Evaluating the Impact of Online Professional Development on Teachers' Use of a
Targeted Behavioral Classroom Intervention

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This dissertation titled
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Targeted Behavioral Classroom Intervention

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Abstract

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The use of technology for delivering professional development (PD) shows promise for reducing common barriers (e.g., feasibility, access) to dissemination of teacher-implemented classroom management interventions. However, prior programs examined in research have been unable to produce satisfactory uptake and outcomes when used in isolation. Thus, the aims of this study were to examine a potentially more feasible level of support that leverages both online PD and low intensity consultation supports as a means of producing successful adoption of a Daily Report Card (DRC) intervention and positive student outcomes. Elementary school teachers who were determined eligible to participate ($n = 33$) were provided access to an interactive online program and, on an as needed basis, brief, solution-focused consultation. Over half of teachers (51.5%) who received access to the website adopted the intervention for at least 2 months. These teachers demonstrated acceptable levels of implementation integrity and their students demonstrated improvements in overall ($d = .53$) and hyperactive and inattentive ($d = .83$) problems. Importantly, teachers achieved these outcomes using an average of 33 minutes of face-to-face consultation. The results of this study suggest that, for some teachers, online supports may offer a more feasible means of supporting implementation of a DRC than more traditional forms of face-to-face consultation.

Online supports may provide a promising direction for increasing the dissemination of the DRC and other evidence-based interventions. Future directions for improving technology and implications for integrating online PD into a continuum of supports for teachers are discussed.

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Introduction

Children who exhibit disruptive classroom behavior often experience impairment in academic functioning (e.g., Bradshaw, Buckley, & Ialongo, 2008), disrupt others' learning (Foster, Jones, and the Conduct Problems Prevention Research Group, 2005), and contribute to teacher stress (Evers, Tomic, & Brouwers, 2004). Evidence suggests that teacher-implemented, targeted classroom interventions, such as the Daily Report Card (DRC; O'Leary & Pelham, 1978), can reduce disruptive behaviors and improve academic performance (Vannest, Davis, Davis, Mason, & Burke, 2010). Yet, teachers' adoption of such strategies is often limited (Martinussen, Tannock, & Chaban, 2011) and the integrity with which teachers use them is variable (Owens, Murphy, Richerson, Girio, & Himawan, 2008), likely leading to decreased effectiveness of DRC strategies.

To date, most DRC studies have used consultants to train teachers and facilitate implementation (Fabiano et al., 2010; Owens, Murphy et al., 2008; Watabe, Stewart, Owens, Andrews, & Griffeth, 2013). Evidence suggests that consultation with performance feedback (CPF) is the best mechanism for achieving high levels of intervention integrity and positive student outcomes (e.g., Solomon, Klein, & Politylo, 2012). However, CPF poses significant barriers for teachers (e.g., time demands, limited availability of CPF; Kelly & Lueck, 2011), and the lack of alternative strategies diminishes the widespread adoption of the DRC intervention. Indeed, there may be a sizable proportion of teachers who can achieve sufficient implementation without CPF. Thus, alternative mechanisms are needed to support teachers' use of the DRC.

Online programs are an effective and feasible method for delivering mental health interventions and training teachers in academic instruction strategies (Calear & Christensen, 2010; Ebert et al., 2015; Russell, et al., 2009a). Prior evaluations of online PD for teachers' use of classroom management interventions show promising results regarding ease of use, acceptability, and the potential for desirable outcomes with online supports alone (e.g., Pianta, Mashburn, Downer, Hamre, & Justice, 2008). However, these findings also suggest that more intensive online supports are needed to be a viable alternative to CPF for most teachers.

The first aim the current study was to examine the feasibility and effectiveness of an online teacher PD program (that provides training and novel supports for engaging teachers in the online program) for facilitating adoption and implementation of a DRC intervention. The second aim of the study was to examine how much supplemental face-to-face consultation teachers need or request when using the online PD program.

The Daily Report Card

The Daily Report Card (DRC) is an evidence-based classroom intervention for elementary students with disruptive behaviors (e.g., those with Attention-Deficit/Hyperactivity Disorder; ADHD) (Evans, Owens, & Bunford, 2014). It is effective in reducing disruptive and inattentive behaviors and increasing academic, social, and behavioral competencies (see Vannest et al., 2010 for historical review) in students in general (e.g., O'Leary, Pelham, Rosenbaum, & Price, 1976; Owens, Murphy, et al., 2008; Owens et al., 2012) and special education classrooms (e.g., Davies & McLaughlin, 1988; Fabiano et al., 2010).

Despite a well-established field of research supporting the effectiveness and acceptability of DRCs and other school-based interventions, many students do not benefit from these interventions because they are not adopted by teachers or, when they are adopted, can be implemented with poor integrity (e.g., DuPaul, 2003). For example, teachers self-report infrequent use of evidence-based behavioral classroom interventions, including the DRC, for children with ADHD (Martinussen et al., 2011). Moreover, numerous studies have documented low and variable implementation integrity of teacher-implemented classroom interventions (Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Riley-Tillman, Chafouleas, Eckert, & Kelleher, 2005; Witt, Noell, LaFleur, & Mortenson, 1997), including the DRC (Owens, Murphy, et al., 2008). These low and variable rates of implementation among some teachers are concerning given that lower implementation integrity reduces intervention effectiveness (Durlak & DuPre, 2008; Pfiffner, O’Leary, Rosen, & Sanderson, 1985; Sanetti & Kratochwill, 2007).

Current Strategies for Increasing Adoption and Integrity

The process of creating and implementing a DRC requires a number of important steps (Volpe & Fabiano, 2013). As with many specialized interventions, teachers often first receive training to learn these steps, which can result in high implementation integrity for the first few days (e.g., Mortenson & Witt, 1998; Noell et al., 1997; Witt et al., 1997); however, many teachers struggle to maintain adequate levels of integrity over time (Han & Weiss, 2005). In fact, some studies have shown that teachers’ use of intervention components declines by as much as 65% within the first 1 to 10 days of implementation (Noell et al., 1997; Sanetti & Kratochwill, 2009a, 2009b). Evidence

suggests that ongoing consultation following initial training is an effective method for facilitating intervention implementation and decreasing students' disruptive behavior (Gresham & Kendell, 1987; Sanetti, & Kratochwill, 2009a).

There is an extensive literature documenting that consultation augmented with performance feedback (CPF) is the best mechanism for achieving and sustaining high levels of intervention integrity and student outcomes (Noell et al., 1997; Solomon et al. 2012). Thus, CPF is considered evidence-based and a first-line intervention for promoting teachers' intervention integrity (Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015; Noell, 2010; Solomon et al., 2012). Despite this strong evidence, there are significant concerns about the feasibility of using CPF to facilitate widespread dissemination and sustainability. Namely, CPF is resource-intensive and requires significant amounts of staff time. In fact, one study documents that teachers view CPF to be intrusive with regard to its demands on their time (Reinke, Lewis-Palmer, & Merrell, 2008), which may prevent them from adopting behavioral interventions if it is the only means of PD or support. Moreover, numerous surveys of school mental health professionals have revealed that very little of their time is dedicated to consulting with teachers (Bramlett, Murphy, Johnson, & Wallingsford, 2002; Kelly & Lueck, 2011), with a recent survey documenting that 85% reported *never* delivering CPF in their work with teachers (Mixon, Owens, & Holdaway, 2015). Thus, CPF appears to be limited both in its accessibility and perceived acceptability.

As such, perhaps CPF should be reserved for those teachers having difficulty implementing a DRC and/or whose students demonstrate the greatest need; whereas

alternative, less intensive supports should be developed for teachers with less intensive needs. Notably there is evidence that some teachers can achieve acceptable levels of intervention integrity with less intensive support (Noell et al., 2000; Owens, Girio, Himawan, & Abbott, 2008; Sanetti et al., 2013; Watabe et al., 2013). For example, Noell and colleagues (2000) found that two out of five teachers achieved acceptable intervention without receiving feedback on their performance. Similarly, Sanetti and colleagues (2013) found that three out of eight teachers achieved acceptable integrity with a class-wide behavioral intervention over the first three weeks before receiving any consultation supports. Lastly, a number of studies of the DRC confirm that teachers can achieve acceptable implementation and student outcomes with consultation supports less intensive than CPF (Fabiano et al., 2010; Owens, Girio et al., 2008; Owens, Murphy, et al., 2008; Watabe et al., 2013). Thus, there is likely a proportion of teachers who require minimal-to-no consultation supports to implement a DRC.

Providing a range of supports that can be matched to teachers' level of need can help ensure that more teachers are able to utilize this evidence-based intervention. However, at this time, no alternatives to face-to-face consultation have proven comparably effective. The development of less intensive, alternative supports, even if only used by a subset of teachers, could reduce the amount of consultation needed by each teacher or the number of teachers needing consultation. Ultimately, such supports could increase students' access to the DRC.

A Role for Technology

With advancements in technology, computer- and internet-based programs (CIPs) provide an increasingly promising avenue for improving the feasibility and effectiveness of services that have traditionally been delivered in person. Countless CIPs have been developed to deliver mental and behavioral health services. These programs have shown comparable effects to face-to-face delivery methods (e.g., Ebert et al., 2015) while also overcoming limitations of face-to-face modalities (e.g., accessibility, anonymity, flexible scheduling, self-pacing, travel costs) (Calear & Christensen, 2010; Lin et al., 2013). Thus, it stands to reason that online PD supports for teachers would enhance access to needed supports, allow teachers to obtain the supports at their own pace, and reduce time away from the classroom and travel costs.

Online professional development for teachers. Online PD programs for academic instruction have equally positive effects on teachers' knowledge of course content, pedagogical beliefs, and instructional practices when compared to face-to-face formats (Carey et al., 2008; Russell et al., 2009a, 2009b). Although online PD for classroom management is in its infancy, three studies have investigated various aspects of online training and implementation supports (Becker, Bohnenkamp, Domitrovich, Keperling, & Ialongo, 2014; Bishop, Giles, & Bryant, 2005; Pianta et al., 2008).

Bishop and colleagues developed and piloted a website to facilitate training and support for teachers implementing a prevention program (i.e., All Stars; Bishop et al., 2005). A pilot study of nine teachers using the website revealed the online teaching calendar and instructional tips sent via e-mail were easy to use and helpful, but few

teachers used the discussion forum or other modes of support (Bishop et al., 2005). These results provide preliminary evidence that teachers find some aspects of online implementation supports to be helpful. However, the lack of objective outcome measures on teacher use of the website or implementation of the program make it difficult to evaluate its effectiveness.

Becker and colleagues (2014) randomized teachers into face-to-face or online training for two universal prevention programs and provided participants in both conditions with follow-up CPF. The authors found that teacher attitudes about online training were positive and comparable to attitudes about in-person training. More importantly, teachers who received online training did not significantly differ from those who received in-person training in their positive attitudes about the interventions or frequency or quality of intervention delivery (Becker et al., 2014). Although teachers' attitudes about online training were comparable to face-to-face, the use of in-person CPF for both conditions limits the evaluation of the online-program's effectiveness.

In another study (i.e., My Teaching Partner [MTP]; Pianta et al., 2008), all participants received online training (e.g., were provided access to training videos) and then were randomized to receive web-mediated follow-up CPF or no follow-up supports. Those who received follow-up CPF were more engaged with online videos and demonstrated greater increases in implementation integrity (Pianta et al., 2008). These results demonstrated that most teachers who only received access to online videos were unlikely to view them or implement the intervention well without additional supports. However, among those teachers who only received access to the online videos,

engagement with online materials was positively associated with intervention integrity. This relationship suggests that finding alternative strategies for enhancing engagement (e.g., novel online supports, less intensive consultation supports) may increase the proportion of teachers who can implement the intervention without CPF. Further, among those without follow-up supports, those who were more engaged with the online videos achieved comparable improvement in integrity to those who also received CPF (Pianta et al., 2008). Thus, there may be a sizable proportion of teachers who can achieve sufficient implementation via engagement with on-line supports without resource intensive CPF.

