Engagement in Technical Assistance and its Impact on Prevention Capacity

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DEDICATION

This dissertation is dedicated to my husband, Philippe Herndon. His support and encouragement made it possible for me to complete it.

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ABSTRACT

Lack of widespread implementation of evidence-based prevention programs has been identified as a major challenge in the field of teen pregnancy prevention. Technical assistance (TA) has been proposed as an important strategy for building capacity of the community organizations to implement evidence-based strategies. This study uses data from an evaluation of *Promoting Science-Based Approaches to Teen Pregnancy Prevention*, a five-year project conducted by the Centers for Disease Control and Prevention to build the capacity of organizations to implement teen pregnancy prevention programs using science-based approaches. Data from 104 organizations nested within 12 TA providing organizations were analyzed using OLS regression and multilevel models to address three research questions focused on the behavioral engagement of participants in the TA process, dosage of TA provided, and how these related to change in capacity over time. While the hypothesized relationships were not found between these factors, several findings provide useful information for further research and practice. It was found that behavioral engagement in TA is best predicted by previous behavioral engagement in the TA process. Participating organizations reported greater innovation-specific capacity over time but TA dosage (average hours of TA per month of participation) was not related to the amount of change in capacity. Finally, across all three research questions, the different organizations and/or individuals providing TA influenced behavioral engagement in TA, dosage of TA, and growth in capacity over time.

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CHAPTER 1: INTRODUCTION

Limited implementation of evidence-based prevention programs in the field has been identified as a major challenge in the field of teen pregnancy prevention (Lesesne et al., 2008; Philliber & Nolte, 2008) as well as in other fields of prevention (e.g. Ringwalt et al., 2009). Among the reasons identified for this gap between research on prevention and how it is practiced in the field is lack of capacity among community organizations to implement the complex programs and processes developed and tested by university-based researchers. Technical assistance (TA) has been proposed as an important strategy for building the capacity of community organizations to implement evidence-based strategies (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Florin, Mitchell, & Stevenson, 1993; Wandersman et al., 2008). However, while much research has been conducted to develop prevention efforts and test their effectiveness, relatively little research has examined TA and other mechanisms for building the capacity to implement them. Basic questions of whether TA increases the capacity of community-based organizations and in what circumstances TA is effective do not have clear answers.

Context of the Current Study

This study uses data collected by the Centers for Disease Control and Prevention (CDC) as part of a multi-state capacity-building initiative, *Promoting Science-Based Approaches to Teen Pregnancy Prevention* (PSBA). The PSBA project was developed to build capacity for the use of the evidence-based programs to prevent teen pregnancy. Four regional training centers and nine statewide teen pregnancy prevention

organizations were funded to promote use of evidence-based prevention strategies through TA and other types of assistance. Over a period of two to three years, these organizations provided TA to more than 100 community-based organizations to build their capacity to use science-based programs. Evaluation data were collected over that time period examining the amount of TA provided, levels of capacity to use science-based approaches, and the quality of the relationship between TA provider and participants, as well as how engaged participants were in the TA process. The PSBA project and data collected as part of its evaluation are described in detail in Chapter Three. These data present an opportunity to examine several research questions that build on existing research on TA (described below).

Research Questions

Previous research (described in detail in the literature review in Chapter Two) has found mixed results on the question of whether there is a dose-response relationship between the amount of TA received and quality of results. Drawing upon the findings from this research, behavioral engagement (Fredericks, Blumenfeld, & Paris, 2004) was identified as a construct which could help explain why TA appears to be effective in some contexts and not in others. It was hypothesized here that general organizational capacity influences the extent to which TA participants become engaged in the TA process, and that this process of engagement may explain both why TA has greater impact on higher capacity organizations and why those organizations may access greater amounts of TA. Behavioral engagement in the TA process is also a potential pathway to explain how the quality of relationships between TA providers and participants influences the outcomes of the TA process (Mihalic & Irwin, 2003; Spoth, Clair,

Feinberg, Redmond & Shin, 2007). A further hypothesis is that the quality of this relationship influences the extent to which participants become engaged in the TA process, which in turn affects both the amount of TA received and the effectiveness of that TA. To examine these hypotheses three research questions were addressed by this study:

Research Question 1. Behavioral engagement in the TA process is hypothesized to influence both the amount of TA received and the effectiveness of that TA. Previous research has shown that even when offered an identical proactive TA intervention following training, participants engaged in that TA to different degrees (Keener, 2007).

1. What factors predict successful behavioral engagement in the TA process by staff members of the prevention delivery system? Possible predictors suggested by past research and the Interactive Systems Framework for Dissemination and Implementation (Wandersman et al., 2008, described in Chapter Two) include: general organizational capacity and the quality of TA relationship.

Research Question 2. Several studies have shown that many individual and organizations offered TA do not access the TA available to them, and that those with lower initial general capacity are less likely to access TA (Kegeles et al., 2005; Mitchell et al. 2004), presumably limiting their opportunity to increase in capacity. It is hypothesized that behavioral engagement of TA participants mediates the relationship between initial general organizational capacity and dose of TA received.

2. Does behavioral engagement of the TA participants mediate the relationship between general capacity of their organization and the dose of TA received?

Research Question 3. Examining whether providing TA increases capacity and the circumstances in which capacity building is most effective are two of the key questions that must be addressed to develop an evidence-based *prevention support system*. Past research by Feinberg and colleagues (2008) found that organizations with higher levels of baseline general capacity (in their study conceptualized as coalition functioning) benefited more from the dosage of TA they received compared with those starting with a lower level of general capacity. In other words, general capacity level moderated the effects of TA dosage so that capacity increased more among coalitions with higher levels of initial capacity. This study examined behavioral engagement in TA as an alternative explanation for this relationship between general organizational capacity and the effects of TA.

3. Does the relationship between TA dose and changes in innovation-specific capacity over time vary depending on participants' level of behavioral engagement in TA?

Significance of this Study

Wandersman, Chien, and Katz (2012) have called for the development of an evidence-based system of support for implementing innovations like evidence-based programs. TA has been identified as a crucial element of such a support system (Fixsen et al., 2005). However, despite the growing interest in TA as a technique for building capacity and the resources expended to provide TA, relatively little research has examined whether and in what contexts TA builds capacity. While the relationship between TA provider and participant has been frequently identified as central to the effectiveness of TA, there is a lack of research examining how this relationship affects TA. By focusing on the relationship between TA provider and participant and how that

influences participants' engagement in the process, this study begins to address these important questions.

CHAPTER 2: LITERATURE REVIEW

The following review of the literature will: 1) introduce the Interactive Systems Framework for Dissemination and Implementation (ISF) and describe the two types of capacity identified in that framework 2) define TA and describe how it has been conceptualized as an intervention; 3) review the existing empirical research on TA.

Understanding Capacity for Implementation using the ISF

The Interactive Systems Framework for Dissemination and Implementation (ISF) was developed to help prevention practitioners and researchers bridge the gaps between what is known about effective approaches from research and how prevention activities are carried out in the field (Wandersman et al., 2008). It proposes three main systems (prevention synthesis and translation; prevention delivery; prevention support) necessary for implementation of prevention innovations (Figure 2.1). The *prevention synthesis and translation system* brings together information on prevention innovations and makes it accessible to practitioners working in the field, who often have limited access to the journal articles through which information about effective programs is initially disseminated. The *prevention delivery system* carries out the direct work of providing prevention services in the field. In order for this work to take place, individuals and organizations in communities must have the capacity to carry out prevention activities. The *prevention support system* connects these two systems and helps to ensure that products and information put forth by the *prevention synthesis and translation system* can be used in the field by the *prevention delivery system*.

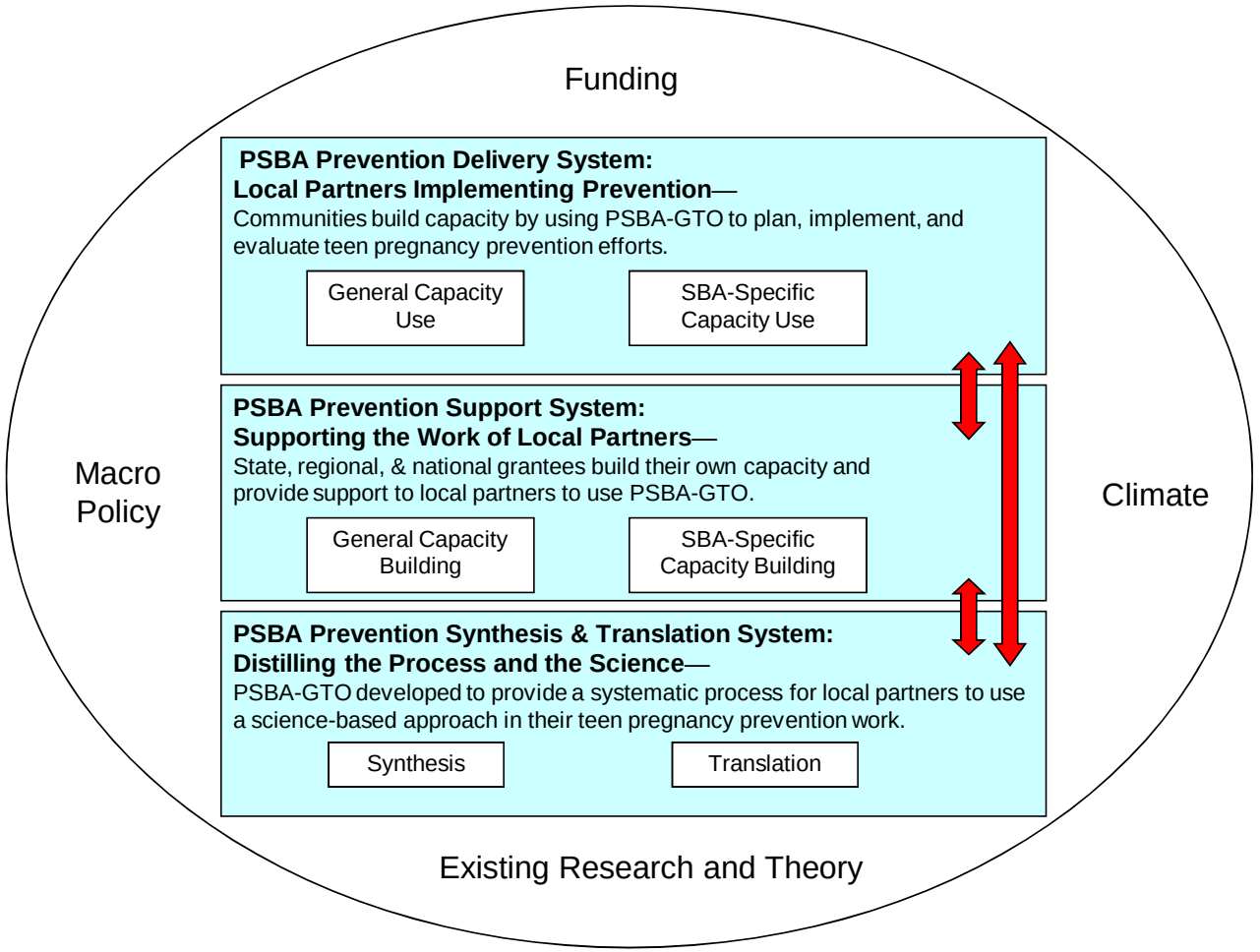

Figure 2.1. Interactive Systems Framework for the Promoting Science-Based Approaches (PSBA) Project. From "Promoting Science-based Approaches to Teen Pregnancy Prevention: Proactively Engaging the Three Systems of the Interactive Systems Framework," by Lesesne et al., 2008, *American Journal of Community Psychology, 41,* p. 383). Copyright 2008 by Springer Science and Business Media, LLC. Reprinted with permission.

A primary role identified for the *prevention support system* within the ISF is to help build the capacity of the *prevention delivery system*. Two types of capacity are identified within the ISF as necessary for sustainable implementation of prevention programs in communities. *Innovation-specific capacity* consists of the individual-level skills and organization-level resources necessary to successfully implement a *particular* innovation, such as an evidence-based program (Flaspohler, Duffy, Wandersman, Stillman, Maras, 2008). *General capacity* consists of individual-level abilities or characteristics and organizational functioning needed for an organization to successfully implement any innovation. Elements of general capacity at the organization-level include things like the quality of leadership, organizational structure and climate, and availability of resources. The ISF suggests that both innovation-specific capacity and general capacity are necessary to sustain program implementation, and that when the general organizational capacity is lacking attempts to build innovation-specific capacity may have limited success (Duffy et al., 2012; Wandersman et al., 2008).

Wandersman et al. (2008) identified a number of strategies for building the capacity of the prevention delivery system. Examples of *innovation-specific capacity* building include training, TA, or coaching to support the use of a particular innovation. Examples of strategies for building *general capacity* include activities to help stabilize the infrastructure of an organization, such as developing leadership skills, writing bylaws, and assistance with grant writing. These capacity-building strategies are often used in combination. Some efforts to build capacity address both *innovation-specific* and *general capacity*, while other efforts focus on only one of type.

Defining and Describing Technical Assistance

It has been noted that "a multitude of activities bear the name technical assistance," and that the roots of TA draw upon a variety of fields including clinical supervision, organizational development, and continuing education (Crandall & Williams, 1981, p.3; Motes, Whiting, & Salome, 2007). One thing which distinguishes TA from other interventions is the intent to build capacity in order to achieve a specific goal or purpose, whether it is related to innovation-specific or general capacity. Fruchter, Cahill, and Wahl (1998) point out that the term technical assistance, "contains an assumption of deliberateness, both in the undertaking of a planned effort to bring about change, and in the nature, structure, and purpose of the help," (p. 3). For the purpose of this study, TA is defined as individualized, hands-on help provided to an individual or organization to increase knowledge, skills or attitudes in support of a particular end goal such as implementing an innovation (Keener, 2007).

TA is often used in combination with other strategies for capacity building. A recent synthesis of research on evaluation capacity building efforts found that TA was almost always used in combination with other types of capacity building strategies, particularly training (Labin, Duffy, Meyers, Wandersman, & Lesesne, 2012). Training has been defined as a, "planned, instructional activity intended to facilitate the acquisition of knowledge, skills, and attitudes so to enhance learner performance," (Wandersman, Chien, & Katz, 2012, p. 449). Trainings are typically provided in group settings to multiple individuals and/or organizations. In contrast, TA is usually more individualized and often takes place in the same setting where skills and knowledge will be applied in practice (Wandersman et al., 2012). When TA and training are used in combination, a

typical format is provision of training to increase a group's knowledge and skills to use an innovation and then TA provided on an individual basis to assist with the implementation process (e.g. Chinman et al., 2008; Stevenson et al., 2002).

Several ways to characterize methods for providing TA have been developed. Crandall and Williams identified 10 dimensions upon which TA systems may vary (Table 2.1). One of these dimensions is the degree to which TA is *proactive*, where TA providers take the initiative in working with their clients to achieve specific goals, or *reactive*, where TA is provided only when clients reach out and request assistance. Another dimension they identify is the extent to which TA focuses on *content* (providing assistance with strategies to address the specific problem or issue on which the organization's mission is focused) or on *process* (improving the systems and structures within the organization or the way in which it carries out its work). The extent to which TA addresses the needs identified by the TA providers or their clients and whether TA is provided based on a fixed plan or is flexible to address changing needs are other dimensions highlighted by Crandall and Williams. These dimensions clarify that TA systems can be structured in a range of ways, from very collaborative, user-driven systems to those which are much more structured and based on providing fixed, limited services driven by a funder or other external agent.

Similarly, Fruchter et al. (1998) outline four different approaches to TA, each of which has different theories of change underlying them and different strategies. The technology transfer approach is based upon the assumption that outside experts are needed to help link people and/or systems to existing knowledge and tools, and that the acquisition of these tools at the local level will bring about a desired change. The medical

Table 2.1. TA System Dimensions Identified by Crandall & Williams and their Application in the PSBA Project

TA System Dimension	Description	Application in the PSBA Project
Comprehensive/ Limited Services	The extent to which the TA provider offers a variety of resources and services to address multiple types of needs versus restricting TA to specific areas or topics	While the focus of the PSBA project was on building capacity in a specific area (the use of the PSBA-GTO framework to implement teen pregnancy prevention programs) TA providers were also encouraged to address more general organizational capacity needs as necessary.
User-Identified Needs/ System-Identified Needs	The degree to which clients identify their own needs for TA	TA provided through the PSBA project was primarily driven by needs identified by the TA providers in relation to the PSBA-GTO process.
Proactive/Reactive	The extent to which the TA provider takes the initiative to help clients address identified needs	TA provided as part of the TA project was intended to be proactive, with TA providers identifying areas of need and reaching out to provide TA to local partner organizations based on that assessment.
Proximal/Distal	The extent to which TA is provided by staff of the TA agency versus by external consultants contracted for specific assignments	The majority of TA for the PSBA project was provided by TA agency staff members, but in some cases external consultants were engaged.
Content Orientation/ Process Orientation	The extent to which the TA provided is intended to focus on the function, structure, and organization of the client project (process orientation) versus focus on the content area addressed by the client organization (content orientation)	In the course of the PSBA project TA providers were expected to provide TA specific to addressing teen pregnancy prevention content using the PSBA-GTO framework.

Table 2.1. TA System Dimensions Identified by Crandall & Williams and their Application in the PSBA Project (continued)

TA System Dimension	Description	Application in the PSBA Project
Advocacy/Neutrality	The extent to which TA providers advocate a particular process or approach or remain neutral	TA providers in the PSBA project were expected to act as advocates for the PSBA-GTO process.
Individualized/ Collectivized	The extent to which TA is provided to individual agencies separately versus provision of TA to groups of multiple clients	TA was provided both in group and individual settings as part of the PSBA project.
Capability Enhancement/ Direct Aid	The extent to which TA providers focus on increasing the capacity of their clients versus doing things for the clients	While the focus of the PSBA project was on building the capacity of the local partner organizations, some TA providers also gave direct assistance, particularly in the area of program evaluation.
Flexible TA Plans/ Fixed TA Plans	The extent to which TA plans are adapted based on changing situation or needs of the clients	Formal TA plans were not initially required; when they were incorporated into the project TA remained flexible.
Personal/Impersonal	The extent to which the TA provider focuses on building positive interpersonal relationships with clients based on trust and support	TA providers were encouraged to take a personal approach to TA and build positive relationships with the local partners with whom they worked.

approach to TA draws on the idea of researchers identifying a problem or pathology in communities and designing interventions to treat that identified problem. Like the technology transfer approach, the medical approach is based on the assumption that outside experts are needed to help the local community define the problem and determine ways to address it based on research. The systems approach to TA is based on the theory that increasing coordination among parts of community systems through forming coalitions and networks and restructuring available services can address issues in the community. In the systems approach the TA provider helps local organizations develop and implement a plan to achieve their goals and can also link the community to outside assistance if needed. Fruchter et al (1998) also identify what they call the capacity building approach to TA, which promotes the development of capacity at the local community level to develop their own vision and plan for strengthening their communities. They describe the capacity-building approach as "less top down than most of the traditional knowledge transfer models," with a focus on encouraging exchange and support among peers rather than one-way provision of knowledge (p. 22). This approach also focuses attention on potential effects of differences in power and status among those providing help (i.e. the funders and TA providers) and those who are being helped (i.e. community members) as well as who owns or controls both the change effort and the TA which supports it.

The conceptualizations of TA described above highlight the importance of considering how TA interventions are constructed, who defines their goals and outcomes, and what motivates community organizations to participate in them. In many TA relationships, desire for increased capacity may be driven by an outside funder, with the

potential for TA participants (or recipients) to feel coerced into participation in capacity-building activities in order to access funding or other resources. Crandall and Williams (1981) highlight that many TA interventions are characterized by a "three-party relationship" among the funding agency, the client system (i.e. the local organizations intended to be implementing changed practices) and a TA contractor. Each of these actors has specific needs and goals for what should be achieved through the TA process, and there is potential for conflicts to occur among these actors. Even when the funder, TA provider and organizations share a common goal, imbalances of power where funders or TA providers attempt to exert power over the local organization may lead to resistance and slower progress on the part of local organizations (Flerx, 2007). To address such power imbalances it has been recommended that TA be approached in a collaborative way (Crandall & Williams, 1981; Fruchter et al., 1998) and that TA providers draw on empowerment theory in their work with community organization (Andrews & Motes, 2007).

Understanding the local context where changes will be implemented has also been identified as important for successful TA. In the 1970s the Rand Corporation undertook the Change Agent study, a major evaluation of several Department of Education initiatives intended to disseminate education strategies in schools. TA (provided by external consultants) was a key element of this approach. The evaluators concluded that in that project "outside consultants, external developers, or technical assistants were too removed or insufficiently responsive to local conditions to provide effective support for planned change efforts," while also noting that when TA providers tailor their efforts to the local setting they can be very effective (McLaughlin, 1990, p.14). Other authors

emphasize that getting to know the context in which work is taking place is a necessary first step of the process of providing effective TA (Fine, Thayer, & Kopf, 2001; Katz, 2009).

Another common idea raised in much of the literature on TA is the central importance of the relationship between the TA provider and participants (Crandall & Williams, 1981; Fine et al., 2001; Fruchter et al., 1998; Hunter et al., 2009; Kegeles, Rebchook, and Tebbetts (2005). Crandall and Williams recommend frequent communication and collaboration among funders, TA providers, and participants in order to foster trusting relationships among all parties and to avoid difficulties due to power imbalances. Hunter et al. (2009) suggest that the two-way, interactive relationship between TA providers and the program staff they work with may provide the active ingredient of TA, analogous the importance of relationship factors in therapy.

Empirical Research Examining TA

Despite growing interest in TA as a strategy to build capacity for prevention, there is relatively little empirical research examining the effects of TA and what research there is has shown mixed results. While a number of studies have found some positive effects from TA either provided alone or in combination with training (Chinman et al., 2008; Hunter et al., 2009; Kelly et al., 2000; Scheffer et al., 2012; Stevenson et al., 2002) other studies have not found the expected benefits of TA (Keener, 2007; Mitchell et al., 2004; Ringwalt et al., 2009). One study found that the effect of TA on prevention coalition capacity was moderated by the initial level of capacity and the age of the coalition, such that coalitions which were newer and had higher initial levels of capacity benefited more from the TA provided (Feinberg et al., 2008). Other studies have found systematic

variation in which organizations access TA, with several studies finding higher capacity coalitions accessing more TA (Mitchell et al., 2004; Stevenson et al., 2002) and several reporting that organizations experiencing more difficulty received greater amounts of TA (Mihalic & Irwin, 2003; Spoth et al., 2007). Qualitative methods have also been used to examine what constitute effective TA from the point of view of TA providers and participants (Fine et al., 2001; Hunter et al., 2009; Katz, 2009; Kegeles et al., 2003; O'Donnell, 2000). The following section describes each of the highlighted studies and summarizes key points and questions drawn from reviewing them (details of each study are provided in Appendix A). In addition, based on the authors' descriptions of the intervention each study is classified here as focusing primarily on building *innovation-specific capacity* or *general capacity*, though the authors of these studies do not make this distinction.

Experimental or quasi-experimental studies varying amounts of TA. Six studies were identified where researchers systematically varied access to TA or the amount or type of TA provided in order to show its effects. All of these studies focused on building capacity for a specific innovation, though those innovations varied. A recent experiment comparing the implementation of a program to increase physician referrals to smoking "quitlines" found that physician practices randomly assigned to receive both training and TA to promote referrals made a significantly more referrals than physicians in practices assigned to receive only the manual explaining the quitline program (Scheffer et al., 2012). The intervention consisted of a brief (20 minute) training of clinicians and other staff working with patients to introduce the program, emphasizing the benefits of the quitline to patients' health and the small amount of time (three minutes) needed to

make referrals, five very brief (10 minute) phone calls focused on problem-solving and providing performance feedback regarding the number of referrals, and a second brief (20 minute) refresher training six months into the year-long project. All of the practices that received this intervention made at least one referral over the course of the project, compared with only nine out of 25 practices in the control group. Clinicians in the intervention clinics made five times as many referrals as those in the control clinics, and they also made five times as many referrals resulting in treatment provided by the quitline (roughly half of all referrals).

