

**The Legacy of Evidence-Based Mental Health Interventions:
What Gets Sustained and How**

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THESIS

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This thesis is dedicated to my mom, Kay, and dad, Jim, for passing along an interest in psychology, and for their support through my long, circuitous journey to this point.

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SUMMARY

Concerns over the quality of mental health services for children in the United States have led to the creation, dissemination and implementation of evidence-based mental health interventions. However, the impacts of these interventions on the systems in which they are implemented (i.e., practice settings) are unclear. Conceptualizing interventions ecologically as system events (Hawe, Shiell, & Riley, 2009) may provide a more complete understanding of intended and unintended intervention effects. The purpose of this qualitative pilot study, therefore, was to explore the impacts of evidence-based mental health interventions from the perspectives of community-based practitioners. A number of (unintended) effects on clients, staff members and the broader organization emerged. Further, the process by which they were achieved was one of mutual adaptation, in which interventions were modified to improve fit with the implementation system, and the organization changed by interacting with interventions over time. Findings suggest that conceptualizing intervention impacts more broadly will result in improved understanding of intervention-system interactions over time. Implications for re-conceptualizing intervention sustainability and conducting contextualized intervention research are discussed.

I. INTRODUCTION

In the U.S. there is currently a movement towards the dissemination and implementation of evidence-based practices in mental health, with the goal of improving the quality of mental health services that individuals receive (APA, 2005, 2008; IOM, 2006). In addition to concerns over the methodological and value assumptions underlying this movement, there are a number of concerns over the extent to which these practices result in meaningful, sustainable change. Frequently, these practices result in the implementation of discrete, short-term programs that do not take hold for a variety of reasons. Finally, narrow research conceptualizations of sustainability and inadequate methodology for studying it have resulted in incomplete theories of this construct.

Ecological and systems theories suggest that framing the adoption of an intervention within an organization as an event in a system may lead to a more complete understanding of sustainability results, and the factors and conditions contributing to them over time (Buchanan et al., 2005; Goodson, Smith, Evans, Meyer, & Gottlieb, 2001; Schensul, 2009). If interventions are theorized as events in dynamic systems, traditional views of implementation, intervention effects, evaluation, and sustainability must be changed. In the case of sustainability, conceptualizing interventions as events in systems (Hawe, Shiell, & Riley, 2009) suggests that (a) any intrusion into a system is likely to be sustained, although not necessarily in its original form(s); (b) the technology (manuals, recommended therapeutic strategies, training mechanisms, etc) is just one aspect of the intervention that is likely to be sustained; intended and unintended outcomes, processes, relationships, knowledge and attitudes developed in relation to the intervention are likely to be sustained as well; and (c) sustainability and implementation are interrelated, concomitant processes that should be studied as such.

It is important not only to understand the conditions under which evidence-based mental health interventions are sustained, but also the degree to which various aspects of them are sustained (or not) and why. There are four main ways sustainability has been conceptualized: (1) lasting positive client outcomes; (2) continuing program activities; (3) developing organizational capacity; and (4) lasting values/beliefs/principles underlying an intervention (Johnson, Hays, Center, & Daley, 2004; Scheirer, 2005; Shediak-Rizkallah & Bone, 1998). From an ecological perspective, however, a theory of sustainability needs to address the co-evolution of both the setting and the intervention. While the notion of an intervention as an event in a dynamic system necessitates theorizing about the intervention setting/context in addition and in relation to intervention processes, the approach to identifying and disseminating evidence-based mental health interventions has generally treated setting/context as neutral. Research has shown, however, that organizational setting/context largely determines client-level outcomes of mental health interventions (Glisson & Hemmelgarn, 1998). In studying evidence-based mental health interventions as system events unfolding over time, one contribution of this study was to understand the relation of setting and intervention over time.

The purpose of this study, therefore, was to use an ecological-systems perspective to explore unintended intervention effects after evidence-based mental health interventions have been adopted by an organization. My primary research question was: what is the range of unintended long-term intervention outcomes? By conducting a qualitative study of a community-based organization that provides mental health services, I focused attention on the lasting unintended effects of these interventions and the contextual circumstances surrounding them.

II. REVIEW OF THE LITERATURE

The literature review was organized as follows. First, I reviewed literature on intervention sustainability. In reviewing the literature on sustainability, a focus only on evidence-based mental health interventions proved too narrow. Therefore, I also reviewed literature from public health, business, and medicine that related to either sustaining evidence-based interventions or systemic interventions. Next, I reviewed literature on evidence-based mental health practice in general and as related to sustainability. Finally, a review of ecological-system theory was presented to describe the theoretical framework of the study.

Sustainability Theory

Program/intervention sustainability is rarely defined or operationalized clearly in health and mental health intervention research (Scheirer, 2005). Nonetheless, previous research offers several operational definitions of sustainability, and factors and processes leading to sustainability. The concept of sustainability generally refers to the continuation or durability of programs, but four main operational definitions of sustainability have been identified in the literature (Scheirer, 2005; Shediak-Rizkallah & Bone, 1998):

1. Ongoing health benefits/outcomes to individuals after initial funding ends
2. Continuing program activities within the organization (i.e., routinization)
3. Ongoing capacity of community to develop and deliver programs
4. Continuing ideas, beliefs, principles, or values underlying the program

Although such varied definitions of sustainability have been articulated, when sustainability has been a research focus it has been operationalized primarily as the continuation of program activities within the implementing organizations, also known as routinization.

Routinization has been identified as the primary process leading to program sustainability (Goodman & Steckler, 1987; Pluye, Potvin, & Denis, 2004; Yin, 1981).

However, routinization does not capture the full range of types of sustainability identified in the theoretical literature. Institutionalization is another key process reflecting a different type of sustainability (Pluye, et al., 2004). Institutionalization represents the process by which a program is integrated in the values, norms, policies and rules of higher order social structures (government, legal system, etc). While routinization facilitates sustainability within an organization, institutional policies may constrain or promote sustainability at the organizational level, and programs may be sustained at levels above the organization through institutionalization (e.g., state-level mental health policy). These two processes provide ways of conceptualizing the continuation of program activities within organizations, but they do not address other aspects of sustainability such as sustaining client outcomes over time, organizational capacity building, or the maintenance of values and principles underlying an intervention within the organization.

One way sustainability has been conceptualized is as the final phase in a linear intervention process beginning with program adoption and implementation. Adoption refers to the organizational decision to use a particular program, and implementation is the process by which relevant organizational actors come to use that program (Klein & Sorra, 1996). Although previous thinking around sustainability reflected phasic models of intervention, with adoption and implementation as first steps along the path to sustaining program activities (i.e., routinization), it may be beneficial both practically and empirically to view sustainability and implementation as distinct but parallel processes with unique and shared events (Pluye, et al., 2004). For example, organizational risk-taking (i.e., exploration of new activities) in favor of

program activities has been associated with greater levels of sustained program activities, adequate investment of resources has been associated with improved implementation, and greater fit between program and organizational values has been associated with both greater levels of implementation and sustainability of program activities (Pluye, Potvin, Denis, Pelletier, & Mannoni, 2005).

Thus, sustainability is a multidimensional process that may take many forms (Shediac-Rizkallah & Bone, 1998). Organizations may be high on any one of the dimensions without being high on any of the others; it is possible, for example, to continue program activities without providing continued health benefits to clients, and vice versa. This highlights the importance of studying intervention sustainability from a system perspective. If events are sustained in multiple ways within a system, the unit of analysis changes from the intervention to the intervention-system interaction over time. In fact, it has been argued that sustaining benefits to communities and families is more important than continuing program activities (Mancini & Marek, 2004). The premise of this study, however, was not that one is more important than another but that all represent important ways of thinking about the intended and unintended long-term effects of evidence-based mental health interventions and there may be other unidentified aspects of sustainability to consider. Therefore, it is important first to identify the range of sustainability outcomes associated with adoption of evidence-based mental health interventions, and then the processes associated with those outcomes.

Factors contributing to sustainability.

The primary research focus to date has been on identifying factors influencing sustainability, and identified factors generally fall into three categories: (1) program/project/innovation characteristics, (2) organizational/system characteristics, and (3)

community/environmental characteristics (Johnson, Hays, Center & Daley, 2004; Scheirer, 2005; Shediak-Rizkallah & Bone, 1998). Program characteristics are factors associated with the innovation that affect the extent to which it is continued. Program factors identified in previous reviews include: whether the program is modifiable at the local level over time; whether it uses low-cost ways of service delivery; whether implementers use evaluation data to monitor effectiveness; how the program was negotiated (i.e., was it imposed by funders or was the adoption motivation different?); how long the program is intended to last; how the program is funded; the type of program (prevention programs may be under-resourced relative to treatment programs); and its training requirements. Program funding is perhaps the most frequently cited factor affecting program sustainability, but research shows that different aspects of funding affect sustainability differently. For example, the number and types of funding sources, the blend of internal and external funding sources, and the willingness and ability of clients to pay for a program all affect the relationship between funding and sustainability for a given program (Scheirer, 2005; Shediak-Rizkallah & Bone, 1998). Further, other resources in addition to money (such as trained staff, space, etc.) may be necessary for implementing and maintaining an intervention over time.

Organizational/system characteristics are factors associated with the implementation setting that affect the extent to which the system can support sustainable programs and include: the presence of a program champion/leader; existing organizational capacity/strength/structure; fit of a program with the organization's mission or standard operating procedures; and perceivable benefits of a program. Community/environmental characteristics are factors associated with the broader implementation environment that affect the extent to which interventions are sustained by organizations. These factors include: resource or political support

from other organizations; a socioeconomic and political climate favorable to funding and supporting the program over time; and the nature of community participation in and support for the program and organization.

However, researchers do not agree on the categorization of these factors, which speaks to their interactive nature, and to the somewhat arbitrary categories. For example, the extent to which a program has perceivable benefits was considered a program factor by Shediak-Rizkallah and Bone (1998) but an organizational factor by Scheirer (2005). The nature of project financing was listed as a program factor by Shediak-Rizkallah and Bone (1998) but as a community factor by Scheirer (2005). In fact, similar issues may exist simultaneously at different levels of analysis including the program, the organization, and the larger community, and it may be more important to understand their interactions than to separate them out into distinct categories. A sustainable program must yield positive effects but an organization must also perceive them as beneficial, and sustainable programs should be affordable but it will also help if they unfold within a financially stable organization and a favorable broad funding climate. Further, the influence of each of these factors is not straightforward. For example, the presence of a program champion alone does not positively predict sustainability; rather the position of the champion within an organization, the charisma of the champion, and other qualities affect sustainability (Johnson, et al., 2004). Similarly, the impact of organizational strength on sustainability is temporally and contextually defined. Two studies outside of mental health found that greater organizational strength, normally considered a positive predictor of sustainability, led to decreased sustainability in different ways. In the first case, increased organizational strength and visibility of two family practice sites resulted in them being purchased, which increased staff turnover, thereby reducing implementation quality and sustainability (Goodson, et al., 2001). In

the second case, early successes attributed to quality improvement efforts within a circuit manufacturing company led to excess capacity and downsizing, which reduced organizational commitment to the program (Stermann, Repenning, & Kofman, 1997). It becomes clear, then, that program, organizational and environmental factors interact with each other over time to produce multiple sustainability results, and that the effects of these interactions are not straightforward. Studying these factors as if they are independent leads to the erroneous conclusion that they have one constant effect on a single sustainability outcome, an assumption that decontextualizes the phenomenon of sustainability and is not supported by research.

Although intervention sustainability is often desirable, the relative cost of sustaining a given intervention must be assessed. In cases of severely limited organizational resources, choosing to sustain one program may mean ending or scaling back another. Additionally, client outcomes may suffer when political factors primarily drive sustainability decisions (such as when popular, ineffective programs are sustained over less popular but more effective ones). Because choices around intervention sustainability are multiply determined, it is also important to understand what is *not* being sustained or implemented or enhanced or supported and why. These considerations are particularly important in cases where evidence-based mental health interventions have been implemented for two reasons: (1) sustainability is generally not a criterion upon which interventions are deemed as “evidence-based” or, where it is a criterion, it has been narrowly operationalized and (2) adaptation of externally-developed mental health interventions to fit local conditions is the norm rather than the exception.

Conceiving and studying sustainability from a systems perspective may provide a more complete understanding of the phenomenon (Goodson, et al., 2001; Schensul, 2009). Systems theory holds that the whole is greater than the sum of its parts, so that analyzing the individual

components does not lead to an understanding of the entire system; rather, it is the interactions among those parts that comprise the system (Kernick, 2006). Similarly, dissecting complex dynamic systems into component parts may provide a detailed short-term picture while obscuring long-term understanding (Stermann, et al., 1997). Case studies of business quality improvement efforts provide evidence of this, and suggest that potentially helpful innovations may not appear to be sustained due to inadequate methodology for understanding the complex nature of the phenomenon (Repenning, 2002). In fact, in a study of the institutionalization of a medical primary practice toolkit, implementation levels predicted institutionalization only in the case of one practice in which the kit was never implemented; there was no relationship or possibly an inverse relationship otherwise (Goodson, et al., 2001). This lack of relationship between implementation and sustainability, however, may be due to flawed linear cause-effect assumptions reflected in the methodology rather than to a true non-relationship. A contribution of this study, therefore, was to take a non-linear approach to the relationship between implementation and sustainability by using qualitative methods to examine the adoption, implementation and sustainability of evidence based mental health interventions from an ecological-systems framework.

Evidence-Based Mental Health Interventions

Recent attention to the prevalence of mental health problems in the United States combined with increasing concerns over disparities in health care have led to a push for the implementation of evidence-based mental health interventions (Health, 2003; IOM, 2006). While supporters contend that evidence-based interventions have the potential to improve the quality of mental health care, many critics have questioned the validity and relevance of outcomes achieved in the pursuit of identifying efficacious mental health interventions

(Tanenbaum, 2003; Wampold, 2002; Westen, Novotny, & Thompson-Brenner, 2004; Wolff, 2000). In addition, the sustainability of these interventions often depends upon funding since program activities and intervention effects often end when funding does. Psychology's current evidence-based practice movement is modeled after the evidence-based medicine movement, which attempts to improve the quality of health care by basing medical decisions on a combination of clinical expertise and research documenting the most effective treatments. However, the intended integration of clinical practice and research evidence has not been achieved in psychology and has led many to lament the research-practice gap (Kazdin, 2008). Some scholars suggest that this gap is due, in part, to inaccurate and incomplete understanding of practice and practice contexts (Schwandt, 2005; Southam-Gerow, 2004). These and other difficulties with the transition from intervention efficacy (i.e., how interventions work under ideal experimental conditions) to effectiveness (i.e., how interventions work under real world or practice conditions) have led to questions about the sustainability of evidence-based interventions. Efficacy trials ignore the impact of local organizational conditions and resources including funding, staff turnover and training, and leadership, which often results in limited intervention sustainability because efficacy studies cannot account for the complexity of real world conditions (Blasinsky, Goldman, & Unutzer, 2006; Massatti, Sweeney, Panzano, & Roth, 2008; Swain, Whitley, McHugo, & Drake, 2010). Thus, it cannot be assumed that interventions found to be 'efficacious' will translate into sustainable interventions.

Developing evidence-based mental health interventions in isolation from the settings in which they ultimately unfold severely limits consideration of their sustainability. Sustainable interventions have the most potential to create meaningful, lasting change at multiple levels within the host setting because they are most likely to result in the enduring exchange of

community resources and skills (Altman, 1995). In an extensive review of literature around sustainability, Johnson, Hays, Center and Daley (2004) defined sustainability as “the process of ensuring an adaptive prevention system and a sustainable innovation that can be integrated into ongoing operations to benefit diverse stakeholders” (p. 137). The importance of sustaining innovations, however, varies depending on the continued benefit of the innovation to stakeholders as their circumstances and needs change over time (Green, 1989; Johnson, et al., 2004). To the extent that evidence-based mental health interventions can be sustained, they must be supported by community-based organizations that often work with limited resources. This demands that interventions be created, implemented and tested with sustainability in mind from the start since it is otherwise unlikely that the resources necessary to maintain the intervention will be available once the research phase of the intervention, and its accompanying funding, is near completion (Pluye, Potvin, & Denis, 2004).

