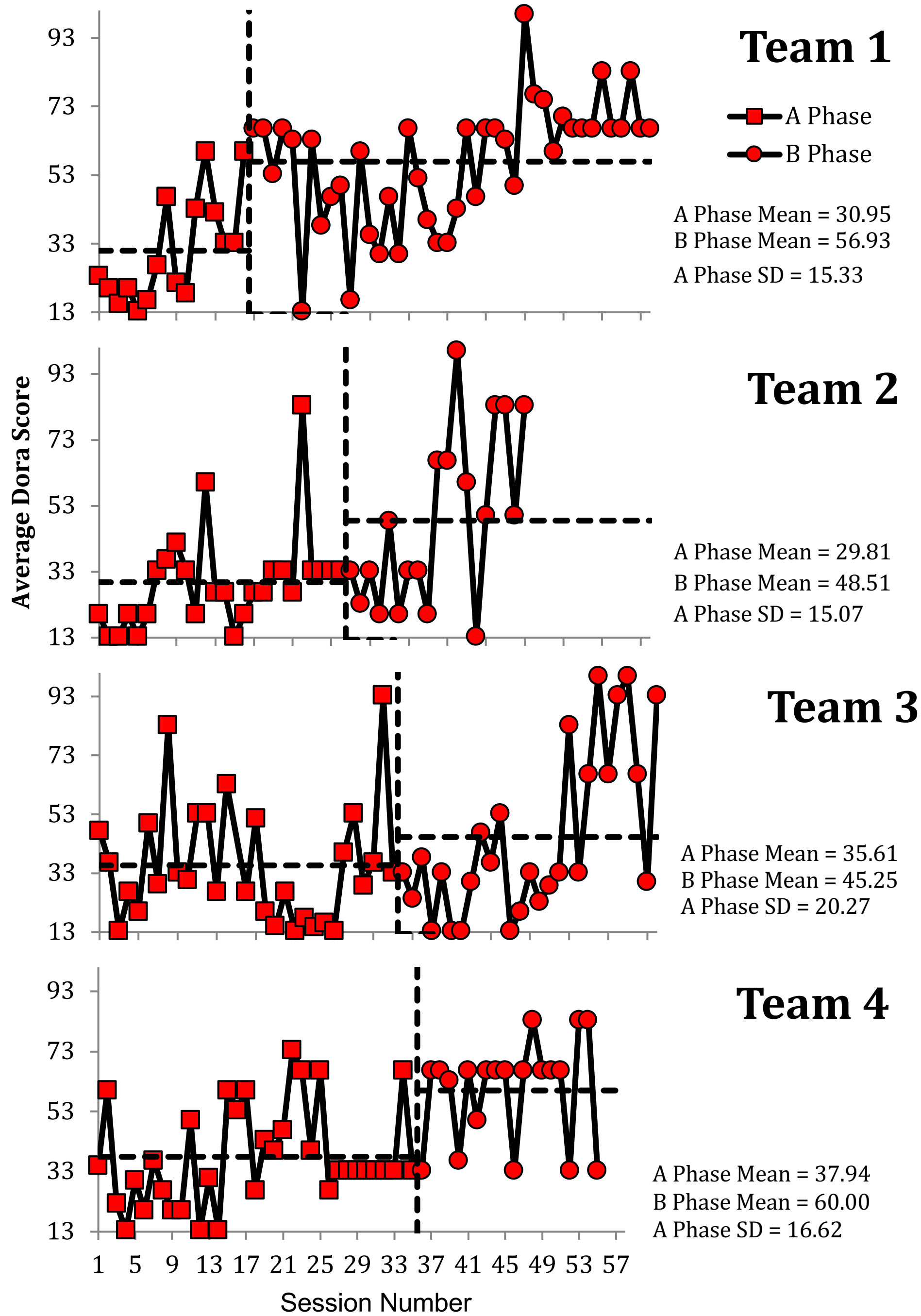
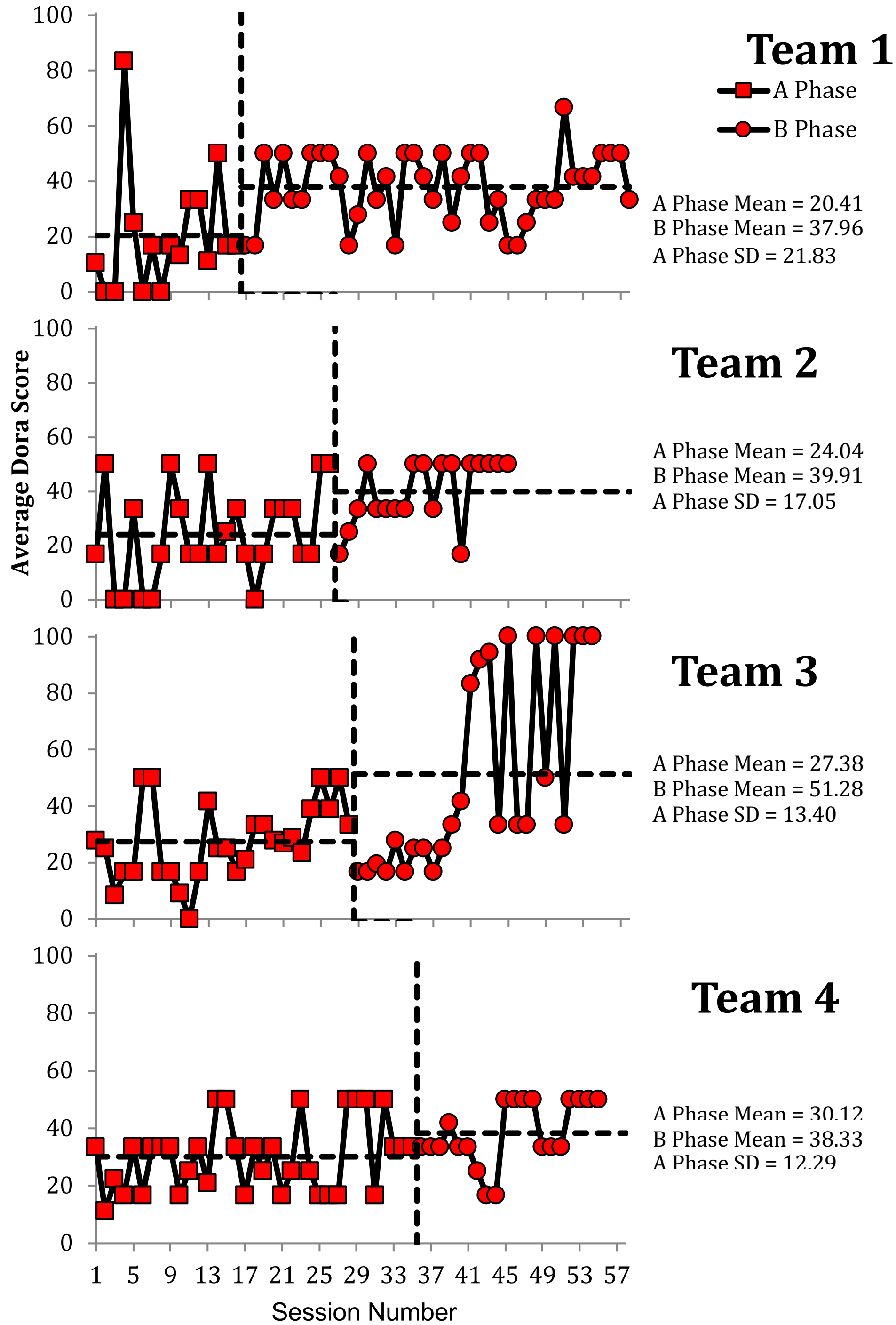