In an experiment to test different methods of encouraging adoption and implementation of evidence-based HIV prevention programs (i.e. to build *innovation-specific capacity*), Kelly et al. (2000) randomized 74 community organizations into one of three conditions: providing only a manual for the program, the manual and a one-day training for program staff, and the combination of the manual, training and monthly TA phone calls proactively provided to each organization on an individual basis to help them deal with anticipated barriers to implementation. They found that organizations assigned to receive TA calls reported higher levels of program adoption and implementation with higher numbers of program participants than organizations in either of the other two conditions. It is noteworthy that on average, organization staff participated in 5.4 of the six TA calls available to them, suggesting that this approach yielded high rates of participation.

A similarly structured quasi-experimental study examining the effects of varying levels of proactive TA on the utilization of material from a day-long workshop on a technique for planning and evaluation training activities (building *innovation-specific*

capacity) yielded very different results. Keener (2007) compared the results of two TA conditions, a low-intensity TA condition where participants were offered one TA telephone call conducted with a group of participants and a high-intensity TA condition where participants were offered a total of four TA calls, three of which were in a group format and one individual call. While this study was limited by a very small sample size (27 participants) and different levels of engagement in TA between the two groups, several findings are noteworthy. In contrast with the high levels of participation described by Kelly et al. (2000), Keener found that only 63% participated in one of the offered TA calls. Among those assigned to the low-intensity group only 43% participated in the one call they were offered. Among those in the high-intensity group 85% participated in at least one of the four calls and 69% participated in two or more calls.

Keener (2007) classified the 55% of participants who took part in at least half of the TA calls offered to them as engaged in TA. Based on this classification, she found that engaged participants had better outcomes than those who were less engaged regardless of assignment to condition. Engaged participants reported significantly greater ability to plan, implement, and evaluate training programs. They also reported significantly more improvement on training related tasks at the six month follow-up in comparison with participants less engaged in TA. Longitudinal analyses showed that those who were engaged in TA differed from those who were not before the TA intervention began, suggesting the TA received was not the cause of differences. Compared to less engaged participants, those who were engaged reported higher levels of organizational functioning, more support for applying skills learned from training at their

organization, higher levels of self-reported capacity to use identified skills, and more supportive attitudes toward using those skills.

Ringwalt and colleagues (2009) conducted a study comparing teachers provided with training only and those who received both training and onsite coaching to improve their implementation of the All Stars substance abuse curriculum (building *innovation-specific capacity*) found limited differences between the outcomes of those receiving coaching (a specific form of TA) and those who were not coached. Program facilitators at 43 schools participated in a two-day training on the curriculum. Twenty three of those facilitators were assigned to receive a coaching intervention intended to enhance their replication of the program and improve their program outcomes, the other teachers received no proactive coaching but had access to trainers upon request. The coaching intervention consisted of four in-person meetings with the coach, structured so that one meeting occurred prior to implementation to help the teachers prepare and three happened after the implementation of specific lessons in the curriculum. Comparisons of the self-reported characteristics of implementation between the two groups showed some minor differences between these two groups, such that coached teachers were more likely to report spending more than 30 minutes preparing for lessons and were marginally more likely to report implementing all components of the lessons they used. Despite these differences in implementation, the only difference observed between the outcomes of students taught by the two groups was less initiation of smoking among student taught by the coached teachers, which the authors attributed to differences in smoking rates between the two groups at the pretest survey.

Chinman and colleagues (2008) used a quasi-experimental design to examine the effects of providing training and TA supporting the use of the Getting To Outcomes (GTO) process (*innovation-specific capacity building*). Two substance abuse prevention coalitions participated in this demonstration project, with specific programs within each coalition selected to participate in the GTO process and others selected as comparison programs. Staff assigned to the demonstration programs received the GTO manual, participated in a one-day training to introduce them to the process, and received ongoing TA from a consultant assigned to work half-time with each coalition for the duration of the project. On average, each program received between one to three hours of TA per week. Staff members of comparison programs were expected to continue prevention programming as usual without receiving the GTO manual, training or TA. At the end of the three-year intervention there was no significant difference at the individual level between individuals assigned to GTO and comparison group on attitudes, self-efficacy, or behavior, but the level of participation in the GTO process varied considerably (and there was some evidence of contamination from the intervention to comparison group programs). However, among those assigned to GTO, greater participation in the process predicted higher self-efficacy and positive changes in attitudes and behavior. At the program level, programs assigned to the GTO condition consistently improved prevention performance over time compared to non-GTO programs. Chinman et al. also found a correlation between the hours of TA spent on each topic and the amount of program improvement in that area, so that the areas where the most time was spent providing TA showed the greatest level of improvement over time.

A recent experimental study examining the effects of training and TA to support the implementation of Assets-Getting to Outcomes (AGTO; Chinman et al., 2013) also found evidence of contamination of the control group (26% of members of six coalitions assigned to the control group reported participating in at least one AGTO activity during the first year of the project) and variable levels of participation among members of the six coalitions assigned to the intervention condition (only 47% of coalition members reported participating in at least one activity). Although differences between the experimental and control groups were not significant, secondary analyses comparing AGTO users and non-users in the intervention group found that those who reported participating in AGTO activities increased in capacity (measured as both self-efficacy and behaviors related to AGTO). One year into this two year project, the programs at the coalitions assigned to the intervention improved their performance of several steps of the AGTO process (goal setting, process evaluation, and outcome evaluation) while those in the control group either did not change or decreased their performance. It is also noteworthy that of the 60 programs operated by these coalitions when they were randomized, only 32 were still operating at the end of the first year of the project.

Evaluations of TA systems without comparison groups. A number of studies have evaluated the effects of TA in situations where no comparison group was available (Feinburg et al., 2008; Mihalic & Irwin, 2003; Mitchell et al., 2004; Spoth et al., 2007; Stevenson et al., 2002). Most of these studies have used some combination of comparing level of capacity from pre-test to post-test and an assessment of the dose-response relationship between amount of TA provided and changes in capacity. Two focused on

general capacity, while the rest focused on building capacity for a specific innovation. Findings from these studies are described below.

An evaluation of a statewide TA initiative to increase the *general capacity* of prevention coalitions examined both the penetration of TA and the effect of TA on coalition effectiveness (Mitchell et al., 2004). The TA provided through this initiative was primarily reactive in nature, meaning that TA providers responded to requests for technical assistance but did not identify needs of the coalitions and offer specific services tailored to address them. The evaluation of this project found that over the course of three years, 46% of the coalitions never accessed the TA available to them through this project. The most commonly endorsed reason (28.5%) for not using the TA available through this project was that coalition members had not decided what TA they needed. This lack of clarity about TA needs was associated with general coalition capacity, so that coalitions with less capacity were more likely to be uncertain of their needs. A number of coalition characteristics were examined as potential predictors of participation in TA, including initial level of coalition capacity, initial interest expressed in receiving TA, coalition age and size of paid staff. Among these factors, only coalitions' initial level of capacity was significantly associated with the amount of TA received. Mitchell and colleagues suggested that coalitions need some initial level of capacity in order to understand how TA might benefit them and to be sufficiently organized to access TA. While overall ratings of coalitions' effectiveness and levels of collaboration increased over the course of the initiative, there was no association between the amount of TA received and change in coalitions' effectiveness.

Secondary analysis of individual-level data from this study identified several factors that influenced individuals' interest in receiving TA (Stone-Wiggins, 2009). Members' perception of their own skill-level and their commitment to the coalition were positively associated with interest in TA. In addition, members who rated their coalitions as having lower capacity were more likely to indicate interest in TA. These findings suggest that interest in participating in TA may be both associated with one's own sense of competence or self-efficacy to use TA as well as motivation to access TA (e.g. due to a commitment to the coalition and perception that the coalition does not have sufficient capacity).

The effect of TA dosage on community coalition functioning was also examined through an evaluation of the Communities that Care project (Feinberg et al., 2008). Five TA providers worked with 116 Communities that Care coalitions across a state, with each provider serving a different region of the state. The effects of TA were assessed based on changes in coalition board functioning (as assessed by members and TA providers), a multidimensional construct encompassing board efficiency, leadership, membership, cohesion, and conflict. This construct is comparable to the *general capacity* component of the ISF. Longitudinal data on board functioning and the amount of TA provided was tracked over the course of three years and path modeling was used to assess the relationship between the amount of TA provided and changes in coalition functioning over that time period. Path modeling showed that dosage of on-site TA (i.e. provided in person) had a small but non-significant positive effect on coalition functioning over time. Examination of potential moderators showed that boards that started with higher level of functioning (or general capacity) initially were significantly positively affected by on-site

TA dosage, while those with lower functioning initially did not have a significant effect from TA. Newer coalitions (which had been operating for less than two years) also demonstrated significant positive impact of TA dosage, while older coalitions did not. Need for TA (as rated by TA providers) did not have a consistent effect on the relationship between TA dosage and capacity, nor did analyses show a significant difference in the effects of TA based on the TA provider. In contrast to on-site TA, dosage of off-site TA (provided by phone and correspondence) did not have a significant impact on coalition functioning for the group as a whole or when potential moderators were examined.

Stevenson and colleagues (2002) examined the impact of an intervention to build the *innovation-specific* capacity of 13 community-based organizations. In this case, the *innovation-specific capacity* was the capacity to evaluate their substance abuse prevention programs. Over the course of three years they assessed the needs of the organizations with which they worked and provided three trainings and ongoing TA by phone and in person to increase their evaluation capacity. Over the three-year period, staff members of the organizations they worked with reported increased confidence in their ability to perform most evaluation related tasks and an increased number of evaluation tasks were performed by each organization. Regarding the amount of TA provided, Stevenson et al. reported, "the amount of time varied considerably, with a few agencies using only an hour or two while most others used double or even triple that time," and the three "exemplary" programs which started with the highest initial level of capacity receiving a very high amount of TA (p.239-240). They also reported there was a strong correlation between numbers of hours of TA received and change in the number of

evaluation tasks completed when these exemplary programs were excluded from the analysis.

In contrast with the results described above, several studies have shown a negative relationship between the amount of TA provided and prevention outcomes. Evaluation of an initiative supporting the implementation of violence prevention programs (i.e. building *innovation-specific capacity*) among 42 community-based organizations and schools examined a number potential influences on the process of program adoption and implementation, including characteristics of the TA provided and both general and innovation-specific organizational capacity (Mihalic & Irwin, 2003). Measures of organizations' capacity including leadership support, staff characteristics, and stability of funding were found to be associated with four different measures of implementation quality in bivariate correlations, but when multiple factors were included in a regression model to predict implementation TA quality and dosage were the most consistent predictors of high quality implementation. Quality of TA (as reported by participants in TA at the end of their participation in the project) was associated with better implementation outcomes, but dosage of TA provided was negatively associated with some aspects of implementation. The authors attributed this finding to the fact that more TA was provided to four "failing" sites which ended their participation early in an attempt to get them back on track. Several organizational characteristics expected to be strong predictors of implementation success (leadership support, staff and organization characteristics, and inconsistent funding) were not significant when TA characteristics were included in the model, and Mihalic and Irwin suggest that, "given the consistently powerful, direct relationship between TA and implementation success, future studies

should carefully assess the exact characteristics of TA quality that play a role in implementation success," (p. 323). A limitation of this study is that analyses do not address the relationship between organizations' capacity (both general and innovation-specific) and recipients' perceptions of the quality of TA provided. In addition, the authors describe TA quality as a predictor of successful implementation, but it is also possible that sites which had more successful implementation experiences felt more positively about the TA they received (and thus rated it more positively) than did sites which had less success implementing (potentially due to lack of general or innovation-specific capacity).

Spoth and colleagues (2007) examined the effect of TA provided to community prevention teams to increase their recruitment of families to participate in a prevention program. This TA related to recruitment of participants for specific prevention programs being studied by the research team, it is considered here to be *innovation-specific capacity building*. Prevention coordinators provided proactive TA to teams in 14 communities across two states including biweekly phone calls with the leaders of each prevention team. Data were analyzed separately for two different recruitment cohorts, one for each school year. Spoth et al. found a significant negative relationship between the amount of TA requested by community prevention teams and their success in recruiting families in the first cohort. In the second cohort there was a negative relationship between amount of TA requested and recruitment, but this relationship was not statistically significant. However, for the second cohort there was a significant positive relationship between effectiveness of TA collaboration (as rated by the prevention coordinators) and successful recruitment of families. Spoth et al. suggest that

this pattern of findings may indicate that prevention teams which operated more effectively were able to obtain necessary TA with fewer requests, while sites which were struggling with recruitment made more frequent requests for assistance.

Qualitative studies of TA. Several researchers have used qualitative methods to better understand the TA process from the perspective of TA providers, participants, or both. Fine et al. (2001) interviewed 38 expert TA providers as part of a study of capacity building services provided to small nonprofit organizations. They also interviewed staff from 19 organizations which had received services from these expert TA providers. While these cases varied, it appears that the majority focused on *general capacity building*. Based upon analysis of these interviews they identified principles which characterize successful capacity building services. The importance of building trusting relationships between the TA provider and the organizations participating in the capacity building process was emphasized by the majority of interviewees. The authors suggest that successful capacity building may not be possible if a trusting relationship is not first established with the organization. Providing services appropriate to the context of the organization and demonstrating respect for organizations' abilities to build their own capacity were principles identified that can help develop such trusting relationships. Another principle Fine et al. identified is the importance of assessing the readiness of the organization for the proposed capacity-building and providing services appropriate to their level of readiness. In particular, challenges with building the capacity of organizations currently in crisis were noted. In the words of one provider, "When people are operating in 'survival mode,' they don't have the ability to grow and develop as an organization. They are just trying to stay alive," (p. 19, Fine et al., 2001). A number of

barriers to successful TA were also identified through this study, including the lack of funding available for capacity building services, lack of access to services (particularly among smaller nonprofits and those located in rural areas), and attitudes and beliefs counter to capacity building, both among participants and providers of TA.

To better understand the barriers and facilitators of TA building program evaluation capacity among HIV prevention organizations (i.e. building *innovation-specific capacity*), Kegeles et al. (2005) interviewed staff from community-based organizations, TA providers working with such organizations, and funders of community-based HIV prevention efforts. Analysis of these interviews suggested that that relationship quality is essential to the TA process, particularly developing a collaborative working relationship built on trust and mutual respect among TA providers and participants in the TA process. Kegeles and colleagues state that, "The best TA seemed to occur when it involved an on–going collaborative process between the CBO and the TA provider. This was when the TA provider worked with the CBO in an ongoing relationship; understood the CBO's mission, goals, and objectives; and when the TA provider and CBO could work together to establish evaluation methods for the CBO to use," (p.295). This type of relationship both facilitated the development of TA that fit the organizations' needs and led to buy-in and ownership among program staff for the evaluation process. Another finding from this study was that not all organizations had equal ability to access TA. Larger organizations which had more resources appeared to be better able to access TA resources (particularly at universities) while many smaller CBOs did not know how to get access to TA. Kegeles et al. suggest that, "knowing how to access TA is a learned skill itself," (p. 295). Organizational issues like lack of staffing

and funds for evaluation were also issues that limited the utility of TA provided to increase evaluation capacity.

Findings regarding the importance of relationship quality to the TA process were also reinforced by a case study of TA provided to community-based organizations to build *innovation-specific capacity* for implementing the VOICES/VOCES HIV prevention program (O'Donnell et al., 2000). Content analysis of information from logs that TA providers kept tracking the types and amount of TA provided in combination with data from interviews with program staff and administrators and observations of program sessions suggested that the "ongoing dialogue" TA generated between program staff and the TA providers helped to enhance program implementation. O'Donnell and colleagues reported that developing a trusting, collaborative relationship between program staff and TA providers was essential to the success of this approach. TA providers avoided criticism and judgment in their communication with program staff and emphasized progress that they had made. This TA approach encouraged two-way communication between the TA providers and program staff, supported by the fact that about half of TA contacts recorded were initiated by program staff rather than TA providers. Differences were noted in which topics were raised by program staff and providers. TA providers initiated more contacts related to program fidelity and issues related to facilitation skills, while program staff initiated more contacts about recruitment and tailoring the intervention to clients. Limited resources and staff turnover were noted as a particular challenge which required additional TA to get new staff members up to speed, and major staffing changes led to one agency leaving the project altogether.

Hunter et al. (2009) also analyzed qualitative information from logs kept by TA providers and interviews conducted with TA participants as part of the study described above of a training and TA system to build capacity for a *specific innovation*, the GTO process (Chinman et al., 2008). Findings from their analysis emphasized the central role that communication between the TA provider and program staff played in this successful TA initiative. Almost a third of all TA logs were coded as communication between the TA provider and program staff, and communication was also frequently mentioned as part of what made TA helpful in the interviews conducted with program staff. Hunter et al. concluded that, "TA providers developed a relationship with program staff, and as a result, the TA providers were perceived as flexible, respectful, patient, and motivating by the participating program staff. Analogous to a clinical relationship, it is our belief that this relationship was the foundation for many of the gains made by the programs," (p. 826). The major challenges identified with the TA provided in this project were limited program staff time to participate and staff turnover.

Findings from focus groups evaluating TA provided to community groups funded to develop systems of care for children's mental health (which primarily seems to have addressed these groups' *innovation-specific capacity*) also support the importance of developing relationships between TA providers and the groups that they serve (Katz, 2009). Analysis of the data from these focus groups suggests that in order for the TA provided to be useful to the community served, it is necessary that TA providers accurately assess the needs of that specific community. Such an accurate assessment is hard to achieve without first becoming oriented to and immersed in the local community so that the TA provider has a clear understanding of the local context. Multiple focus

group participants reported that long distances between the TA providers and communities they served limited their ability to interact directly with the community and understand the local context. Katz points out that in some cases TA providers' assessments of the groups they work with were viewed primarily as monitoring their performance for the purpose of ensuring compliance. Some TA participants perceived that open communication with a TA provider about challenges they experienced could lead to negative consequences for the organization, such as loss of funding.

Summary of Research on Technical Assistance

As noted above, the small body of empirical research on TA has yielded inconsistent results related to the effects of TA, with some studies showing positive effects (Chinman et al., 2008; Hunter et al., 2009; Kelly et al., 2000; Scheffer et al., 2012; Stevenson et al., 2002) and other studies showing limited or no benefit from the TA provided (Keener, 2007; Mitchell et al., 2004; Ringwalt et al., 2009). There are a number of possible explanations for these findings. Most of the studies described are limited by small sample sizes and presumably fairly low power to detect effects. In addition, while all of these studies characterize their intervention as TA, the amount and type of TA provided as well as the extent to which TA was combined with training or other types of assistance vary across studies. Success was also defined and measured in very different ways to examine the results of TA provided for a variety of purposes, ranging from TA intended to promote implementation of a particular program (or *innovation-specific capacity*; e.g. Kelly et al., 2000) to more diffuse goals like the increase of *general capacity* among community coalitions (e.g. Mitchell et al., 2004). Another element that varies across studies is that they examine TA provided to different types of organizations.

Several studies focused specifically on the capacity of community coalitions (Chinman et al., 2008; Feinberg et al., 2008; Mitchell et al., 2004). One study examined TA provided in health care settings (Scheffer et al., 2012). Others addressed TA provided to schools (Ringwalt et al., 2009), community-based organizations (Kelly et al., 2000), or a combination of schools and other community-based organizations (Mihalic & Irwin, 2003). It is possible that different types of organizations have different responses to TA.

Another issue making the assessment of the effects of TA particularly challenging is that the amount of TA provided varies based both upon the availability of resources and the degree to which participants take part in the TA process. Different individuals and organizations use different amounts of TA, even when offered the exact same type and amount of it. The vastly different rates of participation in TA make it difficult to assess the effects of TA using intent to treat analysis, particularly given limited sample sizes in most studies (e.g. Chinman et al., 2008; Keener, 2007). Furthermore, several studies suggest that the level to which participants become engaged in the TA process is positively associated with their organization's initial level of general capacity (Keener, 2007; Mitchell et al., 2004) while other studies have found that organizations experiencing more difficulty received greater amounts of TA (Mihalic & Irwin, 2003; Spoth et al., 2007). Another study found that the effect of TA on prevention coalition capacity was moderated by the initial level of general capacity (operationalized as coalition functioning) and the age of the coalition, such that coalitions which were newer and had higher initial levels of general capacity benefited more from the TA provided (Feinberg et al., 2008).

Several possible reasons why organizations with higher levels of general capacity may benefit more from TA have been proposed, such as the possibility that higher capacity sites may be more aware of their TA needs (Mitchell et al., 2004) or organizations below a minimum level of capacity may have too many needs to benefit from limited TA interventions (Feinberg et al., 2008). An alternative hypothesis is that elements of the context of organizations with greater general capacity may facilitate the engagement of individuals there in the TA process, while in lower capacity organizations such engagement may be inhibited. Keener (2007) found that organizational factors influenced which participants became engaged in a proactively offered TA intervention, such that lower organizational functioning appeared to limit participants' ability to engage in the TA process. This is consistent with research on behavioral engagement in school among students, which suggests that elements of the school context influence the extent to which students become engaged in learning (Fredericks et al., 2004).

Most quantitative research on TA has provided a very limited picture of the TA relationship and primarily focuses on variation in the amount of TA provided. However, the qualitative research reviewed consistently suggests that effective TA is based on strong relationships characterized by trust and collaboration (Fine et al., 2001; Kegeles et al., 2003; Hunter et al., 2009; O'Donnell et al., 2000). The two studies of TA which examined how the TA relationship relates to the effects of TA using quantitative methods also support the idea that the relationship between TA providers and participants is important. Mihalic and Irwin (2003) found a significant positive relationship between participants' perception of the quality of the TA they received and successful program implementation. Likewise, Spoth and colleagues (2007) reported that the effectiveness of

TA collaboration was associated with better outcomes in one of the cohorts with which they worked.

Research Questions

Previous research has found mixed results on the question of whether there is a dose-response relationship between the amount of TA received and quality of results. Findings from Feinberg and colleagues (2008) suggest that the initial level of general capacity of organizations moderates the effectiveness of the TA relationship, so that organizations with higher general capacity initially show more benefit from the amount of TA they receive. However, it is unclear why organizations with higher capacity would show greater benefit from TA provided than would those with less capacity. It is hypothesized here that general organizational capacity influences the extent to which TA participants become engaged in the TA process, and that this process of behavioral engagement may explain both why TA has greater impact on higher capacity organizations and why those organizations may access greater amounts of TA.

Behavioral engagement in the TA process also is a potential pathway to explain how the quality of relationships between TA providers and participants influences the outcomes of the TA process (Mihalic & Irwin, 2003; Spoth et al., 2007). It is hypothesized that the quality of this relationship also influences the extent to which participants become engaged in the TA process, which in turn affects both the amount of TA received and the effectiveness of that TA. This study addressed the three primary research questions based upon these hypotheses.

Research Question 1. Behavioral engagement in the TA process has been hypothesized to influence both the amount of TA received and the effectiveness of that

TA. Previous research has shown that even when offered an identical proactive TA intervention following training, participants engaged in that TA to different degrees (Keener, 2007).

1. What factors predict successful behavioral engagement in the TA process by staff members of the prevention delivery system? Possible predictors suggested by past research and the ISF include: general organizational capacity and the quality of TA relationship.

Research Question 2. Several studies have shown that many individual and organizations offered TA do not access the TA available to them, and that those with lower initial general capacity are less likely to access available TA (Kegeles et al., 2005; Mitchell et al. 2004), presumably limiting the opportunity of the *prevention delivery system* to increase in capacity. It is hypothesized here that behavioral engagement of TA participants mediates the relationship between initial general organizational capacity and dosage of TA received.

2. Does behavioral engagement of the TA participants mediate the relationship between general capacity of their organization and the dosage of TA received?

Research Question 3. Examining whether providing TA increases capacity and the circumstances in which capacity building is most effective are two of the key questions that must be addressed to develop an evidence-based *prevention support system*. Past research by Feinberg and colleagues (2008) found that organizations with higher levels of baseline general capacity (in their study conceptualized as coalition functioning) benefited more from the dosage of TA they received compared with those starting with a lower level of general capacity. In other words, general capacity level

moderated the effects of TA dosage so that capacity increased more among coalitions with higher levels of initial capacity. This study examined behavioral engagement in TA as an alternative way to explain the reason for this relationship between general organizational capacity and the effects of TA.