Factors found to contribute to sustainability (e.g., administrative capacity, intervention resources, intervention alignment with stakeholder needs, positive working relationships, and stakeholder ownership of the intervention) are not criteria used to designate a mental health program as “evidence-based” (Johnson et al., 2004; APA, 2002). In fact, a nuanced, differentiated understanding of sustainability is largely absent from the literature (Scheirer, 2005). Understanding factors that contribute to sustainability can help guide the intervention process of by prioritizing responsiveness to local concerns and consideration of local resources in all phases. This ties sustainability closely to the intervention-organization relationship and, in fact, one of the conceptualizations of sustainability is the degree to which program components are integrated into the fabric of the host setting (Goodman & Steckler, 1987; Pluye, et al., 2004). In addition, melding intervention technology with local organizational and community resources

has the potential to empower clients, providers and communities to choose for themselves which intervention effects or components are worth sustaining.

Sustaining evidence-based mental health interventions in diverse contexts of practice is a challenge for several reasons. First, implicit and explicit risks and promises associated with funding gains and losses often drive implementation for nonprofit organizations that are completely dependent upon external funding. The quality of implementation or de-adoption of evidence-based programs can have profound consequences for an organization. For example, staff support for new programs may wane, funding for programs may be cut if implementation is poor, and clients may lack access to needed services. Second, because of this connection to funding sources, the conditions under which evidence-based programs are implemented (e.g., resources, training, technical assistance) may be atypical for nonprofit mental health organizations. Grants received may allow temporarily for more and varied organizational resources to be dedicated to a particular program than would be otherwise, resulting in the development of service delivery structures, processes and/or outcomes that are not readily replicated or sustained by organizations over time. Finally, the approach to developing and disseminating evidence-based programs prescribes a starting point to the relationship between the intervention, host setting, and researchers, which may decrease the chances of meaningful intervention sustainability. Because interventions are often developed and tested under controlled conditions before they are “deployed” to practice settings, the dissemination process may foster a disempowering, consumer-producer relationship between the adopting organization and the intervention developers. While this process does not preclude the development of positive, collaborative working relationships associated with meaningful sustainability (Altman, 1995), it does not necessarily require or value them either. Therefore, the purpose of this study

was to assess the extent of sustainability of adopted evidence-based mental health interventions in light of the organizational contextual conditions surrounding their implementation.

Studies of the sustainability of evidence-based mental health interventions.

In my review of the literature on sustaining evidence-based mental health interventions, four studies were identified. Three focused on identifying barriers and facilitators to sustaining evidence-based mental health interventions (Blasinsky, et al., 2006; Meredith et al., 2006; Swain, et al., 2010) and one focused on understanding reasons why mental health organizations chose not to sustain these interventions (Massatti, et al., 2008). Across these studies, a number of facilitators and barriers to sustainability were identified including: financing, technical assistance, training, supervision, consultation, staff retention, leadership, involvement of clients, practitioner intervention-related skills, practitioner attitudes towards the intervention, feedback to practitioners about implementation/outcomes, organizational structure, leadership support, time, information technology, implementation fidelity, organizational attitudes toward change, perceived positive outcomes, perceived ease of implementation, extent of external support for implementation, and intervention-organization fit of mission and treatment philosophy.

A mixed-method study of a collaborative care intervention for late-life depression in primary care settings one year after grant funding ended found that five of seven sites had sustained the intervention, with sustainability broadly defined as the “continuation of all or part of the program after initial external funding ends” (Blasinsky et al., 2006, p. 719). Further, substantial adaptations were made to the original model and its core components, along with considerable variation in sustainability strategies across the five sustaining sites. A phone survey of program leaders, clinical practice directors, team leaders, or external consultants in routine mental health care settings across 49 sites in eight states revealed that 80% of the sites had

sustained the practice (Swain, et al., 2010). Intervention sustainability was defined dichotomously as continuation of the practice at its original site after two years, and respondents were asked to rate a list of 15 pre-selected factors thought to affect sustainability. Results from a mixed-method study of Ohio mental health agencies' reasons for de-adopting evidence-based mental health interventions showed that inadequate financial resources, inadequate external support for implementation, staffing problems, intervention-organization fit, and staff perceptions of ease of implementation and intervention assimilation are likely "warning signs" of de-adoption (Massatti, et al., 2008). De-adoption was defined as discontinuation at any stage of implementation, and 12 of the 64 agencies that decided to adopt evidence-based interventions were categorized as de-adopters. Finally, a mixed-method study of the sustainability of efforts to improve the quality of depression treatment in 17 primary care settings found that the most common types of changes sustained were associated with information systems and delivery system redesign (Meredith, et al., 2006). Sustainability was not explicitly defined, but team leaders were asked to describe which changes were sustained and why at 18 months after the end of the intervention. Interestingly, *spread* was discussed as an indicator of the diffusion of the intervention, and custom categories included spread to other providers or patient groups within the same clinic, spread to other clinic locations within the organization, spread to other disorders or conditions, and spread to other provider organizations within the community.

These studies represented promising attempts to use mixed-method research to understand the sustainability of evidence-based mental health interventions in dynamic health care settings, but several limitations are worth noting. First, sustainability was conceptualized only as ongoing program activities after funding ended in all three of the studies where it was explicitly operationalized, ignoring the multidimensional nature of sustainability. Second,

sustainability was studied as a dichotomous rather than continuous outcome variable, ignoring important variance in the outcomes of sustainability. Third, sustainability studies of evidence-based mental health interventions have focused on identifying factors that either promote or hinder ongoing program activities after initial funding ends rather than acknowledging that a given factor can serve as both and studying the conditions under which one promotes vs. hinders sustainability. Fourth, implementation does not necessarily predict sustainability; rather, they both unfold together from the beginning of program adoption and should be studied as distinct but interrelated processes. Fifth, practitioners' skills, knowledge, perceptions and attitudes underlie factors identified as affecting intervention sustainability, but the extent to which their perspectives were represented in the studies above is unclear. Finally, adaptation of the original intervention to fit local conditions is the norm.

This study was designed to address gaps in previous empirical work. Specifically, qualitative methodology allowed me to explore the actual, varied sustainability results of evidence-based mental health interventions that have been adopted from the perspective of the providers who worked most closely on them. By generating narratives around each intervention from adoption to present day operation, and from multiple perspectives, I gained insight into the processes that led to each intervention achieving its current status and the conditions under which they unfolded. Finally, using an ecological-system theoretical framework allowed me to study sustainability as a multidimensional phenomenon produced as the result of non-linear intervention-organization interaction over time.

Ecological Approach to Studying the Sustainability of Mental Health Interventions

From an ecological perspective, sustainability theory needs to address the co-evolution of both the organizational setting and the intervention. Theories of sustainability, however, may not

address the complexities associated with sustaining evidence-based health interventions in the context of the relationships between service providers, funders, community partners, and researchers, or in the context of multiple competing interventions being implemented by the same organization (Fagen & Flay, 2009). Rather than adapting research to fit incomplete theory, however, we can improve theory through contextualized intervention research. In fact, unplanned and locally-grounded theoretical approaches to sustainability may yield useful information in developing new, contextual theories of intervention sustainability (Jana, Basu, Rotheram-Borus, & Newman, 2004).

Despite calls for sustainability research on the relationship of the intervention and its context (Buchanan, et al., 2005; Fitzgerald, Ferlie, Wood, & Hawkins, 2002; Scheirer, 2005), the majority of sustainability studies do not focus on program-context interactions. An ecological approach to sustaining mental health interventions holds that interventions consonant with local resources, culture and norms are more likely to result in positive mental health outcomes than those that are not (Atkins, Graczyk, Frazier, & Abdul-Adil, 2003; Trickett, Kelly, & Vincent, 1985). Additionally, ecological approaches prioritize building capacity within the host environment as a goal of interventions. Framing evidence-based mental health interventions as events in dynamic systems recognizes that the interaction of the interventions with their organizations over time can result in all, some, or none of the sustainability outcomes identified in the literature. Anticipated, unanticipated and emergent program effects can be determined by exploring the active role of structural factors and human actions in the implementation of a program (Bisset, Daniel, & Potvin, 2009). Because implementation and sustainability are closely related, it is likely that attention to the unique and shared factors will shed light on the phenomenon of program sustainability in context.

Further, an ecological and systems approach to studying intervention sustainability suggests that the processes and outcomes associated with sustainability vary across levels of the intervention and, therefore, should be theorized as distinct but interrelated (Buchanan, et al., 2005; Mancini, Marek, & Brock, 1999; Schensul, 2009). In fact, the existing operationalizations of sustainability largely reflect what may be sustained at different levels of the intervention system. For example, individual-level reductions in trauma symptoms could be sustained via the ongoing practices of group participants (e.g., cognitive reframing, relaxation) or via increased parental support; organizational-level support could be sustained via intervention adaptation for specific client groups or policy mandates; and community-level support could be sustained via ongoing commitment from partners or funders to implementing the intervention. While this recognizes that sustainability varies across desired outcomes and levels of intervention, it also suggests that different methods or questions may be needed to capture the sustainability of intended and unintended effects of interventions across different levels. Ecological or systems theory asserts that change in a dynamic system may be nonlinear and unpredictable; small changes can have large effects and large changes can have small effects (Schensul, 2009). A corollary of this is that intended outcomes are not the only outcomes that can be sustained; unintended positive and negative outcomes can be sustained as well. It is known, for example, that psychotherapy can have harmful effects, but the nature and scope of these effects are unclear due to traditional research emphasis on positive outcomes (Barlow, 2010; Dimidjian & Hollon, 2010; Lilienfeld, 2007). Like studies of psychotherapy effectiveness, limiting studies of sustainability to intended outcomes is disingenuous; the ethics of intervention research obliges us to explore the potentially harmful effects of our work.

Finally, the influence of organizational context on the sustainability of evidence-based mental health interventions has received scant attention in the literature despite the fact that organizational climate is an important predictor of service quality and client mental health outcomes (Glisson & Hemmelgarn, 1998). Sustainability theory can benefit from recognizing the organization as an active, dynamic context shaping the form and results of interventions over time rather than a neutral and passive stage upon which interventions unfold (Fitzgerald, et al., 2002). In accordance with the notion of interventions as events in systems, this points to a need to understand the influence of organizational context on the sustainability of evidence-based mental health interventions.

Ecological Conceptual Framework

The ecological conceptual framework I used shaped this study in two ways: (1) by conceptualizing intervention sustainability as a process beginning from the point of program adoption (c.f., Pluye et al., 2004) and (2) by contextualizing the evidence-based mental health program as an event unfolding in a dynamic system that has ripple effects. It included an understanding of intervention ripple effects as related to nonlinear intervention processes that unfold in interaction with the organizational context over time to shape intended and unintended outcomes.

As described in the preceding section on ecological approaches to program sustainability, an ecological perspective on sustainability highlights the fact that evidence-based mental health interventions are implemented within dynamic organizational contexts, and suggests that these interventions have indirect, positive and negative consequences at multiple levels of those contexts (i.e., ripple effects) that are unintended and unassessed. Because research on intervention sustainability, however, stands in contrast to this broader way of conceptualizing the

long term effects of evidence-based mental health interventions, it is important to clarify the working definition of sustainability employed in this study. In this study, sustainability is defined as the maintenance of intended and unintended outcomes across multiple levels of the intervention system (e.g., client, organizational, extra-organizational) that are ascribed to the intervention by directly involved organizational staff.

Early models of sustainability relied on a linear view of the intervention process that ended with sustainability. Figures 1-3 reflect the progression of program sustainability conceptualization over time, with Figure 3 depicting my conceptual framework. Research on intervention sustainability has focused on assessing positive, intended outcomes directly related to program goals and activities, reflecting a program-centered approach to sustainability. Sustainability has most often been studied as the end point of a linear intervention process following phases of adoption and implementation (see Figure 1). In this linear model of program sustainability, sustainability begins and is evaluated once implementation is completed, typically with the end of initial funding. As a result, sustainability is often operationalized as maintenance of positive client outcomes or ongoing program activities after initial funding ends. The focus is on intended program outcomes, and the program is conceptualized as interacting with the organization in linear ways.

Figure 2 depicts the reconceptualization of program sustainability as an ongoing process that begins immediately after program adoption, and unfolds alongside intervention implementation (Bisset, et al., 2009; Pluye, et al., 2004; Pluye, et al., 2005). In this model and as discussed in the earlier section on sustainability, implementation and sustainability are ‘concomitant’ processes that unfold in parallel over time, with events in common that influence both processes and events unique in the course of each process. Here, the end of initial funding

is an arbitrary time point for studying sustainability because the process of sustainability is ongoing from the point of intervention adoption forward. The focus is still on the intervention and its intended outcomes, rather than on how it interacts with the larger organization over time, and what remains for the organization as a whole after a specific intervention has been implemented. Further, in this view the intervention and organization interact in linear ways to produce sustainability results. Though this reconceptualization represents a major contribution to the literature by recognizing sustainability as a process unfolding from the point of program adoption, it does not address the maintenance of unintended outcomes that can occur for clients, for providers, and for the organization as a result of the intervention. Finally, it does not explicitly consider the nonlinear ways in which the intervention and organizational context interact to maintain intended and ripple effects over time.

My conceptual framework (see Figure 3) relies not only on viewing sustainability as a process as described above, but also on an ecological view of interventions in context. This highlights a need to understand the reciprocal influence of organizational context and evidence-based mental health interventions in assessing program sustainability and long term ripple effects. The program-level sustainability process has been removed from Figure 3 to reflect my reconceptualization of program sustainability as reflected in the entire diagram, not just one part. Here sustainability includes the ongoing intended and unintended effects across multiple levels of the intervention system over time. Because ripple effects for the organization may be generated by the selection and adoption of a particular program, sustainability as a process begins at this point as well. An ecological understanding of program sustainability asserts that the desirability of sustaining a given program depends on the local or organizational context. Whether a positive effect is worth maintaining is a decision that an organization makes in the

context of multiple other related decisions; sustainability is not a yes/no question but rather one of degrees (Mancini & Marek, 2004). For example, the desirability of sustaining an expensive intervention that provides ongoing benefits to a few clients depends upon the resource levels of the organization, the opportunity costs associated with NOT delivering other interventions, the popularity of the intervention among providers and consumers, and funding opportunities.

Therefore, the task of sustainability research is to understand the conditions under which interventions are sustained, what exactly is sustained and why, and the conditions under which organizations make decisions around sustainability. A more complex, dynamic understanding of the interactive processes related to intervention sustainability can inform intervention development, dissemination, implementation and maintenance by prioritizing understanding the influence of the host/practice context.

This conceptualization ties the maintenance of an intervention to the active, dynamic organizational context by recognizing that ripple effects, like intended program outcomes, are the result of program-context interaction over time and likely play a primary role in determining what exactly is maintained following adoption of an intervention, as well as why, how, and to which degrees. Therefore, one cannot understand fully the sustained impact of evidence-based mental health interventions without understanding the ripple effects of an intervention; one cannot understand the ripple effects fully without understanding the selection/adoption and implementation processes; and one cannot understand these processes fully without understanding the nature of the organizational context over time. In addition, intervention effects are nonlinear and may change in important ways over time. Finally, in this study the system of interest was a mental health organization but in this conceptualization generally a

“system” may be defined more narrowly or broadly as long as there is room for assessment of ripple effects in addition to intended intervention-intended outcomes.

In summary, this study explored the sustainability of evidence-based mental health interventions from an ecological-systems framework that recognizes the complex, dynamic nature of interactions between adopted programs and organizational context. My research questions were:

- (a) What are the long-term ripple effects following adoption of evidence-based mental health interventions?
- (b) What are the processes by which those effects are realized?

Using this conceptual framework, I asked questions to understand how the focal interventions affected the organizational context including staff relationships and mindsets, resource allocation, staff training, accountability/monitoring processes, organizational structures, and staff roles and responsibilities. Formal ripple effects may show up in policies or structural changes (e.g., new positions), while informal ripple effects may manifest themselves in altered organizational norms, routines, expectations, language/terminology, and rules. Combined with the ecological conceptual framework described above, this reconceptualization focuses attention on understanding the conditions surrounding intervention adoption and the implementation process as a way of understanding program sustainability in context. Toward this end, I asked questions to understand the organizational context as it existed before intervention adoption and during implementation, including how the focal interventions were selected for adoption, which other activities were affected and how, which types of program adaptations were made and why, and the various ways in which the daily lives of staff members were affected.