Future directions for online professional development. Each study provides some evidence to support further development of on-line supports (e.g., ease of use and acceptability of online implementation supports; comparably positive attitudes and effectiveness of training; integrity from online supports alone). Despite these promising findings, none of the studies were able to demonstrate acceptable integrity or results comparable to CPF for a significant proportion of teachers without the inclusion of CPF. However, combining results and implications across studies provides ideas for improving the design and effectiveness of future programs.

While the above-described programs tended to rely heavily on online methods for providing initial training, the authors described very few (or no) online features that facilitated engagement with training materials or provided ongoing support. In fact, most supports outside of initial training were provided through CPF. In the MTP study (Pianta et al., 2008), teachers were provided video models of important implementation skills, but no technology-based strategies were used to facilitate engagement with or use of the

videos. Yet, a small proportion of teachers were able to obtain comparable implementation without CPF. It seems plausible that additional or more intensive online tools that offer supports comparable in intensity to CPF may have resulted in a greater proportion of teachers implementing the intervention successfully. Such tools may be useful for improving engagement and, therefore, implementation.

Current Study

The current study focused on evaluating the feasibility of a newly-developed online program for facilitating high quality implementation of and outcomes from the DRC intervention. The current online program improves upon the existing static content and videos provided in other programs by using *novel interactive enhancements* (e.g., feedback through prompts, tutorials, wizards, form/field validation) to facilitate engagement with the online resources. Such enhancements have been shown to reduce the amount of training time users need to navigate the program while improving productivity, effectiveness, and efficiency (Juristo, Moreno, & Sanchez-Segura, 2007). It was hypothesized these enhancements would be an effective mechanism for increasing engagement with the online resources by mirroring some of the ongoing supports provided by consultants (e.g., organized guidance through intervention development and implementation, reminders about implementation, problem solving).

Notably, prior evaluations of existing programs have failed to demonstrate acceptable implementation integrity for the majority of teachers without CPF (Pianta et al., 2008). However, it is possible that less intensive consultation can still be useful in enhancing success with online PD for a sizable proportion of teachers. Yet little is known

about how much consultation would be helpful. Thus, in this study we provided a limited level of consultation supports on an “as needed basis” for teachers who had difficulty using the online program to implement the DRC. These supports focused on helping teachers overcome barriers to their engagement with the online program and use of the DRC intervention.

Aim 1 was to investigate the feasibility and effectiveness of the online program based on the extent to which the online resources were able to produce: (1a) adoption of and sustained implementation of the DRC intervention over two months; (1b) use of the online program; (1c) implementation of the DRC evidenced by observed teacher responses to DRC-related behavior; (1d) improvements in student outcomes; and (1e) teacher satisfaction with and positive perceptions of acceptability of the DRC intervention and online program.

Aim 2 was to learn more about the degree to which minimal in-person consultation supports can be used in conjunction with the online program to facilitate desired outcomes (e.g., student improvement, use of the website and DRC). Specifically, among those teachers who received access to the website, we examined: (2a) how much consultation was used by teachers and (2b) how satisfied teachers were with the consultation provided.

Method

Participants

Teacher-student dyads were recruited from 12 participating elementary (K-5) schools¹ across three school districts in Southeast Ohio. An elementary school population was recruited because of the strong evidence for the effectiveness of the DRC intervention at this age group (Evans et al., 2014). All general and special education teachers were invited to refer students to the project. The goal was to have at least 30 teachers refer a student and be given access to the website, as this sample size has been sufficiently large to show variability in adoption and implementation in previous studies (Fabiano et al, 2010; Owens, Murphy et al., 2008). Across these schools approximately 236 teachers were eligible to refer students to the program and 37 teachers (16%) initiated the referral process. Participating teachers ($n = 33$) were those who had referred a child, rated the child as being at-risk on a screener, and obtained parent consent and student assent (see Table 1 for demographic characteristics). All teacher participants were white, non-Hispanic, and female. The majority (60%) were teaching lower elementary (K-2), and had some prior experience using a DRC (72.7%) and receiving consultation for student behavior (57.6%). Teachers were compensated \$15 for each set of rating scales completed for a maximum of \$45; no compensation was provided for completing any other component of this study.

¹ The schools had an average of 391 students (176-654), 16 general education teachers (9-26) and 3 special education teachers (1-6). Student populations were largely Caucasian (87-97%), with a range of economic disadvantage (38-78% using free lunch program), and students receiving special education services (12-28%).

Table 1

<i>Demographic and Professional Characteristics of Teachers (N = 33)</i>		
	<i>n (%)</i>	<i>M (SD)</i>
<u>Demographics</u>		
Age (years)		38.1 (9.6)
Gender (Female)	33 (100%)	
Ethnicity (Non-Latino)	33 (100%)	
Race (White)	33 (100%)	
<u>Professional Training</u>		
Highest Degree (Masters)	22 (66.7%)	
Certification (General Ed Only)	28 (84.8%)	
Experience Tier 1		4.6 (.7)
Experience Tier 2		3.5 (.9)
Effectiveness Tier 1		7.9 (1.7)
Effectiveness Tier 2		7.5 (1.5)
<u>Professional Experience</u>		
Years Teaching		12.7 (7.2)
Current Grade (K-2)	20 (60.6%)	
Past DRC Use (Yes)	24 (72.7%)	
Past DRC Improvement		6.4 (2.2)
Past Consultation Experience (Yes)	19 (57.6%)	
Past Consultation Satisfaction		7.1 (2.2)

Note. DRC = daily report card; Experience Tier 1 = Experience implementing Tier 1 classroom management strategies (1 = No Experience to 5 = A lot of Experience); Experience Tier 2 = Experience implementing Tier 2 interventions for social and behavioral problems (1 = No Experience to 5 = A lot of Experience); Effectiveness Tier 1 = Belief in effectiveness of Tier 1 classroom management strategies (1 = Not Effective at all to 10 = Very Effective); Effectiveness Tier 2 = Belief in the effectiveness of Tier 2 interventions for social and behavioral problems (1 = Not Effective at all to 10 = Very Effective); Past DRC Improvement = Perceived improvement made by previous student(s) for whom teacher used a DRC (1 = No Improvement to 10 = Very Improved); Past Consultation Satisfaction = Satisfied with previous experiences receiving consultation (1 = Extremely Dissatisfied to 10 = Extremely Satisfied).

Students were eligible to participate if they demonstrated at-risk or elevated levels of problems on the hyperactivity/inattention subscale, the conduct and behavior problems subscale, or the total score of the teacher-rated *Strengths and Difficulty Questionnaire* (SDQ; Goodman, Ford, T., Simmons, H., Gatward, R., & Meltzer, 2000). These subscales were chosen based on brevity, public availability, and moderate to strong

predictive validity (AUCs > 0.75) of other indicators of school impairment (e.g., in class behavior, grades; Owens, Holdaway et al., 2016). Teachers were instructed not to refer students with previously identified intellectual disabilities, severe autism spectrum disorders, or active psychotic features.

Measures

Demographics questionnaire. Teachers reported information about their personal demographics and professional experiences (e.g., training, past DRC use).

Strengths and Difficulty Questionnaire (SDQ). The SDQ (Goodman et al., 2000) is a 25-item teacher rating scale that assesses the following areas in children ages 4 to 16: emotional problems, conduct problems, peer problems, and hyperactivity/inattention. Higher scores indicate more severe problems. The SDQ has demonstrated acceptable internal reliability overall ($\alpha = 0.87$) and by subscale ($\alpha = 0.70$ – 0.88), and temporal stability over a 4-6-month retest interval ($M = 0.73$). Evidence for validity is provided by a substantially elevated risk of having an independently diagnosed psychiatric disorder among those scoring at or above the 90th percentile (OR $M = 15.2$) (Goodman et al., 2001). Internal consistencies for the subscales used in the analyses were .66 for hyperactivity/inattention, .78 for conduct, and .63 for total scores.

Academic Performance Rating Scale (APRS). The APRS (DuPaul et al. 1991) is a 19-item teacher questionnaire developed to assess academic functioning. Higher scores indicate better functioning. Factor analyses have documented three factors. Total and subscale scores demonstrate acceptable internal consistency (.72–.95), 2-week temporal stability (.88–.95), and criterion-related validity with indicators of academic

achievement (DuPaul et al., 1991). Internal consistencies for Academic Success ($\alpha = .84$) and Academic Productivity ($\alpha = .90$) scales were acceptable; Impulse Control evidenced low reliability ($\alpha = .20$) and thus was not analyzed.

Website use. The website was programmed to collect data on teachers' engagement with the website. It tracked the time and date various features were used.

Student Behavior-Teacher Response Observation Rating System (SBTR).

Teachers' implementation of the DRC program in the classroom was measured using a modified version of the (SBTR; Pelham, Greiner, & Gnagy, 2008), a systematic class wide observation system. The SBTR was developed using a behavior theory framework and has been used in prior observation studies of elementary classrooms to collect data on student-teacher interactions (e.g., Owens et al., 2017). Adequate inter-rater reliability and convergent validity of the SBTR have been demonstrated in multiple studies (e.g., Fabiano et al., 2010; Owens et al., 2017).

Observers obtained frequency counts of violations of DRC goals² by the target student as well as teachers' responses to these violations. Teacher responses to DRC violations were evaluated for the presence of "labeling" (i.e., teacher identifying the type of violation; e.g., "Mark that is an interruption"), "connecting" the behavior to the DRC (e.g., "that's a tally on your card"), and "tracking" the behavior (i.e., making a tally on the DRC). Because we were also interested in observing the extent to which teacher responses generalized to other behaviors not included on the DRC, we obtained

² DRC goals tracked during observations matched those targeted for intervention for each student.

frequency counts of the target student's total violations of classroom rules³ and teacher responses to these violations as well. In the SBTR coding system, teacher responses to classroom rule violations are categorized as "appropriate;" "inappropriate;" or "no response." The total number of student DRC and classroom rule violations were each multiplied by the number of minutes for each observation divided by 60 to produce a rate of violations per hour. In addition, a percent of each type of teacher response and behavior was calculated as a proportion of the total rule violations (e.g., # Labeled/# DRC Violations; # Appropriate Responses/# Classroom Rule Violations). An average for each variable was calculated across all observations collected for each teacher.

Observations were conducted by trained undergraduate research assistants who were unaware of the teacher's status with regard to website use and level of consultant involvement. Training required proficiency as evidenced by: 1) 100% accuracy on a written definitions tests⁴, and 2) 80% agreement with the master coder on practice video tests and two practice classroom observations. Of the 77 observations conducted, over 25% (n = 20) were simultaneously completed by two individuals. Inter-rater observations were stratified across teachers (i.e., at least one conducted per teacher) and across the school year; the inter-rater observations were otherwise selected based on convenience with matching observer and teacher availability. For each coded behavior, a difference score was created between the two observers. Agreement was defined as a difference

³ The SBTR provides definitions for seven standardized and comprehensive rules including Be Respectful, Obey Adults, Work Quietly, Use Materials Appropriately, Remain in Seat, Raise Hand to Speak, and Stay On Task.

⁴ The observation manual includes definitions, guidelines, and lists of examples and exceptions for coding violations of classroom and DRC rules as well as teacher behaviors.

score of one or less. The average percent agreement between observers for the 35 coded behaviors in each observation was 97% (86-100%).