3. Does the relationship between TA dose and changes in innovation-specific capacity over time vary depending on participants' level of engagement in TA? The effect of TA on innovation-specific capacity was examined to determine whether the amount of TA provided (dose) increases in capacity over time. It was hypothesized that organizations rated as more engaged in TA would have a stronger positive relationship between TA dose and changes in capacity compared to those rated as less engaged. In other words, the hypothesis that behavioral engagement moderates the effect of TA dose on innovation-specific capacity such that more engaged organizations benefit more from TA was tested.

CHAPTER 3: METHODS

Procedure

The current study will use evaluation data from the Promoting Science-Based Approaches (PSBA) project for teen pregnancy prevention to examine the relationship between participant's behavioral engagement in TA and its effects on community-based organizations over time.

PSBA Project Overview. Researchers have developed a variety of programs which have been shown to be successful to reduce teen pregnancy (Advocates for Youth, 2008; Kirby, 2007; Mathematica Policy Research, 2010). Despite a growing body of evidence-based teen pregnancy prevention programs, the use of these programs in the field remains limited (Lesesne et al., 2008; Nolte & Philliber, 2008). In order to build capacity for the use of these evidence-based programs, the Centers for Disease Control and Prevention (CDC) developed the PSBA project. Through this project, three national organizations, four regional training centers, and nine statewide teen pregnancy prevention organizations were funded to promote more widespread use of evidence-based prevention strategies. Rather than identifying a specific program or set of programs and requiring they be implemented, the PSBA project focused on building the capacity of community-based organizations to incorporate a broader, science-based approach for planning, implementing and evaluating their pregnancy prevention efforts, including the use of evidenced-based prevention programs whenever possible. The CDC identified five specific science-based approaches (outlined in Table 3.1) which offered local

organizations the flexibility to determine what would work best in their community based upon available information. In addition, they encouraged evaluation so local organizations could monitor the achievement of their objectives and make improvements to their programming.

Table 3.1. The CDC Definition of a 'Science-Based Approach' to Teen Pregnancy Prevention and the Ten Steps of the PSBA-GTO Process.

Elements of Science-based Approaches to Pregnancy Prevention (Defined by CDC)	Ten Steps of the Getting To Outcomes (PSBA-GTO) Process
Using demographic, epidemiological and social science research to identify populations at risk of early pregnancy and/or sexually transmitted infections, and to identify the risk and protective factors for those populations.	Needs & Resources Assessment
Using health behavior or health education theory to guide the selection of risk and protective factors that will be addressed by the program, and to guide the selection of intervention activities.	Goals & Objectives Setting
Using a logic model to link risk and protective factors with program strategies and outcomes. Selecting, adapting, if necessary, and implementing programs that are either science-based or are promising (have characteristics of science-based programs).	Identification of Best Practices Assessing Fit Assessing Capacity & Readiness Program Planning
Conducting process and outcome evaluation of the implemented program, and modifying approach based on results.	Program Implementation & Process Evaluation Outcome Evaluation Continuous Quality Improvement Program Sustainability

The CDC used the Interactive Systems Framework (ISF) to inform the planning and evaluation of the PSBA project (Lesesne et al., 2008). Figure 2.1 shows the ISF model tailored to represent the specific elements of the PSBA project. The CDC collaborated with state, regional, and national grantees to act as a multilayered *prevention*

support system (depicted in Figure 3.1). The organizations in the prevention support system, in turn, provided training and TA to build the capacity of local youth-serving organizations in the *prevention delivery system* to use science-based approaches to plan, implement, and evaluate teen pregnancy prevention programs.

Several major shifts occurred in the PSBA project in 2007. One is that the CDC became more prescriptive in its guidance to state and regional grantees on the provision of training and TA. In previous years these organizations were allowed to work with as many local organizations as they wanted. Often this flexibility resulted in less intensive training and TA approaches that were not always systematically implemented and did not always address the full spectrum of the PSBA elements. These organizations tended to focus their efforts on the specific needs identified by the local youth-serving organizations with which they worked, resulting in a limited scope of training and TA provision that was not consistent across grantees (C. Lesesne, personal communication, February 23, 2012). To address these challenges in the PSBA program model and implementation, starting in 2007, the CDC required that state and regional organizations develop *intensive partnerships* with a limited number of youth-serving organizations (5-10). The CDC also required that these *intensive partners* receive more comprehensive training and TA designed to move them into the use of science-based approaches.

In order to facilitate grantees working with their intensive partners in this more comprehensive way, the CDC integrated the science-based approaches they identified with the Getting To Outcomes (GTO) model (a crosswalk between the GTO model and science-based approaches is shown in Table 3.1). The GTO model is a 10-step process initially developed in the field of substance abuse prevention to provide a guideline for

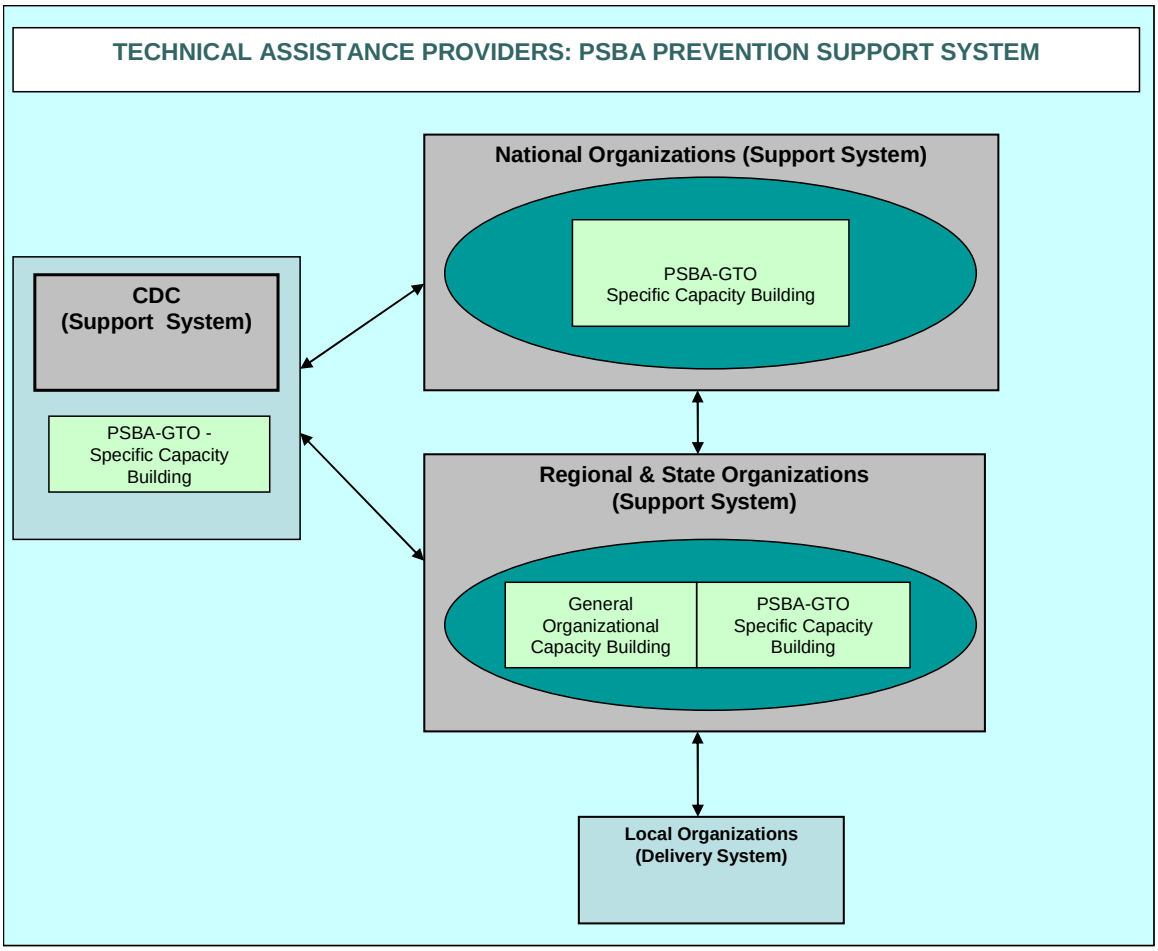

Figure 3.1 Tiered Prevention Support System in the PSBA Project. From "Promoting Science-based Approaches to Teen Pregnancy Prevention: Proactively Engaging the Three Systems of the Interactive Systems Framework," by Lesesne et al., 2008, *American Journal of Community Psychology*, *41*, p. 385). Copyright 2008 by Springer Science and Business Media, LLC. Reprinted with permission.

developing, implementing, and sustaining a successful program (Chinman, Imm, & Wandersman, 2004). Results of a GTO demonstration project showed that providing training and TA along with the GTO manual led to improved prevention programming in the substance abuse field (Chinman et al., 2008). For the PSBA project, a manual was designed to help teen pregnancy prevention organizations complete the 10 GTO steps: *Promoting Science-Based Approaches to Teen Pregnancy Prevention using Getting To Outcomes* (PSBA-GTO; Lesesne et al, 2007). This manual synthesized information from research on teen pregnancy prevention into a single resource (Lewis et al., 2012). The GTO process also provided a common framework for grantees from the *prevention support system* to provide training and TA to support their local partners' use of science-based approaches. In essence, the use of science-based approaches was the innovation which the PSBA project was intended to disseminate, and the PSBA-GTO process provided a way to operationalize that innovation and share it with local organizations in the *prevention delivery system*.

A third change to the PSBA initiative in 2007 was the requirement that grantees collect consistent cross-site evaluation data about their work with intensive partners. This included tracking the amounts and type of training and TA provided to each local partner and conducting regular assessments of local partners' *innovation-specific* capacity to use PSBA-GTO, as well as rating their partners' level of involvement in the training and TA provided. The specific evaluation tools are discussed in the section on data collection procedures below. Detailed information about the measures used in this study is provided in the measures section.

Capacity-Building Procedures. The CDC did not prescriptively define what characterized an *intensive partnership*. State and region-level teen pregnancy prevention organizations were asked to identify and define the intensive partnerships they established. In practice this was operationalized as local organizations with which the teen pregnancy prevention organizations would develop longer-term partnerships and attempt to deliver training and TA on the full PSBA-GTO process, sometimes with a formal memorandum of understanding and/or a small amount of grant funding to support this process (C. Lesesne, personal communication, February 23, 2012).

The CDC identified both training and TA as key strategies for building local partners' capacity to use PSBA-GTO, and expected grantees to use these strategies both proactively and reactively based on partners' needs. In addition to the PSBA-GTO manual and written guidance about expectations, state and region-level organization staff participated in trainings on strategies for building their partners' capacity to use the 10 step GTO framework, including one focused increasing grantees ability to provide assistance to their local partners on program evaluation. State and regional organizations received training and TA from the three national-level partners based on their specific needs, and CDC project officers also met at least monthly with each grantee to discuss their progress with local partners. The third column of Table 1.1 provides a description of the guidelines provided by the CDC organized by the dimensions of TA identified by Crandall and Williams (1981).

While all grantees were given the same training and guidelines regarding how to provide intensive TA to their local partners, there was considerable flexibility at the state and regional levels in regards to how this process was approached. No specific targets for

the amount of training or TA which constituted an intensive partnership were provided, in part because each organization differed in their budget for these services and amount of dedicated TA staff time they were able to provide (C. Lesesne, personal communication, February 23, 2012). Some grantees limited the number of partners to which they provided intensive TA to a small number of organizations, while others opted to work intensively with a larger number of local partners. Some grantees worked intensively with partners for only a limited amount of time and then "graduated" them from that intensive partnership once they had completed one cycle of the PSBA-GTO process. Other organizations worked intensively with some partners for the full three year period. In addition, intensive partnerships ended for a variety of reasons including a decision not to participate further by the local organization, decisions made by the state or regional capacity building organization that this organization should not continue as an intensive partner, and in some cases the dissolution of the organization due to lack of funding or for some other reason.

Data Collection Procedures. Prior to the start of an intensive partnership with a local-level organization, CDC required state and regional grantees to complete a brief questionnaire (the Local Organization Selection Criteria, or LOSC form, included in Appendix B) to document the extent to which potential partner organizations met the selection criteria to participate in the PSBA project. Grantees rated their potential partners on five items: experience in the field of teen pregnancy prevention, access to teens at risk of pregnancy, organizational capacity and infrastructure, commitment to working together, and willingness to change. Grantees were encouraged to consider the existing infrastructure, resources, and readiness of their potential partners, and to only

work intensively with those which showed sufficient ability to partner (operationalized by CDC as a minimum score of 16 out of 25 points possible on the LOSC). All selected partners met the criteria. Grantees were only required to submit data from the LOSC for those organizations which became intensive partners, so no information is available about how many total organizations were screened or how many did not met the criteria set by the CDC.

Upon starting intensive partnerships with organizations that met the selection criteria, grantees were required to conduct a survey assessing each partner's needs (Local Organization Needs Assessment, or LONA, included in Appendix C) with each partner within 30 days. This needs assessment included questions about the organization's characteristics and capacity to use the science-based approaches identified by CDC. Grantees had the option to complete the LONA through an interview (in person or by phone) or by asking staff at the local organizations to complete a paper copy of the form and send it back by mail or email, although they were informed that the CDC's preference was that the assessment be conducted as an in-person interview. After the initial assessment was conducted, the CDC required follow-up LONAs to be completed approximately once per year while the partnership continued, during the first quarter (from January to March) of 2008 and 2009. Because the timing of recruitment of partners differed across and within grantees, the length of time between these assessments varied, especially in the first year of the relationship. During the final year of the project, grantees were given the option to delay completion of the final LONA until June-August 2010 to coincide with the end of the project in September, 2010. The number of times

LONA data were collected ranged from one to four depending on the length of time the intensive partnership lasted.

Grantees were also required to complete an assessment of each intensive partner's involvement in the TA process (the Rating of Involvement with Local Organization, or RILO form, included in Appendix D). The person with the primary responsibility for providing TA to that organization rated the extent to which the organization's staff participated in the TA process and the quality of the relationship between the TA provider and the organization's staff. The RILO forms were completed by TA providers at approximately the same time as the LONA was completed. The first rating was required within six weeks after the initiation of an intensive TA partnership, and subsequent ratings were conducted on the same schedule as the LONA (during the first quarter of 2008 and 2009 and during summer of 2010). As with LONA data collection, the number of times RILO data were collected ranged from one to four depending on the length of the intensive partnership.

In addition to completing these ratings, TA providers were also required to track the amount of TA and training provided to intensive partners. Excel spreadsheets used for tracking the TA and training provided were submitted to CDC on a monthly basis over the course of the project.

Sample

State and Regional Capacity Building Organizations. A total of nine state-level organizations and four regional training centers were grantees funded to build the capacity of local-level organizations by providing training and TA as part of the PSBA project. One organization held both a state-level grant and a regional-level grant; thus,

this grantee will be treated as a single state-level organization for the purposes of this study. Region-level organizations were funded through a cooperative agreement which lasted from 2004-2009, and state-level organizations were funded through a separate cooperative agreement from 2005-2010[1]. Grantee organizations were selected in a competitive grant application process and awards were made based on the strength of applications submitted as determined by an objective review panel (C. Lesesne, personal communication, February 23, 2012). Among the nine state-level organizations which were funded, four had participated in an earlier cooperative agreement to promote teen pregnancy prevention. All state and region-level organizations participated in the cooperative agreement for the entire five years for which they were funded.

The state and region-level organizations participating in the PSBA project worked with different numbers of intensive partners at the local level and for different lengths of time. When considering only those intensive partners for which data was collected at least two points in time, the number of partners ranged from one intensive partner up to 14 partners, with an average of 8.83 and a median of 11 partners. Due to the differences in the grant cycles for state and region-level organizations, after intensive TA was initiated in 2007 region-level organizations could provide a maximum of two years and three months of intensive TA to local partner organizations, while state-level organizations could potentially provide up to three years and three months of intensive TA to their partners. The average length of time of intensive partnerships by state/region-level organization is included in Table 3.2. This table also includes the average number of hours of TA each state-level organization provided to their intensive partners over the

[1] Because the data collection procedures described above started in the middle of 2007, the data analyzed for this study cover only a portion of the five year period of each grant cycle.

course of the project. On average these intensive partners received 51.5 hours of TA, though the amount received by each partner ranged from a low of four hours up to 989.9 hours.[2]

Table 3.2. Characteristics of TA Provided by Each State and Regional Organization

Organization ID Number	Type	Number of Intensive Partners	Length of Partnerships in Months		Hours of TA Provided Per Partner	
			M	*SD*	*M*	*SD*
1	State	6	30.93	12.99	31.40	23.91
2	State	7	30.77	9.47	44.90	22.14
3	State	11	26.64	10.91	145.34	283.79
4	State	11	22.24	8.15	27.99	18.78
5	State	12	24.62	8.29	45.69	26.60
6	State	13	20.83	9.15	74.29	71.88
7	State	13	13.14	5.31	19.57	11.44
8	State	14	22.25	9.23	49.20	30.65
9	State/Regional	11	22.90	9.07	31.24	17.63
10	Regional	1	14.93	--	31.00	--
11	Regional	1	12.97	--	55.33	--
12	Regional	4	12.49	1.98	15.58	5.29
All Organizations		104	22.28	9.92	51.53	100.37

An additional difference among state and region-level organizations is the number of staff providing TA. In some organizations, there were multiple staff members providing TA at the same time. Other organizations had staff turnover meaning that over the three years that TA on PSBA-GTO was provided, different individuals provided TA at different time points. Data about the specific number of TA providers within each

[2] This local partner organization (served by state –level organization three) was an extreme outlier and received approximately five times as much TA as the next highest recipient. Records for this case were checked individually and 31 hours of TA that appeared to be duplicates were removed. CDC staff reported that one state-level TA provider had worked very closely with a specific organization located very close to their office and reported much higher amounts of TA with that organization (L. House, personal communication, June 5, 2013).

organization were not available for this study, so these differences cannot be accounted for.

Local Partner Organizations. The primary guidance provided to state and region-level organizations regarding the selection of their local-level intensive partners was to base their selection on how well each potential partner met the five criteria laid out in the LOSC form. If a potential partner was identified which scored less than 16 of the 25 potential points on the LOSC, CDC recommended not selecting this partner and/or waiting to start an intensive partnership with that organization until further capacity was developed in the areas that were lacking. Grantee organizations approached the recruitment of intensive partners in different ways. Some organizations had existing relationships with local organizations already working in the field of teen pregnancy prevention and invited some of those organizations to become intensive partners. Other organizations recruited new organizations that they had not worked with in the past, and in some cases worked with organizations which served youth but were new to the field of teen pregnancy prevention.

One barrier identified in the process of recruiting intensive partners was that while the state and region-level organizations were funded by the CDC, no CDC funding was provided directly to the local organizations for becoming intensive partners. To address this concern, the CDC provided the state and region-level organizations some additional funds to provide incentives to address barriers to participation among intensive partner organizations (e.g. funds for purchasing of evidence-based programs, attending trainings, or small grants for implementing programs).

Data were collected for a total of 131 local organizations, although only 127 participated in the initial collection of local organization needs assessment (LONA) data and 108 participated in a second LONA. As noted in the section above describing capacity-building procedures, the length of time which organizations participated as intensive partners varied. Among the 108 organizations which completed the LONA at least twice, length of participation (calculated as the number of months between completion of the first LONA and the final LONA) ranged from 4.9 months up to 39.9 months, with a mean of 22.0 months and a median of 20.0 months of participation. Table 3.3 shows the number of intensive partners which participated for various lengths of time broken down into six month intervals. Very few organizations participated for less than six months (3.7%), while approximately one third (32.4%) participated for between 12 and 18 months.

Table 3.3 Length of Intensive Partnerships

Length of Participation	N	%
Up to 6 months	4	3.7
6 months to 1 year	12	11.1
1 year up to 1.5 years	35	32.4
1.5 years up to 2 years	10	9.3
2 years up to 2.5 years	20	18.5
2.5 years up to 3 years	15	13.9
More than 3 years	12	11.1
Total	108	100.0

The characteristics of local partner organizations are discussed further in the results section (see Chapter 4, Tables 4.1 and 4.2), as are differences among organizations for which full data was collected and those for which data were missing at either the first or second time point.

Measures

The measures used to assess general and innovation-specific capacity, TA relationship quality, behavioral engagement in TA, and the amount of TA provided are described below.

Behavioral Engagement in TA. Intensive partner staff members' behavioral engagement in the TA process was assessed using six items from the RILO. The items for this measure were developed for the evaluation of the PSBA project to assess the extent to which the staff at intensive partner organizations participate in the TA provided and proactively seek TA when needed. For each item TA providers rated on a five point scale from never (1) to very often (5) how often the staff members engaged in behaviors like "keeps appointments with me," and "seeks out my help when issues come up." This measure exhibited high levels of internal consistency at time point it was administered (ranging from $\alpha = .85$ to $\alpha = .88$). While this measure has face validity, it represents only the TA provider's subjective assessment of the relationship and no further assessment of validity has been conducted. Another limitation of this measure is that the data available provide no way to determine whether the same TA provider completed this assessment at different points in time.

TA Relationship Quality. TA relationship quality was assessed using 16 items from the RILO designed for the evaluation of the PSBA project. Because there were no existing measures of TA relationships, the development of the RILO drew on the concept of *working alliance.* The concept of working alliance was initially developed to describe the extent to which the clinical relationship between a client and therapist is collaborative and based on shared goals and understanding (Horvath & Greenberg, 1989). This concept

has also been applied to the study of other types of collaborative working relationships, such as relationships between clinical supervisors and trainees, student-teacher relationships, and the relationship between advisors and graduate students (Ladany & Friedlander, 1995; Rogers, 2012; Schlosser & Gelso, 2001; 2005). Working alliance has been characterized by 3 domains: bond/rapport, task focus, and shared goals (Bordin, 1979; Horvath & Greenberg, 1989; Summer & Barber, 2003). Five items assessing the bond between TA provider and participants were adapted from the short observer version of the Working Alliance Inventory (WAI-O-S), as was one item on shared goals. One item related to task focus was adapted from an item from the advisor version of the Advisory Working Alliance Inventory (AWAI, Schlosser & Gelso, 2005).

Communication between the TA provider and staff of the participating organizations was also identified as an important element of assessing the quality of TA relationships. Three items were drawn from the communication subscale of the *Organizational Attributes in Primary Care Settings Survey*, designed to assess the quality of communication among staff in health care practices (Ohman-Strickland, 2006). Additional items to assess these constructs were developed by CDC staff. TA providers rated how strongly they agreed or disagreed with each of the 16 items on a five point scale. This measure of relationship quality exhibited high reliability at each time point it was administered (Cronbach's alpha ranging from α =.93 to α =.95). Although the items that make up this measure were taken from existing measures that have been validated where available (Horvath & Greenberg, 1989; Schlosser & Gelso, 2001; 2005), the validity of this tool for assessing the relationship between TA providers and participants has not been assessed. Also, as with the measure of engagement in TA, this measure of the TA relationship is based solely on

the TA provider's subjective assessment of the relationship. As with the measure of behavioral engagement, there is no way to determine whether the same TA provider completed this assessment at different points in time.

An additional question regarding the measurement of relationship quality is whether TA providers have sufficient information at baseline to accurately assess the quality of the TA relationship. At the start of the TA relationship, it may be difficult for a TA provider to respond accurately to questions such as whether the individuals they work with have a clear understanding of the help available or if those individuals feel confident in the TA provider's ability to help them. This may also vary depending on whether the TA provider had a prior relationship with the partner organization (and thus had more information available about the quality of that relationship at the start of the intensive partnership) or their relationship with that partner organization began with providing intensive TA as part of the PSBA project (and thus the assessment of relationship quality was based on more limited experience interacting with the staff of that organization). To address this concern, a continuous variable was created to look at the length of time between the start of the partnership (based on available information) and the date the first RILO assessment was completed. A second, dichotomous indicator was also created, distinguishing those organizations for whom the first RILO was completed less than two months from the start of the partnership from those whose first RILO was completed more than two months from the start date. These variables were used to control for the possibility that ratings of relationship quality were more accurate for those with a prior relationship than ratings for those partner organizations whose relationship with the TA provider began with the intensive partnership.