III.METHODS

Design

The purpose of this study was to build upon the existing theory of program sustainability by conducting a cross-sectional, qualitative grounded theory study of the long-term ripple effects of evidence-based mental health interventions from the perspective of nonprofit mental health service providers. Grounded theory methods provide systematic, flexible ways for developing theory from the collected data (Charmaz, 2006; Strauss & Corbin, 1998). In addition, grounded theory techniques are well suited for exploring complex, contextualized phenomena and processes from the perspectives of those individuals most closely involved in them. A grounded theory approach to studying the long term impact of evidence-based mental health interventions allowed me to expand and contextualize the theory of program sustainability by asking key informants about their experiences with the selected interventions.

Sampling

Organization sampling.

Social Service Agency¹ (SSA) was the nonprofit agency selected for this study because it had implemented several evidence-based mental health interventions, which facilitated investigation of the ripple effects of the interventions and the processes behind them. In addition, I was familiar with the work and staff of the organization through my involvement in past projects with SSA. SSA has a rich history of providing social services to vulnerable groups in Chicago with the goals of empowerment and social justice (Batia, Beehler, & Birman, 2006). It endorses a progressive philosophy of care with five guiding themes: human rights, strength-based assessment and intervention, harm reduction, trauma-informed care, and embracing differences. In addition to the possibility of obtaining more valid information because of my

¹ Name changed to protect the identity of the organization.

existing relationships with the staff, the organization met several criteria that have been identified as important for increasing intervention sustainability, which allowed for thorough exploration of the phenomena. These criteria included diverse funding sources, relatively low rates of staff turnover, and the large size of the organization. Within SSA, the division of Mental Health and Addiction Services (MHAS), which was the focus of this study, is responsible for providing diverse groups of clients with housing supports, and mental health and drug addiction services to help them meet their basic needs. In addition, MHAS trains local service providers on improving service models and service delivery.

Key informant sampling.

Theoretical sampling was used to select key informants who had experiences with the focal interventions that were most beneficial to shaping the emerging theory. A defining feature of grounded theory methodology is that data analysis occurs alongside data collection, with emerging concepts shaping later sampling procedures and data collection as it proceeds. Theoretical sampling is a method of choosing participants who have the most potential to clarify concepts and themes that emerge during ongoing data analysis. In theoretical sampling, the total number of participants is not defined before data collection; rather, theoretical sampling ends with *theoretical saturation*, a point when collecting data no longer provides new insight into concepts, categories, or emerging theory (Charmaz, 2006). I interviewed seven participants for this study. To understand ripple effects at multiple levels, I sought key informants who were most likely to be able to speak to (a) the direct provision and implementation of these interventions (e.g., clinical practitioners, clinical paraprofessionals); (b) the administrative and organizational decisions and impacts (e.g., clinical directors, grant writers, senior administrative staff); and (c) the extra-organizational effects of these interventions (e.g., senior administrative

staff, intervention consultants, funders, community members). To recruit participants, I spoke several times with the clinical director to explain the study and to identify multiple key informants who had direct experiences with the evidence-based interventions that had been implemented in the organization, including but not limited to experience funding, selecting/adopting, implementing and/or maintaining the interventions within SSA. Snowball sampling was used as a second recruiting/sampling strategy to identify other key informants of potential interest.

I interviewed seven participants who represented a diverse range of experiences within and outside of SSA (see Table 1). The average number of years working for SSA was relatively high, at 9.7 years. Six participants had related work experience prior to being hired at SSA, and there was extensive lateral and vertical movement among participants within the organization. Four participants were males and all but one were Caucasian. Five participants were identified via referrals from the clinical director and two were identified through snowball sampling; I attempted to contact an eighth participant (mentioned as an outside consultant during interviews) via email and received no response.

Intervention sampling.

For this study, an evidence-based intervention was one that met criteria for an evidence-based intervention from the SAMHSA's National Registry of Evidence-based Programs and Practices (NREPP) website. SAMHSA provides the following definition of "evidence-based" on the NREPP website: "approaches to prevention or treatment that are based in theory and have undergone scientific evaluation. 'Evidence-based' stands in contrast to approaches that are based on tradition, convention, belief, or anecdotal evidence" (<http://nrepp.samhsa.gov/AboutGlossary.aspx>). Relevant interventions were identified in

collaboration with the director of clinical practice who was responsible for selecting and implementing evidence-based mental health practices for the organization.

Careful attention was paid to maximize intervention variation on the basis of whether they were more or less sustained according to the four operationalizations of program sustainability described earlier (client outcomes, program activities, organizational capacity, and values/beliefs). Five interventions (described in greater detail at the beginning of the results section below) were covered in-depth during the interviews: Dialectical Behavior Therapy (DBT; Linehan, 1993); Seeking Safety (SS; Najavits, 2003); Individual Placement & Support (IPS; Becker & Drake, 2003); Cognitive Behavioral Intervention for Trauma in Schools (CBITS; Jaycox, 2004) and Community Support Teams (CST; IDHS, 2007). Key informants for all of the above were identified in collaboration with the clinical director. Once relevant individuals were identified in collaboration with the clinical director, I emailed then called the potential key informants to discuss the study and set up an interview meeting.

Data Collection

To learn about the ripple effects of evidence-based mental health interventions from the perspective of implementing organizations, I conducted semi-structured interviews with key informants who could speak to the history and maintenance of the identified programs.

Interviews.

In-depth interviews allow for intensive exploration of a phenomenon with individuals who have experienced it (Charmaz, 2006). Further, interviews generate rich qualitative data on the phenomenon of interest, which will allow for the investigation of sustainability in context. The semi-structured interview guides (Appendix A) included open-ended questions designed to elicit rich narratives on the unfolding of interventions within the organization over time.

Intensive, narrative interviews allow participants to choose the important aspects of their experiences, and reflect on them in ways that they rarely can in the course of daily life (Charmaz, 2006; Czarniawska, 1998, 2004). Three different interview guides were developed to obtain information relevant to the three different levels of key informants described above:

1. The Practice/Implementation Interview Guide was used to interview direct service providers and intervention implementers (see Appendix A-1); this guide is the most comprehensive in order to capture changes at the practice level;
2. The Organizational Impact Interview Guide was used to interview senior clinical and administrative staff; (see Appendix A-2); this guide is briefer than the practice/implementation guide and designed to ask about multiple interventions since senior staff are likely to have had experience working with more than one evidence-based intervention; and
3. The Extra-Organizational Impact Interview Guide would have been used to interview relevant external informants, though no such participants were involved; this guide was designed to gather information on the organization from individuals external to the organization (i.e., non-employees) who were involved in some way in the implementation of the evidence-based intervention.

All participants were asked to provide informed consent before the interview began. Participants were allowed to choose the interview location, and all preferred to meet in their respective offices at SSA. Interviews lasted from 1-2 hours in length and participants were not compensated for their participation. The open-ended interview guides were developed based on processes and factors identified in the previously reviewed literature and on recommendations from qualitative methodologists (Auerbach & Silverstein, 2003; Charmaz, 2006) to capture a

broad range of sustainability results and processes while generating narratives around specific interventions.

Memos.

I wrote post-interview memos to document my thoughts on the interviews and my emergent thinking on the ripple effects of the focal interventions, and emerging conceptual issues. Memos help the researcher reflect on her own practice, encouraging constructive criticism and growth, and facilitating movement between immersion in the research context (i.e., data collection) and data analysis (Charmaz, 2006; Miles & Huberman, 1994). The content of memos often changes over the course of a research project with early memos generating codes and conceptual comparisons, and later memos elaborating or confirming/disconfirming codes and clarifying conceptual relationships across informants, time and place. Generating memos requires active engagement in data analysis, facilitates idea development, and creates opportunities to focus ongoing data collection (Charmaz, 2006). My memos were composed quickly without structure or editing, and included thinking on: (a) the interview setting and nonverbal communication; (b) convergence/divergence of data sources; (c) key constructs under investigation (e.g., evidence-based practice, sustainability, organizational systems, human ecology); (d) the emergence of ideas, themes, categories and codes over person, time and place; and (e) issues for clarification in subsequent data collection or follow-up interviews. With respect to format, memos will be dated, associated with the related interview (where applicable), and titled as specifically as possible (Charmaz, 2006; Miles & Huberman, 1994). Finally, I wrote memos as soon as possible after each interview, usually within 4-6 hours, and revisited them as warranted after interviews, conversations, or other interactions.

Data Management & Analysis

Interviews were recorded using a digital audio recorder. I took occasional notes on the interview guides during the interviews, particularly in instances where I wanted to follow-up on something that was mentioned in the course of conversation. Interview recordings, interview transcripts, memos, and my handwritten notes provided the raw data for this study. All data were dated and saved in both hard and electronic files as a way of documenting the research process and methodology so that others can review the research steps if necessary. Because it appeared that transcription would facilitate data analysis, I transcribed interviews from the digital audio recordings using Express Scribe, a free transcription software program. Because the primary interest of analyses is the history of the interventions over time, participant words were transcribed; speech patterns, cadence, mannerisms, facial expressions, and body language were not transcribed.

Data analysis.

I intended to analyze interviews as they were completed by coding the memo written after each interview. This process would allow me to determine whether a follow-up interview was needed, whether the emerging coding scheme was sufficient, and whether the interview protocol captured what it was intended to capture. However, I realized after my fifth interview that the memos I had written did not contain sufficient detail for coding purposes and decided to transcribe the recordings to make sure all data collected were analyzed. Grounded theory techniques (Auerbach & Silverstein, 2003; Strauss & Corbin, 1998) were used to analyze the phenomenon of intervention sustainability from the perspectives of mental health practitioners. The purpose of this study was to build a theory of program sustainability in context and grounded theory techniques were well suited to answering my research questions because they

facilitated identification of emergent sustainability patterns/categories, which could later be compared with existing categorization schemes.

Coding the transcribed data involved multiple interrelated and iterative types of coding, as well as documenting the coding process via notes on interrelationships and verifying interpretations with others (e.g., committee members, research team members) as outlined in Auerbach & Silverstein (2003). I coded the first interview line-by-line to generate an initial coding scheme, which was then used with subsequent interviews and modified as needed. As I read the transcript, I looked for concepts and events relevant to my research questions; initial codes were defined and dated, and then applied to the second interview. As I analyzed each interview in this way, code definitions broadened and narrowed as I compared and contrasted concepts across participants; each code change was noted and dated (see Table 3 for sample coding). Categories and subcategories of ripple effects were created and differentiated according to their properties (general attributes) and dimensions (property locations along a continuum); property specification and dimensionalization facilitate the pattern identification necessary for theory building.

Second, selective coding was used to refine and integrate the emerging theory. A central theme pulls all existing categories together to explain the phenomenon as a whole, accounts for substantial within-category variation, and may or may not evolve from the categories developed during open and axial coding (Strauss & Corbin, 1998). The central theme of mutual adaptation emerged from data during selective coding. As suggested by Strauss & Corbin (1998) I used big picture questions (what is the story here? What seems to be going on? What keeps coming up, directly or indirectly?), diagrams, tables, drawings and memos as needed to clarify the central theme and relate other categories to it.

Pattern Identification.

Studying patterns of relationships, interactions and processes over time is essential for understanding the present and past of a system as a whole (Anderson, Crabtree, Steele, & McDaniel Jr., 2005). I created a master timeline that included the timelines of each intervention, individual participant, SSA, and extra-organizational events that impacted the intervention system (see Table 4 for a sample). Across these different levels, I compared the chronological patterns to determine (a) the range of sustainability outcomes and the multiple ways in which they were achieved, (b) the patterns of interactions within the interventions and (c) the patterns of interactions across different interventions. Finally, in the coding process I attended to the ways in which the interventions interacted with the organization as a whole, which allowed me to develop an understanding of the organization and intervention sustainability in context.

Triangulation.

Triangulation is the process of comparing emerging information and sources to existing information and sources in a search for theoretical and conceptual convergence across data and sources (Lincoln & Guba, 1985). Credibility is enhanced to the degree that different types and sources of evidence converge in support of the researcher's interpretations. I triangulated the data in this study by reflecting in the interview memos and coding notes on the 'fit' of the new interview data, issues and themes with previously collected interview data, issues and themes. In addition, the interview guides were revised to capture emergent issues and themes that divergence suggests need further exploration or clarification.

Peer debriefing.

Peer debriefing has the potential to enhance credibility by forcing the researcher to make explicit emerging aspects of the study design, research process, data analysis that would

otherwise remain implicit (Lincoln & Guba, 1985). The purpose of this debriefing is for a relatively uninvested peer to make the researcher as aware of her values, positions, and processes as possible throughout the research project. Interpretations, assumptions, value stances, and emotional reactions can be discussed and examined, working hypotheses can be surfaced, and design and methodological issues can be raised. I had several debriefing meetings with my advisor and research team members, as well as committee members, where we discussed emerging themes and concepts. Conceptually, peer debriefing replaced inter-rater reliability for this study.

Audit trail.

A thorough record of the research process helps the researcher justify her interpretations by being transparent about the steps involved in arriving at them, including decisions around study design, methodology, data collection, analysis, and reporting (Auerbach & Silverstein, 2003). Creating an audit trail so that others can “audit” or review the research steps and understand how the researcher came to her conclusions is an important part of establishing credibility (Lincoln & Guba, 1985). Audit trails can include raw data, data reduction and analysis products, data reconstruction and synthesis products, and process and reflexive notes. My audit trail included the raw data (interview recordings, transcripts, notes, memos) and all other materials created (e.g., tables, charts, drawings, thoughts/ideas/concerns) relevant to coding, categorizing, hypothesizing, interpreting and theorizing.

IV. RESULTS

The purpose of this study was to understand the long-term ripple effects (i.e., unintended consequences) of implementing evidence-based mental health interventions in a community-based organization. Specifically, I sought to document the range of long-term ripple effects and

uncover the process(es) by which they were achieved. In the course of my interviews, however, short-term ripple effects emerged as related to the long-term ripple effects that surfaced.

Therefore, the scope of my results is broader than originally anticipated in order to include short-term and long-term ripple effects. In addition, ripple effects were identified by level of the implementation system, resulting in effects at the provider, client, and organizational levels.

Implementation system includes the elements within and outside the formal boundaries of the organization that are involved in implementing a given intervention; the system represents all elements involved (past, present, future), though only some may be active in implementation during a given point in time.

An important theme that emerged in analyses was adaptation/accommodation at multiple levels of the intervention system. This process varied according to the degree of perceived misfit between elements of the interventions and aspects of the organization. The process was driven by new or different quantities and qualities of interactions between staff, clients², SSA and other external systems (funding, school, etc).

The presentation of results is organized as follows. First, I provide background information on the selected interventions to aid in understanding my results. I combined information that participants shared during interviews with publicly accessible information on the interventions. Second, ripple effects on the providers, clients and the organization are described. Third, to describe ripple effects at the level of the intervention, I report on adaptations made to the programs as part of the broader adaptation process unfolding in the setting. Finally, I discuss the adaptation/accommodation process that appears to be generating the ripple effects for the interventions, practitioners, clients, and the organization.

² The term “clients” is mine and is used to distinguish SSA-served individuals from research participants (i.e., interviewees); SSA staff members refer to individuals who receive services as “participants”.