Technology Acceptance Model (TAM) Instrument. A revised version of the TAM Instrument (Chow et al., 2012; Davis, 1989, 1993; Venkatesh & Davis, 2000) was used to assess teachers' acceptance of technology. The different factors have demonstrated strong internal consistency (all α 's > .80) and evidence for predictive validity of acceptance and actual usage of technology (Venkatesh & Davis, 2000). This scale is comprised of 16-items corresponding to core features of the DRC.O website. Items are rated on a 7-point Likert scale from *Strongly Disagree* (1) to *Strongly Agree* (7) and are grouped into six domains: computer self-efficacy, perceived ease of use, perceived usefulness of the training component, perceived usefulness of the implementation supports, social norms, and intention to use. Internal consistencies (α) for this sample ranged from .75 (Usefulness of Training) to .96 (Intention to Use).

Usage Rating Profile-Intervention (URP-I). The URP-I (Chafouleas, Briesch, Riley-Tillman, & McCoach, 2009) is a 35-item measure that assesses teachers' intervention acceptability, understanding, feasibility, and systems support. Items are rated on a 6-point Likert-type scale from *Strongly Disagree* (1) to *Strongly Agree* (6). It has acceptable internal reliability (alphas range from .84 to .96) and preliminary empirical support for a 4-factor content structure (Chafouleas et al., 2009). Internal consistencies (α) for this sample ranged from .70 (Systems Support) to .94 (Acceptability).

Satisfaction survey. Teachers were asked to report satisfaction with the DRC intervention, the online program, and consultant supports. Items were rated on a 6-point

Likert-type scale *Strongly Disagree* (1) to *Strongly Agree* (6). Open-response items gathered feedback on strengths, weaknesses, and suggestions for improvement.

Consultation logs. Consultants tracked information about the amount of support they provided to each teacher. Specifically, consultants recorded the purpose and length of each meeting, as well as the number of e-mails or face-to-face contacts required to resolve the request or barrier.

Materials

Daily Report Card – Online (DRC.O). The DRC.O website was developed to provide automated training and ongoing supports to teachers implementing a DRC intervention. Training for using the website, and creating and implementing the DRC is provided through 10 modules. These modules use videos to provide didactic information and modeling of important skills, and are followed by questions that test familiarity with important pieces of information. The website streamlines and automates tasks required to create the DRC including interactive features (e.g., wizards) to guide teachers through steps completed both on the website (e.g., prioritizing behaviors to target) and in the classroom (e.g., baseline tracking). In addition, the website provides a number of tools to support tasks important for high quality implementation such as progress monitoring (e.g., a data entry calendar to track student’s daily behavior, graphs to represent data) and making decisions about modifying the intervention (e.g., algorithms make suggestions based on student data). The user also has access to a number of resources to help teachers overcome barriers to implementation including a frequently asked questions (FAQ) page, a discussion board for teachers to share common problems with implementation, and a

help desk where teachers can submit questions or request a phone consult with a consultant. See Appendix B for screenshots of several of the above features.

Consultation supports. Consultants were available approximately 1-2 hours per week at each school to provide in-person supports, and were available to answer questions via e-mail. While primary responsibilities focused on completing research procedures unrelated to the intervention (e.g., collecting eligibility paperwork, contacting parents for consent, paying participants), consultants also facilitated recruitment, monitored teacher progress, and helped teachers problem solve delays or barriers that arose. Consultants on the project were three graduate research assistants who received training⁵ in the website, the development and implementation of a DRC, and behavioral consultation with educators (Bergan & Kratochwill, 1990). Consultants had scheduled check-ins 1-4 times depending on the teacher's progress, periodically checked in with teachers to see if they had any questions, and made themselves available upon request. Consultants provided answers that helped to guide teachers through technical difficulties and informed them about best practices for using a DRC. Problem solving was expected to be solution-focused in identifying a problem and a solution either through expert judgment or brainstorming with the teacher. Performance feedback was not allowed.

Procedures

A visual depiction of the study activities and timeline can be found in Figure 1.

⁵ Two of three had previously participated in clinical trial (Owens, Coles et al., 2016) assessing the impact of consultation on teachers' implementation of classroom management strategies and a daily report card and one had 2 years of prior experience supporting teachers' implementation of classroom interventions in a residential treatment classroom; thus they had sufficient experience and training to serve in their identified role. Group supervision with a licensed psychologist occurred weekly to discuss challenges that arose in consultation.

Figure 1. Visual depiction of study procedures and timeline. Note: A “C” indicates an event that would trigger a brief check-in with the teacher by a consultant.

Recruitment, referral, and consent. Teachers received information about the project and eligibility during a 30-minute presentation at the beginning of the school year. Consultants at each school introduced themselves to general and special education teachers and reviewed procedures for referring students. When teachers referred a student, they turned in a completed SDQ and a signed consent form. If the student met study criteria for inclusion (i.e., at-risk score on one of the specified subscales), the student was deemed eligible after both student assent and parent consent were obtained. Teachers were only allowed to have one child participate in the project at one time; if a child was ineligible, teachers were invited to refer another student.

Intervention development and implementation. Once teachers completed baseline rating scales, they were e-mailed a link to the website, a password, and instructions for logging on and watching the first training module to learn how to use the website. After teachers logged on the website, videos and other supports were available to guide teachers through the process of creating and implementing a DRC. Teachers were asked to implement the DRC for 2 months for this study. Those who created and implemented the DRC for 2 months were allowed to use the website to continue implementing and/or create DRCs for additional students in their class.

All teachers were contacted by consultants (either in person or via e-mail) at four time points in the process: (1) when they were e-mailed a link to the website, (2) after they had downloaded their first DRC, (3) if the DRC had not been created 1 month after receiving the link to the website, and (4) if they discontinued the DRC after first adopting. At these contacts, consultants informed teachers they were available to answer

questions and problem solve any barriers to using the website, creating the DRC, and/or implementing the DRC. Consultants periodically checked in with teachers to offer similar supports for the duration of time they spent creating or implementing the DRC. All contacts were tracked in the consultation logs.

Data collection. Data were collected in four ways. First, teachers' activity on the website was tracked for the duration of their participation in the study (e.g., from the time they were e-mailed the link to the website to the end of their 2nd month implementing the DRC). Second, teachers completed self-report measures and student behavior rating scales (i.e., SDQ and APRS) at two time points: Baseline and 2 months after adopting the intervention.⁶ Quantitative ratings and qualitative feedback reflecting teacher satisfaction with and acceptability of the website, intervention, and consultation were collected 2 months after implementing the intervention. Those teachers who did not adopt the DRC or who stopped implementing after less than 1 month (i.e., non-adopters) were e-mailed a set of rating scales related to student behavior and website satisfaction.

Third, teachers who adopted the DRC were observed four times⁷ by trained research assistants over the course of 2 months of implementation. Observations ranged from 35 to 45 minutes, averaging 41.3 minutes ($SD = 3.1$ minutes) each. Lastly,

⁶ All teachers completed the SDQ at the time of referral for their first student ($n = 37$) and one teacher completed the SDQ on a second student, resulting in 38 teachers with a baseline SDQ. Only those teachers for whom parent consent was obtained completed the APRS at baseline ($n = 35$). Most teachers who adopted and implemented the intervention long enough completed an SDQ and APRS at 2 months ($n = 16$). Teachers who never adopted the intervention and who adopted it for less than 2 months were asked to complete the SDQ and APRS again at the end of the year to provide a comparison group. A subset of non-adopters ($n = 5$) and short-term adopters ($n = 4$) agreed to complete these rating scales.

⁷ All four observations for each teacher were conducted at the same time of day to avoid fluctuations in integrity due to changes in classroom expectations. The average number of observations were 3.5 ($SD = .86$) with participants receiving either 1 ($n = 1$), two ($n = 2$), three ($n = 4$), and four ($n = 15$).

consultants were expected to update their logs each week to include information about any in person or e-mail interaction with a teacher during which they helped resolve any barriers to using the website or the DRC.

Results

Study Aim 1: Feasibility and Effectiveness of the Website

1a) Adoption and length of implementation. Figure 2 provides a visual depiction of how many teachers progressed through each step of the intervention from referral to implementation and how long they implemented. Of the teachers who referred a child ($n = 37$), 89.2% completed the eligibility process and received a link to the website. Among those teachers who received a link to the website ($n = 33$), 69.7% ($n = 23$) adopted the intervention, 51.5% ($n = 17$) adopted and implemented the intervention for at least 2 months, and 45.5% ($n = 15$) adopted and implemented the intervention for longer than 2 months. Three (20%) of the teachers who continued implementing the DRC past 2 months used the website to set up a DRC for a second student in the classroom.

Figure 2. Number of participants adopting/implementing and reasons for attrition.

To understand how DRC use was related to participant characteristics, participants were categorized into non-adopters ($n = 10$), short-term adopters (less than 2 months implementation; $M = 2.67$; $SD = 1.63$; $n = 6$), and long-term adopters (at least 2 months implementation; $M = 18.47$; $SD = 7.47$; $n = 17$). Short-term ($M = 10.17$; $SD = 3.92$) and long-term adopters ($M = 4.88$; $SD = 2.40$) differed significantly in weeks to set up the DRC, with long-term adopters setting up the intervention more quickly, $t(6.4) = 3.10$, $p = .02$. When, non-adopters and short-term adopters were combined; long-term adopters ($n = 17$) were also more likely than short-term and non-adopters combined ($n = 16$) to have a Master's degree ($\chi^2(1, N = 33) = 7.34$, $p = .007$), have more previous experience with the DRC ($t(22) = -2.16$, $p = .04$), and be older ($t(31) = -2.24$, $p = .03$). Correlations with other demographic and professional variables were not significant and are not reported. More details about teacher characteristic and DRC use can be found in Appendix C.

1b) Use of the website and its features. Teachers' use of the website during setup and the first 2 months of adoption (when applicable) is reported separately for non-adopters, short-term adopters, and long-term adopters in Table 2. Over the course of the school year, teachers visited the website between 0 to 31 times, with those who adopted the DRC visiting at least four times and those who did not adopt visiting no more than three times. Their use of the specific website features varied widely with features essential for setting up and implementing the DRC (e.g., DRC Creation Wizard) being used more frequently than non-essential features (e.g., troubleshooting features). Further, bivariate correlations reveal that the length of DRC implementation was significantly

associated with the number of visits they made to the website overall (i.e., home page; $r = .66$) and the data calendar ($r = .73$). In addition, the longer it took teachers to set up the DRC was inversely related to the number of days they accessed the data calendar ($r = -.47$). Use of other website features (e.g., training modules, graphs, and DRC creation wizard) did not appear to be related to length of implementation (all r s $< .4$).

Table 2

Teachers' Use of Various Website Features by DRC Use Status (N = 33)

	Non-Adopters (n = 10)	Short-Term Adopters (n = 7)	Long-Term Adopters (n = 17)
	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>
<u>Visits to Pages</u>			
Home	1.43 (1.28)	6.33 (2.73)	12.18 (8.37)
Data Calendar	0 (0)	1.33 (1.03)	7.59 (7.96)
Graphs	.21 (.58)	.33 (.52)	2.24 (2.31)
View Targets	.21 (.58)	1.17 (1.17)	2.24 (2.05)
Edit Target	.07 (.27)	.83 (1.17)	1.71 (1.61)
Add Target	.07 (.27)	.33 (.82)	.82 (1.13)
FAQ Page	0 (0)	0 (0)	.12 (.33)
Contact Us	0 (0)	.17 (.41)	.12 (.33)
Chat Room	0 (0)	0 (0)	0 (0)
Newsletters	0 (0)	.14 (.38)	0 (0)
Extra Videos	0 (0)	0 (0)	0 (0)
<u>Number Viewed</u>			
Modules (#/10)	1.00 (1.11)	2.17 (2.64)	3.35 (2.87)
Wizard Steps (#/8)	3.21 (3.40)	8.00 (0.0)	7.76 (.44)
<u>Downloads</u>			
Baseline Tracking	0.71 (.83)	2.00 (.63)	1.29 (1.26)
Weekly Tracking	0.14 (.54)	.17 (.41)	1.18 (1.63)
DRC	0.21 (.58)	1.67 (.82)	2.35 (1.84)

Note. Long-Term Adopters = Teachers who adopted the DRC and implemented for at least 2 months; Activity on website was tracked during the period of DRC Creation and only for the first 2 months of implementation.