Figure 7. *Web-based TIPS Intervention (Non-Individualized Intervention) Graphs and Summary Data for Cohort 2, Module 3: Average DORA Scores per Meeting (Solution Implementation Integrity Scores for New Problems)*



Appendix

Summary and Interpretation of Problem-Solving Team Data for Team 2.1

Introduction:

The following data represent a summary of the measures your PST completed as well as the data we have collected regarding team functioning during each PST meeting.

Based on our evaluation, we highlighted the areas that are PST strengths and areas where there is less consistency. For these areas of relative need, we will provide information and share recommendations to your PST.

We summarized the information across all of the data collected into 4 Modules:

(1) *Meeting Basics*, (2) *Problem Identification and Goal Selection*, (3) *Intervention Implementation*, and (4) *Intervention Monitoring*. Each area is summarized below.

Module 1 – Meeting Basics

Focus: Basic components of meeting and meeting procedures

Strength	Need	Mechanism to address need
Start and end meeting on time	Previous meeting minutes available	Request, monitor, prompt PST to take minutes, send minutes in advance of meeting or display during the meeting
Majority of PST present at beginning of meeting	Data analyst role assignment	Request, monitor, prompt PST to assign and have a data analyst present and serve that role for each PST meeting
Minutes taker role is assigned	Majority of team present at end of meeting	Request, monitor, prompt PST attend each meeting; share/discuss/problem-solve with PST reasons and solutions when less than majority present at end of meeting
Facilitator role at meeting is always clear		
Agenda for meeting available		
Schedule next meeting consistently		

Theory Used: The approach for training and supporting PST members to adopt these roles is grounded in adult learning principles (Knowles, 1980).

Module 2 – Problem Identification and Goal Selection

Focus: PST fully identifies the problem using data and determines the goal of the intervention

Strength	Need	Mechanism to address need
Stating what the problem is	Where problem is occurring	Request, monitor, prompt PST to ask and clarify where problem is occurring
Indicating who is having the difficulty	When the problem is occurring	Request, monitor, prompt PST to ask and clarify when problem is occurring
	Why/function of the problem	Request, monitor, prompt PST to ask and clarify why problem is occurring and identify the function of behavior
	Using data in decision making	Request, monitor, prompt PST to ask and use data to make decisions
	Goal identification	Request, monitor, prompt PST to ask and identify what the goals for the intervention are

Module 3 – Intervention Implementation

Focus: Planning for intervention implementation

Strength	Need	Mechanism to address need
Identify who will implement intervention	Fully developed intervention plan • Selecting EBI • Timeline established for treatment implementation • Treatment Integrity Plan	Request, monitor, prompt, model and review sources and information to identify components for a fully developed intervention plan to include EBI, implementation timeline, and

		treatment integrity plan

Module 4 – Intervention Monitoring

Focus: Monitoring if the intervention has been implemented with integrity and student is making progress

Strength	**Need**	**Mechanism to address need**
Developed solution for several problems	Reporting back on student progress	Request, model, monitor, prompt PST to ask and follow-up on previous students discussed with data
Redefining several problems	Revisiting problem identification	Request, model, monitor, and prompt PST to ask and follow-up on previous students discussed around problem identification
Partial implementation of intervention	Reporting back on the intervention plan	Request, model, monitor, and prompt PST to ask and follow-up on treatment integrity data
Several students reported to make some progress		