Selected Interventions

Five interventions were covered in the interviews: Dialectical Behavior Therapy (DBT; Linehan, 1993), Seeking Safety (SS; Najavits, 2003), Cognitive Behavioral Intervention for Trauma in Schools (CBITS; Jaycox, 2004), Individual Placement and Supports (IPS; Becker & Drake, 2003), and Community Support Teams (CST; IDHS, 2007). DBT is a cognitive behavioral intervention that was originally designed to treat women diagnosed with borderline personality disorder. It is a highly structured intervention, with treatment organized into stages that proceed in a fixed order. Participants are provided individual therapy, skills groups, and phone consultation. Seeking Safety is a flexible cognitive behavioral intervention designed for people with both a history of trauma or PTSD and substance abuse issues. It can be used in individual or group formats, and in a variety of settings, and includes 25 topics that can be covered in any order. CBITS is a school-based group and individual intervention designed to mitigate the effects of traumatic life events. It was designed for use with students in grades 5-12, and uses cognitive behavioral techniques to reduce symptoms and improve coping skills. The goal of IPS is to help severely disabled individuals obtain competitive work and integrate into work settings. Individualized assistance is provided to help participants search for jobs, craft resumes, submit job applications, respond to employers, interview for positions, and maintain employment. CST is a comprehensive community-based rehabilitation and outreach service for adults and children. Services are provided around the clock by teams in settings natural for the client. It is very similar to Assertive Community Treatment (Stein & Santos, 1998) with one key difference relevant to this study: the Illinois Department of Health Services reimbursed providers more easily for CST services (compared to ACT services).

In addition to being adapted themselves, each of these interventions sparked accommodations on the part of SSA as they unfolded. This process of adaptation resulted in short-term and long-term unintended effects for the organization, staff, and clients.

Organizational Ripple Effects

The first category of ripple effects were organizational ripple effects, seen in structural and programming changes enacted as a result of implementing the various interventions. Organizational ripple effects were unintended positive or negative effects of a given intervention that occurred at a level beyond individual staff members but within the boundaries of the organization (i.e., not externally). These organizational effects may have impacted individual staff members, but were not experienced directly by individual staff members.

Programming.

SSA service offerings changed as a result of implementing certain interventions. Not only were services added and removed as interventions came and went, but in one case existing psychosocial rehabilitation (PSR) services changed as a result of knowledge gleaned from working to engage clients in one of the interventions, DBT:

Part of their commitment was that they are going to show up for individual and group [DBT] sessions, give it this 8 weeks that hopefully is enough time for you to get a sense of whether or not it's helping you and whether or not you want to continue, and then at the end of that 8 weeks if you feel like it is a good thing, then recommit for another 8 weeks. So we'd have like these successive commitment periods. And it held people accountable, it had expectations for people. And we've tried to do a little bit of that, we've moved on a little bit of restructuring of the PSR program over the last year or so and tried to incorporate a little bit of some of that stuff.

SB: as a result of the adaptations, or what you learned from the DBT process?

That certainly was influencing my thinking, no question. The other piece being that as a team, I think we kind of, at least this is my version, that as a team we recognized that we do a really nice job of engaging people who are maybe pre-contemplation/contemplation around whether it's their mental health or their substance use or whatever, and that we didn't have as much to offer people who maybe were more in a readiness to make some changes kind of a place. And similarly that this low demand, low threshold kind of thing worked for people whose level of functioning isn't that high, but for people who are capable of more and ready to do more, we're not serving those people very

well. So part of it was incorporating more expectations and being very conscientious or as much as we could around not being punitive.

In this example, changed staff expectations of clients as a result of experience with one intervention (DBT) led to rethinking expectations of participants in other services with which the staff member was connected. The example highlights the fact that staff members touch many other areas within SSA, providing potential for spread of intervention ideas across the organization. Additionally, promotions and other position changes within certain programs occurred, though these did not necessarily result in structural changes to the organization.

Structure.

The organizational structure changed as a result of implementing various interventions. New positions were created and individuals were hired or moved within SSA to staff them. CBITS, for example, sparked several structural changes within the organization. First, another clinician was hired to relieve the project lead of his existing work with adults so he could focus on children's programming. Then, new clinicians were hired to help implement CBITS and administrative staff were pulled from other parts of SSA to help manage the grant. Further, a non-clinical "de facto project director" was assigned to CBITS midway through as implementation challenges arose. This particular intervention continues in the middle phase of its initial grant funding so the long term impact of what are perhaps short-term rearrangements remains to be seen. Finally, though some of the created positions disappeared when the interventions formally ended, many of the staff members hired to implement the intervention shifted to other positions and remained working at SSA.

Staff ripple effects

Changes in organizational structure and programming constituted ripple effects at the level of the organization, which impacted staff members to varying degrees according to the

duration of the organizational change. Ripple effects on staff members were unintended effects that occurred or were felt at the level of individual staff members. These may have been affected by organizational ripple effects, though they were felt at the staff-level. There were four categories of ripple effects on staff: work roles and responsibilities, knowledge/experience, thoughts & feelings, and behavior & language. Knowledge/experience, thoughts & feeling, and behavior & language

Work roles & responsibilities.

Work roles and responsibilities changed as a result of early structural and programming changes within SSA as well as in ongoing ways over the course of intervention work. Role changes included becoming an advocate and expert on the intervention within SSA, taking on supervisory roles, and becoming an intervention team member within (DBT) and outside of SSA (on a high school intervention team). The typicality and voluntariness of work roles, however, shaped participant experiences with the interventions. For example, one participant whose job is administrative described choosing to participate in DBT meetings as a positive out-of-role experience:

You know we enjoyed, I mean I kind of looked forward to the consultation meetings and so I think in some ways, even though it didn't alter the lives of our participants in the ways we had hoped, I think for awhile there it kind of altered our lives. So I think in a strange sort of way it was, and I can't really speak for [coworker 1] and [coworker 2] but you know it was a chance for them to really do intensive case work, case study, case consideration. It took them away from their endlessly varied administrative roles and you know and that certainly for me was something I kind of liked about it was that it took me out of this, you know, office filled with paperwork and administrivia and let me just kind of think clinically for an hour or two a week while on the job.

Another participant described an involuntary out-of-role experience as a supervisor and project director as frustrating:

The problem with the way that we do things around our organizations is they put someone like me, who hasn't really worked with that programming before, in charge of the administrative components, so I'm the de facto project director. But I'm not really the project director because the project director should be the person who is organically looking at the implementation and responding to it, and that's not really happening...So my initial thought was that I would just do the administrative

work to get this up and running and then turn it over, and that hasn't happened. I've had to stay way more tied to the programming because it's not effectively being implemented.

Quantitatively and qualitatively different work responsibilities followed from these kinds of role changes and implementation efforts in general. Quantitative changes in work responsibilities included increases in responsibilities (e.g., administrative duties and paperwork), and decreases in existing responsibilities (e.g., work with adults) in order to increase work responsibilities on a given intervention (e.g., work with children). Combined with these, changes in the content of daily work reflected qualitative changes to existing work in response to intervention-related demands. Examples include conducting outreach to employers in the community, educating SSA staff and clients on an intervention, researching new funding streams, attending new/different meetings, and changing content of supervision meetings with staff due to implementation needs.

Knowledge/experience.

Often staff knowledge developed as a result of implementing a particular intervention is conceptualized only as program-related content knowledge or skills acquired through formal trainings on specific topics. Though this kind of knowledge acquisition was evident from the interviews, participants also described different kinds of intervention-specific knowledge acquired informally through working with the interventions. In addition, participants either acquired new knowledge or had previous knowledge about themselves, clients, the organization and other systems activated through their contact with the interventions.

With respect to intervention-specific knowledge/learning, participants described making connections between certain interventions (e.g., noticing similarities between DBT and Seeking Safety) and recognizing distinct intervention phases (e.g., becoming aware while implementing IPS that keeping clients employed required a different set of skills than getting them employed) .

In learning about themselves, participants described changing personal and professional awareness. For example, one participant described implementing IPS as professionally satisfying and another described realizing that CST work had affected him personally:

You end up having a different sort of perspective just because of how much trauma you pretty much encounter on a regular basis. You never really hear a positive story when you are doing a mental health assessment on somebody, you hear some traumatic stories that you wonder how people survived, that sort of stuff, and you end up having a huge respect for them for surviving. Because of that it also then gives you this different sort of way of looking at things. I don't know. I recognized it the most in this last year because I lost my mother and my father probably in the last year. And the way that I managed that loss compared to my siblings was just night and day different just because I'm used to people passing away all the time... so they end up being very close relationships that you have with them because home visits you are automatically breaking down barriers because you're walking into their space, that sort of thing, and it causes you to have to have lower barriers than like if they're coming to your office. When you have them coming to your office, you have these naturally built, defined, I'm different than you things. When you're walking into their apartment, sitting down on their bed, because there's a bed and a chair so you sit on the bed, you don't have any of those. So it's a much more, it's a different sort of relationship than you have when you're working with people from the office. So I can see how that affected me.

Participants also described learning about the varied needs and strengths of their clients through intervention work. For example, they recognized certain strengths in clients and learned about the fit between SSA clients and the interventions. In addition, participants learned about the organization and fellow staff members, particularly learning about the intervention as it fit with SSA culture and demands, as a result of working on specific interventions. Knowledge of organizational structural barriers to implementation, strengths and weaknesses of existing services, intervention limitations, and coworkers was gained through participants' intervention work. Further, participants described increased knowledge of external systems such as funding, benefits, school and employment service systems through their intervention work.

Thoughts & feelings.

Thoughts and feelings about the intervention, the organization and other systems changed as a result of different kinds of interactions associated with specific interventions. These represent the result of reflecting upon knowledge developed and experience accumulated.

Feelings about the intervention ranged from feelings of uncertainty, frustration (slowness getting DBT “off the ground”), excitement, fun (getting to be creative in IPS work, no one breathing down neck), confusion (about role in CBITS), stressed and satisfaction during implementation to loss, sadness, disappointment and failure at the end of an intervention. Several participants described positive feelings about SSA but these were not tied to interventions; only negative or ambivalent feelings about the organization were linked to specific interventions. Participants described thinking differently as a result of their intervention work, and DBT had a particularly strong impact in this area. For example, one participant felt that it helped organize her thinking around work with clients, saying: “if I didn’t have that as a theoretical framework, what would I have?” and another said that thinking in terms of the “both/and” dialectic was helpful for her in thinking about work with clients in private practice. In another situation, the participant described a coworker who initially was not enthusiastic about DBT though he now considers using parts of DBT in his other work.

Behavior & language.

Behavior here refers to activities where participants apply intervention-related knowledge or skills to areas beyond the scope of the intervention; again, DBT seems to have had a strong impact. For example, two different staff members who worked with DBT conduct mindfulness exercises in other work meetings (weekly supervision group meetings, team meetings, other work group meetings), and another who runs a private clinical psychological practice has incorporated elements of DBT into her work with clients there.

In addition, participants described changes in their language and communication as a result of intervention work. For example, one participant explains herself and her approach to work using DBT terms or concepts when she interacts with other staff members and when she

conducts trainings through another part of SSA to contextualize her responses to trainee questions. To further her conversations with staff members, she also printed a double-sided, business-card-sized copy of the six DBT therapist consultation agreements (i.e., principles) and occasionally hands them out to staff. Another participant described how he invokes “evidence-based practice” in task force meetings to bolster his argument:

I bet I use the term “evidence-based practice” at least once a week in an outside meeting because I, here’s an example. So I’m part of a task force that’s been sort of anointed to consider and work out the details for completely reconfiguring Chicago’s homeless system so that there would be a centralized way to get in. right now it’s totally random and it’s luck of the draw, and whoever bumps into the right person at the right time gets housing, and whoever doesn’t doesn’t. So we know from Housing First studies that these individuals with chronic histories of homelessness and co-occurring disorders need case management ratios of 1 to 15, so 1 case manager for 15 at the most individuals. So that’s an example where I say, once we get beyond 1 to 15 we no longer have fidelity to the studies that suggest that it’s 1 to 15, that’s best practice. And evidence-based practice, the stuff that comes from New York, Sam Tsemberis, the Pathways to Housing research has all said Housing First works as long as you have intensive services that include a 1 to 15 ratio, among some other things, but that’s a sticking point because there’s costs involved with that. But I keep emphasizing, so that’s an example of where when I’m advocating for adequate funding, I try to tie that back to evidence-based. If we’re going to adequately fund a homeless service system, I’m not saying all homeless people need services, I’m not saying all homeless people need intensive services, but homeless people with co-occurring disorders with a multitude of other chronic health issues need intensive services. We know this and there’s literature to back that up, and there’s a model, and that model is evidence-based because it’s been shown to work 90% of the time, and they have a 1 to 15 case manager ratio. So I use that as like a kind of like an anchor.

Further, staff mentioned that having a tangible program to discuss with clients was helpful in that it allowed them to communicate about a set of services in more concrete ways than possible previously. Finally, one participant mentioned that “harm reduction” had become part of his language now as a result of interacting with the organizational philosophy of care around CST work.

Client ripple effects

Client ripple effects were experienced by individual SSA clients who participated in the interventions of interest. I did not interview clients for this study but I asked study participants about the general client experience of each intervention.

Participation.

Changes in the nature of client participation were described by participants. Most program clients were existing MHAS clients; therefore, the majority of changes they experienced were due to shifts in services within SSA (organizational ripple effects) and/or interacting with intervention staff members differently. These changes included increased work levels, such as completing DBT homework, and increasingly active participation in services, such as visiting employers and submitting job applications in IPS. In addition, some clients experienced changing incentives for participation and new commitment requirements over the course of participating in certain programs.

Knowledge/experience.

SSA clients also developed intervention-specific knowledge over the course of participating in different interventions. For example, clients had to learn what IPS was and was not:

I think people would often approach [vocational specialist], and say I want a job, hook me up, can you get me a job? They were initially thinking more like she had a set of jobs in her pocket and she could get them one. So we had to educate participants as to what the model was and what she could do for them.

In addition, clients learned about other systems through participating in SSA services. One client who gained employment through IPS learned about Social Security and disability benefits systems over the course of balancing making a living with losing his benefits.

Thoughts & feelings.

Participants described their clients as having thoughts and feelings about the interventions they participated in. For example, one participant described a client who was upset at being transferred from existing services to DBT when it started, and others who credited it with helping in their lives or were eager to get it back after it ended. Another described some

CST clients as feeling out of control given that SSA controls their money by serving as representative payee for their benefits.

In sum, ripple effects occurred across client, staff and organizational levels. At each level, changes in routine work occurred early in implementation and lasted until they were no longer productive or necessary. Structural and programming changes at the organizational level occurred shortly after adopting an intervention, and shaped intervention work roles and responsibilities for SSA staff members, as well as participation modes for clients. Deeper changes to knowledge, thoughts and feelings, and behavior and language among staff members and clients resulted from experiential learning after extended interaction with the interventions.

Mutual adaptation

My second research question addressed the process by which these ripple effects occurred. The process at work in creating and maintaining these ripple effects is one of *mutual adaptation*, in which staff members modify interventions over time to improve fit with the local implementation setting (resulting in intervention adaptations) and various aspects of the implementation setting are modified over time to improve fit with the interventions (resulting in ripple effects throughout the intervention system). I use the term “mutual” to refer to the dual process of the intervention being adapted to the setting, as well as the setting changing and adapting to the intervention. This term was used previously to describe a similar process (Bird, 1984; Leonard-Barton, 1988). It is worth emphasizing, however, that the intervention modifications were actively made by staff members while this was not always true of modifications in the setting. “Implementation system” refers to the individuals (e.g., staff, clients, consultants) and organizational components (e.g., structures, policies, norms, culture) interacting with an intervention at a given point in time; extra-organizational factors interact with

the system as a whole. After making initial modifications to the intervention within the implementation system, the system begins to interact with itself in the form of a locally altered intervention, shaped to fit the values, norms, demands and resources of the setting. The legacy of this mutual adaptation process is what is sustained

Mutual adaptation is driven by four interrelated processes that unfold over the course of implementing an intervention: interacting in novel ways, assessing fit between an intervention and aspects of the local setting, intervention modification, and experiential learning (see Figure 4). It begins with an intervention entering into the implementation system and generating new possibilities for interactions among system parts. As new or different interactions occur, issues of fit between the intervention and multiple levels of the implementation setting become evident, and short-term or long-term modifications are made to remedy these. Ongoing fit assessments are made across multiple levels of the implementation system, resulting in either program modifications or ripple effects. Experiential learning occurs immediately on the part of the organization and its staff members, and continues over the course of the intervention. Each set of modifications generate novel interactions within the implementation system, initiating further adaptation cycles within the larger system. Finally, the overall length of each adaptation cycle varied within and between interventions. The process ends when the perceived fit is acceptable or questions of fit are no longer relevant (e.g., the organization stops implementing an intervention).