TA Tracking Logs. The amount of time spent providing training and TA to each organization was assessed based on tracking logs completed monthly by TA providers in Microsoft Excel and submitted by email to the CDC. TA providers were instructed to track the amount of time they spent providing training and TA to each intensive partner in 15 minute increments, whether it was provided in person, by phone, or using email or other web-based communication (such as "webinars"). Only time spent directly interacting with staff from the intensive partner organization was tracked, not the time spent preparing to provide training or TA or developing materials for use by the intensive partners (e.g. time a TA provider spent developing evaluation tools for use by intensive partner organizations was *not* tracked, but the time spent meeting with program staff to discuss how to use those tools was tracked as TA). Each month CDC evaluation staff and project officers would review the TA logs for accuracy and confirm any cleaning or recoding needs with the TA providers before finalizing the log. Based upon these tracking logs the total amount of TA provided to each organization between the first and second administration of the LONA was calculated, as well as the total amount of TA provided between the second and third LONA administration. For the purposes of this study, only data on TA were compiled (time spent providing training was excluded).

General Organizational Capacity. A review of the literature on the types of capacity necessary for implementation of innovations identified six elements of general organizational capacity: leadership, organizational structure, staff capacity, resource availability, organizational climate, and external relationship with the community and other organizations (Flaspohler et al., 2008). Limited information on four of these six elements was collected on the local organization selection criteria (LOSC) form

completed by staff of the organization providing TA prior to the start of an intensive partnership. These items and the elements of general organizational capacity they are associated with are shown in Table 3.4. Internal consistency for these three items is low ($\alpha = .36$) because the item assessing infrastructure was not correlated with either of the two items assessing organizational climate. Due to this, infrastructure was included as a separate variable in the analyses. The two items related to organizational climate (both focusing on the openness of the organization to changing their practice) are correlated ($r = .45$.

Innovation-Specific Capacity. Each local organization's capacity to use science-based approaches (i.e. the innovation being disseminated through the PSBA project) was assessed on the LONA using a 19 item measure of the organization's ability to carry out these activities as operationalized in PSBA-GTO. In other words, the innovation-specific capacity being measured is the organization's ability to carry out the 10 steps of GTO. This measure was slightly adapted from a measure of capacity to use the 10 steps of GTO from a previous study (Chinman et al., 2008). A staff member at each local organization was asked to rate their team's ability to complete the 19 tasks listed on a five point scale ranging from one (Our team would need a lot of assistance to do it) up to five (Our team could carry this task out without any assistance). Chinman and colleagues (2008) report that factor analysis showed that all items loaded onto a single factor and this measure exhibited high reliability ($\alpha = .96$). Internal consistency for the measure is also high in this sample, ranging from $\alpha = .88$ up to $\alpha = .93$ when examined at the four times this measure was completed.

Table 3.4 Elements of General Organization Capacity Measured on the Local Organization Selection Criteria (LOSC) Form

Element of General Capacity	Indicators	Response options
Organizational Structure Staff Capacity Resource Availability	Organizational capacity and infrastructure (including adequate staff and expertise, board & senior management support, presence of a champion, successful track record in implementing programs, financial stability, etc.)	1 = Very limited capacity and infrastructure 2 = Somewhat limited capacity and infrastructure 3 = Moderate degree of capacity and infrastructure 4 = Most of the capacity and infrastructure needed 5 = Considerable capacity and infrastructure
Organizational Climate	Organization's commitment to partnering to use SBA	1 = Not interested 2 = Interested but reluctant 3 = Limited interest 4 = Moderate commitment 5 = Strong commitment
Organizational Climate	Organization's willingness to change	1 = Unwilling to change 2 = Somewhat reluctant 3 = Somewhat willing 4 = Willing 5 = Extremely willing

Analysis

Univariate and bivariate analyses. Descriptive statistics and bivariate correlations were examined to understand the data distribution and relationships among the different predictors (results of these analyses are shown in Tables 4.3 & 4.4).

Multivariate analyses. Due to the nested nature of the PBSA project, with each intensive partner receiving TA from a different state or regional organization, the initial analysis plan was to use multilevel modeling to address each of the three research questions described above. After consideration, instead of multilevel models, the first two research questions were tested using single-level ordinary least squares (OLS) regression models controlling for variation by state-level TA provider with dummy variables. This

strategy was selected because controlling for state-level variation using dummy variables allows for the identification of different effects associated with specific TA providers (whereas the MLM approach just identifies that some of the variation exists at the second level of the model, not that specific TA providers are contributing to the variance.) This is especially important because of the way the RILO data for the PSBA project was collected. Because the TA provider for each local organization was also the person that rated their engagement in TA and the quality of the TA relationship, there may be differences based on individual rater effects or differences in rating approach, rather than differences in level of engagement at the local level.

The third research question was examined using multilevel modeling, specifically two-level growth curve models where multiple measures of capacity are nested within the local level organizations. In these models, dummy variables were used to control for variation by state-level TA provider. The number of data time points available for the majority of the sample (two to three) is lower than the four or more time points recommended for growth curve analysis. However, even with this limitation, it was determined that multilevel growth curve modeling was preferable to repeated-measures ANOVA, which requires data points to be collected at the same time points and does not accommodate data where not all cases have the same number of measurements.

The full maximum likelihood method of estimation was used for multilevel models tested to allow for the comparison of fixed effects between nested models. Kenward-Rogers degrees of freedom were used for testing these models, because this method of estimating degrees of freedom adjusts for potential bias due to small sample size. Unstructured covariance structure was used for all models. The unstructured option

was selected because this allows the examination of covariance between random intercepts and random slopes. The presence of covariance can indicate if the rate of change over time is related to the intercept (Twisk, 2013). Throughout the model building process, changes in the -2 log-likelihood were used to assess model fit. Tests to determine whether the assumptions of multilevel modeling were met were conducted using a SAS macro designed to conduct diagnostics for models of this type (MIXED_DX, Bell, Schoeneberger, Morgan, Kromey, & Ferron, 2010).

All analyses were conducted using SAS 9.3. When variables (general organizational capacity, TA engagement, and TA relationship quality) were entered into models as predictors they were centered using grand mean centering so that each has a meaningful zero.

Several strategies were used to address the possibility of low power in this study. First, an effort was made to keep the models to be tested as simple and parsimonious as possible. Second, the alpha level for this study was set at .10 rather than .05, so that *p* values less than .10 are considered significant in this study. After weighing the different options it was concluded that this "known" increase in the possibility of incorrectly rejecting the null hypothesis is preferable to the unacknowledged increase of unknown magnitude that would result from ignoring the multilevel nature of the data.

The specific models to be tested for each research question are described below.

Research Question 1. A series of ordinary least square (OLS) regression models were tested to examine whether three factors measured at baseline (the two measure of general organizational capacity and TA relationship quality) predict successful behavioral engagement in the TA process by staff of intensive partner organizations at Time 2, while

controlling for the initial level of engagement reported at Time 1 and state level organization. The equation for the final model including all predictors is presented below:

$$EngageT2_i = \beta_0 + \beta_1 GenCapacityInf + \beta_2 GenCapacityOpen + \beta_3 Relationship + \beta_4 EngageT1 + \beta_5 StateID1 + \beta_6 StateID2 + \beta_7 StateID3 + \beta_8 StateID4 + \beta_9 StateID5 + \beta_{10} StateID6 + \beta_{11} StateID8 + \beta_{12} StateID9 + \beta_{13} StateID10 + \beta_{14} StateID11 + \beta_{15} StateID12 + e_i$$

Research Question 2. Initially the analysis plan for this question was to test models based on the three conditions necessary for mediation outlined by Baron and Kenny (1986). However, the first condition for mediation (variation in the independent variable significantly accounts for variation in the proposed mediator) was not met. Because this condition was not met, the full series of models to test for mediation was not tested. Instead, a series of OLS regression models was tested simply examining the effects of TA engagement and general capacity on TA dose, while controlling for state level organization. The equation for the final model including all predictors is below:

$$TADose_i = \beta_0 + \beta_1 GenCapacityInf + \beta_2 GenCapacityOpen + \beta_3 EngageT1 + \beta_4 StateID1 + \beta_5 StateID2 + \beta_6 StateID3 + \beta_7 StateID4 + \beta_8 StateID5 + \beta_9 StateID6 + \beta_{10} StateID8 + \beta_{11} StateID9 + \beta_{12} StateID10 + \beta_{13} StateID11 + \beta_{14} StateID12 + e_i$$

Research Question 3. The third research question, whether the relationship between TA dose and changes in innovation-specific capacity over time vary depending on participants' level of engagement in TA was examined using a series of two-level growth curve models looking at change in innovation-specific capacity over time. Level 1 of the models is the different time points at which capacity was measured and level 2 is

the intensive partner organization within which each time point is nested. Variation at the state/region grantee level was accounted for using dummy variables to control for differences at this level.

First, an unconditional model (with no predictors) was tested to assess what proportion of the variance in innovation-specific capacity was explained within partner organizations (level 1) and how much was explained between partner organizations (level 2). Next, a model predicting capacity with time included as a fixed effect was tested, to determine how capacity changes over time. The equation representing this model with time as a fixed effect is shown below:

Level 1: $InnCapacity_{ti} = \pi_{0i} + \pi_{1i}Time_i + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + u_{00}$

$\pi_{1i} = \beta_{10}$

Combined: $InnCapacity_{ij} = \beta_{00} + \beta_{10}Time_i + u_{00} + e_{ti}$

A second model was tested which allowed the effect of time to vary at the partner organization level (or level 2 of the model). This tested the hypothesis inherent in this question, that the innovation-specific capacities of different intensive partner organizations have different growth trajectories over time. This is important because if all partner organizations have the same growth trajectory for innovation-specific capacity over time, then the characteristics of these organizations (such as the dosage of TA that each received and the level of engagement in TA) cannot influence the growth in capacity over time. The equation representing the third model with time as a random effect is shown below[3]:

[3] Each model presented in this series builds upon the previous models. Bold text is used to identify the new parameters which distinguish the current model from those that came before it.

Level 1: $InnCapacity_{ti} = \pi_{0i} + \pi_{1i}Time_i + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + u_{00}$

$\pi_{1i} = \beta_{10} + \boldsymbol{u_{1i}}$

Combined: $InnCapacity_{ij} = \beta_{00} + \beta_{10}Time_i + \boldsymbol{u_{1i}} + u_{00} + e_{ti}$

To address the influence of dosage of TA on growth in capacity over time, a third model adding both the TA dosage and the interaction between TA dosage and time was tested. The interaction between TA dosage and time shows whether the amount of TA (or dosage) is related to change in capacity over time. The equation representing the model with TA dosage and the interaction between dosage and time added is shown below:

Level 1: $InnCapacity_{ti} = \pi_{0i} + \pi_{1i}Time_i + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + \boldsymbol{\beta_{01}TADose} + u_{00}$

$\pi_{1i} = \beta_{10} + \boldsymbol{\beta_{11}TADose} + u_{1i}$

Combined: $InnCapacity_{ij} = \beta_{00} + \beta_{10}Time_i + \boldsymbol{\beta_{01}TADose} + \boldsymbol{\beta_{11}TADose} + u_{1i} + u_{00} + e_{ti}$

A fourth model including both behavioral engagement and the interaction between engagement and time was tested to determine whether there is a relationship between engagement in the TA provided and change in capacity over time. The equation representing the model with engagement and the interaction between engagement and time added is shown below:

Level 1: $InnCapacity_{ti} = \pi_{0i} + \pi_{1i}Time_i + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + \beta_{01}TADose + \boldsymbol{\beta_{02}Engage} + u_{00}$

$\pi_{1i} = \beta_{10} + \beta_{11}TADose + \boldsymbol{\beta_{12}Engage} + u_{1i}$

Combined: $InnCapacity_{ij} = \beta_{00} + \beta_{10}Time_i + \beta_{01}TADose + \boldsymbol{\beta_{02}Engage} + \beta_{11}TADose + \boldsymbol{\beta_{12}Engage} + u_{1i} + u_{00} + e_{ti}$

The fifth model tested whether engagement moderates the effect of TA dosage by adding a three-way interaction between engagement, dosage and time. The equation representing this model is shown below:

Level 1: $InnCapacity_{ti} = \pi_{0i} + \pi_{1i}Time_i + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + \beta_{01}TADose + \beta_{02}Engage + \boldsymbol{\beta_{01*2}TADose * Engage} + u_{00}$

$\pi_{1i} = \beta_{10} + \beta_{11}TADose + \beta_{12}Engage + \boldsymbol{\beta_{11*2}TADose * Engage} + u_{1i}$

Combined: $InnCapacity_{ij} = \beta_{00} + \beta_{10}Time_i + \beta_{01}TADose + \beta_{02}Engage + \boldsymbol{\beta_{01*2}TADose * Engage} + \beta_{11}TADose + \beta_{12}Engage + \boldsymbol{\beta_{11*2}TADose * Engage} + u_{1i} + u_{00} + e_{ti}$

A final model was tested building upon the fifth by including dummy variables to account for the variance at the state/region grantee level. A grantee with a large number of intensive partner organizations was selected to use as the reference group.

Throughout this model building process model fit statistics were used to assess whether each added parameter improved the fit of the model. The determination of whether behavioral engagement moderates the relationship between TA dosage and capacity was based on whether the three-way interaction term added in the sixth model was significant based on the Wald test and whether adding this interaction significantly improved the fit of the model (based on change in -2 log likelihood).

CHAPTER 4: RESULTS

Study Sample

Over the course of the PSBA Project, evaluation data were collected from 131 local organizations which received TA from a state or regional grantee. Of these local organizations, 27 were excluded from the sample because they were missing one or more of the measures required to address research questions (the initial LONA, LOSC, or RILO, and the second LONA and RILO assessment). Eleven cases were excluded due to incomplete data collection at time 1. The majority of these (eight cases) had only a single measure completed and likely are the result of a partnership that was never fully initiated (for example, a local partner who decided not to participate in the project before the initial data collection was completed). Another 16 cases had complete data for the first time point, but either no data (13 cases) or partial data (three cases) for the second time point. The characteristics of the final analytic dataset of 104 local organizations and those of the 27 cases excluded due to incomplete data are described below.

The number of local organizations which were included in the analytic sample or excluded for missing data broken out by state or region-level organization is shown in Table 4.1. The three region-level organizations partnered with a smaller number of local organizations (ranging from two to six organizations) compared to the state-level organizations (which partnered with eight to 15 organizations). Two of these region-level organizations had only a single local level partner with complete data that was included

in the analytic sample due to missing data about the local partners at the second time point.

Table 4.1 Number of Local Level Partners within each State/Regional Organization

State/Region Level	All Cases (N = 131)		Analytic Sample (n = 104)		Missing Data T1 (n = 11)		Missing Data T2 (n = 16)	
Organization	*N*	%	*N*	%	*n*	%	*n*	%
1 (State)	10	7.63	6	60.00	3	30.00	1	10.00
2 (State)	8	6.11	7	87.50	1	12.50	0	0.00
3 (State)	16	12.21	11	68.75	4	25.00	1	6.25
4 (State)	15	11.45	11	73.33	2	13.33	2	13.33
5 (State)	13	9.92	12	92.31	0	0.00	1	7.69
6 (State)	13	9.92	13	100.00	0	0.00	0	0.00
7 (State)	13	9.92	13	100.00	0	0.00	0	0.00
8 (State)	15	11.45	14	93.33	1	6.67	0	0.00
9 (State/ Regional)	15	11.45	11	73.33	0	0.00	4	26.67
10 (Regional)	6	4.58	1	16.67	0	0.00	5	83.33
11 (Regional)	2	1.53	1	50.00	0	0.00	1	50.00
12 (Regional)	5	3.82	4	80.00	0	0.00	1	20.00
Total	131	100.00	104	79.39	11	8.40	16	12.21

Characteristics of the local partner organizations which had sufficient data for inclusion in the analytic sample and those excluded due to missing data were examined for differences between those groups. Table 4.2 displays characteristics of the organizations in the analytic sample as well as those with incomplete data at Time 1 and Time 2. The majority of organizations which were included in the analytics sample reported they had been in existence more than 10 years at the start of their participation in the project (80.4%). In contrast, among those organizations without complete data at Time 1, only 57.1% reported they had existed longer than 10 years. Over half of organizations with complete data (51.5%) had focused on teen pregnancy prevention for at least 10 years, whereas over half of those organizations missing data at Time 2 (53.3%) reported they had focused on teen pregnancy prevention for less than two years.

Table 4.2 Characteristics of Local Level Partners with Complete and Missing Data

	Analytic Sample (n = 104)		Missing Data T1 (n = 11)		Missing Data T2 (n = 16)	
	n	%	*n*	%	*n*	%
Type of Organization						
School/School District	22	21.15	2	28.57	3	18.75
Health Department	9	8.65	1	14.29	3	18.75
Planned Parenthood	9	8.65	0	0.00	0	0.00
Community-based organization	43	41.35	1	14.29	5	31.25
Faith-based organization	1	0.96	1	14.29	0	0.00
Health Care Facility	7	6.73	1	14.29	1	6.25
Other	13	12.50	1	14.29	4	25.00
Missing	0		4		0	
Age of Organization						
Less than 2 years	5	4.90	0	0.00	1	6.25
2-5 years	9	8.82	1	14.29	0	0.00
6-10 years	6	5.88	2	28.57	3	18.75
More than 10 years	82	80.39	4	57.14	12	75.00
Missing	2		4		0	
Length of Time focused on TPP						
New focus	9	8.91	0	0.00	1	6.67
Less than 2 years	16	15.84	1	14.29	7	46.67
2-5 years	14	13.86	2	28.57	1	6.67
6-10 years	10	9.90	2	28.57	1	6.67
More than 10 years	52	51.49	2	28.57	5	33.33
Missing	3		4		1	
Board of Directors/Leadership Structure						
Yes	83	79.81	7	100.00	15	93.75
No	21	20.19	0	0.00	1	6.25
Missing	0		4		0	
Full Time Employees						
None	4	4.44	1	16.67	2	15.38
1-10	30	33.33	3	50.00	5	38.46
11-50	29	32.22	1	16.67	3	23.08
More than 50	27	30.00	1	16.67	3	23.08
Missing	14		5		3	
Employees Working Full Time on TPP						
None	30	30.93	2	28.57	5	31.25
1-10	61	62.89	5	71.43	11	68.75
More than 11	6	6.19	0	0.00	0	0.00
Missing	7		4		0	
New Partner [a]						
Yes	22	21.15	1	33.33	2	12.50
No	82	78.85	2	66.67	14	87.50
Missing	0		8		0	
	M	*SD*	*M*	*SD*	*M*	*SD*
General Capacity (Infrastructure)	4.15	0.99	4.67	0.58	4.19	0.91
General Capacity (Openness)	4.58	0.47	4.50	0.87	4.59	0.33

Note: Missing data is primarily due to incomplete data collection at Time 1. Additionally, schools, school districts, and health departments were instructed not to answer the staff size question.

[a] Partners identified as new if first RILO assessment was completed less than 2 months from their start date.

Organizations included in the analytic sample tended to be larger than those that were missing data at either Time 1 or Time 2. Two thirds (66.7%) of organizations with missing data at Time 1 had fewer than 10 employees, as did over half (53.8%) of those with missing data by Time 2. In contrast, over half (62.2%) of the organizations in the analytics sample reported more than 11 full time staff members. There was less variation in the number of staff members working full time on teen pregnancy prevention. Almost a third of organizations in each group reported they had no staff members working full time on teen pregnancy prevention, and only 6 organizations (all in the analytic sample) reported more than 10 staff members would work on teen pregnancy prevention full time.

Despite the reported differences in organization age and size, there was no difference in how the organizations in the analytic sample were rated on either infrastructure or organizational openness to change compared with organizations missing data at Time 1 or Time 2.

Univariate Analyses

The state-level organizations within which each local organization was nested were the only categorical variables included in the models. Descriptive statistics for the continuous variables included in the models are presented in Table 4.3. Both total TA hours and TA dose (total hours divided by months in the project) were skewed due to a small number of outliers which received much more TA than the other partners in the project. Ten percent winsorization was used to reduce the effects of these outliers, so that for cases above the 95th percentile or below the 5th percentile in the distribution of hours of TA, the value of TA hours was reassigned to the value of the 5th or 95th percentile, thus

Table 4.3 Descriptive Statistics for Continuous Variables included in OLS Regression and Growth Curve Models

Variable	*N*	*M*	*SD*	Minimum	Maximum	Skewness	Kurtosis
General Capacity (Infrastructure)	104	4.15	0.99	1.00	5.00	-1.17	0.90
General Capacity (Openness to change)	104	4.58	0.47	3.50	5.00	-0.91	-0.09
TA Relationship Quality at Time 1	104	4.18	0.55	3.00	5.00	-0.30	-0.89
TA Relationship Quality at Time 2	104	4.31	0.59	1.81	5.00	-1.25	2.83
Engagement in TA at Time 1	104	3.82	0.73	2.17	5.00	-0.16	-0.94
Engagement in TA at Time 2	104	3.96	0.68	2.00	5.00	-0.38	-0.13
Change in Engagement Time 1-Time 2	104	0.14	0.64	-1.17	2.67	0.70	1.86
Mean GTO Capacity at First LONA	104	3.36	0.76	1.37	4.95	-0.62	0.18
Mean GTO Capacity at Second LONA	104	3.68	0.75	1.32	5.00	-0.70	0.82
Mean GTO Capacity at Third LONA	52	4.07	0.53	2.58	4.79	-0.97	0.51
Mean GTO Capacity at Fourth LONA	15	3.87	0.69	2.79	4.89	-0.15	-1.08
Total TA in Hours (original)	104	51.53	100.37	4.00	989.92	8.17	75.66
Total TA in Hours (winsorized)	104	42.94	37.56	6.00	162.00	1.89	3.56
TA Dose (total TA hours/months in the project)	104	2.14	2.63	0.24	24.77	6.55	53.76
TA Dose (winsorized TA hours/months in the project)	104	1.92	1.32	0.24	6.92	1.97	4.65
Months in the Project	104	22.28	9.93	5.00	40.43	0.25	-1.14

reducing the degree to which the data were skewed. Descriptive statistics are provided for both the original and winsorized versions of these variables.

Bivariate Analyses

Bivariate correlations between continuous variables were examined prior to testing multivariate models to address the research questions. Measures of behavioral engagement in TA and TA relationship quality were highly correlated. Relationship quality at Time 1 was strongly correlated with relationship quality at Time 2 (r = .58) but was even more highly correlated with behavioral engagement at Time 1 (r = .86). Likewise, behavioral engagement in TA at Time 2 was correlated with behavioral engagement at Time 1 (r = .59) but was more highly correlated with relationship quality at Time 2 (r = .73). The full correlation matrix is shown in Table 4.4.

The relationship between general capacity and innovation-specific capacity is of particular theoretical interest. Two measures of baseline general organizational capacity are included within the correlation matrix, as are assessments of innovation-specific capacity at four different time points. The first measure of general capacity, a single item rating whether the organization was believed to have sufficient infrastructure to implement evidence-based programming, had a small positive correlation with relationship quality at Time 2 (r = .21) but was not correlated with other variables. The second measure of general capacity, the extent to which the organization was open to change, was moderately correlated with relationship quality at Time 2 (r = .39), behavioral engagement in TA at Time 1 (r = .36) and Time 2 (r = .26), and relationship quality at Time 1 (r = .26). There was also a moderate correlation between openness to change and innovation-specific capacity at Time 4 (r = .35).