Visits to Pages = The number of times each page was visited; Number Viewed = Number of training modules or steps in wizard viewed; Downloads = Number of times a document needed to create or implement DRC was downloaded; Non-Adopters = Teachers who never adopted the DRC; Short-Term Adopters = Teachers who adopted the DRC but implemented fewer than 2 months.

1c) Teachers' implementation of the DRC and student rule violations.

Descriptive statistics on students' rates of rule violations, as well as how teachers'

responses to these behaviors consistent with training on the DRC.O website are provided

in Table 3. On average, students committed 3.93 DRC-related rule violations ($SD = 3.41$)

per hour. With regard to recommended DRC implementation procedures, teachers ($n = 22$) appropriately “Labeled” the violation 46.1% of the time while “Connecting” and Tracking 12.6% and 10.9%, respectively. We also examined teachers’ use of the DRC-related strategies (i.e., label rule violations) for rules not included on the DRC and found that teachers appropriately responded to non-DRC rules 29.7% of the time. More details about SBTR observation data can be found in Appendix C.

Table 3

Teachers’ Observed DRC Implementation and Associated Student Behaviors (N = 22)

	<i>M</i>	<i>SD</i>
<u>DRC Rule Violations (RVs)</u>		
Hourly Rate of Total DRC RVs	3.93	3.41
Label	46.1%	35.7%
Connect	12.6%	18.4%
Track	10.9%	17.6%
DRC RV Not Observed	11.5%	16.5%
Response by Other Adult	1.8%	4.8%
No Response	40.6%	33.0%
<u>Classroom Rule Violations (RVs)</u>		
Hourly Rate of Total RVs	5.08	2.80
Appropriate Response	29.7%	24.1%
Inappropriate Response	1.2%	3.4%
RV Not Observed	23.5%	26.0%
Response by Other Adult	1.8%	5.6%
No Response	43.0%	27.7%

Note. DRC = daily report card; RV = rule violation; Rates and responses represent an average of all observations for each teacher. RV Not Observed = Violation was not seen by the primary teacher; Response by Other Adult = Another adult responded to the RV before the primary teacher; No Response = No one responded to the RV.

1d) Change in student outcomes. Means, standard deviations, and within-subject effect sizes are reported separately for the SDQ and APRS at each time point and by teacher adoption category (Table 4). Overall, children who received 2 months of the intervention demonstrated medium to moderate improvement in hyperactive and inattentive ($d = .83$) and total ($d = .53$) problems. Improvement in conduct and behavioral problems ($d = .21$) was small. Notably, those who received the full 2 months of the intervention tended to demonstrate larger and more consistent improvements across domains compared to those who did not with one major exception. Those who never received any of the intervention demonstrated a greater improvement in hyperactivity/inattentive problems over the course of the year ($d = 1.07$) than did those who received at least 2 months of the intervention ($d = .83$). Inspection of changes in the scores of individual students who did not receive any DRC intervention show that the majority of improvement among hyperactivity/ inattention problems were accounted for by three students who were either placed on medication after referral ($n = 2$) or were already on medication at the time of referral ($n = 1$) (details about these students can be found in see Appendix C1d).

Children who received 2 months of the DRC demonstrated small effect sizes in academic productivity ($d = .34$) with no reported improvement in academic competence. Interestingly, those students who received no or less than 2 months of the intervention demonstrated comparable to better improvements ($ds = .16$ to $.70$).

Table 4

Student Outcomes: Descriptive Statistics and Effect Sizes by DRC Use Status

	Baseline (<i>n</i> = 39)	Month 2 (<i>n</i> = 27)	B-M2
	<i>M</i> (<i>SD</i>) <i>n</i> = 5	<i>M</i> (<i>SD</i>) <i>n</i> = 5	<i>d</i>
Non-Adopters			
SDQ – Total	16.80 (3.42)	15.40 (6.27)	.26
SDQ – Hyperactive	8.60 (1.34)	6.60 (2.07)	1.07
SDQ – Conduct	4.20 (2.95)	4.20 (1.92)	0
APRS – Success	22.40 (6.66)	24.40 (5.13)	.30
APRS – Productivity	35.80 (7.79)	39.00 (10.37)	.32
Short-Term Adopters	<i>n</i> = 4	<i>n</i> = 4	
SDQ – Total	20.00 (4.83)	20.00 (6.88)	0
SDQ – Hyperactive	9.00 (2.00)	9.25 (.96)	-.10
SDQ – Conduct	5.19 (3.21)	4.50 (2.65)	.43
APRS – Success	12.25 (3.40)	16.75 (6.60)	.70
APRS – Productivity	29.25 (6.60)	30.50 (7.85)	.16
Long-Term Adopters	<i>n</i> = 16	<i>n</i> = 16	
SDQ – Total	17.50 (3.98)	14.50 (5.23)	.53
SDQ – Hyperactive	9.06 (1.53)	7.00 (2.45)	.83
SDQ – Conduct	3.88 (2.31)	3.44 (1.79)	.21
APRS – Success	20.63 (5.55)	20.43 (5.02)	-.06
APRS – Productivity	34.83 (9.09)	37.05 (8.16)	.34

Note. SDQ = Strengths and Difficulty Questionnaire; APRS = Academic Performance Rating Scale; Non-Adopters = Never adopted the DRC; Short-Term Adopters = Adopted the DRC and implemented < 2 months; Long-Term Adopters = Adopted the DRC and implemented for ≥ 2 months; Activity on website was tracked during the period of DRC Creation and only for the first 2 months of implementation.

Only those teachers who completed an SDQ at Baseline and Month 2 are included for Non-Adopters and Short-Term Adopters. Only those teachers who completed an SDQ at all three time points are included for Long-Term Adopters.

Risk status is separated into borderline and abnormal risk. SDQ-Total: Borderline = 12-15, Abnormal = 16-40; SDQ-Hyperactive: Borderline = 6, Abnormal = 7-10; SDQ-Conduct: Borderline = 3, Abnormal = 4-10.

p* < .05, *p* < .01

1e) Satisfaction with the website and the DRC. Teachers' perceptions of the website were measured in two ways: the Technology Acceptance Model (TAM) Instrument and a mixed qualitative and quantitative satisfaction survey derived for the

purpose of this study. Too few Non-adopters ($n = 2$) and Short-Term Adopters ($n = 2$) used the website enough to provide feedback and responded to requests to provide feedback at the end of the study. Thus, most analyses are descriptive in nature and are not differentiated by type of adopter.

The means and standard deviations of teachers' ratings on the TAM Instrument are reported in Table 5. Correlations between ratings of predictors and intention to use (Table 5) the DRC show that ease of use, and usefulness of training components and implementation supports were significantly and strongly related to teachers' intention to use the intervention, while their self-efficacy with computers and social norms were not.

Table 5

<i>TAM Subscale Descriptive Statistics and Correlations with Intention to Use ($n = 21$)</i>		
	Month 2	Intention to Use
	<i>M (SD)</i>	<i>R</i>
Computer Self-Efficacy	6.00 (1.04)	.08
Ease of use	5.77 (1.15)	.62**
Usefulness of Training Components	5.38 (1.05)	.66**
Usefulness of Implementation Supports	5.59 (1.04)	.77***
Social Norms	4.55 (0.85)	.03
Intention to Use	5.67 (1.18)	-

Note. Items are rated on a 7-point Likert-type scale where 1 = Strongly Disagree and 7 = Strongly Agree. Subscales are means of all composite items.

** $p < .01$, *** $p < .001$

Teachers' quantitative ratings on the satisfaction survey were overwhelmingly positive (see Table 6). Teachers providing qualitative feedback in open-ended response items reported the most helpful features to be the training modules; the DRC creation wizard; the guidance through the process of selecting behaviors and setting up a reward

menu; the data entry calendar and ability to enter data at personal convenience; the graphs; and the ease and fluidity of navigation. Teachers also reported shortcomings of the website being the FAQ and discussion board, the number of videos and amount of time required to watch them all, lack of comprehensiveness of behaviors, and difficulties using percentages for data collection and entry. Teachers provided some recommendations for improving the website including more face-to-face training, increasing guidance provided by the website for completing the steps for creating the DRC, having more in person or live chat consultation, making the graphs easier to print, including less content on each page, and adding the ability to create custom DRC goals.

Table 6

Teachers' Ratings on the Satisfaction Survey at Month 2

	<i>N</i>	<i>M</i>	<i>SD</i>
<u>Satisfaction with website-based supports</u>			
Training	19	5.11	.81
DRC Creation Wizard	18	5.15	.67
Supports for implementing the DRC	19	5.21	.92
Features for solving problems	19	4.95	.91
Overall satisfaction with the website	19	5.00	.82
Likelihood of recommending to a colleague	19	5.11	.81
<u>Satisfaction with consultation supports</u>			
Helped me overcome barriers to using the website	9	4.89	.93
Helped me overcome barriers to creating the DRC	10	4.90	.88
Helped me overcome barriers to implementing the DRC	9	4.90	.93
Professional and courteous	11	5.73	.47
Overall satisfaction with consultation	10	5.30	1.06
Likelihood of recommending to a colleague	10	5.40	.70

Note. DRC = daily report card 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, 6 = Strongly Agree.

Regarding teachers' perceptions of the DRC, ratings on the URP-I of acceptability ($M = 4.89$; $SD = .73$), understanding ($M = 5.18$; $SD = .51$), and feasibility ($M = 4.78$; $SD = .78$) were overwhelmingly positive; ratings of online systems of support were the least positive ($M = 3.67$; $SD = .88$). These ratings were mostly comparable and even slightly higher than ratings provided in past research of DRCs (Chafouleas, Briesch, et al., 2009).

Study Aim 2: Use of Consultation

2a) Amount of consultation used. Of the 33 eligible teachers, 78.4% requested face-to-face consultation ($n = 29$) and 64.9% requested consultation via e-mail ($n = 24$). Descriptive statistics are reported for use of consultation during the course of referral, developing the DRC, and the first 2 months of implementing the DRC (Table 7). Overall, teachers' use of consultation varied significantly with an average of three contacts and 37 total minutes. Teachers used e-mail far less frequently than they did face-to-face consultation, with an average of 1-2 e-mail contacts initiated by the teacher and two e-mails sent by the consultant to resolve each issue.