The process is shaped by organizational norms and culture, and affected by changes initiated in the extra-organizational context. Time and level of implementation system impact the process of mutual adaptation as well. Typical patterns of novel interactions, fit assessments, intervention modification, and learning occurred at the different levels of the system at different

times. Below I describe each of these four processes separately. Last, I provide examples of the process throughout phases of implementation.

Novel interactions

Staff members began interacting with a new program or a similar program in different ways (e.g., CST), which generated *novel interactions* among parts of the implementation system, including SSA, outside actors (other social service agencies, funders, schools), fellow staff members, and/or clients. Novel interactions occurred primarily through initial changes in organizational structure and programming, staff work roles and responsibilities, and client participation. These interactions were novel in two main ways: (1) they represented interactions with new parts of the system (e.g., managing social security benefits on behalf of IPS clients), and/or (2) they represented new interactions with familiar parts of the system (e.g., different ways that clinicians relate to participants, different content to conversations). Further, one set of interactions could be novel in both ways; for example, participating in weekly meetings of a newly formed DBT consultation team with SSA staff members and outside consultants. These interactions were complex, often involving multiple actors within the dynamic implementation system, and may or may not result in long-term changes to relationships among actors. They ranged in frequency from one-time only to regular. Finally, these novel interactions began before interventions were selected or adopted. For example, SSA worked with another community-based agency to select CBITS for adoption and write a grant for implementation funding.

Dynamic organizational demands and culture, however, also influenced interactions, and related fit assessments and experiential learning, by shaping the possible content of interactions. In 2005 MHAS developed a philosophy of care (POC) that infuses all of their work, and infused all of my interviews, to different degrees and effects. The harm reduction stance articulated in

the POC strongly influences staff interactions around interventions within SSA. One participant, for example, felt like it interfered with his ability to assemble a productive Community Support

Team:

I knew that just sort of walking in the door, which was fine, it's pretty much how I do treatment so it wasn't really a huge change. It just bothers me because of my history, it's like I want this diversity and so it's much harder to get it on the teams because they all feel like we gotta be doing this harm reduction approach. Whereas all the other teams and all the other treatment I've done before this there wasn't that sort of drive in a team, it was trying to accomplish certain things. It's like [other social service agency] has sort of like a temple like feel like this does in terms of this being the temple of harm reduction. When I was at [other social service agency] it was the temple of [staff member], and [he] had specific goals he felt participants should be working on in terms of prevention of unnecessary hospitalization, socialization skills, vocational skills. And he would state these goals on a regular basis such that all of the staff knew what they were inside and out. You also knew the medical model was important, all of those sorts of things. But because it was done in terms of goals and not intervention, you would still have heated debates over how a person should go about accomplishing this goal or how staff could help this person go about accomplishing those goals...Here the discussion is more, a lot of the times it will be more about, it has a feel like if we could figure out how to view this through harm reduction or trauma informed, then that would be the answer and it would cause this person to change their behavior. So it's more a concentration on how do we go about doing that? And that's different.

In this case, the participant had many years of experience working with a similar intervention in other agencies and so was able to assess the fit of previous and current intervention work, as well as the fit between current intervention work and the explicit philosophy of the organization.

Again, the timing of interactions between an intervention and the organizational culture is important for understanding intervention effects. Interventions adopted before the POC was developed in 2005 (e.g., DBT) could not have interacted with its formal articulation until after that point in time, where interventions adopted after 2005 likely interacted with it during both the selection and implementation processes. This means that the range of possible selection criteria and dimensions of fit changed after the POC was introduced, resulting in the operation of intervention adopted under different organizational cultural conditions.

From the beginning, knowledge and thoughts/feelings among staff members and clients developed as these interactions unfolded over the course of implementation. Novel interactions

included non-physical interactions, such as those among bodies of knowledge wherein ongoing experiential learning interacts with existing knowledge to form opinions, reactions and feelings about a given intervention and associated work. In addition, theoretical approaches to intervention interacted. For example, CBITS, which employs a cognitive-behavioral or skills-based approach to treatment, was incorporated into an existing SSA program that operates using a more relational, client-centered, psychodynamic approach to treatment. Finally, interventions interacted with one another through the staff members that touched them. For example, incentives were incorporated into Seeking Safety as a result of the manager's interaction with clients around DBT.

Assessing fit

Through the presentation of new and/or different system elements relevant to a given intervention, the generation of novel interactions tends to illuminate areas of greater and lesser fit across the implementation system. Staff members assess the intervention-context fit at multiple levels in ongoing ways that shift over time. Examples of fit assessments at multiple levels include assessing client abilities in relation to intervention participation demands, assessing fit of intervention approach with personal beliefs and experiences, assessing the integration of intervention work into existing work, assessing the fit between organizational structure/communication and the logistics of serving clients, and assessing the fit between an intervention model and prevailing external systems. For example, an assessment of fit during the selection process may focus on the symptoms addressed by an intervention compared with the symptoms presented by clients (e.g., DBT), and later assessments may extend to the fit of a given intervention model within SSA (e.g., CBITS) or with external systems (e.g., IPS). The point here is that while initial assessments of fit can be made, some issues of fit will not be revealed, and

thus cannot be assessed, until the intervention has had time to interact with the local implementation setting. For example, assessing the fit of typical CBITS data collection procedures with the clinical and cultural characteristics of refugee children became possible only after noticing problems during the use of existing measures.

Intervention modification

Intervention modifications were informed by changes in the implementation system. Intervention-related changes have most commonly been conceptualized as intervention-level (rather than setting- or system-level) changes, as in this definition of *program adaptations* endorsed by SAMHSA (Backer, 2001):

deliberate or accidental modification of the program, including (a) deletions or additions (enhancements) of program components, (b) modifications in the nature of the components that are included, (c) changes in the manner or intensity of administration of program components called for in the program manual, curriculum, or core components analysis, or (d) cultural and other modifications required by local circumstances.

Several of these kinds of modifications were identified by participants (see Table 2). All interventions were modified to some extent, and the main modifications were changes to content, format, evaluation procedures and participation incentives. One key trigger for intervention modifications that occurred across almost all interventions was a shift in the use of interventions with target client populations different from those for whom they were developed. Implicit intervention assumptions around participant needs, resources and abilities became explicit as the particular strengths and needs of SSA clients were revealed throughout implementation. For example, refugee youth clients had experienced complex trauma and the CBITS protocol calls for participants to choose a single traumatic event to work on in the group and individual sessions. Participants described four of the interventions as continuing in some form, though intervention activities varied in the degree to which they adhered to the original intervention

model as well as in their degree of continuation (see Table 2). Staff interactions with clients had immediate, direct connections to intervention modifications, and organizational culture shaped the modifications that were made. Finally, intervention modifications were made to improve perceived fits between the intervention and the implementation setting.

Experiential learning

With each new round of modifications, staff members engaged in informal/experiential learning about many aspects of the system; this kind of learning accumulated, resulting in the knowledge/experience described as a ripple effect above. Further, accumulated knowledge fed back into the system, shaping new interactions, fit assessments, and modifications. Though formal learning is likely to contribute to the process of mutual adaptation, it is not included here because of the priority given by participants to informal learning. In general, formal learning occurred close to the point of adoption, or in discrete chunks throughout the implementation process, while experiential/informal learning occurred throughout. Further, issues of fit between the intervention-as-designed and the local implementation context resulted in experiential learning. Finally, staff members applied experiential knowledge as they moved horizontally into other areas of the organization and vertically as they were promoted within SSA.

These four interrelated processes (novel interactions, fit assessment, intervention modifications, experiential learning) ultimately resulted in intervention and/or setting modifications. They occurred in a cycle that repeated over the course of an intervention unfolding within SSA. Novel interactions reveal the degree of fit of intervention and implementation system elements, both of which result in experiential learning and altogether form the mutual adaptation process. Further, the impacts of these appear to depend upon the time points at which they occurred on at least three separate trajectories: individual staff member,

intervention, and organization. I next provide examples of mutual adaptation across intervention phases to illustrate how novel interactions, fit assessments and experiential learning relate to program modifications and ripple effects across the implementation system.

Mutual adaptation phases

Four distinct phases of mutual adaptation emerged in the analyses: selection/adoption, early implementation, full implementation, and late implementation. The selection/adoption phase refers to the time period that preceded a formal decision to implement an intervention; this begins when the intervention is first considered a candidate for adoption and ends with the decision to adopt. Early implementation refers to the time period between adopting an intervention and the point when the first client(s) received services; full implementation refers to the time period during which the intervention is reaching clients within the organization; and late implementation refers to the time period during which continuation decisions and related modifications are made. These phases reflect an intervention-centric time orientation, which is common in research on intervention sustainability, though not always conducive to writing about ripple effects on the implementation setting. For example, a participant-centered time orientation would likely define mutual adaptation phases by changes in the nature of employment over time (e.g., pre-employment, early employment, first promotion); likewise, an organizational-centered time orientation would likely define phases around key internal and external changes (e.g., pre/post-staff unionization, pre/post-philosophy of care, pre/post-fee-for-service funding). Further, the intervention-centric phases are overly general in that different components of the interventions were in different phases at the same point in time. For example, DBT groups were fully implemented when the phone consultation component of DBT was in early implementation. Despite the complexity of these processes across individual, intervention, and organizational

levels, a narrative by chronological intervention phase was the clearest way to write about the process. Novel interactions, fit assessments, intervention modification, and experiential learning vary across levels of the system and over time, though there are general patterns across interventions within each phase. To explicate this model of mutual adaptation, below I describe each intervention-centric phase of the process using the concepts of novel interactions, fit assessments, and experiential learning along with examples from the interventions.

Selection/adoption.

Events in this phase set the stage for future intervention and setting modifications. The quality of different interactions, the comprehensiveness of the initial fit assessment, and initial learning that occurred prior to adopting an intervention all influenced subsequent modifications. For example, deciding to implement IPS despite an unfavorable funding climate set the stage for future interactions around funding, billable services and staff productivity demands. When a state-level change to funding services occurred in July 2008, the position of IPS within SSA became even more precarious, and ultimately led SSA to stop implementing IPS. Pre-adoption fit assessments were particularly impactful and differed from those made once the intervention was inside the system in three key ways.

First, by definition, they were speculative. Actual fit could not be assessed so hypothetical fit was assessed along a variety of dimensions, often beginning with the fit between client needs and intervention goals. With DBT, SSA staff perceived similarities in the symptoms exhibited by substance using clients and the symptoms of individuals with borderline personality disorder that were targeted by DBT. In this case, symptom fit was prioritized over other types of intervention-setting fit and an assessment favorable to implementing DBT was made. Therefore, the first and perhaps most impactful modification to DBT was foretold in the decision to use it

with an existing group of clients. Second, staff evaluated fit under conditions of no previous organizational experience with the interventions; there were no instances of re-adopting after prior de-adoption. Even had there been, and assuming no changes to the intervention protocol, intermediate changes in the implementation system would have meant a qualitatively different set of possible interactions and, therefore, dimensions along which to assess fit. Finally, what may have been trivial misfits initially were amplified over time, necessitating more extensive modification in order to accommodate them.

Novel interactions and learning that took place during the selection phase made an impact primarily through their effects on the initial fit assessments. For example, the clinical director at the time, who initiated adoption of DBT, had an existing professional relationship with a man who was recognized as a local DBT expert and later contracted by SSA as a consultant for DBT. Though I was unable to interview either man, it is likely that information shared casually contributed to a more comprehensive, if not even favorable, fit assessment. Similarly, the decision to adopt CBITS was the result of a comparative selection process conducted in writing a federal grant with another local refugee mental health program:

...but then it was understood that the proposal would be strengthened by proposing to be involved in providing an evidence-based practice, there's a lot of emphasis on that within the [national collaborative] network, and with SAMHSA and the federal government. So we looked at several of them, SPARCS and TF-CBT and CBITS, and at the time we were also collaborating with [other social service agency], who had the [other program] that is no longer , but in collaborating with them what they were bringing to the table was work that they were already doing in schools. And we were already working in schools too, and so CBITS seemed to be the evidence based practice most, maybe, malleable for these two programs. And we were also wondering and thought about not putting any evidence-based piece in the proposal and that we would just put a proposal forward based on the [our] model and that it's recognized as a promising practice, or something like that. We thought in the end, I think the consensus was that we wanted to involve an evidence-based thing. So we did and we got funded, and we were funded as a collaborative with these two organizations...and probably about, I don't know, 3 months into it we learned that [other program] was going to be closing and they stepped away from the grant and we were sort of the sole grantees.

Pre-adoption interaction resulted in the selection of the most flexible intervention because the initial fit assessment prioritized intervention flexibility in order to accommodate the demands of

two different programs. Further, several different “evidence-based” interventions were considered, resulting in a learning that allowed them to compare interventions and make an assessment in favor of CBITS over the others. Finally, in a dramatic example of how selection conditions and events can shape future modifications, after the grant was awarded an organizational crisis resulted in the collaborator program closing permanently, which left the SSA program as the sole grantee responsible for implementation.

The selection processes for Seeking Safety and Community Support Teams differed in that they both replaced existing interventions, though in different ways. This meant that initial fit assessments could be made along different dimensions, and in less hypothetical ways, than they were for the other three interventions. Seeking Safety, for example, was chosen to replace M-TREM, which is similar in goals, structure and format, and SSA decided to convert their ACT teams into Community Support Teams as a result of changes to state reimbursement requirements. In both cases, the interventions were extremely similar to what preceded them, making them able to fall into similar “grooves” that had been worn into the service structures of SSA, and likely improving the initial fit of each intervention.

Initial fit assessments made during the selection/adoption phase set the stage for future intervention and setting modifications, and ultimately sustainability of intended outcomes and ripple effects. These assessments were impacted by new or different interactions before adoption, as well as by learning that occurred in order to compare and select interventions. Further, the dimensions along which fit was evaluated varied across interventions according to organizational, funding, personal and programming circumstances surrounding the selection process. As described in following sections, the magnitude and scope of future modifications

were affected by the relationship of hypothetical fit before adoption to actual fit after adoption, as well by the dimensions along which fit was initially assessed.

Early implementation.

In this phase the intervention has been adopted and modifications to the intervention and the setting appeared. Intervention modifications were made during this phase in anticipation of interacting with clients to position the interventions for full implementation. For example, CBITS staff spent substantial amounts of time conducting outreach with refugee parents and children:

So we've had to go to them and meet them in their home and bring the CBITS documents translated into their language and spend time with them to let them know who we are and what the purpose of the group is and what the benefits would be. Most refugee parents, most parents in general, resonate with the idea that one of the benefits hopefully is that CBITS will help with academic performance, that they'll learn skills that will help them cope with stressors and traumatic responses and that will help their ability to pay attention in class, and behavioral issues might improve, and that ultimately their grades will improve, and there will be less truancy and all of that. So that's where our strength is, doing the outreach, having this model of doing home visits and spending two or three or four times meeting the family, and talking with the community about their group and building relationships so they can trust us before they'll give us the consent to screen the child, and then we meet with them again and ask for them to give us the consent to be in the group. So there's double active consent.

Because of modifying CBITS for use with refugee youth, typical intervention interactions related to client screening and consent changed, altering early implementation work for the CBITS team. In addition, changes to the structures of CST and IPS were made as the result of fit assessments between funding demands (CST) and structural demands (IPS) of the interventions and SSA resources.

Ripple effects in the form of changes in structure and programming, and staff work roles and responsibilities were associated with the degree to which the interventions could be and were integrated into existing structures and work routines. CBITS, DBT and IPS were added to existing services, which necessitated hiring new direct-service providers, as well as hiring a long-term implementation consultant in the case of DBT. In the case of IPS, the hiring of a

vocational specialist represented an early modification to the structure of IPS within SSA. The formal model of IPS calls for converting case managers to vocational specialists so that clients can benefit from case manager help with mental and physical health issues in the context of active employment. Due to resource constraints, however, SSA decided to leave case managers' roles unchanged and hire one new vocational specialist, who would work with the case managers to help clients get and stay employed. The timing of these staff changes also bears mentioning, as the average time from early to full implementation phases for all three interventions was one year; in these examples, new hires had a year to interact with and learn about the implementation system prior to full implementation. CST also experienced staffing changes, though new staff members were hired into existing ACT team structures; no such changes were described in Seeking Safety.