Table 4.4 Bivariate Correlation Matrix for all Criterion and Predictor Variables (N = 104 except where otherwise noted)

	Infrastructure	**Openness**	**Quality T1**	**Quality T2**	**Engage T1**	**Engage T2**	**Change in Engage**
General Capacity (Infrastructure)	□						
General Capacity (Openness)	0.17	□					
TA Relationship Quality T1	0.15	0.26	□				
TA Relationship Quality T2	0.21	0.39	0.58	□			
Engagement in TA T1	0.09	0.36	0.86	0.61	□		
Engagement in TA T2	0.12	0.26	0.46	0.73	0.59	□	
Change in Engagement from Time 1 to Time 2	0.01	-0.14	-0.50	0.08	-0.52	0.38	□
Mean GTO Capacity T1	-0.02	-0.16	0.16	-0.05	-0.01	-0.05	-0.04
Mean GTO Capacity T2	0.08	0.14	0.06	0.01	0.04	-0.15	-0.21
Mean GTO Capacity T3	-0.09[a]	0.07[a]	-0.18[a]	-0.18[a]	-0.18[a]	-0.14[a]	0.05[a]
Mean GTO Capacity T4	-0.12[b]	0.35[b]	-0.27[b]	-0.06[b]	-0.10[b]	-0.15[b]	-0.08[b]
Total TA Hours (original)	0.08	0.14	0.22	0.20	0.23	0.27	0.02
Total TA Hours (winsorized)	0.03	0.17	0.24	0.27	0.25	0.36	0.10
TA Dose (total TA hours/months)	0.07	0.12	0.18	0.19	0.23	0.29	0.05
TA dose (winsorized TA hours/months)	0.00	0.08	0.12	0.19	0.19	0.32	0.13
Months in the Project	0.08	0.12	0.19	0.20	0.18	0.24	0.05

[a] n = 52. [b] n = 15.

Table 4.4 Bivariate Correlation Matrix for all Criterion and Predictor Variables (N = 104 except where otherwise noted) (continued)

	Capacity T1	**Capacity T2**	**Capacity T3**	**Capacity T4**	**TA Hours**	**Winsor. TA Hours**	**TA Dose**	**Winsor. TA Dose**
General Capacity (Infrastructure)								
General Capacity (Openness)								
TA Relationship Quality T1								
TA Relationship Quality T2								
Engagement in TA T1								
Engagement in TA T2								
Change in Engagement from Time 1 to Time 2								
Mean GTO Capacity T1	□							
Mean GTO Capacity T2	0.32	□						
Mean GTO Capacity T3	0.17[a]	0.35[a]	□					
Mean GTO Capacity T4	-0.23[b]	0.20[b]	0.75[b]	□				
Total TA Hours (original)	-0.23	-0.06	0.26[a]	0.33 [b]	□			
Total TA Hours (winsorized)	-0.05	0.04	0.28[a]	0.11[b]	0.65	□		
TA Dose (total TA hours/months)	-0.22	-0.10	0.28[a]	0.32[b]	0.95	0.68	□	
TA dose (winsorized TA hours/months)	-0.04	-0.06	0.27[a]	0.08[b]	0.46	0.82	0.65	□
Months in the Project	-0.05	0.12	-0.09[a]	0.28[b]	0.33	0.50	0.15	0.02

[a] n = 52. [b]n = 15.

The correlations between the four measures of innovation-specific capacity and other predictor variables were small, although there were moderate positive correlations between innovation-specific capacity at Time 1 and Time 2 (r = .32) and at Time 2 and Time 3 (r = .35) and a large correlation between innovation-specific capacity at Time 3 and Time 4 (r = .75). In addition, there was a small negative correlation between the initial assessment of innovation-specific capacity and the total amount of TA provided (r = - .23) and dosage of TA provided (r = - .22). These relationships disappeared when the winsorized TA variables were used, suggesting that these correlations were driven by the outliers. In contrast, these TA variables had a small positive correlation with innovation-specific capacity at Time 3 (ranging from r = .25 to r = .28).

Multivariate Analyses

Research Question 1: What factors predict successful behavioral engagement in the TA process by staff members of participating organizations? A series of OLS regression models were tested sequentially to determine the contribution of five different sets of predictors on behavioral engagement in TA as assessed at Time 2. Table 4.5 shows the effects of variables entered into each of these models. The indicator for general capacity based on infrastructure did not have a significant effect on behavioral engagement in TA at Time 2 in any of the models. In contrast, the effect of general capacity based on openness to change had a small but significant effect when only general capacity measures were included in the model, but this effect disappeared when relationship quality at Time 1 was included. Likewise, the significant effect of relationship quality at Time 1 disappeared in the fourth model, which controlled for behavioral engagement at Time 1. The fifth model added in dummy variables to control

Table 4.5 OLS Regression Models Predicting Behavioral Engagement in TA at T2 based on General Capacity, Relationship Quality, Engagement at T1 and State (N = 104)

	Model 1				Model 2				Model 3			
	B	*SE (B)*	β	sr^2	*B*	*SE (B)*	B	sr^2	*B*	*SE (B)*	β	sr^2
Intercept	3.96	0.07	0*		3.96	0.06	0*		3.97	0.06	0*	
General Cap. Infrastructure	0.08	0.07	0.11	0.01	0.05	0.07	0.07	0.01	0.02	0.06	0.03	0.00
General Cap. Openness					0.36	0.14	0.25*	0.06	0.22	0.13	0.15	0.02
Relationship Quality T1									0.51	0.11	0.42*	0.16
Engagement T1												
State Level Organization 1												
State Level Organization 2												
State Level Organization 3												
State Level Organization 4												
State Level Organization 5												
State Level Organization 6												
State Level Organization 8												
State Level Organization 9												
State Level Organization 10												
State Level Organization 11												
State Level Organization 12												
R^2		0.01				0.07				0.23		

Note. sr^2 = squared semi-partial correlation
* $p < .05$
‡ $p < .10$

Table 4.5 OLS Regression Models Predicting Behavioral Engagement in TA at T2 based on General Capacity, Relationship Quality, Engagement at T1 and State (N = 104) (continued)

	Model 4				Model 5			
	B	*SE (B)*	B	sr^2	*B*	*SE (B)*	β	sr^2
Intercept	3.96	0.05	0*		3.66	0.16	0*	
General Capacity Infrastructure	0.05	0.06	0.07	0.00	0.09	0.06	0.13	0.02
General Capacity Openness	0.04	0.13	0.03	0.00	0.04	0.14	0.03	0.00
Relationship Quality at Time 1	-0.25	0.20	-0.21	0.01	-0.18	0.23	-0.14	0.00
Engagement in TA at Time 1	0.70	0.15	0.75*	0.14	0.61	0.17	0.66*	0.09
State Level Organization 1					0.34	0.28	0.12	0.01
State Level Organization 2					0.36	0.27	0.13	0.01
State Level Organization 3					0.48	0.24	0.22‡	0.03
State Level Organization 4					0.36	0.24	0.17	0.01
State Level Organization 5					0.18	0.24	0.09	0.00
State Level Organization 6					0.41	0.24	0.20‡	0.02
State Level Organization 8					0.47	0.23	0.24*	0.03
State Level Organization 9					0.07	0.24	0.03	0.00
State Level Organization 10					0.99	0.59	0.14‡	0.02
State Level Organization 11					0.40	0.59	0.06	0.00
State Level Organization 12					0.32	0.33	0.09	0.01
R^2		0.37				0.44		

Note. sr^2 = squared semi-partial correlation
* $p < .05$
‡ $p < .10$

for the effect of variation at the State/Regional level. This final model had an R^2 of 0.44. Of the variance explained by the model, slightly more than half was explained by the unique contributions of individual variables (based on the sum of the squared semi-partial correlation for each variable in the model, 0.25). The remaining variance (0.19) is shared among the variables in the model.

Tolerance was examined to determine whether multicollinearity might be obscuring the relationship between relationship quality at Time 1 and behavioral engagement in TA at Time 2. Tolerance values range from 0.0 to 1.0, with values closer to zero indicating greater likelihood that multicollinearity is affecting the variability of coefficient estimates. When both behavioral engagement in TA and TA relationship quality at Time 1 were included as predictors in the model, the tolerance for these variables was 0.24 and 0.25, respectively. Along with the high bivariate correlation between these variables (r = 0.86) this suggests that multicollinearity may be affecting the results. Residuals were normal (skew = -0.01, kurtosis = 1.74) and examination of the residuals plotted against predicted change scores showed no evidence of heteroscedasticty.

Due to the high degree of correlation between relationship quality behavioral engagement in TA as assessed at Time 1, a second series of models was tested to examine the effect of initial TA relationship quality on the change in behavioral engagement in TA from Time 1 to Time 2. In other words, did higher levels of relationship quality at Time 1 predict positive changes in the level of behavioral engagement in TA? Table 4.6 displays a series of OLS regression models examining the effects of four sets of predictors on change in behavioral engagement from Time 1 to

Table 4.6 OLS Regression Models Predicting Change in Behavioral Engagement in TA from Time 1 to Time 2 based on General Capacity, Relationship Quality, and State (N = 104)

	Model 1				Model 2			
	B	*SE (B)*	β	sr^2	*B*	*SE (B)*	β	sr^2
Intercept	0.14	0.06	0*		0.14	0.06	0*	
General Cap. Infrastructure	0.01	0.06	0.01	0.00	0.02	0.06	0.04	0.00
General Cap. Openness					-0.19	0.14	-0.14	0.02
Relationship QualityT1								
State Level Organization 1								
State Level Organization 2								
State Level Organization 3								
State Level Organization 4								
State Level Organization 5								
State Level Organization 6								
State Level Organization 8								
State Level Organization 9								
State Level Organization 10								
State Level Organization 11								
State Level Organization 12								
R^2		0.00				0.02		

Note. sr^2 = squared semi-partial correlation

* $p < .05$

‡ $p < .10$

Table 4.6 OLS Regression Models Predicting Change in Behavioral Engagement in TA from Time 1 to Time 2 based on General Capacity, Relationship Quality, and State (N = 104) (continued)

	Model 3				Model 4			
	B	*SE (B)*	β	sr^2	*B*	*SE (B)*	β	sr^2
Intercept	0.13	0.05	0*		-0.09	0.16	0	
General Cap. Infrastructure	0.06	0.06	0.09	0.01	0.11	0.06	0.18‡	0.02
General Cap. Openness	-0.03	0.12	-0.02	0.00	-0.04	0.14	-0.03	0.00
Relationship QualityT1	-0.59	0.10	-0.51*	0.24	-0.60	0.14	-0.52*	0.15
State Level Organization 1					0.18	0.28	0.07	0.00
State Level Organization 2					0.16	0.27	0.06	0.00
State Level Organization 3					0.44	0.25	0.21‡	0.02
State Level Organization 4					0.22	0.24	0.11	0.01
State Level Organization 5					0.06	0.24	0.03	0.00
State Level Organization 6					0.31	0.24	0.16	0.01
State Level Organization 8					0.43	0.24	0.23‡	0.02
State Level Organization 9					0.02	0.25	0.01	0.00
State Level Organization 10					0.84	0.60	0.13	0.01
State Level Organization 11					0.18	0.60	0.03	0.00
State Level Organization 12					0.14	0.33	0.04	0.01
R^2		0.26				0.32		

Note. sr^2 = squared semi-partial correlation
* $p < .05$
‡ $p < .10$

Time 2. Quality of TA relationship at Time 1 is shown to have a statistically significant negative relationship with change in behavioral engagement ($\beta = -.52$, $p < .05$). This means that the more positively TA relationship quality was rated at Time 1, the more likely level of behavioral engagement was to decrease between Time 1 and Time 2. This is the opposite of the effect relationship quality was hypothesized to have on behavioral engagement in TA. For this final model, $R^2 = 0.36$. Of the explained variance, almost half is accounted for by quality of TA relationship at Time 1 (with a squared semi-partial correlation of 0.15). A substantial portion of the remaining variance is shared across variables (0.11).

The tolerances of this final model were acceptable (ranging from .45 -.90), suggesting that multicollinearity was not a problem in this model. Residuals were normal (skew = -0.04, kurtosis = 1.48) and examination of the residuals plotted against predicted change scores showed no evidence of heteroscedasticty.

This final model was also tested with several additional control variables. To control for the possibility that the initial RILO ratings for newer partners may be systematically different from those with longer relationships with TA providers, both a continuous variable for number of months from the start of the partnership and the first rating of engagement and relationship quality and a dichotomous variable indicating the first RILO assessment was less than two months from the start date were included in different models. Neither of these variables improved the model (based on R^2) or yielded a significant parameter estimate). Another control variable (indicating whether the primary local contact person changed between Time 1 and Time 2) likewise did not either

improve the model or yield a significant parameter estimate. Findings from these models are not reported here (but are available upon request).

Research Question 2. Does behavioral engagement of the TA participants mediate the relationship between initial general capacity and the dosage of TA received? As noted in the results for the first research question, general capacity (as measured here) was not a significant predictor of behavioral engagement in TA at Time 2. Given that finding, the possibility of behavioral engagement mediating the effect of capacity on dose of TA received could not be explored. Despite that, models were tested to examine the effects of both general capacity and behavioral engagement on TA dose.

TA dose was calculated by dividing total hours of TA recorded by the TA provider by the number of months that each partner organization participated in the project, yielding an estimate of the average number of hours of TA received per month. As noted previously, ten percent winsorization was used to reduce the effect of a small number of organizations which received much larger amounts of TA than the other organizations.

OLS regression models were tested sequentially to determine the contribution of capacity, behavioral engagement in TA, and state organization on the dosage of TA received. The results of these models are shown in Table 4.7. Neither of the measures of general capacity (infrastructure or openness to change) had an effect on TA Dosage in these models. Behavioral engagement in TA as assessed at Time 1 had a small effect on TA dosage ($\beta = 0.24$, $p = .04$). Behavioral engagement in TA and capacity combined explained almost none of the variance in TA dose ($R^2 = .03$ for model 3). Model 4, which includes the dummy variables for state level organizations explained a larger proportion

Table 4.7 OLS Regression Models Predicting TA Dose (Hours per Month) based on General Capacity, Behavioral Engagement in TA, and State (N = 104)

	Model 1				Model 2			
	B	*SE (B)*	B	sr^2	*B*	*SE (B)*	B	sr^2
Intercept	1.92	0.13	0*		1.92	0.13	0*	
General Capacity-Infrastructure	0.00	0.13	0.00	0.00	-0.02	0.13	-0.01	0.00
General Capacity-Openness					0.24	0.28	0.09	0.01
Engagement in TA at Time 1								
State Level Organization 1								
State Level Organization 2								
State Level Organization 3								
State Level Organization 4								
State Level Organization 5								
State Level Organization 6								
State Level Organization 8								
State Level Organization 9								
State Level Organization 10								
State Level Organization 11								
State Level Organization 12								
R^2		0.00				0.01		

Note. sr^2 = squared semi-partial correlation
* $p < .05$
‡ $p < .10$

Table 4.7 OLS Regression Models Predicting TA Dose (Hours per Month) based on General Capacity, Behavioral Engagement in TA, and State (N = 104) (continued)

	Model 3				Model 4			
	B	*SE (B)*	β	sr^2	*B*	*SE (B)*	β	sr^2
Intercept	1.92	0.13	0*		1.76	0.35	0*	
General Capacity-Infrastructure	-0.03	0.13	-0.02	0.00	0.21	0.14	0.16	0.02
General Capacity-Openness	0.07	0.30	0.02	0.00	-0.05	0.31	-0.02	0.00
Engagement in TA at Time 1	0.32	0.19	0.18‡	0.03	0.43	0.21	0.24*	0.03
State Level Organization 1					-0.89	0.60	-0.16	0.02
State Level Organization 2					-0.46	0.57	-0.09	0.00
State Level Organization 3					0.49	0.52	0.12	0.01
State Level Organization 4					-0.47	0.50	-0.11	0.01
State Level Organization 5					0.12	0.49	0.03	0.00
State Level Organization 6					1.47	0.51	0.37*	0.06
State Level Organization 8					0.82	0.49	0.21‡	0.02
State Level Organization 9					-0.52	0.52	-0.12	0.01
State Level Organization 10					-0.18	1.25	-0.01	0.00
State Level Organization 11					2.20	1.26	0.16‡	0.03
State Level Organization 12					-0.84	0.70	-0.12	0.01
R^2		0.03				0.32		

Note. sr^2 = squared semi-partial correlation
* $p < .05$
‡ $p < .10$

of the variance in TA dose (R^2 = .32). Over two thirds of this variance was explained by the unique contributions of individual variables (based on the sum of the squared semi-partial correlation for each variable in the model, 0.22). The remaining variance (0.10) is shared among the variables in the model.

For predicting TA dose, tolerance values for the predictor variables included in the final model ranged from .45-.88, suggesting that multicollinearity was not a problem in this model. Residuals were fairly normal (skew = .84, kurtosis = 1.76) and examination of the residuals plotted against predicted change scores did not show evidence of heteroscedasticty.

Research Question 3. Does the relationship between TA dose and changes in innovation-specific capacity over time vary depending on participants' level of behavioral engagement in TA? A series of two-level growth curve models with time nested in organizations were tested to examine the relationship between TA dose and change in innovation-specific capacity over four time points. As noted in the description of the model building process (found in Chapter 3), the unstructured covariance structure was used to allow for the examination of covariance between random intercepts and random slopes. The presence of covariance can indicate if the rate of change over time is related to the intercept (Twisk, 2013). The results of these models are shown in Table 4.8. An unconditional model (with no predictors) was examined to assess the amount of total variance explained between local organizations and the amount explained within each local organization. The ICC calculated based on this model is 0.21, suggesting that while the majority of the variance in innovation-specific capacity is explained *within* organizations across time, a substantial portion (about one fifth) of the variance in

Table 4.8 Growth Curve Models Examining Change in Innovation-Specific Capacity (all 4 time points included in the models) (N = 104)

	Model 0: Unconditional Model		Model 1: Fixed Effects for Time Included		Model 2: Fixed and Random Effects for Time Included		Model 3: Time, TA Dose, and Time by TA Dose Interaction Included	
Fixed Effects								
Intercept	3.63*	(0.05)	3.39*	(0.07)	3.38*	(0.07)	3.45*	(0.13)
Time Point			0.28*	(0.04)	0.29*	(0.05)	0.20*	(0.08)
TA Dose							-0.04	(0.06)
TA Dose * Time							0.05	(0.04)
TA Engagement								
TA Engagement * Time								
TA Dose * Engagement * Time								
State Level Organization 1								
State Level Organization 2								
State Level Organization 3								
State Level Organization 4								
State Level Organization 5								
State Level Organization 6								
State Level Organization 8								
State Level Organization 9								
State Level Organization 10								
State Level Organization 11								
State Level Organization 12								
Error Variance								
Residual	0.45*	(0.05)	0.37*	(0.04)	0.30*	(0.04)	0.30*	(0.04)
Intercept	0.12*	(0.05)	0.14*	(0.04)	0.29*	(0.08)	0.29*	(0.08)
Covariance Intercept * Time					-0.10*	(0.04)	-0.10*	(0.04)
Time Slope					0.06*	(0.03)	0.06*	(0.03)
Model Fit								
-2 Log Likelihood	616.1		578.9		571.2		569.3	

Note: Values based on SAS Proc Mixed. Entries show parameter estimates with standard errors in parentheses.

* $p < .05$

‡ $p < .10$

Table 4.8 Growth Curve Models Examining Change in Innovation-Specific Capacity (all 4 time points included in the models) (N = 104) (continued)

	Model 4: Time, TA Dose, Engagement, and Interaction Terms Included		Model 5: 3-way Interaction between Time, TA Dose & Engagement		Model 6: 3-way Interaction between Time, TA Dose & Engagement with State Dummies Included	
Fixed Effects						
Intercept	3.46*	(0.13)	3.46*	(0.13)	3.62*	(0.19)
Time Point	0.19*	(0.08)	0.21*	(0.10)	0.22*	(0.10)
TA Dose	-0.05	(0.06)	-0.04	(0.06)	-0.11‡	(0.06)
TA Dose * Time	0.06	(0.04)	0.04	(0.05)	0.05	(0.05)
TA Engagement	0.05	(0.10)	0.05	(0.10)	0.08	(0.11)
TA Engagement * Time	-0.08	(0.07)	-0.11	(0.12)	-0.11	(0.12)
TA Dose * Engagement * Time			0.02	(0.05)	0.02	(0.05)
State Level Organization 1					0.01	(0.25)
State Level Organization 2					-0.35	(0.24)
State Level Organization 3					0.06	(0.22)
State Level Organization 4					-0.41‡	(0.22)
State Level Organization 5					-0.02	(0.21)
State Level Organization 6					0.13	(0.23)
State Level Organization 8					0.00	(0.21)
State Level Organization 9					-0.27	(0.22)
State Level Organization 10					0.14	(0.58)
State Level Organization 11					1.42*	(0.58)
State Level Organization 12					0.28	(0.33)
Error Variance						
Residual	0.33*	(0.04)	0.30*	(0.04)	0.30*	(0.04)
Intercept	0.29*	(0.08)	0.29*	(0.08)	0.24*	(0.07)
Covariance Intercept * Time	-0.10*	(0.04)	-0.10*	(0.04)	-0.09*	(0.04)
Time Slope	0.06*	(0.03)	0.06*	(0.03)	0.06*	(0.03)
Model Fit						
-2 Log Likelihood	568.0		567.8		549.3	

Note: Values based on SAS Proc Mixed. Entries show parameter estimates with standard errors in parentheses.
* $p < .05$
‡ $p < .10$

innovation-specific capacity is related to differences *between* organizations. The significant, positive parameter estimates for time point show that innovation-specific capacity increased over the time points at which it was assessed.

Allowing the effect of time-point of assessment to vary randomly (Model 2) significantly improved the model in comparison to the previous model where the effect of time was held fixed ($\chi^2 = 7.7$, $df = 2$, $p < .05$). This shows that the trajectory of growth of the different organizations was different over time; not all organizations increased their capacity at the same rate. There was also a small but significant negative covariance between the variance of the intercept (baseline innovation-specific capacity) and the variance of the effect of time. Negative covariance between the variance for random slopes and intercepts indicates that organizations with lower capacity at baseline experienced higher rates of growth over time (Peugh & Enders, 2005; Twisk, 2013).

The third model tested included the effect of TA dose on change over time. Contrary to the hypothesis that higher TA dose would lead to greater increases in capacity, the dose of TA provided had no effect on change in capacity over time and including TA dose and the interaction between TA dose and time did not significantly improve the fit of the model ($\chi^2 = 1.9$, $df = 2$, $p < .50$). Likewise, the addition of behavioral engagement in TA to the model (Model 4) and an interaction term for behavioral engagement and dose of TA (Model 5) did not produce significant effects and yielded minimal changes to the fit of the model ($\chi^2 = 1.3$, $df = 2$, $p = .50$, and $\chi^2 = 0.2$, $df = 1$, $p = .90$, respectively). The sixth model tested added dummy variables to account for differences in the trajectory of change in capacity by state level organization. The addition of these variables resulted in a significant improvement in the fit of the model

(χ^2 = 18.6, *df* = 11, $p < .10$). Several of these state level dummy variables had statistically significant effects in the model. In addition, controlling for the effect of state also led to an increase in the parameter estimate for the effect of TA dose, so that this effect became statistically significant (fixed effect parameter estimate for TA dose = -.105, $p = .07$). This negative coefficient shows that when controlling for state level organization, lower baseline innovation-specific capacity is associated with larger amounts of TA. The interaction between time and TA dose remained small and non-significant in this model, suggesting there is no association between dose of TA and the rate of change in capacity over time.

The MIXED_DX SAS Macro (Bell, Schoenberger, Morgan, Kromrey & Ferron, 2010) was used to test whether the assumptions of multilevel modeling were met and to identify influential outliers. Several concerns were raised in the results of these tests. While the distribution of overall residuals was normal (skew = -0.58, kurtosis = 1.65), Levene's test of homogeneity of variance of level-1 residuals was significant ($F = 1.73$, $p < .001$), indicating that the assumption that variance of these residuals is homogenous was *not* met. Additionally, Levene's test of homogeneity of variance of level-2 residuals was also significant for both the intercept and slope of one variable (the dummy variable for State Organization 4), for the intercept of the dummy variable for State Organization 12, and for the slope of the dummy variable for State Organization 9. Violations of the assumption of homogeneity of variance can distort the random effects coefficients and variance-covariance components (Bell et al., 2010). While this is a limitation, the focus of this study is on fixed effects of these the random effects, which are not affected by this type of violation.