Table 7

Descriptive Statistics and ANOVAs of Consultation Use by DRC Use Status (n = 33)

		All (n = 33)	Non (n = 10)	Short (n = 6)	Long (n = 17)		
	<i>Range</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F (df)</i>	<i>Tukey's b</i>
Face-to-Face							
Contacts (<i>n</i>)	0 – 9	3.33 (2.30)	2.30 (2.11)	5.83 (2.48)	3.06 (1.75)	6.19*(2, 30)	N, L < S
Total Consultation (min)	0 – 175	37.58 (38.02)	19.00 (17.61)	84.17 (59.37)	32.06 (23.52)	8.71*(2, 30)	N, L < S
Minutes/Contact	5 – 19	10.09 (4.03)	8.05 (2.79)	13.38 (4.61)	9.76 (3.70)	3.48*(2, 26)	N < S
E-mail							
Contacts (<i>n</i>)	0 – 3	1.18 (.98)	0.60 (.70)	1.33 (.82)	1.47 (1.07)	2.85 [◇] (2, 31)	-
Total E-mails (<i>n</i>)	0 – 14	2.06 (2.72)	.80 (1.03)	3.83 (5.30)	2.18 (1.81)	2.61 [◇] (2, 31)	N < S
E-mails/Contact	1 – 7	1.68 (1.31)	1.40 (.89)	2.50 (2.60)	1.49 (.61)	1.28 (2, 23)	-

Note. Sample sizes for Face-to-Face and E-mail correspond with the number of participants who accessed consultation supports through either medium.

Minutes/Contact = Minutes per consultation session; Emails/Contact = Number of e-mails to resolve an issue for which a teacher sought e-mail-based consultation.

[◇] $p < .1$, * $p < .05$, ** $p < .01$

Teachers' use of consultation based on adoption and implementation categories were explored to see if use of consultation differed across groups (Table 7). A series of one-way ANOVAs were run to determine if significant differences existed between groups, which were significant for all variables related to face-to-face supports. Post hoc probing showed that short-term adopters had more face-to-face contacts ($p = .006$) and spent more time consulting ($p = .001$) than non- or long-term adopters. In addition, the average length of each contact ($p = .046$) was longest for short-term adopter compared to non-adopters but not to long-term adopters.

Because of the differences based on DRC usage group, the ANOVAs were followed with bivariate correlations to explore the relationship between consultation usage and length of time for setup and implementation. There were significant positive relationships between number of weeks to setup the DRC and both the number of face-to-face contacts ($r = .62$) and the total minutes of support ($r = .47$); teachers who took longer to setup the DRC received more in person support. Inversely, the relationships between these two variables and length of implementation ($r = .59$ and $r = .51$, respectively) were significant and negative, demonstrating that teachers who implemented for longer accessed fewer consultation services. The relationships between teachers' use of consultation supports and other outcome variables including observed implementation and ratings of student behavior are provided in more detail in Appendix C.

2b) Satisfaction with consultation supports. Teachers' ratings of consultation are summarized using frequencies of responses for each response-type in Table 6. Overall, teachers' reported being satisfied with consultation supports. Similar to

satisfaction ratings for the online supports, the lowest-rated feature was related to problem solving barriers. Importantly, teachers reported being willing to recommend consultation to another teacher who is having difficulty with the website. Teachers' qualitative feedback indicated they found consultation useful for expertise and advice, providing additional ideas, having someone to talk through problems and offer solutions, and having someone to check in and keep them on track. The only negative feedback provided from consultation was one teacher reporting that it was too time consuming.

Discussion

The goal of this study was to examine the feasibility and effectiveness of a newly-developed on-line PD program that provides extensive supports beyond initial training, including novel features for enhancing engagement and guiding implementation, in an online format. Overall, the majority of teachers (51.5%) were able to use the website to successfully create and implement a DRC for 8-weeks, achieving relatively positive results in terms of use of the website, implementation of the DRC, student outcomes, and reported satisfaction. Importantly, teachers achieved these outcomes with a low level ($M = 33$ minutes) of face-to-face consultation. The results are compared to previous studies of on-line supports and implications for research and practice are discussed.

Feasibility, Effectiveness, and Satisfaction

Online professional development. In prior studies, researchers have found evidence for the feasibility of online training and supports but only when combined with resource-intensive CPF (e.g., Becker et al., 2014; Pianta et al., 2008). The results of this study suggest that online PD can be a viable alternative to resource-intensive CPF for some teachers, particularly those with a Master's degree and prior success with a DRC, even when both training and ongoing supports are predominantly provided through an online format. Prior research has demonstrated that student improvements on the DRC are maximized at approximately two months and further ongoing implementation helps to sustain these improvements (Owens, Holdaway et al., 2012). Thus, the fact that the majority of teachers were able to adopt the DRC and sustain implementation for two months and almost all of these for the rest of the school year without more intensive

supports is promising. Because teachers were compensated \$15 for each set of rating scales, it is possible that this incentivized some teachers to participate and sustain implementation of the DRC. However, the fact that many teachers ($n = 15$; 45.5% of all teachers and 88.2% of teachers who implemented for at least 2 months) continued to implement past their last set of rating scales (i.e., 2 months) suggests they were intrinsically motivated to continue implementing.

Just as important to the feasibility of the website is whether teachers implemented the intervention as intended and in a manner that produced outcomes comparable to prior research on the DRC. Observations of teachers who adopted the intervention demonstrated that they were able to provide appropriate labeling responses to approximately half (46.1%) of the DRC behaviors exhibited by the student. This is higher than average rates of appropriate responding to a target student's rule violations achieved by teachers before consultation (24%) in prior DRC research (Owens et al., 2017). It is also comparable to average rates of appropriate responding achieved after receiving consultation and performance feedback (Holdaway et al., 2017). However, teachers were observed tracking and connecting these behaviors to the DRC at a much lower rate than labeling. Although a similar trend has been observed in prior DRC research (Holdaway et al., 2017), these results suggest that improvements to the training and support modules for these specific components may be warranted. Interestingly, teachers responded to DRC-related behaviors much more frequently (47%) than they did other classroom rule violations (29.7%), suggesting that the DRC and related training provided through the website may have helped them focus and respond more consistently to these more

important behaviors. Notably, without a baseline measure of response to DRC behaviors this remains a hypothesis.

There was also preliminary evidence that teacher's use of the DRC was related to improvements in student outcomes. Students who received the DRC intervention for at least 2 months demonstrated medium to moderate improvements in teacher-rated total ($d = .52$) and hyperactive and inattentive ($d = .80$) problems. Smaller effects were found for conduct and behavior problems ($d = .21$), potentially because students in the long-term adopter group were less impaired at baseline in terms of conduct in behavior problems compared to hyperactive and inattentive problems. Overall, effects for students who received a two-month dose of the DRC intervention were superior to those students who received only a short regimen (i.e., approximately 2 weeks) of the DRC intervention. More importantly, they are comparable to effects achieved in a recent meta-analysis of the DRC ($d = .61$; Vannest et al., 2010) and prior studies of the DRC's effectiveness when used with ongoing and more intensive consultation (e.g., $d = .32$ to 1.07 ; Fabiano et al., 2010; Owens et al., 2012; Owens, Murphy et al., 2008). Although normalized behavior is not expected within two months of intervention, 6 of 16 (37.5%) students' Month 2 SDQ scores fell within the normal range.

Improvements in academic performance were much smaller and, in some cases, smaller than was achieved by students who received no or only a few weeks of DRC implementation. Notably, lower baseline scores among these groups may have provided more opportunity for growth and account for this difference. Also, only some teachers chose to target academic skills with the DRC, limiting the anticipated size of effects for

this domain. Still, improvements in academic productivity were partially consistent with those evidenced in prior research with the DRC (e.g., Fabiano et al., 2010). These improvements in student behavior and academic performance represent the first evidence that teacher implemented behavioral interventions designed from online PD can still produce desired changes in relevant student outcomes.

We also examined teachers' interaction with the website itself, as well as their satisfaction with its various components. The combination of novel technology enhancements with minimal consultation supports appeared sufficient to produce engagement with the essential components of the online program (i.e., DRC creation wizard, training modules), an important predictor of teachers' implementation in prior research (Pianta et al., 2008). Notably, many of the less essential components, such as help features and informational resources, were almost never used. Teachers' adequate level of integrity and improvements in student outcomes suggest that these components may not be necessary for all teachers to implement the intervention well (e.g., if they have implemented a DRC before). Teachers overwhelmingly reported being satisfied with the various website components, and rated the training and implementation components as easy to use, useful, and acceptable.

Consultation. Impressively, in this study, the amount and intensity of consultation accessed by those teachers who successfully adopted a DRC were much less and potentially more feasible than have been used in prior research. Consultation used in prior research has typically involved several meetings, meeting weekly for the first 3-4 weeks to support DRC development and then afterwards anywhere from 1-2 times/month

to support implementation, with each meeting lasting 20-45 minutes (e.g., Fabiano et al., 2010; Owens, Girio et al., 2008; Owens, Murphy, et al., 2008). Prior studies have not calculated the total amount of consultation used, but our estimates from prior descriptions range from 60-180 minutes of consultation to set up the DRC and 20-90 minutes of consultation per month to sustain implementation. This is well above the average used for setup *and* implementation in this study when used in conjunction with the DRC.O website. Comparatively, consultation in this study occurred mostly on an “as needed” basis, was briefer, and used less of teachers’ time across the entire period of DRC development and implementation ($M = 33$ minutes). Further, the intensity or complexity of consultation was far less than is typical. Namely, consultation was primarily supportive and solution-focused in nature. Teachers were overwhelmingly satisfied with the reduced level of consultation.

As anticipated, however, there were a number of teachers who never adopted the intervention (30.3%) or stopped adopting after a short period of time (18.2%). Although many of these teachers never adopted the intervention for reasons outside of their control (e.g., the child no longer needed intervention after being placed on medication, or the child moved), a sizable proportion stopped somewhere along the process of their own accord. Some teachers stated they stopped because they were too busy, they started implementing another intervention, or the child was not a good fit. Others stopped because they struggled to implement the intervention, saw few improvements, or did not start implementing until the end of the school year and ran out of time.

Interestingly, these teachers who stopped implementing utilized more consultant time than those who sustained implementation. Even though this may have occurred in an attempt to overcome the barriers they reported, the additional time was still insufficient to produce desired outcomes. Thus, a more intensive level of consultation supports, such as more involved problem solving with additional strategies for addressing barriers (e.g., Coles et al., 2015), skills training, or CPF, may have been more successful. Indeed, the results indicated that teachers who only implemented for a short period of time took longer to set up the intervention and also had students with more teacher-rated problem behaviors at baseline. Follow-up analyses also confirmed that these teachers had less advanced training and had experienced less student success with their past DRC. Thus, while online PD and minimal consultation supports may be sufficient for some teachers, the demographic, professional, and student differences that separate those who stopped and those who sustained implementation suggest that making more intensive forms of consultation available may increase the proportion of teachers who are successful.

Implications

The results of this study have important implications for online PD, the dissemination of the DRC, and for the dissemination of teacher-delivered behavioral interventions, in general. Namely, the findings suggest that leveraging advances in technology to enhance engagement and usability of online PD can produce favorable outcomes for some teachers, even without CPF. Thus, with additional study and replication, such enhanced online programs may become useful tools for increasing the widespread dissemination of the DRC and other interventions.

In this study, a majority of teachers were able to setup and sustain sufficient implementation of a DRC in a manner that produced positive student outcomes with an average of 33 minutes of consultation of a low intensity of support. These less intensive supports are better aligned with consultation as is already provided by school mental health professionals (e.g., Mixon et al., 2015). Thus, they may be more feasible for existing school staff to perform.

The availability of a continuum of supports provides teachers with the ability to request or receive supports tailored to their preferences and needs, and, as a result, may increase the proportion of teachers who can successfully adopt and implement the DRC. If online PD and low intensity consultation are available to those who prefer less time consulting, or to those with more training (i.e., Masters degree) or prior experience implementing a DRC, more intensive face-to-face consultation resources can be allocated to teachers with greater need (e.g., first time implementing a DRC, challenging student). This prioritization of resources can significantly increase the number of teachers that can be supported by a single school mental health professional. As a result, it also increases the number of students with access to high-quality, evidence-based interventions.