Staff members shifted their work roles and responsibilities toward intervention work as implementation geared up. In this phase, staff devoted substantial amounts of time to learning formally about the interventions. The DBT consultant led a 5-day training for 20-25 SSA staff members, the CBITS team and their would-be collaborators attended a 2-day training, and Seeking Safety staff attended a 2-day training led by the developer; no extra trainings were mentioned in CST. Formal learning on IPS, however, took a different form. The IPS project director and vocational specialist met daily to learn about the model via the IPS manual and plan for its implementation within SSA. Additionally, IPS project staff had to spend time educating other staff members within the organization about the model in order to ensure appropriate referrals:

Well I think that there was a huge need for education about what the model was and what it wasn't, and that was a pretty continuous activity. The model suggested that the vocational specialist be embedded in the case management teams and since, at that time, we had ACT...she attended the ACT meetings, she attended some of the different integrated intake meetings. And what we found with that is that it wasn't always useful because there were so many other issues they had to talk

about that sometimes they wouldn't even get a chance to talk about the person she needed to discuss. So we definitely tried to integrate her into existing meetings so that case managers could share information and she could share information. The education that we also did is that we visited those team meetings and we presented several times on the model, we held a formal training on the model, so we really had to do quite a bit of work on what the model was.

The structure of IPS within SSA, combined with the novelty of the model, set up certain kinds of interactions between the vocational specialist and other staff members. She had to work at integrating herself into ongoing meetings in order to share information on IPS with other relevant staff within SSA. Further, she and the project director led formal internal trainings on the model.

The nature and content of staff meetings also shifted toward intervention work during this phase. For example, weekly DBT consultation group meetings began a month before clients were seen, in which approximately 15 staff members would meet with the consultant (who attended every other week) to receive support and work through implementation issues together. Some staff members were required to attend these meetings, such as the two DBT leads, and some self-selected into the group out of personal interest in DBT, such as the current director of community resource development. With CBITS, the nature of clinical supervision meetings slowly changed because the clinical director perceived clinicians as in need of different kinds of support:

It's changed how I provide supervision for the therapists because they need support in not only processing what transpires for them in the group, but also what's transpiring in the group itself for these kids and how to help the children, help them redirect or get back to the task at hand in providing CBITS. Helping them learn how to provide cognitive-behavioral intervention rather than this trauma-focused relational intervention.

As a result of interacting with clients in different ways, and interacting with an intervention from a different theoretical framework, supervision interactions between clinicians and the director changed. Clinical supervision needs changed, resulting in changes to the nature of clinical supervision meetings.

Early implementation experiences resulted in the development of early knowledge, thoughts and feelings among staff members and clients that last to the present day, though they may have changed over time. As a result of initial learning about the intervention, participants described feeling like DBT intuitively made sense, though in different ways. The lead DBT person felt like it fit well with her abilities and personal beliefs:

So lots of ways that I got really fortunate with the job that I ended up with here, in particular that I knew pretty much zero about DBT coming into it and that was really gonna be the focus of this job, was very much part of the job description that I was hired into, and then I really, it fit for me. Ok, yah, this is stuff I can do, I believe in this, I can see how this would work, it makes sense and so forth.

And another participant who chose to attend the consultation group meetings described feeling like DBT “made sense” and fit well with the client population as well as the organizational philosophy of care:

And so we did a DBT training here that I went to and I thought, well, this really makes sense, this really makes sense, and doing it with our population, it’s really not formulated for people with schizophrenia and other psychotic disorders so we knew it was a bit of a stretch and...well, it was very concrete, it taught people tools, gave them tools, it um it was both, what’s the word I’m looking for, you know, it’s a manualized treatment but one that allows for each individual in the treatment to identify areas of concern and to apply that manualized treatment to their own particular behavior that they wanted to work on changing. So um I think it also tied in well with what is our overarching commitment to harm reduction, with the idea that you choose the harmful behavior that you want to change and you choose to one extent in how you want to change it.

The IPS lead described the internal learning process she engaged in during early implementation as professionally satisfying and case managers as feeling skeptical about the goals of IPS. P4 described Seeking Safety as a “natural” fit with existing work in that it continues a healing process for clients.

For clients, this phase also meant learning and forming preliminary thoughts/feelings about new service offerings through interactions with staff members. For example, as refugee parents learned more about CBITS, the academic performance goals resonated with them.

Full implementation.

This phase expands early implementation with the addition of extensive client interaction. Ripple effects in the form of changes in structure, staff work roles and responsibilities, and client participation were associated with the degree to which the interventions fit with previous experiences and were integrated into existing structures and work routines. Clients began receiving services and extensive modifications were made to intervention content, format, participation incentives and data collection instruments as a result. Intervention content changed across CBITS, Seeking Safety and DBT as misfits between the intervention demands, client abilities and needs, and SSA values were revealed. For example, each Seeking Safety session was designed to start with a client check-in around substance use. However, a participant working with Seeking Safety female clients realized that not all were able or wanted to identify reducing substance use as their primary goal. Therefore, in keeping with the harm reduction philosophy of MHAS, the check-in was adapted to allow for reduced/managed substance use as well as problems other than substance use to be identified as primary goals.

Interestingly, two opposing client participation patterns shaped the modifications made to DBT and Seeking Safety, though clients for both interventions were recruited from existing PSR services. Low or inconsistent participation in DBT prompted changes in content (e.g., reviewing the previous week's session topic), format (e.g., shortening commitment cycles from 12 to 8 weeks) and participation incentives (e.g., distributing McDonald's gift cards to clients who attended both individual and group sessions in a week). In contrast, high, consistent participation in Seeking Safety sparked modifications to content (e.g., introducing new topics to keep session content relevant and fresh), format (e.g., creating enrollment groups to bound participation) and participation rewards (e.g., providing certificates of participation after 8 weeks, 20 weeks, and 44 weeks). These differences were likely due to changes in expectations

around participation associated with the shift from PSR to each intervention. The shift from PSR to Seeking Safety was lateral in that PSR was low accountability and Seeking Safety did not demand much of clients except to show up to group sessions on a regular basis. In DBT, however, clients were expected to attend one individual and group session per week, build on previously learned skills, and complete daily diary cards and other weekly homework as well.

CBITS changes during this phase resulted from the original decision to adapt it for use with diverse refugee clients, as well as from interacting with schools in new ways. For example, staff created a shorter measure of PTSD symptoms than is typically used to relieve the burden on clients, and created a measurement midpoint to assess whether the trauma disclosure process occurred more slowly in this population (as the team suspected). In addition, interacting with schools in new ways resulted in more, brief sessions than as is typical with CBITS. IPS prioritized fidelity to the model as-designed and no intervention modifications were reported, though the initial structural change to one lead vocational specialist endured. Likewise, CST reported no intervention modifications.

Structural changes during this phase were the result of unanticipated implementation challenges. For example, a project director was assigned to CBITS from another part of SSA to manage perceived implementation struggles on the part of the clinical director. This change effectively shifted the project director's daily work responsibilities to managing CBITS though only short-term involvement was anticipated:

So my initial thought was that I would just do the administrative work to get this up and running and then turn it over, and that hasn't happened. I've had to stay way more tied to the programming because it's not effectively being implemented. The clinical manager is not a planner and so positions have gone unfilled and they don't have enough manpower to deliver this intervention and it's hurting them a lot. So we've only really delivered it twice and we're supposed to deliver it four times this year, and we're not going to be able to make that.

She went onto explain her frustrations with organizational planning around CBITS:

I think because when you take a \$400,000 project and you overlay existing services, you really should sit down and think about what are the roles that need to be filled, what resources do we have, who can do what and who can't do what, and what are the goals that we're trying to establish and what are the clinicians going to need to accomplish what they need to accomplish and how are we going to be really responsive to those things. And what it's done is it's taken this big \$400,000 project and it's stretched it so I'm over here in resource and community development, project director, I interface with all of the SAMHSA and government people. The program manager is over there and he's a clinical supervisor but I don't have any authority over them, technically, so when things aren't happening or they're not getting done the way that I think they should be, then I have to go through a whole bunch of channels to communicate that. And I often say, well do you really know that they're not getting done, is this really a barrier or do you just think it's a barrier? So I think that I mean that the agency we are, the population that we are, the money that we have for this project, we really should be, it should just be a stellar project.

A mid-implementation structural change almost entirely shifted the focus of her daily work to CBITS and generated new interactions for her within the organization, which resulted in frustration and uncertainty in addition to new or freshly activated feelings/thoughts about various aspects of SSA.

Many other changes to staff work roles and responsibilities occurred during full implementation. DBT consultation group meetings continued, though staff participation in them waned over time; 2/3 of dropouts cited time constraints as the reason for dropping out and the other 1/3 left the agency. Additionally, the DBT lead was promoted to manager of the PSR program a year after DBT saw its first client, which meant she had to balance new work priorities with her continued work on DBT. It was in this capacity that she created an effective living skills group (AKA "DBT lite") to spark interest in the formal DBT intervention among PSR clients. IPS staff realized that keeping clients employed constituted a second intervention phase distinct from the first in which they helped clients find employment. The bulk of their work shifted from outreach with employers and interacting with the broader employment service system to monitoring disability and social security benefits for clients whose employment potentially jeopardized them. One of the Seeking Safety facilitators was promoted during this phase, though he made continued work with the intervention a condition of his promotion. CST

work with clients continued much as it had when ACT was operating, though with a team of mental health workers and case managers instead of a specialized, professionally diverse team.

Experiences during full implementation continued to foster knowledge, thoughts and feelings among staff members and clients. These resulted from extended interaction with the intervention in SSA. Clients learned more fully about the interventions in which they participated. For example, IPS clients learned that they were not participating in a simple job placement program through repeated denied requests to the vocational specialist to locate jobs. CST clients learned that SSA controls their benefits (i.e., money), which generated feelings of helplessness and dependence for some, and feelings of support among others. Staff members continued learning about multiple levels of the implementation system during this phase. One described learning about the importance of the harm reduction philosophy immediately after he started working with SSA:

When I started with one team, because I got hired to manage one team, the discussions every time we brought up a participant, the question the staff were asking me “what do we do with this in terms of harm reduction?” It wasn’t what’s gonna work here, what’s gonna make this person better. That sort of discussion wasn’t occurring, it was always how does this fit, how do we do this with harm reduction. Threw me for a loop.

Later he described his feelings about the focus on harm reduction within SSA:

I truly think that it is not helpful to talk about harm reduction and to use the phrase harm reduction. Because I think that in terms of its philosophy, it’s you’re meeting someone where they’re at, you’re trying to work with them in terms of what their goals are, you’re trying to reduce the harm of use if they’re deciding to use, all of those sorts of things. That’s true, and it is the way that I function. But at the same time, a lot of the people that we’re working with have given up hope; they have no vision of a life. That there’s a possibility of something else, and you almost have to provide that for them. See in them what they can’t see, try to get a spark of hope going in them to get some sort of behavior change. When staff hear harm reduction and meeting participants where they’re at and those sorts of things, it’s something where they aren’t looking in terms of a change outlook, and that’s a problem to me. That’s what I’m in is this business of trying to help people change [laughter], I’m not in the business of helping people stay where they are. I do but really I’m not in the business of helping people stay where they’re at. And if I am in that business, it’s helping that person not go backwards, which is still change. So that’s where I sort of had difficulty.

This is an example of a complex interaction between previous work experiences, current intervention work, and the philosophy of care as operationalized within SSA. Had any of these been different, this participant would likely have appraised the situation differently.

Further, participants reported learning about clients through interacting with them in different ways. The participation demands of DBT and IPS revealed previously unseen client strengths that pleasantly surprised staff members and changed the way they think about client abilities.

Late implementation.

Late implementation began when decisions were made to continue an intervention; some interventions within SSA never made it to this phase. CST, CBITS and Seeking Safety are still in the full implementation phase though for different reasons. CST likely continues due to the funding behind it, Seeking Safety likely continues because it operates in grooves carved by a similar, pre-existing program, and CBITS continues because it is mid-way through the 3-year grant that funded it. In the case of these three interventions, therefore, circumstances have not forced continuation decisions to be made. With DBT and IPS, however, the agency was faced with continuation decisions. For DBT, waning staff and client participation combined with the cost of maintaining implementation resulted in the decision to end formal DBT. At the end of DBT, for example, only 2 staff members and the consultant were consistently attending the consultation group meetings. A final consultation group meeting was held almost four years after DBT was adopted by SSA. Interestingly, the DBT lite group started by one participant continues to serve PSR clients.

Broad funding cuts to the agency, combined with an already precarious funding situation, complexity managing benefits and employment, and the loss of the vocational specialist to

graduate school resulted in the decision to end IPS. For staff members, the end of these interventions generated feelings of loss, sadness and disappointment. Their daily work shifted toward other/new work though their experiences with DBT and IPS remain. As previously described, long-term changes in three participants' behavior and language resulted from their contact with DBT. Because of the positions of these participants within and outside of SSA, these changes radiated affecting their interactions with other staff members, clients seen in private practice and personal friends. Clients also occasionally expressed interest in having DBT back, though it is unclear what exactly they would be interested in renewing. Finally, these interventions also appeared to have a lasting impact on the organization, informing decisions around future programming. For example, P1 felt that SSA would be reluctant to make an investment again comparable to that it made for DBT. And there is continued interest in vocational services; the agency recently applied for and was granted an earmark to fund a vocational specialist position, though they ultimately chose not to fund that position.

V. DISCUSSION

This study identified unintended long-term outcomes associated with implementing evidence-based mental health interventions within a community-based social service agency. These unintended ripple effects were seen at the intervention, client, staff and organizational levels, and were generated through a process of mutual adaptation. Though I did not expect adaptation to feature so prominently in this study of unintended outcomes, the story that emerged from participants as interviews progressed told of changes to the intervention and the implementation system over time, resulting in the described unintended outcomes. Perhaps this is not surprising given the close relationship between implementation and sustainability, and increasing recognition that implementation experiences are primarily adaptation experiences

(Kalichman, Hudd & DiBerto, 2010). The findings of this study, however, point to a need to conceptualize intervention sustainability more broadly.

Assessing intended and unintended outcomes of the mutual adaptation process across multiple levels of the implementation system may lead to a more complete picture of the long-term effects of an intervention unfolding in an organizational system. As mentioned previously, intervention sustainability is predominantly conceptualized in terms of intended outcomes at the client or program level and has been operationalized in four main ways: whether program activities continue after initial funding, whether clients continue to receive positive benefits, whether organizational capacity was enhanced, or whether principles/values/beliefs underlying an intervention linger. Though these were evident in discussions with participants, results of this study suggest that intervention sustainability is more nuanced than previously conceptualized and prior conceptualizations are incomplete in capturing the full range of sustainable intervention effects.

Broadening the conceptualization of sustainability

This study contributes to sustainability research by focusing on unintended intervention effects across multiple levels of the implementation system. In order to capture the full range of sustainable intervention effects, conceptualization of intervention sustainability needs to broaden to include consideration of intended and unintended effects at multiple levels of the intervention system. Below I use the four-part understanding of program sustainability outlined above (program activities, client benefits, organizational capacity, values/beliefs/principles) to discuss the ways in which findings suggest expanding them.

Continued program activities.

Findings suggest expanding this operational definition to include the full range of intervention activities. This would mean assessing sustained impacts of *modified* and/or *discontinued* intervention activities in addition to desired or continued activities. The seemingly straightforward notion of a ‘continued program activity’ belies complex and meaningful variation in the nature of program activities and the degrees of continuation identified in this study. All of the interventions in this study were modified and continued to varying degrees, though not always in obvious ways. Findings of this study suggest that the degree to which an activity reflects the program as-designed and the degree to which that activity is continued are not necessarily related. For example, SSA-created effective living skills (“DBT lite”) groups continue while formal DBT groups were stopped. Further, different elements within the same intervention may vary with respect to their degrees of modification and continuation. For example, Seeking Safety groups continue largely unchanged though content is continuously altered to meet the ongoing needs of the client population. Continuing program activities may not be as beneficial for a setting as they are for a program. IPS, for example, ended because of limited resources (people, time, funding) at a time where SSA was experiencing a number of other funding cuts. Under these conditions, continuing IPS program activities may have been detrimental to MHAS or SSA in general by appropriating scarce resources. Finally, *discontinued* program activities can have important effects on the implementing organization. DBT is perhaps the best example of this, since it continues to infuse certain elements of SSA culture through the behaviors, beliefs and practices of staff members who worked on it, and will likely impact future intervention selection processes. Even when program activities had stopped completely, as with IPS, the intervention lingered in the memories of staff (and likely clients).