Because a limited number of organizations completed assessments at four time points (15 out of 104), the *proc mixed* procedure imputed a fourth time point for a majority of cases. To see whether this imputation influenced the results of these models, the growth curve models were run a second time including capacity assessments from only the first three time points. These analyses could not be completed because the variance for time failed to estimate for these models, both using the unstructured variance structure option and the variance component (VC) variance structure option.

CHAPTER 5: DISCUSSION

The purpose of this study was to examine how TA participants' behavioral engagement in TA influenced the amount of TA provided and the effectiveness of that TA. Findings from each of the three research questions are discussed individually below. Next the limitations of the study are discussed. This is followed by a section describing potential applications of findings across these questions for TA practice and research. The last section highlights conclusions from this study.

Discussion of Findings for Research Question 1

The first research question of this study is what factors predict successful behavioral engagement in the TA process by staff members of participating organizations. Based on findings from previous research (Keener, 2007), it was hypothesized that general organizational capacity and relationship quality as assessed at baseline would both predict the level of behavioral engagement in the TA relationship reported at Time 2. These hypotheses were not supported. Relationship quality at Time 1 and one measure of general organizational capacity (openness to change) were associated with behavioral engagement in TA at Time 2 in bivariate correlations, though a second indicator of general organizational capacity (infrastructure) was not. However, when behavioral engagement in TA at Time 1 was controlled for in a multivariate model, the relationship between relationship quality at Time 1 to behavioral engagement at Time 2 was diminished and became non significant. The relationship between general capacity (openness) and behavioral engagement at Time 2 was also diminished and became non

significant when either relationship quality or behavioral engagement at Time 1 was included in the model.

It was surprising that neither measure of general capacity helped predict level of behavioral engagement at Time 2, given that past research (Keener, 2007) found characteristics of organizational capacity influenced which participants who were offered TA became engaged in the process. However, that study had more sophisticated measures of organizational characteristics which influenced TA engagement, and these characteristics were reported by TA participants for their own organizations. In contrast, this study was limited to three items which were assessed by the TA provider prior to initiation of the TA relationship. It is possible that better measurement of organizational characteristics may have yielded a relationship between behavioral engagement in TA and some elements of general organizational capacity.

Because behavioral engagement in TA at Time 1 was highly correlated with relationship quality at Time 1, one potential explanation for the lack of relationship between relationship quality and behavioral engagement at Time 2 is that multicollinearity obscured this relationship. To examine the relationship between behavioral engagement and relationship quality without multicollinearity, a second series of models was tested predicting *change* in level of behavioral engagement in TA between Time 1 and Time 2. These models addressed a slightly different question: what factors predict increases in level of behavioral engagement in TA over time? These models yielded a counterintuitive finding: a negative relationship between relationship quality at Time 1 and change in behavioral engagement over time, so that a higher level of

relationship quality reported at Time 1 was actually associated with a *decrease* in behavioral engagement in TA from Time 1 to Time 2.

The negative relationship between relationship quality at Time 1 and change in behavioral engagement does not mean that higher quality relationships at the beginning of the project caused a decrease in behavioral engagement. Because relationship quality and behavioral engagement in TA were so highly correlated at Time 1, for organizations where relationship quality was highly rated at the first assessment, behavioral engagement in TA was also rated as very high. Some of those at the high end of the scale for behavioral engagement at Time 1 may display a ceiling effect (where there was no room to improve on their initial levels of behavioral engagement, so they either maintained at the same level or decreased slightly). In contrast, the majority of those initially rated lower in behavioral engagement increased their level of engagement from Time 1 to Time 2. Because initial ratings of relationship quality and behavioral engagement were so highly correlated, the negative relationship between relationship quality and change in behavioral engagement is probably indicative of regression to the mean for those at the more extreme ends of the behavioral engagement scale.

The close correlation between ratings of behavioral engagement and relationship quality raise some questions about the measurement of these constructs. It is noteworthy (and somewhat unexpected) that behavioral engagement and relationship quality were more strongly correlated with each other within each time point than either construct was correlated with itself over time. One possibility is that the constructs are not clearly differentiated from each other, at least as captured in the RILO assessment. This measure of relationship quality was derived from existing measures in comparable areas but it has

not been validated. Likewise, the measure of behavioral engagement in TA is made up of items that were developed for this evaluation and has not been validated. Another possibility is that the constructs differ, but TA providers have difficulty discriminating between them when completing a rating scale. For example, a TA provider who is frustrated by a participant who cancels meetings and does not respond to emails and phone calls may rate that participant lower on all aspects of relationship quality than a participant who participates in TA offered, even if other aspects of relationship quality (such as shared understanding of the tasks) are comparable between the two partners. A third possibility is that the initial ratings of TA behavioral engagement and relationship quality were limited by lack of information on the part of TA providers, and this led to TA provider making inferences about relationship qualities based on initial levels of behavioral engagement or vice versa. This is less likely as an explanation, as high correlations between ratings of behavioral engagement and relationship quality persist at each time point these constructs were measured.

Discussion of Findings for Research Question 2

Several previous studies found that organizations with less general capacity were less likely to access or use TA (Kegeles et al., 2005; Mitchell et al. 2004). This research tested the hypothesis that the relationship between an organization's general capacity and use of TA would be mediated by behavioral engagement. The predicted relationship between level of general capacity at the start of the project and dose of TA was not found. Neither measure of general capacity (infrastructure or openness to change) had more than a small bivariate correlation with dosage of TA. Likewise, neither of these variables contributed any predictive power to regression models predicting TA dose. Behavioral

engagement in TA did have a small positive relationship with TA dose, but the regression model including behavioral engagement in TA and general capacity explained a negligible amount of the variance in TA dosage. Adding dummy variables for state-level organizations considerably increased the proportion of variance explained, suggesting that the state-level organizations providing the TA or the TA provider(s) working for them contributed more to the prediction of dose of TA than the characteristics of TA participants that were examined.

As noted previously, the measures of general capacity used in this study were limited, which could explain why neither of these measures related to the dosage of TA that local organizations received. More surprising is the limited relationship between level of behavioral engagement in TA and the dosage of TA reported, particularly given the fact that the items used to measure TA engagement would appear to be closely linked to the amount of TA which an organization received (e.g. “Local partner initiates TA meetings or conversations with me” and “Local partner keeps appointments with me”). Several potential reasons for that limited relationship are described below.

One potential explanation for the limited relationship between behavioral engagement and TA dose has to do with how behavioral engagement was measured. Behavioral engagement was rated solely from the perspective of the TA providers, not the TA participants, and it is possible that the TA providers’ assessment of behavioral engagement was not accurate (perhaps because the initial rating was early in the TA relationship, or perhaps due to concerns about how lower behavioral engagement scores would reflect on their performance or be perceived by the project funder).

Another possibility is that the level of behavioral engagement among TA participants actually had a relatively small effect on the dosage of TA reported. For example, characteristics of the individual TA provider (such as their knowledge of the innovation or their level of skill working with people) or the organization where they work (such as availability of staff to provide TA, emphasis on providing TA versus other types of activities like raising awareness about the issue of teen pregnancy, and the number of partners they worked with) may have influenced the amount of TA provided in the PSBA project more than the level of local organizations' staff members' behavioral engagement in TA. No research examining differences in amount of TA provided based on the characteristics of organizations providing TA has been identified. Among the previous studies of TA reviewed here, almost all examined TA as provided by a single team or organization (Chinman et al., 2008, Feinberg et al., 2008; Kelly et al., 2000; Mihalic & Irwin, 2003; Mitchell et al., 2004; Ringwalt et al., 2009; Spoth et al., 2007; Stevenson et al., 2002) or in one case a single individual (Keener, 2007). Likewise, there is limited research examining differences among individual TA providers. Only one study located (Feinberg et al., 2008) tested for differences in effectiveness based on different individuals providing TA.

Alternatively, there may have been systematic differences in the way that TA providers in different organizations tracked the amount of TA provided each month. For example, if some organizations (or individual TA providers) made a more concerted effort to accurately track all TA provided and others' reporting was more lax, it could likewise provide a reason for why state-level dummy variables better explained the variance in TA than local partner factors.

A third potential explanation for the limited relationship found between behavioral engagement in TA and TA dose is that looking at dosage of TA as the average number of hours of TA provided per month may have obscured the relationship between these variables. Other studies have also used average amount of TA per month or per quarter (Feinberg et al., 2008; Mitchell et al., 2004), but it is possible that the amount of TA provided to a site may ebb and flow over time, rather than providing a consistent and regular dosage over time. If that is the case, then looking at the amount of TA provided as an average across the months of project participants may wash out relationships that might be found by looking at TA in a different way (perhaps by examining patterns of utilization over time or by looking at the amount of TA provided in the months immediately following annual assessments of behavioral engagement).

Discussion of Findings for Research Question 3

Several hypotheses were embedded within the third research question: 1) that different organizations would show different trajectories of change in capacity over time, 2) that the more TA an organization received the more their capacity would increase, and 3) behavioral engagement would moderate the relationship between amount of TA received and change in capacity. These hypotheses followed from a study which found a moderating effect of coalition capacity on the results of TA, so that higher functioning coalitions benefited more from the TA dosage received (Feinberg et al., 2008).

Only one of these hypotheses was supported by the models tested: local organizations' self-reported capacity to conduct the GTO steps increased over time, and the trajectory of change in capacity varied across the different local organizations. The dosage of TA reported did not influence the trajectory of change in capacity. There was a

small but significant negative relationship between capacity and TA dose, suggesting that local organizations with lower capacity received a higher dose of TA, but not that the amount of TA related to changes in capacity.

Including behavioral engagement in TA as a potential moderator did not improve the model and there was no evidence that level of engagement influenced the relationship between TA dose and change in capacity over time. Contrary to Feinberg and colleagues' (2008) findings, the results of growth curve models tested suggest that those with lower innovation-specific capacity at the start of the project increased their capacity more quickly over time than organizations which had higher innovation-specific capacity at the start.

There are several possible explanations for the lack of relationship between TA dose and change in capacity over time, even when behavioral engagement in TA was taken into account. It is possible that the dosage of TA is related to growth in capacity over time, but that the way TA was tracked was not accurate enough for that relationship to be shown. Alternatively, it may be that by examining the average amount of TA provided per month across the course of the project, the effects of TA provided on capacity within specific time periods were obscured. The effects of TA dose found by Feinberg et al. (2008) were based on path models which linked changes in capacity to the TA provided in the year immediately preceding that measurement of capacity, whereas in these models TA dose was averaged across the entire period an organization participated in the study. It is also possible that no relationship was found between TA dose and change in capacity over time because some other aspect of the project besides the TA provided (such as training) or an aspect of TA other than the dose provided caused

changes in capacity. There may also be differences based on the fact that several studies that have found such a dose response relationship focused on coalitions (e.g. Feinberg et al., 2008; Chinman et al., 2008) while this study included mostly community-based organizations and schools.

Limitations

An important limitation of this study is the reliance *only* on TA providers' report to assess the level of engagement and quality of the TA relationship, as well as the amount of TA provided. TA providers likely have a different perspective on their relationships with partnering organizations than do staff members at those organizations, particularly in instances where the TA relationship is not entirely positive. What a TA provider views as lack of engagement might be viewed by the recipient of those TA efforts as TA that does not fit with their needs or does not address the barriers they face within their organization or setting. While it is beyond the scope of this study, future research should address this limitation by collecting data on the TA relationship from the perspective of TA participants as well as providers and/or by having a third party more objectively assess the nature of TA provision. Such research could also examine the extent to which these different perspectives overlap and differ.

A related issue is that individuals providing TA were nested within the different organizations providing TA. In the data available there was no way to account for the fact that in some cases there were different TA providers completing the measures assessing TA relationship and behavioral engagement, either within the same time point (if there were multiple staff members providing TA) or at the different time points (if there was staff turnover and a new TA provider that replaced someone no longer providing TA).

A further limitation is that the measures of behavioral engagement in TA and relationship quality used in this study, although reliable based on internal consistency, have not been validated. To some extent this represents the state of the field of research on TA, which lacks validated measures or even clear agreement on what are the important constructs to measure. The measures of general capacity used were extremely limited (e.g. a single item assessed by someone outside the organization assessing availability of infrastructure to support teen pregnancy prevention). Lack of validation of these measures makes it impossible to ascertain whether the findings here did not support the hypotheses because they were wrong or because there were problems with the way that the constructs of interest were measured.

In addition to the fact that the measures used were not validated, it is also important to note that these data were not collected specifically for the purpose of research. While CDC staff worked to ensure that data was submitted in a timely and accurate way, they were not directly involved in the data collection. The amount of TA provided may have been particularly difficult for state and regional organizations to report accurately because it was dependent on how closely individual TA providers kept track of their contact with each partner organization.

Another important limitation of this study is the small sample size and limited power to detect effects given that sample size. For the most part, the sizes of hypothesized effects that were not found to be significant were small, but it is possible that with a larger sample size, some of these effects may have risen to the level of statistical significance. In particular, the amount of information imputed in the growth curve models tested for research question three was quite large, and models attempted

based on only three time points failed to estimate. Additionally, concerns about possible violation of the assumption of homogeneity of variance in these models could indicate problems with the random effects coefficients estimated by these models (though this should not influence the fixed effects, which are the primary focus of this study).

Several other limitations of this study are noteworthy. The lack of a comparison group limits the extent to which causal inferences can be made about the effects of the TA intervention examined here. An additional matter related to the study design is that the organizations studied here were not selected randomly, but instead in a multi-level process where state and region-level organizations were selected purposefully by the CDC, and then these organizations likewise purposefully recruited intensive partners, limiting the generalizability of the findings from this study. Given limitations raised here, particularly the limited sample size and the lack of any prior validation of measures of the TA process, findings here should be considered exploratory.

Implications of these Findings for TA Practice

The strongest predictor of engagement in TA at the second time point in this study was the level of engagement in TA when it was first measured, early in the relationship. This suggests that the early indicators of engagement (or disengagement) are important for TA provider to attend to with a goal of enhancing engagement as much as possible. If engagement can be enhanced early on in the relationship, that may lead to greater engagement in the process of TA through the course of the project. Part of that engagement process may be to help organization staff understand how to access TA. Kegeles and colleagues (2005) found that “knowing how to access TA is a learned skill itself. The larger CBOs were more likely to seek effective help and develop such

collaborations. Clearly the smaller CBOs need to be targeted for help as well, even if they do not know how to obtain such assistance," (p. 295). Given that, TA providers may find it useful to clearly set expectations in the early phases of the TA relationship for what engagement looks like, how TA can be accessed, and the roles of both the TA provider and recipient. For example, a TA provider might encourage participants to reach out to them at any time with questions or concerns, and then demonstrate that he or she is in fact available and strive to provide useful information when participants reach out to them.

Another way to enhance the engagement process may be to help organization staff understand how TA can benefit them. Several authors have recently identified a need to better understand what makes organizations ready to take on new innovations such as incorporating science-based approaches into their work (Scaccia et al, 2013; Weiner, Amick & Lee, 2008). Scaccia and colleagues identify motivation to incorporate that innovation into their work as a key element of readiness. Enhancing motivation at the beginning of the TA process by ensuring that staff members understand how the innovation (and the TA available to support its use) can improve their work could lead to greater engagement in TA.

The finding that the dosage of TA (represented in hours per month) did not influence the trajectory of capacity growth suggests that TA providers should beware of setting specific targets for the amount TA provided without taking into account both the specific needs of the partners they work with and what specific actions they can take in the TA relationship to build their partner's capacity. Just because a TA provider is in regular contact with the organizations they work with does not necessarily mean they are effectively increasing their capacity. Likewise, just because a TA provider only logged a

limited amount of time with an organization does not necessarily mean they were ineffective.

Implications and Recommendations for Future TA Research

Findings from this study highlight the need for development and validation of measures related to TA. As demonstrated in this study, the lack of validated measures of TA relationship quality and behavioral engagement in TA make interpretation of findings difficult. Future research is also needed to develop measures examining elements of the TA relationship from the point of view of the participants in the TA process. While a few qualitative studies have investigated the experience of receiving TA from the participants' point of view (e.g. Kegeles et al., 2005), lack of valid measures of the TA experience from this perspective presents a serious limitation to this field. While they were not asked to assess the same constructs, it is noteworthy that in this study, there was little correlation between the data reported directly by TA participants (measures of innovation-specific capacity) and those reported by the TA provider (general capacity, behavioral engagement in TA, and TA relationship quality).

In tandem with the development of valid measures related to TA, there is a need for further development of theory of how TA works and what factors influence its effectiveness. The majority of research on TA has focused either on the amount of TA provided (e.g. Feinberg et al., 2008; Mitchell et al., 2004) or satisfaction with TA provided (e.g. Mihalic & Irwin, 2003; Spoth et al., 2007) without clearly explicating a theory of why and how these factors matter. While some qualitative research has highlighted the relationship between TA provider and participants as an essential element of TA (Fine et al., 2001; Hunter et al., 2009; Kegeles et al., 2005; O'Donnell et al., 2000),

important questions of what the specific relationship qualities are and the actions a TA provider can take to develop the TA relationship have not been answered. Clearer specification of theory of the essential elements of TA is also needed to guide the development of measures that are valid and relevant.

Related to further development of a theory of TA, research is needed examining TA characteristics beyond the amount of contact time between TA provider and participant. Several previous studies found a positive relationship between change in capacity and the amount of TA provided (Feinberg et al., 2008; Stephenson et al., 2002), but several studies other than this one failed to find such a relationship (Mihalic & Irwin, 2003; Mitchell et al., 2004; Spoth et al., 2007). It is possible that the relationship between TA and change in capacity may be more complex than a simple dose response relationship. In the same way that a brief intervention (such as one to two sessions of Motivational Interviewing; Miller & Rollnick, 2002) may be more effective at changing substance abuse than a longer therapeutic intervention, it may be that *more* TA is not necessarily better. Factors like the skill of the TA provider, when TA is provided in relation to the process of adopting an implementation, and the pattern of TA provided over time may be as or more important than the total amount of TA provided.

Another area where further research is needed is examining the ways that the characteristics of both the individuals providing TA and the organizations where they work influence how TA is provided. As noted previously, no research identified here has examined differences between TA provided by different organizations, and research examining differences by TA provider is limited to one study. The findings here suggest that these differences are important to understand, and in fact may influence the TA

provided as much or more than the characteristics of the organizations participating in TA.

Conclusion

This study examined three hypotheses focused on the behavioral engagement of participants in the TA process, dosage of TA provided, and how these related to change in capacity over time. While the hypothesized relationships were not found between these factors, several findings provide useful information for further research and practice. First, it was found that behavioral engagement in TA is best predicted by previous behavioral engagement in the TA process. This suggests that the beginning of the TA relationship may be a particularly crucial period to get individuals engaged in the TA process. Additionally, it appears that behavioral engagement in TA and the quality of the TA relationship may not be clearly differentiated from each other, at least as assessed by the TA providers in this project. Another noteworthy finding was that participating organizations reported greater innovation-specific capacity over time but TA dosage (as measured by average hours of TA per month of participation) was not related to the amount of change in innovation-specific capacity. Finally, across all three research questions, it became clear that the different organizations and/or individuals providing TA influence behavioral engagement in TA, dosage of TA, and growth in capacity over time. This study cannot provide information about how characteristics of these organizations and individuals influence how TA is provided, but research on these characteristics is needed.

TA has been identified as a key strategy for building the capacity of the prevention delivery system to implement evidence-based approaches. However, while

TA holds much promise, there is still a need for an evidence base about what constitutes effective TA (Wandersman, Chien & Katz, 2012). The benefit of committing to more rigorous research on the relationships and processes of TA is increased impact for the individuals and organizations working to prevent social problems.

References

Advocates for Youth. (2008). *Science and Success (2nd ed.): Sex Education and Other Programs that Work to Prevent Teen Pregnancy, HIV, and Sexually Transmitted Infections.* Retrieved from: http://www.advocatesforyouth.org/storage/advfy/documents/sciencesuccess.pdf.

Andrews, A. B. & Motes, P. S. (2007). Organizational and Community Capacity Building: Mediating Change in Family-Serving Organizations and Groups. In Motes, P. S., & Hess, P. M. (eds.) *Collaborating with Community-based Organizations through Consultation and Technical Assistance,* pp. 1-18. New York: Columbia Universities Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182.

Bell, B. A., Morgan, G. B., Schoeneberger, J. A., Loudermilk, B. L., Kromrey, J. D., & Ferron, J. M. (2010). Dancing the Sample Size Limbo with Mixed Models: How Low Can You Go? Presented at the SAS Global Forum, April 2010.

Bell, B. A., Schoeneberger, J. A., Morgan, G. B., Kromrey, J. D., & Ferron, J. M. (2010). Fundamental Diagnostics for Two-Level Mixed Models: The SAS® Macro MIXED_DX. Presented at the SAS Global Forum, April 2010.

Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice, 16*(3), 252–260.

Chinman, M., Acosta, J., Ebener, P., Burkhart, Q., Malone, P. S., Paddock, S. M., … Tellett-Royce, N. (2013). Intervening with practitioners to improve the quality of prevention: One-year findings from a randomized trial of Assets-Getting To Outcomes. *Journal of Primary Prevention, 34*, 173–191. DOI 10.1007/s10935-013-0302-7

Chinman, M., Hannah, G., Wandersman, A., Ebener, P., Hunter, S. B., Imm, P., et al. (2005). Developing a community science research agenda for building community capacity for effective preventive interventions. *American Journal of Community Psychology, 35*(3–4), 143–157. DOI: 10.1007/s10464-005-3390-6

Chinman, M., Hunter, S.B., Ebener, P., Paddock, S.M., Stillman, L., Imm, P., & Wandersman, A. (2008). The Getting To Outcomes Demonstration and Evaluation: An Illustration of the Prevention Support System. *American Journal of Community Psychology, 41*, 206–224. DOI: 10.1007/s10464-008-9163-2

Chinman, M., Imm, P., & Wandersman, A. (2004). *Getting to Outcomes™ 2004: Promoting accountability through methods and tools for planning, implementation and evaluation* (TR-TR101). Santa Monica, CA: RAND. Available free at http://wwwcgi.rand.org/pubs/technical_reports/TR101/.

Crandall, D. P. & Williams, M. (1981). *The Maturation of Technical Assistance in the 1980's. Occasional Paper Number 2.* Chapel Hill, NC: Technical Assistance Development System, University of North Carolina.

Duffy, J. L., Prince, M., Johnson, E. J., Alton, F. L., Flynn, S. Mattison Faye, A., Edwards-Padgett, P., Rollison, C., Becker, D., & Hinzey, A. (in press). Enhancing

teen pregnancy prevention in local communities: Capacity building using the Interactive Systems Framework. *American Journal of Community Psychology*.

Feinberg, M.E., Ridenour, T.A., & Greenberg, M.T. (2008). The Longitudinal Effect of Technical Assistance Dosage on the Functioning of Communities That Care Prevention Boards in Pennsylvania. *Journal of Primary Prevention, 29*, 145-165. DOI: 10.1007/s10935-008-0130-3

Fine, A., Thayer, C., & Kopf, N. (2001). *Echoes from the Field: Proven Capacity Building Principles for Nonprofits.* Washington, DC: Innovation Network, Inc.

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M. & Wallace, F. (2005). *Implementation Research: A Synthesis of the Literature*. Retrieved from: http://www.fpg.unc.edu/~nirn/resources/publications/Monograph/pdf/Monograph_full.pdf

Flaspohler, P., Duffy, J., Wandersman, A., Stillman, L., & Maras, M.A. (2008). Unpacking prevention capacity: An intersection of research-to-practice models and community-centered models. *American Journal of Community Psychology, 41* (3-4), 182-196.

Flerx, V. C. (2007). Building Capacity for Self-Evaluation among Community Agencies and Organizations. In Motes, P. S., & Hess, P. M. (eds.) *Collaborating with Community-based Organizations through Consultation and Technical Assistance,* pp. 137-187. New York: Columbia Universities Press.

Florin, P., Mitchell, R., & Stevenson, J. (1993). Identifying training and technical assistance needs in community coalitions: A developmental approach. *Health Education Research: Theory and Practice, 8* (30), 417-432.

Fruchter, N., Cahill, M., & Wahl, E. (1998). *Building to Capacity: A Review of Technical Assistance Strategies.* New York: Institute for Education and Social Policy, New York University.