Limitations and Future Research

While this study highlights a strong potential for the use of technology in the dissemination of behavioral classroom interventions, there are limitations to the design that influence the interpretation of the results. The foremost of these is that the lack of experimental design, making it difficult to know how the levels of support provided in this study compare to existing methods of PD (e.g., in-service training, providing

handouts, more intensive consultation like CPF). Additionally, because all teachers received both access to the online program and consultation supports as needed, it is not possible to isolate the relative contributions of each to teacher and student outcomes. The design of this study is also limited by the lack of representativeness of the teacher population and the sample. Notably, this sample consisted of volunteers who were willing to participate in research as well as use the technology to implement a targeted behavioral intervention. Demographically, teachers were entirely Caucasian, non-Latino, and female. Additionally, over 70% had previously used a DRC, much higher than found in prior research (Martinussen et al., 2011). Thus, this reduced level of supports may not have the same level of feasibility among the population of teachers as a whole.

While students demonstrated moderate improvements in hyperactive and inattentive problems and overall problems, the changes on rating scales may not be sufficiently meaningful for teachers who are dedicating significant time to creating and implementing the DRC. Thus, additional research on more ecologically valid indicators of student improvement may provide more convincing data for teachers who are considering using the website. For example, utilizing data from students' DRCs to measure improvement (e.g., Owens et al., 2012) or from rating scales that target a student's individualized goals or the teacher's referral concern, rather than overall functioning (e.g., Daniels, Volpe, Fabiano, & Briesch, 2016), may provide more accurate and meaningful effects on student behavior.

Based on the results of this study, there still remains a sizable proportion of teachers who were not able to set up and sustain implementation of a DRC with this level

of supports. Future research may best advance the dissemination of the DRC by understanding how as-needed, brief consultation and more intensive forms of consultation (e.g., CPF) might be offered on a continuum based on teachers' needs and preferences, as well as by identifying salient predictors of the best level of consultation.

Finally, despite the success by a number of teachers and overwhelming reported satisfaction with the program, many either did not adopt or stopped implementing after a few weeks. Thus, there are likely a number of updates and modifications that can be made to the website or to the consultation supports to improve its effectiveness and teacher satisfaction with its use. Notably, some teachers used portions of the website less frequently including non-essential but potentially still helpful components, as well as components we viewed as critical to successful development and implementation. This was even true among those teachers who successfully adopted the intervention. Teachers also demonstrated low use of many of the training modules and reported difficulties knowing how to progress through the many important steps for setting up the intervention. Thus, other modifications that mirror the role of an in-person consultant may be helpful for enhancing engagement and usability. Prior research has found that e-mail reminders about important implementation steps were very acceptable to teachers and may have helped to keep them on track implementing the intervention (Bishop et al., 2005). Some online mechanisms such as e-mail reminders or website prompts that help teachers navigate through the steps for setting up the intervention, setup the DRC, and implementing a DRC may help to improve online PD moving forward. In addition, prior research has also found leveraging teachers with expertise or strong social influence (i.e.,

Key Opinion Leaders [KOL]; Atkins et al., 2008) can increase the proportion of teachers using recommended classroom strategies when used to augment traditional mental health consultation. Identifying those teachers who are successful in using the website and the DRC (i.e., Masters degree, prior experience with a DRC) and appointing them as KOLs may help to support those teachers with more difficulty. Such teachers could be available for providing training or problem solving to teachers in need of additional support. Moreover, this could be accomplished either in person, or by leveraging these teachers as moderators in the discussion board available through the website.

Conclusion

Given the number of students presenting with disruptive behavior in our schools, and the low reliance on evidence-based classroom management strategies, there is a clear need for improved dissemination of both class-wide and targeted behavioral interventions. The findings from this study provide evidence that there is a subgroup of teachers who can use online PD to successfully adopt and implement the DRC. Notably, these teachers appear to be those with more advanced training (i.e., those with Masters degrees) and prior success using a DRC. Compared to traditional consultation supports, this online program allows this group of teachers to adopt and sustain implementation using less of their time for consulting, while maintaining comparable outcomes. Lower demands on staff time and resources increase access to PD, allow teachers to complete PD at their own pace, and provide teachers choices in how they receive PD.

This study provides first evidence for the feasibility and effectiveness of an online professional program that significantly reduces the amount of in-person supports needed

to facilitate teacher adoption of a targeted evidence-based classroom intervention.

However, because of the limitations of this study, future research will be needed to determine how best to improve the feasibility of technology and how this technology fits within a continuum of supports (e.g., CPF, skills training, KOLs, additional website modifications) to facilitate the wide-spread dissemination of the DRC and other targeted behavioral interventions.

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Appendix A: Committee Revisions to Introduction

All suggested revisions by committee were able to be included. Thus, no content is available for Appendix A.

Appendix B: Study Measures and Materials

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Ohio University Consent Form
Enhanced Supports for Teachers' Use of Classroom Intervention
TEACHER CONSENT FORM

Title of the Project: Enhanced Supports for Teachers' Use of Classroom Intervention
Researchers: Clifton Mixon, Dr. Julie Owens, Dr. Steven W. Evans

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your participation in this study. You should receive a copy of this document to take with you

Explanation of Study

What is the purpose of the study?

The goal of this study is to develop and evaluate an online program to facilitate teachers' self-directed implementation of behavioral intervention strategies for children with disruptive behavior problems. Specifically, we intend to develop and test the feasibility of

- An online program that is designed to mirror the role of a consultant in providing training and support to teachers for developing and implementing a Daily Report Card (DRC).
- Offering a brief consultation session that is designed to help teachers overcome barriers to implementation of the intervention, or

What will the project involve?

The study will be limited to the teachers of students at participating elementary schools who demonstrate significant levels of school impairment based on teacher rating scales. The project will begin in the Fall of 2015 and will continue throughout the 2015-2016 school year.

This consent, unless you choose to withdraw, shall remain in effect until the end of the project. The researcher may decide to end your participation in this project at any time, without your permission, for any of the following reasons: the principal investigator determines that it is in your best interest to stop the study or the study is ended early for any reason or new information becomes available. You understand that because participation involves multiple members (teacher, student), if any member discontinues participation, your participation could be terminated. In that case, compensation will be pro-rated to include the portions of the study that have been completed. You may choose at any time to withdraw yourself from this research without penalty or loss of benefits to which you are otherwise entitled

Referral to the Project and Eligibility

You are being asked to participate in this project because you referred a student to this project due to concerns about disruptive behavior. In order to move forward, we require three things for you and your student to be eligible: 1) your informed consent indicated by reading and signing this form, 2) your completion of a rating scale about the student you've selected to ensure that the child's level of school-related impairment is high enough to warrant use of the DRC, and 3) informed assent and consent for participation in the project provided by both the child and his/her parent, respectively. To protect the privacy of your students and their families, we will ask you to first contact the parent yourself to obtain their verbal consent for YESS staff to contact them. YESS staff will be responsible for obtaining consent from the parent and assent from the child.

Online and Face-to-Face Support Strategies

During the project you will be involved in the following activities:

- Initial Professional Development: All participating teachers will be asked to attend an initial meeting focused on orientation to the project.
- After we provide you with a link and log-on information, you will be asked to use the online program to develop and implement a Daily Report Card intervention for the target child. This will involve watching short training videos, interacting with the website to create the DRC and monitor the DRC, and enter data associated with the child's performance on a weekly basis.
- When creating the DRC, you will be asked to track the child's target behaviors for 5 days prior to starting the intervention.
- You will also be asked to develop and implement a simplistic reward program associated with the child's DRC intervention. You are welcome, but not required, to communicate with the child's parents about setting up a reward system at home.
- You will be asked to implement the DRC and reward system on a daily basis for 8-weeks.
- Project staff will conduct observations in your room about once every other week for 8 weeks.
- If you do not start the DRC within 4-weeks of receiving the log-on information, you may be asked to participate in a brief meeting with a project facilitator to better understand and to help problem solve barriers to adoption of the DRC. These sessions will be audio taped to make sure that the facilitator is conducting the session correctly.

Assessments

- At the start of the project, you will be asked to complete a demographic questionnaire that obtains standard demographic information, such as age, gender, and ethnicity, and information about professional experiences, such as years teaching and prior experience implementing DRCs and other interventions.

- You will be asked to complete ratings scales about the child's behavioral symptoms and functioning at multiple time points (at the time of referral to the study, 4-weeks into the intervention, and at the end of the project).
- At the end of the project, you will be asked to complete surveys to help us learn about the feasibility, acceptability, and utility of the online program and consultation session.
- Completing these rating scales should take 5-10 minutes for the first and second administrations and 15-20 minutes at the end of the project. You will be paid \$15 for each set of rating scales you complete.

Risks and Discomforts

There are few risks to teachers participating in this project. You may not enjoy completing the rating scales during each assessment and they may find some aspects of the classroom interventions challenging to implement. You may feel uncomfortable during observations, when using the technology, when discussing classroom interventions with the project facilitator (should you be asked to meet), and having these discussions audio taped. To minimize these potential risks, all meetings will be focused on reducing barriers to implementation and learning how to improve the intervention to better meet teachers' needs.

Benefits

Potential benefits include (a) receiving access to free supports for an evidence-based intervention for helping the target student succeed, (b) receiving training and support in a modality that may be more acceptable and less time-consuming than typical methods of support (i.e., ongoing consultation), and (c) participating in professional development activities (through training resources on website), and (d) a reduction in stress in association with reduced child disruptive behavior, and improved child academic performance, and improved relationships with the children and families participating. Our findings will help determine whether online training and supports are a feasible alternative to traditional supports such as behavioral consultants. The results could have implications for local school districts as well as improved intervention for local children.

Confidentiality and Records

All information gathered will be kept strictly confidential. Your name will not appear on any of the project materials; instead, you will be assigned a code number that will identify the materials. All audio recordings will be digital. Audio recordings of the consultation sessions will be transported to the OU research lab from the schools using lockable bags placed in the trunk of the project staff member's car. Original recordings on the audio device will be purged after they have been uploaded onto a secure (password-protected) drive and transcribed. If either your name or the child's name is stated during the meeting, it will not be entered into the transcription. If for some reason, you choose to discontinue with the research project, de-identified assessment data will be maintained in the project database, unless you explicitly request otherwise. The master list (the list of participant codes and identifying information) of all program participants

will be stored in a password protected file on a secured drive at Ohio University. The master list and audio recordings will be destroyed in June of 2017 (approximately one year after the completion of the research project). While the above-described efforts will be taken to keep your study-related data confidential, there may be circumstances where your name must be shared with federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research, and offices on campus, including the Ohio University Institutional Review Board, a committee that oversees research at OU.

Compensation

You will receive \$15 for completing each set of rating scales for a total of \$45 across the project.

Contact Information

If you have any concerns regarding this project now or during the course of the project, please contact Clifton Mixon, 740-597-3152 (cm408811@ohio.edu), or his faculty advisor, Dr. Julie Owens, 740-593-1074 (owensj@ohio.edu).

Additionally, if you have any questions regarding your rights as a research participant, please contact Dr. Chris Hayhow, Director of Research Compliance, Ohio University, 740 593-0664 or hayhow@ohio.edu.

By signing below, you are agreeing that:

- You have read this consent form (or it has been read to you) and you have been given the opportunity to ask questions and have them answered;
- You understand that your consultation sessions will be audiotaped;
- The have been informed of potential risks and they have been explained to your satisfaction
- You understand that Ohio University has no funds set aside for any injuries that you might receive as a result of participating in this study;
- You are 18 years of age or older;
- Your participation in this research is completely voluntarily;
- You may leave this study at any time; if you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you or others are entitled.