Therefore, limiting sustainability to the study of continuing programs as-designed in practice settings is too narrow. Rather, long term impacts on clients, staff and the broader organization can result from intervention activities that vary from continued to discontinued, and from less to more profoundly modified. By locating intervention activities along these two different continua, a more differentiated understanding of the long-term impact of intervention activities is possible.

Ongoing client benefits.

Findings of this study suggest that this operational definition captures only a narrow range of ongoing intervention outcomes; ongoing outcomes do not only occur for clients nor are they only beneficial. In order to capture the full range of long-term impacts of these interactions, conceptualization here expands to include ongoing outcomes for *all relevant actors* in the intervention system. The inclusion of unintended outcomes at multiple levels highlights the fact that ripple effects at one level can have profound impacts on long-term intervention effects at other levels. For example, though low rates of client participation in DBT (a ripple effect associated with shifting clients from an internal program) threatened its viability within SSA, they also prompted creation of a living skills group that continues to impact clients, staff and the organization today. Findings from this study support research that has demonstrated strong relationships between organizational characteristics and client-level mental health outcomes (Glisson & Hemmelgarn, 1998) as well as intervention-level sustainability outcomes (Glisson et al., 2008). In addition to constituting important and often overlooked intervention outcomes in their own right, ongoing outcomes across an implementation system are likely to mediate intervention sustainability by impacting implementation as well as benefits intended to accrue to clients over time (among other potential benefits). Focusing on ongoing benefits to clients

obscures the fact that they may experience ongoing negative effects as well (Barlow, 2010; Klein & Benyamini, 1974; Lilienfeld, 2007). Shifting research attention to sustainable unintended effects presents new opportunities to learn from intervention efforts by understanding the conditions under which unintended positive and negative effects are produced and maintained.

In summary, conceptualizing intervention sustainability as continued client benefits results in assessments of a narrow set of outcomes within the range of possible intervention outcomes. Intervention outcomes at multiple levels vary in the degree to which they are intended and in the degree to which they produce benefit. Broadening the conceptualization of sustainability to include assessments of long-term unintended effects for clients, staff and organizations will result in a more complete understanding of intervention effects.

Ongoing capacity to develop and deliver programs.

Though some capacities of the organization (e.g., providing internal trainings) appeared to increase as a result of implementing various interventions, it is important to consider the particular kinds of capacities affected. Organizational has been defined as increased organizational competence in addressing current and other health problems of interest (Hawe, Noort, King & Jordens, 1997). In this organization individual knowledge and experience clearly accumulated, but whether or how this constituted organizational capacity, and for what, remains to be determined. For example, it may be that capacity to make informed decisions around implementing evidence-based interventions was enhanced to a point where fewer, better fitting programs are implemented. Further, it cannot be assumed that intervention-specific capacities developed by individual staff members will serve the overall development of the organization. There were several instances where knowledge and skills developed by staff members through intervention work lay dormant afterwards. Though an empirical question, it may be that the

capacities developed merely improved the ability of the organization to implement more evidence-based interventions. In addition, it is unclear what kind of impact the structural and programming changes had on organizational capacity. From the perspective of SSA, there may be other types of capacity of interest, such as capacity to serve more clients, to secure funding, to preserve integrity of the philosophy of care, to retain certain kinds of employees (e.g., those who are productive, support the mission, etc) that interact or interfere with individual capacities.

From an ecological-systems perspective, an implementation system changes once an intervention has entered into it. This means that selection systems (i.e., the setting before implementation) will be different than implementation systems in some key ways. Assessments of organizational capacity, therefore, must attend to the point in time at which the system is assessed as well as to which types of capacity (e.g., capacity to select appropriate, relevant interventions vs. capacity to implement them) are assessed and at which levels. Finally, developing organizational capacity, where it occurs, will be an unintended effect of the majority of mental health interventions aimed at client-level change. Assessing these effects will likely reveal the range of organizational capacities affected, as well as mechanisms by which they occur.

Underlying values/principles/beliefs.

Interestingly, these intervention effects emerged as enduring though they have received scant attention in the research literature. Participants described interacting with the underlying intervention values and principles in efforts to implement each intervention. The values and principles underlying IPS, CBITS, CST, and Seeking Safety all made strong impressions on the staff members who had worked with them. The philosophy underlying DBT had a particularly deep impact, generating long-term changes to the language, behavior and thoughts of staff

members even though DBT no longer continued in any formal way. Interestingly, language, identity and behavior have been identified as dimensions of acculturation (Birman & Trickett, 2001) and may represent incremental changes in SSA culture. Though I could not completely capture the process in this study, it is likely that intervention-related concepts such as mindfulness began to infuse thoughts and speech as participants first learned about DBT. Over extended interaction with DBT, participants perceived value in thinking with DBT concepts and in using those concepts in personal and professional communication. Ultimately, these types of changes led participants to more tangible behavior changes, such as incorporating mindfulness exercises into other staff meetings or into therapy sessions with private clients, and even produced an ‘artifact’ in the form of printed laminated cards describing the DBT consultation principles.

Therefore, findings support conceptualizing intervention sustainability as the degree to which intervention values and principles endure in a setting. Further, assessing potential organizational cultural changes in identity, language and behavior among staff members may be helpful in identifying enduring intervention values and principles.

Limitations

This study was limited in that it captured the experience of one social service agency. Unique aspects of it, such as the philosophy of care and its influence on the culture of the agency, the client population, and its size, may limit the transferability of findings to other settings. For example, in other organizations with different philosophies or less explicitly discussed philosophies, different quantities or qualities of modifications may occur. Another challenge associated with sustainability research from an ecological-systems perspective is the long-term timeframe required to capture the phenomena of interest. In this study, I relied on

participant memory to develop chronological narratives of the interventions; however, participant memory may have been inaccurate or incomplete, resulting in incomplete narratives.

In addition, several design implications for future research emerged over the course of this study. First, participants' previous work and life experiences, and current positions in SSA, influenced what they were able to share as well as what they were comfortable sharing. Interest in before-after change, for example, requires selecting participants who were working with an intervention before and after the phenomenon of interest. Similarly, the vertical and lateral position of participants shaped conversations by limiting interview time (e.g., with the senior director) and the scope of conversation. Many participants touched multiple interventions in different ways, and interview time and fatigue meant impromptu prioritization of follow-up questions. An initial social network assessment along dimensions relevant to research questions may be helpful in similar future studies. Social network assessment to map the relationships between individuals and interventions at various points in time may facilitate more pointed inquiry. Breadth of work scope of any staff member within the organization, for example, could be seen in this way.

Second, locating yourself as a researcher and your participants in time is essential work in studies on longitudinal intervention-system interactions. Any given point in time, whether it was an actual interview with a participant or a previous point of time referenced by a participant, could be located on individual, organizational, extra-organizational and intervention timelines. Sorting through timelines at multiple levels required a massive spreadsheet (see Table 4) and focused, organized analysis of events. To accomplish this, I developed a set of time and level codes that accompanied my event codes (Woolf, 2007). For example, if a participant described an instance of a client learning about SSA after an intervention ended, a code of 'learning – SSA'

may be accompanied by a time code of ‘post’ and a level code of ‘client’. In this way, I was able to look at the same event by type, level and time.

Implications for research conceptualization

Stories of interventions can be told from many different perspectives; intervention researchers make implicit choices around which story to tell. As this study shows, intervention outcomes are the result of complex intervention-setting interactions over time. These rich narratives can be told from many different perspectives, but very different pictures will emerge. For example, is this story about the interventions or the organization? Relegating the organization to the background, the story would begin with adoption and end with de-adoption or continuation. If the interventions are pushed to the background, the story begins many years ago and has no natural end. Telling the story of intervention-setting interaction over time, however, is more complex but the ecological-systems framework I employed suggests that it is also likely to result in improved understanding of both the setting and the intervention. Rather, it is that sustainability researchers, and intervention researchers in general, need to be explicit about the conceptual and analytical frameworks they are using, which shape the stories they tell.

Sustainability research.

Conceptualizing intervention impact as the maintenance of intended and unintended outcomes across multiple levels of the intervention system (e.g., client, organizational, extra-organizational) presents new areas for sustainability research. First, it expands possible outcomes to include those at all levels of an implementation system. This is possible even when an intervention does not target change beyond the client-level because of the assessment of unintended outcomes as well as intended outcomes. Hypotheses can be generated within and across levels, and outcomes along the continuum from unintended to intended. For example:

1. Degree of sustained program activities is degree to which positive outcomes (intended or unintended) are maximized and negative unintended outcomes are minimized;
2. Cultural elements such as values/principles are likely to outlive behavioral elements such as program activities, particularly in cases where the fit with provider values/principles is high, and the fit with of provider values/principles with organizational values/principles is high.

Second, more research is needed to understand the interrelated processes comprising mutual adaptation. Studies are needed to identify the range of novel interactions and their impacts, elaborate the concept of “fit” and how assessments of it are made, the causes and consequences of intervention and setting modifications, and the nature and impact of experiential learning as a result of intervention work. Though fit between intervention characteristics and organizational mission/procedures is most often discussed as a facilitator of intervention sustainability, fit emerged as an extremely complex concept. The dimensions along which it was assessed, for example, varied depending on who assessed it and when. Further, the intervention and setting modifications can be considered indicators of perceived misfit between the two.

Conceptualizing them in this way (rather than as harmful deviations from an ideal model that are to be minimized) may shift focus from pathologizing organizations to understanding the implementation challenges facing them over time. Finally, more research documenting the depth, range and impact of changes occurring in intervention settings is needed.

Implications for research design/methods

This study has several implications for the future conduct of intervention research. It is clear that the practice context changed in some key ways as a result of the interventions that were

implemented, and interactions between the interventions and SSA produced intervention outcomes. It follows, then, that we cannot understand the effect of an intervention without understanding its implementation context. First, therefore, it is important to conduct initial and ongoing assessments of the setting along key criteria with the potential to mediate/moderate outcomes. These may include organizational culture, staff and client experiences, and service “dosage” as well as client outcomes. Second, studies of the interactions between interventions will likely result in a more accurate picture of their impacts. From this study, it appears there are at least two possible ways to understand these interactions: (1) by studying the interactions between multiple interventions implemented during the same time; and (2) by studying the interactions between interventions implemented sequentially.

Implications for research conduct

There are several implications for the practice of intervention research that arise from this study. Some pertain to how we *think* about intervention, and others pertain to what we *do*. First, it may be beneficial to conceptualize an intervention as a purposeful addition to an organizational system. Conceptualized in this way, the focus is on how the intervention can serve the goals (whether short-term or long-term, noble or opportunistic) of the organization/program, on how well it will fit with existing resources, workloads, structures and processes, and on how it may shape the nature of work to come. This approach does not assume that organizations should or want to achieve long-term sustainability of every intervention implemented; rather, it assumes that the degree to which an intervention is sustained depends on the degree to which sustaining it serves the goals of the organization/program at that point in time. Second, given the potential strategic contributions of an intervention to its organizational system, our work needs to support organizations in thinking carefully about the interventions they adopt, and in managing them as

they unfold over time. During the selection phase, fits with client needs and organizational resources are just two important considerations. Interventions are likely to remain in practice or in memory for a long time. Fit with the mission and strategic goals of the organization, organizational culture (including relationships between/among staff and clients, staff promotion/retention patterns, explicit or implicit values), client participation patterns, existing/upcoming intervention/programming efforts, existing/desired capacities, existing work roles/responsibilities of potentially involved staff members. Consideration of new/different interactions that programs, staff and clients may experience as a result of implementing an intervention may be helpful. Further, exercises in brainstorming possible ripple effects/unintended outcomes can help to highlight areas of potential unintended outcomes after adoption and implementation. Interventions should be monitored closely for unintended outcomes across multiple levels/areas of the system, particularly at points of new/different interactions. To the extent that these interaction points can be identified early, an implementing organization is likely to be able to prevent negative unintended outcomes from amplifying as well as to capitalize on unintended positive outcomes.

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Appendix A: Interview Guides
A-1: *Practice/Implementation Interview Guide*

Adoption & Pre-History

1. Could you describe the events that led to the adoption of [intervention]?

Possible probes:

- a. Reasons for adoption
- b. Who was involved and how
- c. Existing programs/services
- d. Organizational structure & roles
- e. Work climate & relationships

Implementation

2. Compared with other work you've done at SSA, what was/is it like for you to try to make [intervention] work?

Possible probes:

- a. Key formal and informal events?
 - a. Trainings
 - b. Meetings
 - c. Conversations/communications
 - b. How were resources allocated?
 - a. Staff
 - b. Space
 - c. Money
 - d. Skills
 - c. How did it fit with ongoing work/activities at the time?
 - a. Displaced activities
 - d. Who helped SSA implement XYZ?
 - a. Developers
 - b. Researchers
 - c. Consultants
 - d. Staff
 - e. How would you describe the relationship with the developers/researchers?
 - a. Supportiveness
 - b. Closeness
 - c. Feedback processes
 - f. What were some of the adaptations made to XYZ and why?
 - a. Kinds – format, content
 - b. Reasons - Client needs, org. capacity
 - c. Timing – adaptations made early, late
3. How does [intervention] now compare to what it looked like when you first started working with it?
 - a. Program activities
 - b. Client characteristics

- c. Resources allocated
- d. Spread & depth/niche saturation

Ripple Effects/Program Sustainability

Clients

4. How would you describe the client experience of [intervention]?
 - a. Access
 - b. Process (screening, treatment, follow-up)
 - c. Outcomes

Organizational

5. What positive changes have occurred in your work life/environment as a result of [intervention]?
6. What negative changes have occurred in your work life/environment as a result of [intervention]?

Possible probes (for 5 & 6):

- a. Staff roles & responsibilities
 - b. Relationships
 - c. Values & mindset
 - d. Structures
 - e. Policies
 - f. Language/terminology
 - g. Accountability/monitoring
 - h. Uncertainty/burnout
 - i. Norms/expectations
7. How has your experience with [intervention] shaped – positively or negatively – your current work?

Extra-organizational

8. Have you seen any changes in SSA outside relationships as a result of [intervention]?
 - a. Funders
 - b. Similar organizations
 - c. Clients/communities
 - d. Universities/researchers
9. Looking back on the history of [intervention], what are some of the things that most surprised you and why?

Possible probes:

- a. What were some expectations you had that weren't met
 - b. What were some things that happened that you didn't expect
10. What would you say are the most striking ways in which [intervention] has influenced the way things are done around here?
11. What else would you like to tell me that I didn't ask?

Informant Background

12. How long have you worked for SSA?

13. Please describe your roles and responsibilities over that time.

14. Would you be willing to meet again later to help me check my interpretation of results from this study?

Thank you for your time, I appreciate you talking with me today!

Appendix A: Interview Guides
A-2: *Organizational Impact Interview Guide*

Adoption & Pre-History

1. Could you describe the events that led to the adoption of [intervention(s)]?

Possible probes:

- a. Reasons for adoption
- b. Who was involved and how
- c. Existing programs/services
- d. Organizational structure & roles
- e. Work climate & relationships

Implementation

2. Compared with other programs at SSA, what was/is it like to try to make [intervention(s)] work?

Possible probes:

- a. Key formal and informal events?
 - i. Trainings
 - ii. Meetings
 - iii. Conversations/communications
 - b. How were resources allocated?
 - i. Staff
 - ii. Space
 - iii. Money
 - iv. Skills
 - c. How did it fit with ongoing work/activities at the time?
 - i. Displaced activities
 - d. Who helped SSA implement XYZ?
 - i. Developers
 - ii. Researchers
 - iii. Consultants
 - iv. Staff
 - e. How would you describe the relationship with the developers/researchers?
 - i. Supportiveness
 - ii. Closeness
 - iii. Feedback processes
3. How does [intervention] now compare to what it looked like when it first started at SSA?
 - i. Program activities
 - ii. Client characteristics
 - iii. Resources allocated
 - iv. Spread & depth/niche saturation

Ripple Effects/Program Sustainability

Clients

4. Please describe any client feedback you've had on [intervention(s)].
 - i. Access
 - ii. Process (screening, treatment, follow-up)
 - iii. Outcomes

Organizational

5. What positive changes have occurred in your work life/environment as a result of [intervention(s)]?
6. What negative changes have occurred in your work life/environment as a result of [intervention(s)]?