Horvath, H. O., & Greenberg, L. S. (1989) Development and validation of the Working Alliance Inventory. *Journal of Counseling Psychology*, *36*(2), 223–233.

Hunter, S. B., Chinman, M., Ebener, P., Imm, P., Wandersman, A., & Ryan, G. W. (2009). Technical assistance as a prevention capacity-building tool: A demonstration using the Getting To Outcomes Framework. *Health Education & Behavior, 36,* 810-828. DOI: 10.1177/1090198108329999

Katz, J. (2009). *Evaluating the benefits of proactive TA.* Unpublished masters thesis, University of South Carolina, Columbia, SC.

Keener, D. C. (2007). Towards a science of capacity building: An examination of technical assistance following a training of prevention professionals. Unpublished doctoral dissertation, University of South Carolina, Columbia, SC.

Kegeles, S. M., Rebchook, G. M., & Tebbetts, S. (2005). Challenges and facilitators to building program evaluation capacity among community organizations. *AIDS Education and Prevention, 17,* 284-299.

Kelly, J.A, Somlai, A.M., DiFranceisco, W.J., Otto-Salaj, L.L., McAuliffe, T.L., Hackl, K.L., Heckman, T.G., Holtgrave, D. R., & Rompa, D. (2000). Bridging the Gap Between the Science and Service of HIV Prevention: Transferring Effective Research-Based HIV Prevention Interventions to Community AIDS Service Providers. *American Journal of Public Health, 90*(7), 1082-1088.

Kirby, D. (2007). *Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases.* Washington, DC: National Campaign to Prevent Teen and Unplanned Pregnancy.

Labin, S. N., Duffy, J. L., Meyers, D. C., Wandersman, A., & Lesesne, C. A. (2012). A rsearch synthesis of the evaluation capacity building literature. *American Journal of Evaluation,* published online before print: 1/27/2012. DOI: 10.1177/1098214011434608.

Lesesne, C., Lewis, K.M., Poindexter White, C., Green, D.C., Duffy, J.L., & Wandersman, A. (2008). Promoting Science-based Approaches to Teen Pregnancy Prevention: Proactively Engaging the Three Systems of the Interactive Systems Framework. *American Journal of Community Psychology, 41,* 379–392. DOI: 10.1007/s10464-008-9175-y

Lesesne, C.A., Lewis, K.M., Moore, C., Fisher, D., Green, D. & Wandersman, A. (2007). *Promoting Science-Based Approaches using Getting to Outcomes: Draft 2007*. Centers for Disease Control and Prevention, Atlanta, GA.

Kelly M. Lewis, K. M., Lesesne, C. A., Zahniser, S. C., Wilson, M. M., Desiderio, G., Wandersman, A., & Green, D. C. (2012). Developing a prevention synthesis and translation system to promote science-based approaches to teen pregnancy, HIV and STI prevention. *American Journal of Community Psychology*, *50,* 553–571. DOI: 10.1007/s10464-012-9510-1

Mihalic, S. F., & Irwin, K. (2003). Blueprints for violence prevention: From research to real-world settings—Factors influencing the successful replication of model

programs. *Youth Violence and Juvenile Justice, 1,* 307–329. DOI: 10.1177/1541204003255841

Mitchell RE, Stone-Wiggins B, Stevenson JF, Florin P. (2004). Cultivating capacity: Outcomes of a statewide support system for prevention coalitions. *Journal of Prevention & Intervention in the Community. 2,* 67–87. DOI: 10.1300/J005v27n02_03

Motes, P. S., Whiting, J. A., & Salome, J. P. (2007). Consulting to Organizations and Community Groups: Defining and Distinguishing the Provision of Technical Assistance. In Motes, P. S., & Hess, P. M. (eds.) *Collaborating with Community-based Organizations through Consultation and Technical Assistance,* pp. 137-187. New York: Columbia Universities Press.

O'Donnell, L. Scattergood, P., Adler, M. San Doval, A., Barker, M., Kelly, J. A., Kegeles, S. M., Rebchook. G. M., Adams, J., Terry, M. A., & Neumann, M. S. (2000). The role of technical assistance in the replication of effective HIV intervention. *AIDS Education and Prevention, 12, Supplement A,* 99-111.

Peugh, J. L. & Enders, C. K. (2005). Using the SPSS Mixed Procedure to fit cross-sectional and longitudinal multilevel models. *Educational and Psychological Measurement, 65,* 717-741. DOI: 10.1177/0013164405278558

Philliber, S. & Nolte, K. (2008). Implementation Science: Promoting Science-Based Approaches to Prevent Teen Pregnancy. *Prevention Science, 9,* 166-177. DOI: 10.1007/s11121-008-0094-9

Raudenbush, S. W. Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods.* 2nd edition. Newbury Park, CA: Sage.

Ringwalt, C., Vincus, A., Hanley, S., Ennett, S.T., Bowling, J.M., & Rohrbach, L.A. (2009). The Prevalence of Evidence-Based Drug Use Prevention Curricula in U.S. Middle Schools in 2005. *Prevention Science, 10*, 33-40. DOI: 10.1007/s11121-008-0112-y

Salamon, L. M., Geller, S. L., & Spence, K. L. (2009). Impact of the 2007-2009 recession on nonprofit organizations. Baltimore, MD: Center for Civil Society Studies, Johns Hopkins University.

Sheffer, M. A., Baker, T. B., Fraser, D. L., Adsit, R. T., McAfee, T. A., Fiore, M. C. (2012). Fax referrals, academic detailing, and tobacco quitline use: A randomized trial. *American Journal of Preventive Medicine, 42*, 21-28. doi: 10.1016/j.amepre.2011.08.028

Schlosser, L. Z., & Gelso, C. J. (2001). Measuring the working alliance in advisor-advisee relationships in graduate school. *Journal of Counseling Psychology, 48*(2), 157-167.

Schlosser, L. Z., & Gelso, C. J. (2005). The Advisory Working Alliance Inventory—Advisor Version: Scale development and validation. *Journal of Counseling Psychology 52*(4), 650-654.

Spoth, R., Clair, S., Feinberg, M., Redmond, C., & Shin, C. (2007). Toward dissemination of evidence-based family interventions: Maintenance of community-based partnership recruitment results and associated factors. *Journal of Family Psychology, 21*, 137-146.

Stevenson, J. F., Florin, P., Mills, D. S., & Andrade, M. (2002). Building evaluation capacity in human service organizations: A case study. *Evaluation and Program Planning, 25*, 233-243.

Stone-Wiggins, B. (2009). *Predicting the interest of coalition members in utilizing technical assistance support systems.* Unpublished doctoral dissertation, North Carolina State University, Raleigh, NC.

Summer R. F., & Barber, J. P. (2003). Therapeutic alliance as a measurable psychotherapy skill. *Academic Psychiatry, 27*(3), 160-165.

Twisk, J. W. R. (2013). *Applied Longitudinal Data Analysis for Epidemiology: A Practical Guide.* New York: Cambridge University Press.

Wandersman, A., Chien, V. H., & Katz, J. (2012). Toward an *Evidence-Based System for Innovation Support* for implementing innovations with quality to achieve desired outcomes: Tools, Training, Technical Assistance, and Quality Improvement/ Quality Assurance. *American Journal of Community Psychology, 50,* 445-459. DOI: 10.1007/s10464-012-9509-7

Wandersman, A., Duffy, J. L., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., Blachman,… Saul, J. (2008). Bridging the Gap Between Prevention Research and Practice: The Interactive Systems Framework for Dissemination and Implementation. *American Journal of Community Psychology, 41,* 171-181. DOI: 10.1007/s10464-008-9174-z

Appendix A. Table Summarizing Empirical Studies on TA

Table A.1 Summary of Empirical Studies on TA

Study	TA Providers	Participants	TA Purpose	Structure/Dose	Design/Analysis	Results
Chinman et al. (2008) & Hunter et al. (2009)	Two consultants with expertise in the GTO system, one assigned half-time to each coalition.	Staff from 2 community coalitions working on one of six programs assigned to the intervention (GTO) compared to staff and programs at the same coalitions not participating in GTO.	Support the use of the GTO system for planning, implementing, and evaluating prevention programs.	GTO manual, one-day GTO training, and an average of 1-3 hours per week of ongoing TA provided to participants in the GTO demonstration over three years.	Quasi-experimental design comparing programs assigned to the intervention with programs not assigned. Selection based on programs that were expected to benefit most from participation. Qualitative analysis of interviews with participants and TA records.	No significant difference between individuals assigned to GTO and comparison group on attitudes, self-efficacy, or behavior. Among those assigned to GTO, the GTO participation index predicted higher self-efficacy and changes in attitude & behavior at T3. GTO assigned programs consistently improved performance over time compared to non-GTO programs. The amount of TA varied by program for reasons related to participants and providers. Main categories of TA contacts included communication, planning, actions, and TA provider analyses.

Feinberg et al. (2008)	5 TA providers each working in a different region of the state	116 CTC prevention coalitions across the state of Pennsylvania	Support the use of the CTC process for prevention programming.	TA provided in a combination of on-site consultation and off-site calls and correspondence. During the 1st year an average of 98 minutes of on-site TA and 70 minutes of off-site TA per month. During the 2nd year an average of 132 minutes of on-site TA and 73 minutes of off-site TA per month.	Observational study examining TA dosage with longitudinal analysis of TA and coalition capacity using path modeling. The effects of on-site and off-site TA were examined separately.	Off-site TA dosage was not shown to have a relationship with CTC board functioning. On-site TA dosage had a small but non-significant affect on CTC board functioning. Initial level of functioning moderated relationship between on-site TA dosage and functioning so that higher functioning boards benefited more from the TA dosage received. Age of the coalition also moderated the dosage/ functioning relationship, such that younger sites benefited more from a greater dosage of on-site TA than older sites.
Fine et al. (2001)	38 expert capacity builders identified by a panel of foundations and nonprofits knowledgeable about capacity building	Staff members from19 nonprofit organizations which had received capacity building or TA from one of the experts interviewed	Purposes ranged from general organizational development to building specialized skills	Not applicable, no specific TA intervention provided as part of this study. The selected experts provided a range of capacity building services including training and TA.	Qualitative study based on open ended interviews with participants.	Authors identified 9 capacity building principles: "Systems" perspective Tailoring based on the organization's context Organizations build their own capacity, consultant facilitates the process Create a culture of learning Team/peer learning is key Need for multiple strategies Capacity building takes time Trusting relationships Organizational readiness

Katz (2009)	Regional *Technical Assistance Coordinators* provided general assistance to communities in designing & implementing programs. *Resource Specialists* served as content experts in systems of care topics.	30 community groups funded to develop a system of care for children's mental health in their local community	Assist with the development of systems of care in funded communities.	Proactive TA including an introductory visit, monthly phone calls, and other types of calls to provide specific types of assistance.	Linear regression of a one-time survey on TA experiences. Qualitative analysis using modified grounded theory of data from 8 focus groups with community members participating in TA.	Quantitative models suggest that perceived level of proactivity may influence the effectiveness of TA (findings different based on TA provider rated, indicators of proactivity, and outcomes examined) Qualitative findings focused on the importance of TA providers' familiarity with the communities with which they work and tailoring TA provided to the specific needs of each community.
Kelly et al. (2000)	Researchers involved in the development of the intervention provided both the training workshops and TA calls.	Staff from 74 CBOs focusing on HIV prevention.	Increase the adoption and implementation of EBP for HIV prevention.	Three conditions: Manual only Manual + 2-day on-site training of staff Manual + training + up to 6 monthly TA phone calls (average of 5.4 calls per site)	Randomized controlled trial with organizations randomized to receive one of the three conditions.	Participants in both training and proactive TA were more likely to adopt of EBP and more frequently implemented EBP compared to those who receive only training or the manual alone. Including staff size and budget as covariates in the analyses did not influence the relationship between treatment condition and implementation.

Keener (2007)	An expert trainer and scholar on adult education (who also conducted a one day workshop prior to initiation of TA)	27 staff members of state and local organizations working on sexual violence prevention who attended one of four one-day workshops.	Reinforce and extend the outcomes of a one-day workshop on designing effective trainings by identifying and problem-solving barriers to application.	Level of TA was assigned based on workshop attended. 13 participants assigned to a high TA dosage (3 group TA phone calls and 1 individual call over 6 months after training). 14 participants assigned to low TA dosage (1 group phone call 3 months after training).	Quasi-experimental study comparing the results of two different levels of phone TA offered following one-day workshop. RM-ANOVA used to examine changes in capacity.	Engagement in TA varied by condition (in high TA 69% were engaged, in low TA group only 43% were engaged) and by individual level and organizational characteristics. Engaged participants had better outcomes than those who were less engaged, but analyses showed that those who were engaged in TA differed from those who were not after training (suggesting TA participation did not cause the differences).
Kegeles et al. (2005)	Random sample of 11 TA providers working with HIV prevention organizations, identified using the CDC's National Prevention Intervention Network online database	Random sample of 21 health departments and CBOs implementing HIV prevention, identified using the CDC's National Prevention Intervention Network online database	Study participants were asked about TA provided related to evaluating HIV prevention programs	Not applicable, no specific TA intervention provided as part of this study. Participants responded based on past experience receiving or providing TA.	Qualitative study based on semi-structured interviews with participants. Data analyzed using grounded theory.	Findings emphasized that relationship quality is essential to the TA process, particularly developing a collaborative working relationship built on trust and mutual respect. This allows TA providers to give assistance that fits organizations' needs and increases the level of buy-in and ownership from program staff for the evaluation process. Not all organizations had equal ability to access TA. Larger organizations had more resources and appeared to be better able to access TA resources (particularly at universities) while many smaller CBOs did not know how to get access to TA.

Mihalic & Irwin (2003)	Not described.	42 grant-funded organizations (including schools and CBOs) implementing EBP for youth violence prevention.	Ensure high fidelity implementation of EBP by grantee sites.	Not described.	Bivariate correlations and linear regression analysis predicting indicators of implementation with fidelity.	Amount of TA had a negative relationship with some aspects of implementation Quality of TA was positively related to adherence & percent of core components delivered, but negatively related to level of dosage achieved (suggesting TA may not help with time issues) Positive correlations between implementation and capacity weren't found when controlling for other predictors (notably TA).
Mitchell et al. (2004) Stone-Wiggins (2009)	Four project staff members of a statewide coalition with experience in training, evaluation, and community development.	41 coalitions from across the state which received funding from state agencies.	Increase coalition effectiveness and collaboration among coalitions	Reactive TA, with individualized TA available through site visits, by phone and by email. Trainings, regional forums, a website and newsletter were also provided. 46% of coalitions never reported using project TA. 66% of TA contacts were initiated by TA provider staff.	Dose response examining the relationship between amount of TA received and change in coalition capacity over time. HLM used to analyze individual and group level predictors of interest in receiving TA.	Capacity at T1 was significantly positively correlated with amount of project TA received There was no significant correlation between amount of TA and age of coalition, paid staff time, interest in TA, or linkages with the community. Lack of clarity about TA needs was negatively correlated with coalition capacity. Coalition effectiveness increased over time, but this change was not associated with amount of TA received. Coalition members perceived skills and commitment to the coalition were both positively related to interest in TA. Coalition members who rated their coalitions as weaker were more interested in receiving TA.

O'Donnell et al. (2000)	3 researchers involved in evaluation of the project (one of whom was involved with development and research on the program)	5 community health agencies implementing the program, 28 staff members across those agencies participated in training and TA.	Support the implementation of the VOICES/ VOCES HIV prevention program with fidelity	A two-day training was provided prior to implementation, along with an average of 2-4 hours TA provided per month. TA could be initiated by either the researchers or TA participants	Content analysis of TA provider records, observations of program sessions and interviews with program staff.	Findings suggest the importance of building ongoing relationships with open conversation between TA providers and program implementers. Establishing trust was a necessary step. Tension was identified between TA providers' focus on fidelity and implementers' focus on adaptation. Agency turnover required additional TA, in one case the agency lost all staff and ceased participation.
Ringwalt et al. (2009)	3 individuals with classroom teaching and prevention program facilitation experience who received All Stars training from expert trainers.	43 teachers in 43 middle schools. All teachers received 2-day in person training on implementation of All Stars. 23 teachers were assigned to receive proactive coaching and 20 were not.	Ensure high quality implementation of the All Stars prevention program and improved program outcomes.	Coaches met with each teacher 4 times, once before implementation and 3 times during program facilitation, before 3 specific lessons. Coaches viewed videotape of program facilitation and provided feedback to improve implementation.	Schools were randomly assigned to either the coaching or non-coaching condition. HLM was used to analyze student outcome data nested within schools/ teachers.	Coached teachers were significantly more likely to report spending 30 or more minutes preparing for lessons and were marginally more likely to report teaching all components of the lessons. Students of coached teachers were significantly less likely to initiate smoking, but lack of differences between groups on initiation of drinking or marijuana use or mediators of substance use suggest that this may not have been due to the coaching.

Spoth et al. (2007)	2 teams of 2 prevention coordinators (PCs), each based in the university extension system, supported by researchers at 2 universities.	14 community intervention teams (7 in each of 2 states)	Support the recruitment of families to participate in a family based prevention program.	TA was described as "proactive" and "continuous" (p. 140). Specific activities mentioned include: biweekly phone calls and a workshop in each state where community teams shared successful strategies.	Examination of bivariate and partial correlations between family recruitment level and factors including TA requests and effectiveness of TA collaboration (rated by PCs)	In the first recruitment cohort, a negative correlation between number of TA requests and recruitment rates, suggesting those teams struggling more requested more TA. In the second cohort a positive correlation between effective TA collaboration and recruitment was seen.
Stevenson et al. (2002)	2 graduate students working a total of 30 hours per week.	13 human services organizations working on substance abuse prevention.	Build evaluation capacity.	Initial meetings individually with each organization to build relationships, assess evaluation needs, and provide feedback to agencies. 3 four-hour trainings on evaluation topics based on needs. TA appears to have been reactive, with the majority of site ranging from 1 hour up to 9 hours of TA, though it was noted that 3 high capacity sites received "a very high amount of technical assistance"	Pre-post comparisons of number of evaluation tasks completed and confidence in ability to perform these tasks, correlation between amount of TA provided and change.	Positive changes in self-reported confidence in most evaluation tasks following related training, though confidence in ability to perform data collection & analysis dropped on a survey conducted several months after that training. Considerably variation in the amount of TA provided, with, "a few agencies using only an hour or two while most others used double or even triple that time," (p.239-240). Strong correlation ($r = .84$, $p < .01$) between numbers of hours of TA received and change in the number of evaluation tasks completed.

Appendix B: Local Organization Selection Criteria (LOSC)
Promoting Science-based Approaches Project (PSBA)

Directions: Please rate the local organization on each item below on a scale of 1 to 5 and select the appropriate number that corresponds to your rating.

1. Experience working in the area of teen pregnancy prevention (TPP), HIV/STI prevention and/or general adolescent reproductive health:
    - The organization is currently working in one or more of these areas (**5**)
      For approximately how long?
    - They have made a recent decision to work in one or more of these areas and we are **very confident** that their decision process was rigorous and comprehensive (**4**)
    - They have made a recent decision to work in one or more of these areas and we are **moderately confident** that their decision process was rigorous and comprehensive (**3**)
    - They have made a recent decision to work in one of more of these areas and we are **not very confident** that their decision process was rigorous and comprehensive (**2**)
    - They have not yet made an official decision to work in the area of teen pregnancy prevention, HIV/STI prevention, or general adolescent reproductive health. (**1**)

2. Access to and focus on teen populations at highest risk:
    - The organization serves a community shown by data to be among the highest risk locations in the state (this could be a county, town, school, etc. with much higher than state average rates of teen pregnancy/birth); OR The organization exclusively serves teens in known high risk groups (e.g., foster children, youth in the juvenile justice system, school drop-outs, sexually abused youth, victims of violence, youth in substance abuse programs, single parent households, etc.) (**5**)
    - **Most but not all** of the teens served by the organization are in known high risk areas or groups (**4**)
    - **Many** of the teens served by the organization are in known high risk areas or groups (**3)**
    - **Some** of the teens served by the organization are in known high risk areas or groups (**2)**
    - The organization has not marketed or targeted programs based on a consideration of which youth are at higher risk of pregnancy; they serve the general teen population and are located in an area with rates close to or below the state average for teen pregnancy/births (**1)**

3. Local organizational capacity and infrastructure (including adequate staff and expertise, board and senior management support, presence of a champion, successful track record in implementing programs, financial stability, etc.):

- The organization has **considerable** capacity and infrastructure to successfully partner with you to promote and use science-based approaches to TPP (**5)**
- The organization has **most** of the capacity and infrastructure needed to successfully partner at this time (**4**)
- The organization has a **moderate** degree of the capacity and infrastructure needed to successfully partner at this time (**3**)
- The organization has **somewhat limited** capacity and infrastructure to successfully partner at this time (**2)**
- The organization has **very limited** capacity and infrastructure to partner at this time (**1)**

4. Organizational commitment to work together for a sustained period of time to promote and use SBA:

- The organization expresses **strong commitment** to partner for at least one year (**5)**
- The organization expresses **moderate commitment** to partner for at least one year (**4)**
- The organization expresses **limited interest** in partnering **for at least one year (3)**
- The organization expresses **one year commitment an interest in partnering but is reluctant to make a commitment (2)**
- The organization has **no interest** in partnering at this time (**1)**
-

5. Organization's openness and willingness to change:

- The organization is **extremely willing** to critically examine their current approach and program, and to consider making improvements of the type characteristic of a science-based approach (**5)**
- The organization is **willing** to critically examine their current approach and program and to consider making improvements to their approach/program (**4**)
- The organization is **somewhat willing** to consider making improvements to their approach/program (**3)**
- The organization is **somewhat reluctant** to consider making improvements in their approach/program (**2)**
- The organization may be willing to learn about SBA but is **changes unwilling to make any** to their approach/program at this time (**1)**

Add the ratings for the 5 items: TOTAL:

If the score is in the 16 to 25 range, the organization is a reasonable candidate for an intensive TA partnership at this time. If the score is 15 or less, carefully consider whether the organization is likely to be successful at this time and whether you have the time and other resources to partner intensively with them at this time. You might prefer to continue cultivating their interest in PSBA and establish a 'formal' TA partnership at a later time.
OTHER: Describe other considerations pertinent to a decision to partner for intensive TA (barriers or facilitators)

Appendix C. Local Organization Needs Assessment (LONA) (for Local Organizations Receiving Intensive TA) Promoting Science-Based Approaches to Teen Pregnancy Prevention

The purpose of this assessment is to help your organization identify current strengths, as well as areas of potential growth, related to the implementation of science-based approaches (SBAs) to teen pregnancy prevention. We will use this information to learn what we can do to help you adopt or strengthen SBAs.

Date: _____ Name of person answering assessment questions: _____

Name of Local Organization: _____ Address of Local Organization: _____

Phone of Local Organization: _____ Your length of time in organization: _____

Name of state organization/RTC: _____ Name of state/RTC person conducting assessment: _____

How assessment conducted (*check one that most applies*): In-person interview❑ Telephone interview❑ Mail❑

PART I: Please provide some information about your organization and the teen pregnancy prevention programs you provide.

1. What is your current position in your organization *(check one that applies most closely)*?

❑ Executive Director	❑ Health/sexuality educator
❑ Program Director	❑ Outreach Worker
❑ Assistant Director	❑ Teacher/Coach
❑ Program staff member	❑ Other (please describe): _____

2. What statement best describes your organization? (Please choose one)

❑ School	❑ Community-Based Organization (CBO) promoting adolescent reproductive health only
❑ School district	❑ CBO where adolescent reproductive health is one of many programs
❑ Health department (non-clinical section)	❑ Faith-based organization
❑ Planned Parenthood affiliate	❑ Health care facility (hospital, clinic)
❑ Other (please describe): _____	

Comment: _____

3. a. How long has your organization existed? ❑ <2 yrs ❑ 2-5 yrs ❑ 6-10 yrs ❑ >10 yrs
   b. How long has your organization had a teen pregnancy prevention (TPP) focus?
   ❑ <2 yrs ❑ 2-5 yrs ❑ 6-10 yrs ❑ >10 yrs ❑ TPP is a new focus for us

4. a. Which of the following **fundraising strategies** has your organization used in the last 12 months? (Please answer Q1-6 below)

1. A direct mail campaign	❑ yes	❑ no
2. Fees for services	❑ yes	❑ no
3. Cause-related marketing which collects a portion of sales on consumer items	❑ yes	❑ no
4. Special events such as dinners, fund-raising events, etc.	❑ yes	❑ no
5. Grant-writing	❑ yes	❑ no
6. Other: Please describe _____ _____	❑ yes	❑ no

   b. Please tell us about the **funding sources** for your organization over the past 12 months. Check all that apply.