Name -- Please Print

Signature

Date

Ohio University Consent Form

Enhanced Supports for Teachers' Use of Classroom Interventions

PARENT CONSENT FORM

Title of Project: Enhanced Supports for Teachers' Use of Classroom Interventions

Researchers: Clifton Mixon, Dr. Julie Owens and Dr. Steven Evans

Your child is being asked to participate in research. For you to be able to decide whether you want your child to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your child's personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your child's participation in this study. You should receive a copy of this document to take with you.

This consent, unless your child chooses to withdraw, shall remain in effect until the end of the project. The researcher may decide to end your child's participation in this project at any time, without your permission, for any of the following reasons: the principal investigator determines that it is in your child's best interest to stop the study or the study is ended early for any reason or new information becomes available.

What is the purpose of this project?

We want to examine a new online professional development tool for supporting teachers' use of evidence-based behavior plans. The specific behavior plan used in this project is called the Daily Report Card. Behaviors typically targeted on the daily report card include raising hand to speak, staying seated, keeping hands and feet to self, and completing classroom work. By using a Daily Report Card, children are given more guidance that helps them better follow rules, get along with others, and do well on their school work.

You are being contacted because your child's teacher believes your child could benefit from the help of such a behavior plan. Thus, your teacher has expressed interest in using a Daily Report Card to help your child follow classroom rules and do well in school.

What does my child's participation involve?

If you agree to allow your child to participate, your child will be given the opportunity to assent in a brief meeting with project staff. If your child assents, his or her teacher will explain the behavior plan, develop a set of rewards for when your child achieves daily goals, and implement the behavior plan daily. Each day, the teacher will (1) remind your child of the behavior plan, (2) provide your child with brief feedback throughout the day about behavior related to the behavior plan, (3) review your child's progress on the

behavior plan at the end of the day, (4) reward your child for meeting his or her goals, and (5) send home your child's daily report card so that you can remain aware of your child's progress at school. Your child will have no direct interactions with project staff after assent is provided; however, your child will be observed in the classroom four times over the course of eight weeks to obtain information about your child's behavior.

We will obtain information about your child's progress in the following ways:

- ask your child's classroom teacher to fill out rating scales about your child at multiple time-points.
- observe your child in the classroom approximately 1 to 2 times per month
- obtain your child's quarterly grades and standardized test scores from the school

You are invited to be as involved as you want to be in this program. While your teacher is able to implement the behavior plan on his or her own, you are welcome to work with your teacher and support your child by implementing a home-based program for rewarding your child's successes.

How will information be kept private?

Your child and your child's teacher are guaranteed complete confidentiality regarding the information we collect. Your child's name, your name and your child's teacher's name will not appear on these materials; instead, research staff will collect all information using a code number that is assigned to your child's teacher. You agree that scientific data not identifiable with your child may be presented at meetings and published so that the information from the project can be useful to others. If for some reason, you chose to discontinue your child's participation in the research project, de-identified assessment data will be maintained in the project database, unless parents explicitly request otherwise. The master list of all program participants will be stored in a password protected file on a secured server for the Center for Intervention Research in Schools at Ohio University. Within the center, all computers are within locked lab rooms and have passwords to restrict access. Additionally, all files with identifying information will be password protected with a password that will only be known to trained project staff. The master list will be destroyed in June of 2017 (approximately one year after the completion of the project).

While not anticipated, Dr. Owens and program facilitators are required to break confidentiality if one of the following situations occur:

- If you, as legal/guardian give written permission to release the information
- If you or your child reveals information that, in program staff's judgment, indicates that your child intends to harm self or someone else. (See A below)
- If you or your child reveals information that indicates the existence of past or present child abuse or neglect, as required by The Ohio Child Abuse and Neglect Law (See B below)
- If an appropriate court order is received by a member of our program staff (See C Below)

*Additionally, while every effort will be made to keep your child's study-related information confidential, there may be circumstances where this information must be shared with:

- *A: A licensed clinician who is part of the research staff may be consulted for further action if you or your child: 1) reveal past or present history of intension to harm self or others, or 2) reveal information that indicates past or present child abuse.
- * B: The Child Protective Services in the county in which you reside.
- * C: The court from which a court order was received.
- * D: In a medical emergency, medical personnel who would need information to care for your child; including emergency vehicle service personnel, hospital emergency department staff.
- * Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
- * Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU, and OU Office of Finance, that oversees payment of participants.

Finally, there may be circumstances that are out of our control in which your child's confidentiality is compromised.

What are the potential risks?

The strategies used in the project have previously been used safely and effectively with children who have problems with inattention, hyperactivity/impulsivity, getting along with others, and/or poor academic performance. However, there may be a few risks to participating in this project.

1. First, teachers will use classroom strategies that may challenge your child to make changes in his or her behavior. At times, your child may think that these strategies are difficult and may become stressed by the challenge of trying to change his or her classroom behavior or academic performance.
2. Teachers and other staff at the elementary school will be involved in the interventions. These individuals will know that your child is in the project. It is possible that your child's classmates may learn about his/her participation in the project and your child may be teased or feel embarrassed.
3. Finally, it is common for behavior problems to temporarily (for about a week or two) get worse before improvements are seen. If your child's behavior significantly worsens beyond a two-week period, you will be informed and will be provided with referral information if appropriate.

What are the benefits?

Although not guaranteed, benefits that may reasonably be expected for your child include:

- Less disruptive behavior, improved academic performance, increased self-esteem if improvements are made, increased communication between parents and the school

Benefit expected for parents include:

- Receiving feedback from your child's teacher about progress made during the school intervention

Information that is obtained from this project may be beneficial to teachers who are attempting to address disruptive behavior in the classroom. Our findings will help determine what types of school interventions work best for children with disruptive behavior. Positive results could mean that more schools would use these interventions.

Is my child required to participate?:

Participation is completely voluntary and will not prejudice present or future relationships you have with your child's elementary school or any community agency, and will not influence the quantity or quality of care that is otherwise available to children in the school or community. After you provide your consent, your child will be given the opportunity to assent to participate. If you agree to allow your child to participate, you or your child are free to stop your child's participation at any time without prejudice, and withdrawal in no way affects the nature of the care or services otherwise available to children and families.

If you have questions about this project now or during the course of the project, please contact Clifton Mixon, 740-597-3152 (cm408811@ohio.edu), or his faculty advisor, Dr. Julie Owens, 740-593-1074 (owensj@ohio.edu). Additionally, if you have any questions regarding your child's rights as a research participant or your rights as a parent, please contact Dr. Chris Hayhow, Director of Research Compliance, Ohio University, 740 593-0664 (hayhow@ohio.edu).

By signing below, you are agreeing that:

- You have read this consent form (or it has been read to you) and you have been given the opportunity to ask questions and have them answered;
- You have been informed of potential risks to your child and they have been explained to your satisfaction;
- You understand that Ohio University has no funds set aside for any injuries that your child might receive as a result of participating in this project;
- You are 18 years or older and the legal guardian of your child;
- Your child's participation in this research is completely voluntary;
- Your child may leave the study at any time; if your child decides to stop participating in the study, there will be no penalty to your child and he/she will not lose any benefits to which he/she is otherwise entitled;
- You understand that your child's participation in the study is dependent upon your child's teacher consenting to participate.

Child's Full Name -- Please Print

Child's Date of Birth

Parent/Guardian Name – Please Print

Parent/Guardian Signature

Phone Number

Address

Today's Date

Address

*Enhanced Supports for Teachers' Use of Classroom Interventions***Child Assent Form**

I know that a new project is happening at my school that I am being asked to do. The project will start within a few weeks of me agreeing to join and will last for the whole year. Here is a little bit about the program.

- My teacher will be asked to use a special program to help me follow rules and to do better on my schoolwork.
- I know that sometimes this special program will be hard and I may not like it very much. But I also know that it may help me do better in school and may help me feel better about myself.
- Adults who work for this program may visit my classroom to see how I am doing.
- I know that my parents have said it was okay for me to be in the project.
- I know that I do not have to do the program if I do not want to, and I can stop being in the program at any time and that this is okay.
- I also know that the person doing the project will not tell other students what I have done or said.

If I have any questions about the program, I can ask my parents, my teachers or a project staff member at my school.

Child's Name: _____

Put a checkmark next to ONE sentence:

_____ I agree to be a part of the project

_____ I do not want to be a part of the project

Teacher Demographic Form

Please provide us with some information about yourself.

1. Gender		2. Age:	
☐ Male	☐ Female		
3. Race		☐ Hispanic/Latino	☐ Non-Hispanic
4. Ethnicity			
☐ White/Caucasian	☐ Black/African American	☐ Asian	☐ Bi-Racial/Multiracial
☐ American Indian/Alaskan	☐ Native Hawaiian/Pacific Islander	☐ Other _____	
5. Highest Degree Earned			
☐ Highschool	☐ BA/BS	☐ MA/MS	
☐ PsyD/PhD	☐ Ed.S./Ed.M./Ed.D.		
6. Current Grade Level: _____		7. How many years have you taught this grade: _____	
8. How many years have you taught in this school district: _____			
9. How many years have you been teaching (in total)?			
10. Name of Current School: [Select from a pull down menu]			
11. Certification (circle all that apply):		☐ General Education	☐ Special Education
12. Have you ever participated in the YESS Program or CBS Project?		☐ Yes	☐ No
13. If so, in what year(s) did you participate?		[pull down menu]	
14. Have you ever implemented a Daily Report Card?		☐ Yes	☐ No
14a. If yes, how many DRCs have you implemented _____			

14b. If yes, think of the most recent student with whom you used the DRC. Please rate, overall, how much improvement was made by the student(s) from 1 (No Improvement) to 10 (Very Improved).	_____	
15. Have you previously consulted with a behavioral consultant or mental health professional for help implementing a Daily Report Card?	☐ Yes	☐ No
15a. If yes, was this person:	☐ A district employee	☐ An Ohio University staff member
	☐ From a local mental health agency	
15b. Rate, overall, how satisfied you were with your experience(s) from 1 (Extremely Dissatisfied) to 10 (Extremely Satisfied).	_____	
16. Rate, overall, how much experience you have implementing Tier 1 classroom management strategies (e.g., praise, use of rules/routines, use of consequences) from 1 (No Experience) to 5 (A lot of Experience).	_____	
17. Rate, overall, how effective you believe Tier 1 classroom management strategies (e.g., praise, use of rules/routines, use of consequences) are for improving student behavior from 1 (Not Effective at all) to 10 (Very Effective).	_____	
18. Rate, overall, how much experience you have implementing Tier 2 interventions for social and behavioral problems (e.g., DRCs, behavior contracts, token programs, time out) from 1 (No Experience) to 5 (A lot of Experience).	_____	
19. Rate, overall, how effective you believe Tier 2 interventions for social and behavioral problems (e.g., DRCs, behavior contracts, token programs, time out) are for improving student behavior from 1 (Not Effective at all) to 10 (Very Effective).	_____	
20. Rate, overall, how much inservice training or professional development you have received regarding classroom management strategies and interventions? [1 = No training, 2 = 1 to 6 hours of training, 3 = 1 day or more of training]	_____	

Technology Acceptance Model (TAM) Instrument – DRC.O Website

We are interested in learning more about your perceptions of and your experiences using the DRC.O website. Please rate your satisfaction with regard to your experiences using the ratings below (1 = Strongly Disagree; 7 = Strongly Agree).

		Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neutral (neither disagreed nor agree)	Somewhat agree	Moderately agree	Strongly agree
1.	I am comfortable working with computers.	1	2	3	4	5	6	7
2.	It is easy to get the DRC.O website to do what I want it to do.	1	2	3	4	5	6	7
3.	Learning how to use the DRC through the DRC.O website is more efficient than learning it through an in-person workshop.	1	2	3	4	5	6	7
4.	The DRC.O website improves my ability to manage this student's behavior.	1	2	3	4	5	6	7
5.	People who influence my behavior think that I should use the DRC.O website.	1	2	3	4	5	6	7
6.	Assuming I have access to the DRC.O website after this project, I intend to use it in the future.	1	2	3	4	5	6	7
7.	If I am given some training, I can learn to use most computer programs.	1	2	3	4	5	6	7
8.	I find that the DRC.O website interface is clear and easy to understand.	1	2	3	4	5	6	7

9.	The DRC.O website helps me apply what I learn.	1	2	3	4	5	6	7
10.	The DRC.O website increases my ability to implement a DRC.	1	2	3	4	5	6	7
11.	People who are important to me think I should use the DRC.O website.	1	2	3	4	5	6	7
12.	Given that I have access to the DRC.O website after this project, I predict that I would use it in the future.	1	2	3	4	5	6	7
13.	I can learn to use most computer programs just by reading the manuals and help.	1	2	3	4	5	6	7
14.	Overall, I find the DRC.O website is easy to use.	1	2	3	4	5	6	7
15.	Overall, I find the DRC.O website is useful for my learning.	1	2	3	4	5	6	7
16.	Overall, I find the DRC.O website to be useful for my job.	1	2	3	4	5	6	7

Satisfaction Survey

We are interested in learning more about how satisfied you were with your experiences using the online professional development program and all of its tools, as well as your experiences with the problem solving consultation sessions.

		Strongly disagree	Disagree	Slightly Disagree	Slightly agree	Agree	Strongly Agree
		1	2	3	4	5	6
1.	The training resources on the website were sufficient to know how to navigating the website.	1	2	3	4	5	6
2.	The resources on the website were sufficient to guide my selection of top behaviors for targeting on the DRC.	1	2	3	4	5	6
3.	The resources on the website were sufficient to understand baseline tracking.	1	2	3	4	5	6
4.	The DRC creation wizard was easy to navigate.	1	2	3	4	5	6
5.	The resources on the website were sufficient for explaining the DRC to the child's parent(s).	1	2	3	4	5	6
6.	The resources on the website were sufficient for explaining the DRC to the child.	1	2	3	4	5	6
7.	The resources on the website were sufficient for understanding how to use the data calendar to record student behavior.	1	2	3	4	5	6
8.	The resources on the website were sufficient for understanding how to use the graphs to monitor	1	2	3	4	5	6

	student behavior and make changes to the intervention.							
9.	The resources on the website were sufficient for understanding how to set up a school-based reward program.	1	2	3	4	5	6	
10.	The “contact a consultant” feature was useful for solving problems.	1	2	3	4	5	6	
11.	The troubleshooting wizard was useful for solving problems.	1	2	3	4	5	6	
12.	The teacher discussion board was useful for solving problems.	1	2	3	4	5	6	
13.	The homepage was easy to navigate.	1	2	3	4	5	6	
14.	The forms were easy to download and use.	1	2	3	4	5	6	
15.	Overall, I was satisfied with training provided through the website.	1	2	3	4	5	6	
16.	Overall, I was satisfied with the DRC Creation Wizard.	1	2	3	4	5	6	
17.	Overall, I was satisfied with supports for implementing the DRC.	1	2	3	4	5	6	
18.	Overall, I was satisfied with the various website features for solving problems.	1	2	3	4	5	6	
19.	Overall, I was satisfied with the website.	1	2	3	4	5	6	
20.	I would recommend the website to a colleague with a student with disruptive behavior problems.	1	2	3	4	5	6	
21.	The problem solving consultation session helped	1	2	3	4	5	6	N/A

me overcome barriers to
using the website.

22.	The problem solving consultation session helped me overcome barriers to creating the DRC.	1	2	3	4	5	6	N/A
23.	The problem solving consultation session helped me overcome barriers to implementing the DRC	1	2	3	4	5	6	N/A
24.	The consultant was professional and courteous.	1	2	3	4	5	6	N/A
25.	Overall, I was satisfied with the problem solving consultation session.	1	2	3	4	5	6	N/A
26.	I would recommend a colleague who is having trouble using the website to request a consultation session.	1	2	3	4	5	6	N/A

Appendix C: Follow-Up Data Analyses

This appendix includes any follow-up or secondary data analyses that were conducted to explore the feasibility of the website and consultation. Data are presented in reference to the primary research question to which it corresponds.

Study Aim 1: Feasibility and Effectiveness of the Website

1a) Predictors of adoption and length of implementation. Correlations between DRC use and teacher characteristics are provided in Table C1. Non- and short-term adopters were combined to increase power for analyses, providing a comparison between those who used the website to sustain long-term implementation of the DRC for 2 months ($n = 17$) and those who did not ($n = 16$). Long-term implementation was significantly related to teachers' age, highest degree earned, and ratings of improvement made by most recent student for whom they used a DRC.

Teachers' highest degree earned (i.e., Bachelors vs Masters) was also significantly correlated with the number of weeks teachers spent setting up and implementing the DRC, and whether teachers taught early or late elementary grades was related to the number of weeks teachers spent implementing the DRC. Independent samples t-tests were performed to examine the relationships between highest degree earned and current grade taught (Tables C2 and C3). Teachers with their Masters degree were significantly more likely to set up their DRC in less time and implement for longer than those with only a Bachelors. In addition, teachers in older grades were more likely to implement their DRCs for longer than those teaching younger grades.

Table C1

Correlations between DRC Use and Demographic Variables (N = 33)

	Long-Term Adoption (n = 33)	Setup Duration (n = 24)	Implementation Duration (n = 24)
	<i>r</i>	<i>r</i>	<i>r</i>
Age	.37*	-.35	.22
Highest Degree Earned	.47**	-.65**	.46*
Current Grade Taught	.16	-.33	.47*
Years Teaching	.23	-.16	-.01
Past DRC Use ^a	.22	-.29	.37
Past DRC Improvement ^b	.42*	-.30	<.01
Past Consultation Experience ^a	-.10	-.15	.04
Past Consultation Satisfaction ^b	.12	-.14	-.17
Experience: Tier 1 Strategies ^c	-.03	.15	.01
Experience: Tier 2 Strategies ^c	.23	-.15	.16
Effectiveness: Tier 1 Strategies ^c	.13	-.05	.23
Effectiveness: Tier 2 Strategies ^c	.05	-.17	.16

Note. ^a Dichotomous response: Yes or No; ^b Likert response: 1 to 5; ^c Likert response: 1 to 10; Long-Term Adoption = A dichotomous variable differentiating those who adopted for at least 2 months ($n = 17$) to those who did not ($n = 20$); Setup and Implementation Duration are the length of each process measured in numbers of weeks.

* $p < .05$, ** $p < .01$

Table C2

Differences in Setup and Implementation Length Based on Highest Degree (N = 23)

	Bachelors (n = 6)	Masters (n = 17)		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>t</i>
Setup	10.17 (3.97)	4.88 (2.37)	6.3	3.07*
Implementation	7.17 (7.08)	16.88 (9.16)	21	-2.34*

* $p < .05$

Table C3

Differences in Setup and Implementation Length Based on Current Grade (N = 23)

	K-2 (n = 14)	3-5 (n = 9)		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>t</i>
Setup	7.21 (4.17)	4.78 (2.05)	20	1.86 [◇]
Implementation	10.86 (8.20)	19.78 (9.38)	21	-2.34*

* $p < .05$, [◇] $p < .08$

1c) Teacher responses to DRC violations. As requested during the proposal meeting, Table C4 demonstrates what number and percent of teachers achieved varying levels of integrity with each behavior.

Table C4

Percent of Teachers Providing Each Type of DRC Response by Quintile (N = 22)

	0-20%	21-40%	41-60%	61-80%	81-100%
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Label	6 (30%)	4 (20%)	3 (15%)	1 (5%)	6 (30%)
Connect	16 (80%)	1 (5%)	3 (15%)	0 (0%)	0 (0%)
Track	16 (80%)	2 (10%)	2 (10%)	0 (0%)	0 (0%)

1d) Case analysis of change in SDQ scores for non-adopters. Because of the unusual finding of a large improvement in hyperactive and inattentive problems without intervention, reasons for discontinuing were examined for those teachers who never implemented the intervention but provided student outcome data at post-test ($n = 5$). Notably, most of the teachers ($n = 4$) reported not implementing the intervention because other services were accessed by the teacher or parent (e.g., medication; see Table C5). Most importantly, of the five teachers providing data, most teachers reported no-to-moderate improvements with one teacher reporting large improvements (i.e., NA4 in

Table C5). This student's teacher reported a substantial improvement in response to the medication, and his ratings account for a large portion of the effect.

Table C5

<i>Case Analysis of Non-Adopters' SDQ Scores and Reasons for Attrition (n = 5)</i>					
	SDQ-H		SDQ-T		Discontinue Reason
	<u>B</u>	<u>M2</u>	<u>B</u>	<u>M2</u>	
NA1	7	5	20	13	Student started medication and counseling
NA2	8	7	14	14	Student started counseling only
NA3	10	10	21	23	Student placed on other behavior plan through IEP
NA4	10	5	14	7	Student placed on medication
NA5	8	6	15	20	Teacher too busy; student already on medication
<i>M</i>	8.60	6.60	16.80	15.40	
<i>(SD)</i>	(1.34)	(2.07)	(3.42)	(6.27)	

Note. NA = Non-Adopter; SDQ-H = SDQ Hyperactive/Inattentive Problems; SDQ-T = SDQ Total Problems. Risk status is separated into borderline and abnormal risk. SDQ-H Borderline = 6 and Abnormal = 7-10. SDQ-T Borderline = 12-15 and Abnormal = 16-40.

Study Aim 2: Use of Consultation

2a) Amount of consultation used. Because of the high number of student outcome and teacher implementation variables to correlate with six consultation indicators, and the low number of significant correlations, tables are not provided for the remaining secondary analyses. First, bivariate correlations were computed to determine whether there was any relationship between the amount of consultation used and observed teacher behaviors. Teachers' number of e-mail contacts was positively related to their rate of labeling DRC violations ($r = .57$, $p = .01$). No other observed teacher behaviors were related to consultation use.

Bivariate correlations were also computed to determine whether there was any relationship between use of consultation supports and initial ratings of student behavior and academic problems as well as student change in behavior and academics. Teachers' total minutes of consultation used was positively related to teachers' initial report of peer problems ($r = .34, p = .03$) and negatively related to academic success ($r = -.47, p < .01$) and the average minutes of consultation per session was negatively related to ratings of academic success ($r = -.61, p = .001$) and productivity ($r = -.51, p < .01$). In general teachers were more likely to use more consultation overall or per session when students had more peer problems and lower academic success and productivity at baseline. Teachers' number of e-mail contacts initiated ($r = -.39, p = .01$) and average number of e-mails required to resolve a problem ($r = -.62, p = .001$) were both negatively related to their initial ratings of student hyperactivity and inattention. No other initial ratings of behavior or academic outcomes were related to consultation use.

Teachers' total minutes of consultation received was significantly and negatively related to changes in teacher ratings of peer problems ($r = -.40, p = .04$) and prosocial behaviors ($r = -.42, p = .04$). Specifically, teachers who received more minutes in consultation overall reported decreases in peer problems and decreases in prosocial behaviors. In addition, teachers' average length of consultation sessions was related to changes in peer problems ($r = -.64, p = .001$) wherein teachers who had longer consultation sessions reported their students demonstrated decreases in problems with peers. No changes in other behavior or academic outcomes were related to consultation use.

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