❑ 1. Federal government	❑ 5. Individual/Private donors
❑ 2. State government	❑ 6. United Way
❑ 3. Local government	❑ 7. Foundations (national, community, other)
❑ 4. Corporate donors	❑ 8. Other source (please describe) _____ _____ _____

   c. How would you rate your organization's success in raising funds in the last 12 months? ❑ excellent ❑ good ❑ fair ❑ poor

5. Does your organization currently have a leadership structure (not a single individual but a group such as a board of directors, advisory committee, council, task force, etc.) that provides oversight to the part of the organization that focuses on teen pregnancy prevention? ❑ yes ❑ no
   Comments: _____

If no, SKIP TO Question 7. If yes, please answer 6a-6d:

6.

a.	Does this leadership structure meet regularly?	❑ yes	❑ no
b.	Do they provide guidance regarding the mission/strategy of your part of the organization?	❑ yes	❑ no
c.	Do they try to obtain resources to support the teen pregnancy prevention work?	❑ yes	❑ no
d.	Do they influence the choice of which teen pregnancy prevention program(s) you deliver?	❑ yes	❑ no

7. How many paid people do you have in your organization? (Fulltime is at least 35 hours/week) a. Fulltime _____ b. Part-time _____
(Schools/School districts/Health departments (non-clinical section) may skip question 7.)

8. How many paid people in your local organization work (or will work if this is a new focus) on teen pregnancy prevention (TPP) programming fulltime and part-time? a. Fulltime on TPP _____ b. Part-time on TPP _____
How many volunteer or in-kind people work (or will work if this is a new focus) on TPP programming? c. Volunteer/In-kind_____

9. In what setting do you carry out (or plan to carry out if this is a new focus) your teen pregnancy prevention programs? (Check all that apply)

❑ Schools	❑ Community Center or similar location
❑ After-school	❑ Faith institution
❑ Foster care youth program	❑ Other (please describe): _____
❑ Residential or group home	❑ Don't know
❑ Clinic-based facility	

10. What age group(s) do you intend to reach with your current (or future if this is a new focus) teen pregnancy prevention programs? (Check all that apply)

❑ 10 years and younger	❑ 15-17 years
❑ 11-12 years	❑ 18 years and older
❑ 13-14 years	❑ Don't know

11. What racial/ethnic groups do you intend to reach with your current (or future if this is a new focus) teen pregnancy prevention programs? (Check all that apply)

❑ Black or African American	❑ White
❑ American Indian or Alaska Native	❑ Hispanic or Latino
❑ Native Hawaiian or Other Pacific Islander	❑ Don't know
❑ Asian	

12. How many young people participate in your teen pregnancy prevention programs each year?

❑ 1 – 24 ❑ 25 – 49 ❑ 50 – 99 ❑ 100 – 199 ❑ 200+ ❑ Don't currently offer teen pregnancy prevention programs

13. The Appendix on page 14 lists various teen pregnancy prevention programs. Indicate in the first column of the table below, each program that **you have used in the last 12 months**, one program per row, and indicate in column 2 the number of youth participating in that program in the last 12 months. The number of youth participating is the number of unique individuals enrolled and/or participating in the program (not the cumulative attendance over all sessions of the program); please be as specific as possible. Answer 'yes' in column 3a if you implemented the program exactly as designed or 'no' if you implemented it with modifications. If you implemented it with modifications, please describe the modifications in detail in columns 3b & 3c. If you did not use any of the programs listed in the Appendix in the last 12 months, check here and skip to Question 14: ❑ None

1. Name & number of program (from Appendix, page 14). If you used >5 programs, continue the listing on page 13.	2. Number of unique youth participating in last 12 months	We used it in last 12 months:		
		3a. Exactly as designed	3b. If 'no' to 3a, please describe in detail any modifications that were intended to meet the cultural or language needs of the target population.	3c. If 'no' to 3a, please describe any other modifications in detail.
A.		❑ Yes ❑ No		
B.		❑ Yes ❑ No		
C.		❑ Yes ❑ No		
D.		❑ Yes ❑ No		

14. Using the same list of teen pregnancy prevention programs as in Question 13 (see Appendix, page 14), indicate in column 1 each program you **intend to use in the next 12 months**, one program per row. Answer 'probably' in column 2a if you expect to implement it exactly as designed, 'probably not' if you expect to implement it with modifications, or 'don't know' if your plans are not far enough along to know. If you expect to implement with modifications, please describe the modifications in columns 2b & 2c. If, in the next 12 months, you do not intend to use any of the programs listed in the drop-down box, or if you have not decided, check one of the boxes here and skip to Question 15: ❑ Will use none ❑ Have not decided

1. Name & number of program (from Appendix, page 14). If you used >4 programs, continue the listing on page 13.	We intend to use it in next 12 months:		
	2a. Exactly as designed	2b. If "probably not" to 2a, please describe any modifications that would be intended to meet the cultural or language needs of the target population.	2c. If "probably not" to 2a, please describe any other modifications.

1. Name & number of program (from Appendix, page 14). If you used >4 programs, continue the listing on page 13.	We intend to use it in next 12 months:		
	2a. Exactly as designed	2b. If "probably not" to 2a, please describe any modifications that would be intended to meet the cultural or language needs of the target population.	2c. If "probably not" to 2a, please describe any other modifications.
A.	❑ Probably ❑ Probably not ❑ Don't know		
B.	❑ Probably ❑ Probably not ❑ Don't know		
C.	❑ Probably ❑ Probably not ❑ Don't know		
D.	❑ Probably ❑ Probably not ❑ Don't know		

15. Other programs:

a. In the past 12 months, has your organization used a teen pregnancy prevention program *other than those* listed in the Appendix? ❑ Yes ❑ No

If no, SKIP TO Question 16. If yes, please answer 15b-g.

b. How many such programs have you used in the last 12 months? _____

If your organization offers more than one such program, choose the one you are most likely to continue.

What is the name of the program? _____

c. How long have you used the program? ❑ 1-11 months ❑ 1-2 years ❑ 3-4 years ❑5-9 years ❑ 10 years or more

d. How many youth participated in this program in the last 12 months? Please indicate the number of unique individuals participating in the program (not the cumulative attendance over all sessions of the program); please be as specific as possible. _____

e. How was the program developed? *Check all that apply.*

❑ We combined parts of other programs.
❑ We developed it from scratch.
❑ We added teen pregnancy prevention activities to an existing youth program
❑ Externally developed program not in Appendix
❑ Other (please describe): _____
❑ Don't know

g. In the table below, please mark the appropriate box indicating the extent to which the following characteristics describe the **development, content and delivery of the program named in 15c.**

Extent to which the program …	**Not at all true**	**Somewhat true**	**Definitely true**	**Don't know**
i. Involved multiple people with different backgrounds in theory, research and sex/HIV education to develop the curriculum	❑	❑	❑	❑
ii. Assessed relevant needs and assets of target group	❑	❑	❑	❑
iii. Used a logic model approach to develop the curriculum that specified the health goals, behaviors affecting the health goals, risk & protective factors affecting the behaviors & activities addressing the risk and protective factors	❑	❑	❑	❑
iv. Designed activities consistent with community values & available resources	❑	❑	❑	❑
v. Pilot-tested the program	❑	❑	❑	❑
vi. Focused on clear health goals: the prevention of teen pregnancy and/or STD/HIV	❑	❑	❑	❑
vii. Focused narrowly on specific behaviors leading to these health goals	❑	❑	❑	❑
viii. Addressed multiple risk and protective factors affecting sexual behaviors	❑	❑	❑	❑
ix. Created a safe social environment in the class for youth to participate	❑	❑	❑	❑
x. Implemented multiple activities to change each of the targeted risk and protective factors	❑	❑	❑	❑
xi. Used teaching methods designed to involve the participants, personalize the information, and change each of the targeted risk and protective factors	❑	❑	❑	❑
xii. Used activities, instructional methods and behavioral messages that were appropriate to the youth's culture, developmental age, and sexual experience	❑	❑	❑	❑
xiii. Covered topics in a logical sequence	❑	❑	❑	❑
xiv. Where appropriate, secured at least minimal support from authorities associated with the delivery location (e.g., health departments, school districts)	❑	❑	❑	❑
xv. Used teachers or peer leaders who believe in the program and were adequately trained, monitored and supported	❑	❑	❑	❑

Extent to which the program …	Not at all true	Somewhat true	Definitely true	Don't know
xvi. If needed, used activities to recruit and retain youth and overcome barriers to their involvement	❑	❑	❑	❑
xvii. Implemented virtually all activities as intended	❑	❑	❑	❑

PART II: In the last part of this assessment, please answer some questions about available data and planning activities to help us learn what we can do to help you adopt or strengthen science-based approaches to teen pregnancy prevention.

16. a. Which of the following data for the population you serve do you now have or are sure you can obtain? (Check all that apply)

❑ Teen birth rates by county
❑ Teen birth rates by age
❑ Teen birth rates by race/ethnicity
❑ Teen abortion rates
❑ Teen rates of STI/HIV
❑ A list of teen pregnancy prevention programs that currently exist in the community
❑ None of these

b. Did you consider data such as these when selecting target populations with whom to work? ❑ yes ❑ no ❑ don't know (DK)

17. a. In the past 12 months, have you conducted a needs assessment of your community to gather information about the needs, assets and resources related to teen pregnancy prevention? ❑ yes ❑ no ❑ DK

IF no or don't know, SKIP to Question 18. If yes, continue with 17b:

b. How did you conduct the needs assessment (check all that apply):

❑ informal discussions with teens
❑ focus groups
❑ community survey
❑ used data from existing Youth Risk Behavior Survey
❑ other (describe): _____

18. a. Do you currently have a logic model for your teen pregnancy prevention program? ❑ yes ❑ no ❑ DK

If no or don't know, SKIP TO Question 19. If yes, continue with 18b-18d:

b. Does the logic model indicate which teen pregnancy-related behaviors you are targeting (e.g., age at first sex, contraceptive use)? ❑ yes ❑ no ❑ DK

c. Does the logic model identify both risk and protective factors for each behavior (i.e., what affects age at first sex or contraceptive use)? ❑ yes ❑ no ❑ DK

d. Does the logic model include activities addressing these risk and protective factors? ❑ yes ❑ no ❑ DK

19. a. Has your organization delivered a teen pregnancy prevention program in the past 12 months? ❑ yes ❑ no
If no, SKIP to Question 25. If yes, continue with 19b.

b. Thinking about the teen pregnancy prevention program you delivered most recently, did you identify and think about various existing science-based programs before you chose your program? ❑ yes ❑ no ❑ DK

20. Before the teen pregnancy prevention program you delivered most recently, did you assess your internal capacity to deliver the program (e.g., number of staff, staff training, technical resources, program budget)? ❑ yes ❑ no ❑ DK

21. Thinking about the teen pregnancy prevention program you delivered most recently, did you develop a work plan for your program delivery? ❑ yes ❑ no ❑ DK

22. a. In the last 12 months, did you evaluate the effectiveness of your teen pregnancy prevention curricula? ❑ yes ❑ no ❑ DK
If no or don't know, SKIP to Question 24. If yes, continue with 22b:

b. Which of the following evaluation strategies did you use to assess the effectiveness of your curricula? *(Check all that apply)*

- ❑ i. evaluation of the way each activity was implemented to see if it was delivered exactly as designed and reached its intended target
- ❑ ii. outcome evaluation to measure the change in each behavior you are trying to affect
- ❑ iii. outcome evaluation to measure whether you are changing the risk or protective factors associated with these behaviors
- ❑ iv. don't know

23. After conducting the evaluation, did you plan changes to the program based on the evaluation results? ❑ yes ❑ no ❑ DK

24. In the last 12 months, did you market your teen pregnancy prevention programs to partners, funders, or others who might help you continue delivering or funding the programs in the future? ❑ yes ❑ no ❑ DK

25. How much do you and your team agree or disagree with each of the following statements [by team, we mean those who will work with you to provide teen pregnancy prevention activities]?

Please check one box next to each statement using the scale from 1 to 7.

How much do you and your team agree or disagree with each of these statements?	Strongly Agree 1	2	3	Neither Agree or Disagree 4	5	6	Strongly Disagree 7
a. Goals and objectives are primarily for funders and grant applications	☐	☐	☐	☐	☐	☐	☐
b. Our programs would be improved by modifying them based on evaluation data	☐	☐	☐	☐	☐	☐	☐

How much do you and your team agree or disagree with each of these statements?	Strongly Agree 1	2	3	Neither Agree or Disagree 4	5	6	Strongly Disagree 7
	☐	☐	☐	☐	☐	☐	☐
c. The extra time and costs required to implement scientifically proven programs greatly outweigh the benefits	☐	☐	☐	☐	☐	☐	☐
d. Program staff often know whether a program is working well without having to do a formal evaluation	☐	☐	☐	☐	☐	☐	☐
e. Implementing a program that is mismatched with the values of the local community will lead to poor implementation and outcomes	☐	☐	☐	☐	☐	☐	☐
f. Time spent writing out all the activities of a program on a timeline could be better spent on implementation	☐	☐	☐	☐	☐	☐	☐
g. We could better achieve our mission by devoting resources to regularly gathering information about the teen pregnancy prevention needs of the community	☐	☐	☐	☐	☐	☐	☐
h. Funding is available for a teen pregnancy prevention program that produces positive results	☐	☐	☐	☐	☐	☐	☐
i. Changing programs based on evaluation data will likely cause problems	☐	☐	☐	☐	☐	☐	☐
j. When implementing new programs we would benefit from only choosing ones that are scientifically proven	☐	☐	☐	☐	☐	☐	☐
k. Given all the time constraints on staff, formal evaluations of programs are not critical to do	☐	☐	☐	☐	☐	☐	☐
l. It is likely that a successful teen pregnancy prevention program will continue to receive funding with little effort							
m. Programs should be changed over time if evaluation data says so	☐	☐	☐	☐	☐	☐	☐

How much do you and your team agree or disagree with each of these statements?	Strongly Agree 1	2	3	Neither Agree or Disagree 4	5	6	Strongly Disagree 7
n. Resources (e.g., staff time, funds) devoted to data collection to understand the teen pregnancy prevention needs of our community could be better spent elsewhere	☐	☐	☐	☐	☐	☐	☐
o. Staff should only implement program activities that can be linked to our goals and objectives	☐	☐	☐	☐	☐	☐	☐
p. Using measurable objectives in the planning process is a step that must be taken in order to demonstrate our success	☐	☐	☐	☐	☐	☐	☐
q. Before implementing programs, it is important to critically assess whether we have adequate resources/ capacity to implement the program (e.g., number of staff, staff training, technical resources, program budget)	☐	☐	☐	☐	☐	☐	☐

26. We are interested in how comfortable you and your team would feel in carrying out the following tasks associated with teen pregnancy prevention. By team we mean those who will work with you to provide teen pregnancy prevention activities. Imagine that your team is thinking about implementing a new program in your community. For the tasks listed below, please rate each item on a scale of 1 to 5 based on how much assistance you think that you and your team would need in order to complete each task. A rating of 1 indicates the need for a great deal of assistance, while a rating of 5 indicates the ability to complete the task without any assistance.

    Remember that team members often have different levels of expertise and experience, and it is not expected that one person could complete all the following tasks without assistance. If your team is <u>not at all familiar</u> with the task mentioned, please mark "would need a great deal of assistance". *Please check a box in ONE of the 5 columns for each task*

How much assistance would you and your team need to …	Would need a great deal of assistance to carry out this Task 1	2	Could carry out this task, but would need some assistance 3	4	Could carry out this task without any assistance 5
a. Develop program goals for your new activity	☐	☐	☐	☐	☐
b. Assess how well your new program activity will fit within other existing program activities offered to the same target population	☐	☐	☐	☐	☐
c. Define a target population for your new activity	☐	☐	☐	☐	☐

How much assistance would you and your team need to …	Would need a great deal of assistance to carry out this Task		Could carry out this task, but would need some assistance		Could carry out this task without any assistance
	1	2	3	4	5
d. Measure participant satisfaction	☐	☐	☐	☐	☐
e. Evaluate the activity to ensure that it is meeting goals and objectives by analyzing and interpreting data	☐	☐	☐	☐	☐
f. Identify those who will be responsible for each task	☐	☐	☐	☐	☐
g. Specify the amount of change expected in your objectives	☐	☐	☐	☐	☐
h. Assess community strengths in programming by examining existing resources such as existing programs and availability of volunteers	☐	☐	☐	☐	☐
i. Determine if an existing science-based program would meet your goals and objectives	☐	☐	☐	☐	☐
j. Examine how the new program will fit with the values of your organization	☐	☐	☐	☐	☐
k. For each program activity, measure how well the implementation followed the original program design (i.e., fidelity)	☐	☐	☐	☐	☐
l. Ensure that all new program activities are linked to the goals and objectives by using a logic model	☐	☐	☐	☐	☐
m. Determine if any science-based programs are applicable to your target population	☐	☐	☐	☐	☐
n. Assess the causes and underlying risk factors for teen pregnancy in your community	☐	☐	☐	☐	☐
o. Assess whether there are adequate resources to implement the new program (e.g., number of staff, staff training, technical resources, funding)	☐	☐	☐	☐	☐
p. Create timelines for completing all program tasks	☐	☐	☐	☐	☐
q. Develop a budget that outlines the funding required for each program activity	☐	☐	☐	☐	☐
r. Develop a plan to sustain the program if it is successful (i.e., determine future funding sources)	☐	☐	☐	☐	☐
s. Use results from an evaluation to improve program delivery the next time it is offered	☐	☐	☐	☐	☐

27. Listed below are the same tasks as in question 26. Place a check by those tasks for which your team would like technical assistance or training in the next 12 months.

Task	Yes, would like TA or training
a. Develop program goals for your new activity	☐
b. Assess how well your new program activity will fit within other existing program activities offered to the same target population	☐
c. Define a target population for your new activity	☐
d. Measure participant satisfaction	☐
e. Evaluate the activity to ensure that it is meeting goals and objectives by analyzing and interpreting data	☐
f. Identify those who will be responsible for each task	☐
g. Specify the amount of change expected in your objectives	☐
h. Assess community strengths in programming by examining existing resources such as existing programs and availability of volunteers	☐
i. Determine if an existing science-based program would meet your goals and objectives	☐
j. Examine how the new program will fit with the values of your organization	☐
k. For each program activity, measure how well the implementation followed the original program design (i.e., fidelity)	☐
l. Ensure that all new program activities are linked to the goals and objectives by using a logic model	☐
m. Determine if any science-based programs are applicable to your target population	☐
n. Assess the causes and underlying risk factors for teen pregnancy in your community	☐
o. Assess whether there are adequate resources to implement the new program (e.g., number of staff, staff training, technical resources, funding)	☐
p. Create timelines for completing all program tasks	☐
q. Develop a budget that outlines the funding required for each program activity	☐
r. Develop a plan to sustain the program if it is successful (i.e., determine future funding sources)	☐
s. Use results from an evaluation to improve program delivery the next time it is offered	☐
t. No TA requested on any of these topics.	☐

Appendix D. Rating of Involvement with Local Organization/Partner Receiving Intensive TA

Promoting Science-based Approaches Project (PSBA)

Date form completed _____ **Completed by** _____
Name of state organization or RTC _____
Name of local organization/intensive partner _____
Rating Period (Complete 2007 rating before Oct 31, 2007; Complete 2008-2010 ratings Jan.-March of each year.)**:** ☐ **Baseline 2007 (complete before Oct 31)** ☐ **2008** ☐ **2009** ☐ **2010**

Directions: Please answer the following questions about your experience and relationship with the *local partner* listed above based on your work with them during this rating period. By *local partner* we mean the person(s) you work with directly in the intensive partner organization as you provide technical assistance on SBAs. Technical assistance (TA) includes training, one-on-one or small group consultation, coaching, and other forms of support for SBA provided to the *local partner*. Please rate the following statements on a 1 to 5 scale by circling the number that corresponds to your rating. We are interested in your opinion/impression; please answer to the best of your knowledge.

Note: Complete one rating form per local partner organization; if you work intensively with 5 local organizations you need to complete 5 rating forms (one for each organization). If you work with multiple people within a single organization, complete one rating form, giving the rating which best represents the collective involvement of these partners.

Local Partner Action around TA **To the best of my knowledge….**	**Never**	**Rarely**	**Sometimes**	**Often**	**Very Often**
1. Local partner acts on the advice that I give.	1	2	3	4	5
2. Local partner keeps appointments with me.	1	2	3	4	5
3. Local partner actively uses knowledge and/or skills garnered from the TA that I provide.	1	2	3	4	5
4. Local partner consults me when making big decisions about their prevention programming.	1	2	3	4	5
5. Local partner seeks out my help when issues come up.	1	2	3	4	5
6. Local partner is integrating PSBA-GTO process into their everyday work.	1	2	3	4	5
7. Local partner initiates TA meetings or conversations with me.	1	2	3	4	5
8. Local partner is using relevant PSBA-GTO tools and/or worksheets.	1	2	3	4	5
Relationship: Local Partner & TA Provider(s) **To the best of my knowledge….**	**Strongly Disagree**	**Disagree**	**Neither Agree Nor Disagree**	**Agree**	**Strongly Agree**
9. There is mutual trust between me and the local partner.	1	2	3	4	5
10. Local partner values my expertise and knowledge.	1	2	3	4	5
11. Local partner feels confident in my ability to help them.	1	2	3	4	5

Relationship: Local Partner & TA Provider(s) (Cont'd)	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
12. There is mutual respect between me and the local partner.	1	2	3	4	5
13. There is a mutual liking between me and the local partner.	1	2	3	4	5
14. Local partner and I agree about what is important for us to work on to improve their program(s).	1	2	3	4	5
15. Local partner is invested in achieving the goals we have set for our work together.	1	2	3	4	5
16. Local partner has a strong understanding of where we are headed in the longer-term.	1	2	3	4	5
17. Local partner is comfortable asking me questions.	1	2	3	4	5
18. Local partner has a clear understanding of what help I can provide.	1	2	3	4	5
19. When there is a conflict between me and the local partner, we can talk it out and usually resolve the problem successfully.	1	2	3	4	5
20. There is a constructive work relationship between me and this local partner.	1	2	3	4	5
21. There is no tension in the relationship between me and the local partner.	1	2	3	4	5
22. Local partner stays focused on the activities or tasks we are working on together.	1	2	3	4	5
23. The local partner is good at sticking close to the timelines we agree to.	1	2	3	4	5
24. The local partner is results-oriented in the work we do together.	1	2	3	4	5
Actions by TA Provider(s)	**Never**	**Annually**	**Quarterly**	**Monthly**	**Weekly**
25. How often do you provide TA or training in response to requests made by this local partner?	1	2	3	4	5
26. How often to you have scheduled TA or training with this local partner?	1	2	3	4	5
27. How often do you use relevant PSBA-GTO tools and/or worksheets in your TA with this local partner?	1	2	3	4	5
				YES	**NO**
28. This local organization has a current MOA/MOU with my organization.					
29. I have provided this local partner a formal training/introduction to the PSBA-GTO process.					
30. The type of TA or training I provide to this local partner is matches their needs well.					
31. The amount of TA or training I provide to this local partner is sufficient to meet their needs.					

32. If you answered NO to #30 or #31, Why not?
Check all that apply. o This partner has so many needs that I do not have enough time to address them all. o Local partner seeks help only in times of crisis or immediate needs. o Local partner wants me to do all the work for them. o There is generally a lack of participation on the part of the local partner. o There is a lot of staff turnover with this local partner.
o Other Reason(s):

Any other comments on your relationship or TA experience with this local partner?

_____