Possible probes (for 5 & 6):

- i. Staff roles & responsibilities
 - ii. Relationships
 - iii. Values & mindset
 - iv. Structures
 - v. Policies
 - vi. Language/terminology
 - vii. Accountability/monitoring
 - viii. Uncertainty/burnout
 - ix. Norms/expectations
7. How has your experience with [intervention(s)] shaped – positively or negatively – your current work?

Extra-organizational

8. Have you seen any changes in SSA outside relationships as a result of [intervention(s)]?
 - i. Funders
 - ii. Similar organizations
 - iii. Clients/communities
 - iv. Universities/researchers
9. Looking back on the history of [intervention], what are some of the things that most surprised you and why?

Possible probes:

- i. What were some expectations you had that weren't met
 - ii. What were some things that happened that you didn't expect
10. What would you say are the most striking ways in which [intervention(s)] has influenced the way things are done around here?
11. What else would you like to tell me that I didn't ask?

Informant Background

12. How long have you worked for SSA?

13. Please describe your roles and responsibilities over that time.

14. Would you be willing to meet again later to help me check my interpretation of results from this study?

Thank you for your time, I appreciate you talking with me today!

Appendix A: Interview Guides
A-3: *Extra-Organizational Impact Interview Guide*

Adoption & Pre-History

1. Could you describe the events that led to the adoption of [intervention]?

Possible probes:

- a. Reasons for adoption
- b. Who was involved and how
- c. Existing programs/services
- d. Organizational structure & roles
- e. Work climate & relationships

Implementation

2. Compared with other organizations you've worked with, what was/is it like to try to make [intervention] work at SSA?

Possible probes:

- a. Key formal and informal events?
 - i. Trainings
 - ii. Meetings
 - iii. Conversations/communications
 - b. How were resources allocated?
 - i. Staff
 - ii. Space
 - iii. Money
 - iv. Skills
 - c. How did it fit with ongoing work/activities at the time?
 - i. Displaced activities
 - d. Who helped SSA implement XYZ?
 - i. Developers
 - ii. Researchers
 - iii. Consultants
 - iv. Staff
 - e. How would you describe the relationship with the organization?
 - i. Supportiveness
 - ii. Closeness
 - iii. Feedback processes
3. How does [intervention] now compare to what it looked like when it first started at SSA?
 - i. Program activities
 - ii. Client characteristics
 - iii. Resources allocated
 - iv. Spread & depth/niche saturation

Ripple Effects/Program Sustainability

Clients

4. Please describe any client feedback you've had on [intervention].
 - i. Access
 - ii. Process (screening, treatment, follow-up)
 - iii. Outcomes

Organizational

5. What positive changes have you noticed in the work life/environment at SSA as a result of [intervention]?
6. What negative changes have you noticed in the work life/environment as a result of [intervention]?

Possible probes (for 5 & 6):

- i. Staff roles & responsibilities
 - ii. Relationships
 - iii. Values & mindset
 - iv. Structures
 - v. Policies
 - vi. Language/terminology
 - vii. Accountability/monitoring
 - viii. Uncertainty/burnout
 - ix. Norms/expectations
7. How do you think SSA's experience with [intervention(s)] shaped – positively or negatively – their current work?

Extra-organizational

8. Have you noticed changes in SSA outside relationships as a result of [intervention]?
If so, how have they changed?

- i. Funders
 - ii. Similar organizations
 - iii. Clients/communities
 - iv. Universities/researchers

9. Looking back on the history of [intervention] at SSA, what are some of the things that most surprised you and why?

Possible probes:

- i. What were some expectations you had that weren't met
 - ii. What were some things that happened that you didn't expect

10. What would you say are the most striking ways in which [intervention(s)] has influenced the way things are done at SSA?

11. What else would you like to tell me that I didn't ask?

Informant Background

12. When did you start working with SSA and for how long?

13. Please describe your roles and responsibilities in relation to SSA over that time.

14. Would you be willing to meet again later to help me check my interpretation of results from this study?

Thank you for your time, I appreciate you talking with me today!

Figure 1. Conceptualization of program sustainability as the end stage in a linear intervention process.

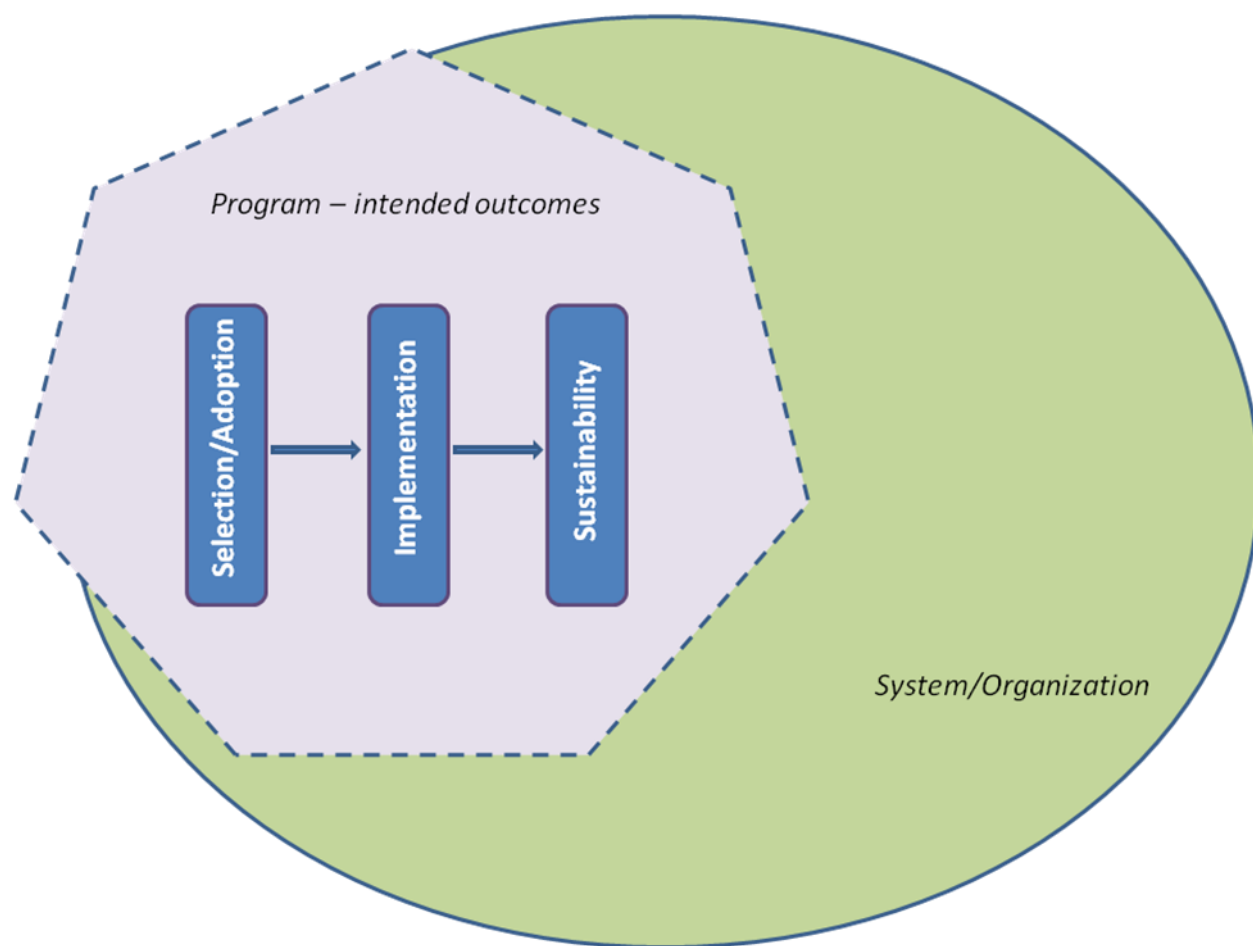


Figure 2. Conceptualization of program sustainability as parallel process with implementation.

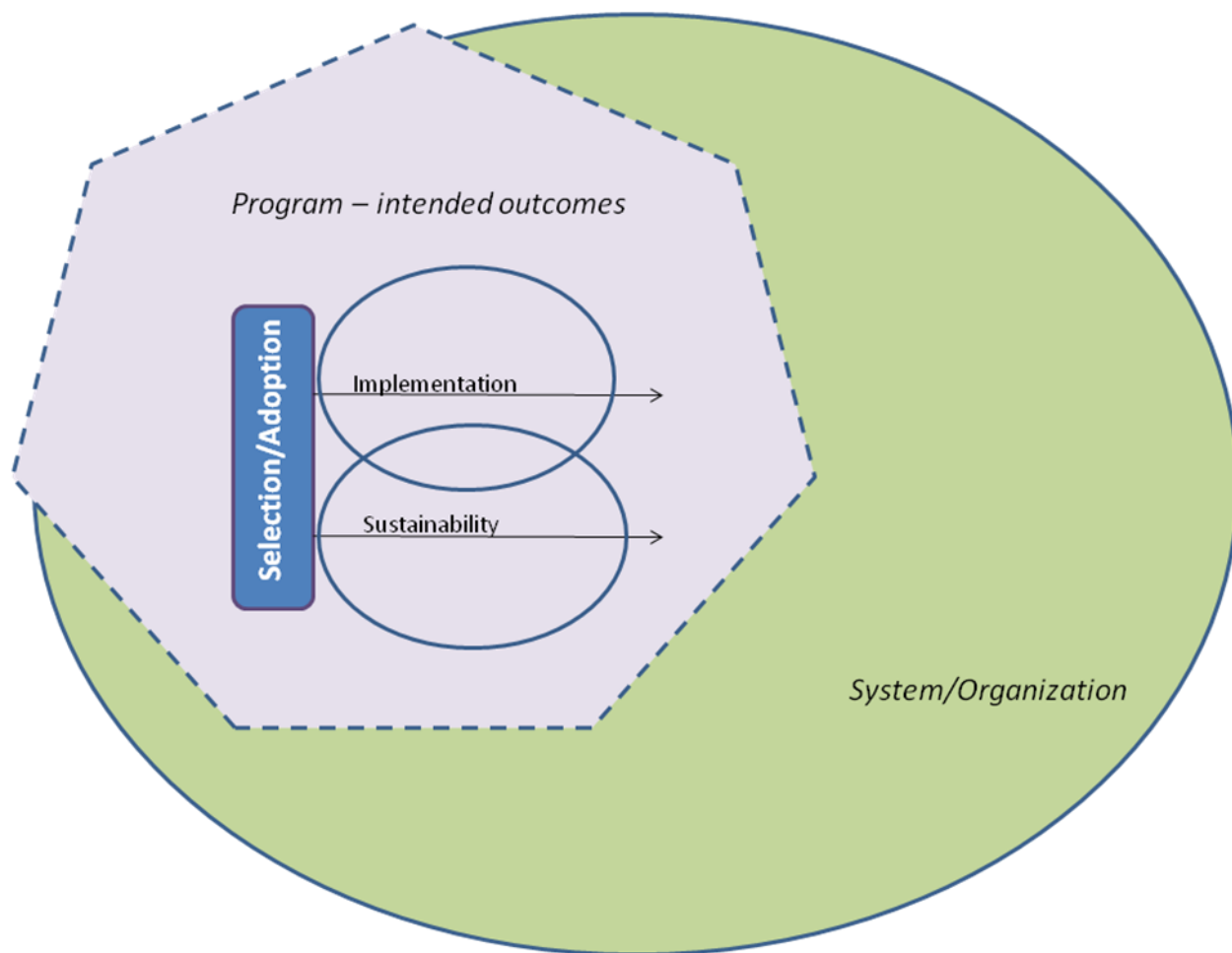


Figure 3. Conceptualization of program sustainability in context; the conceptual framework for this study.

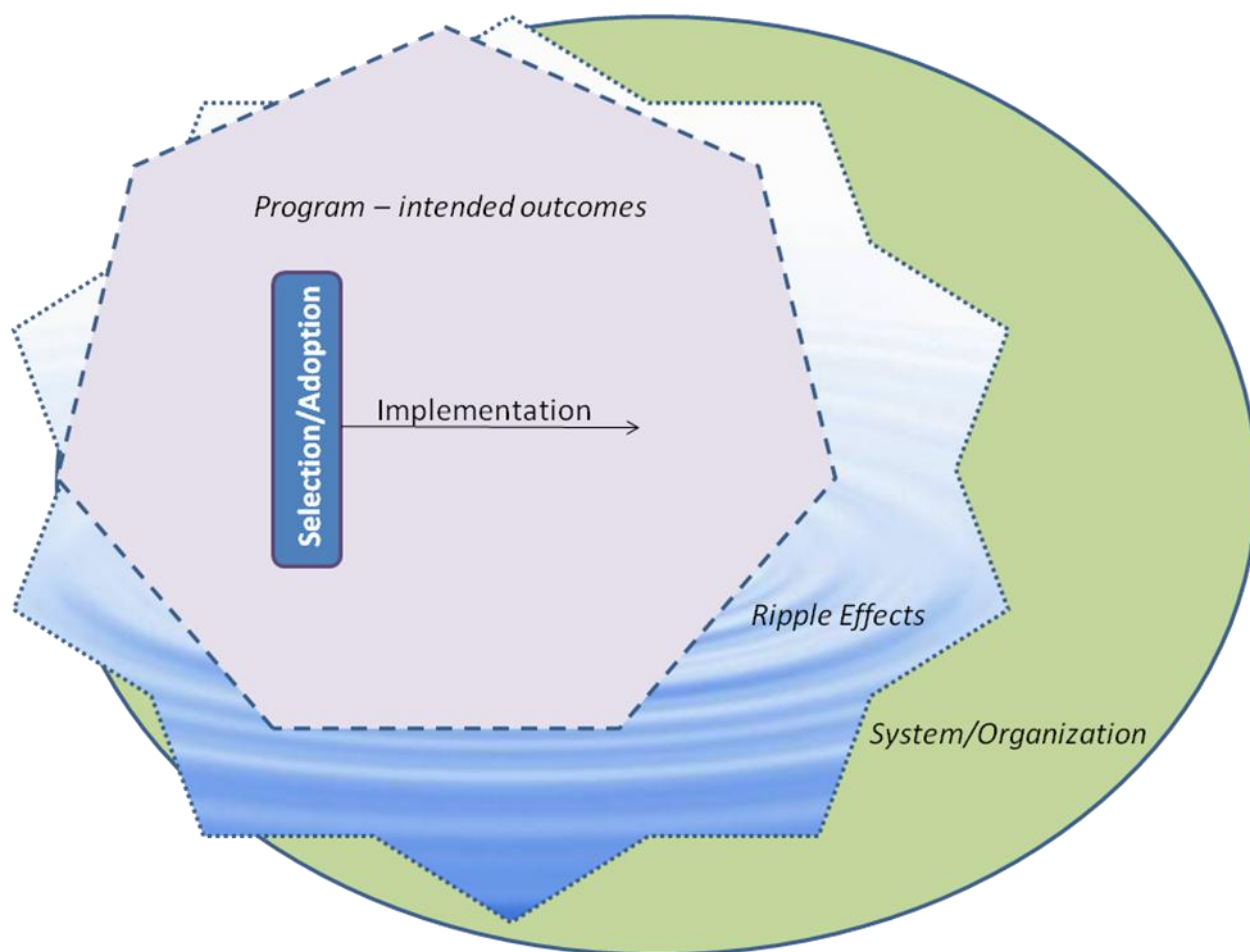


Figure 4. Mutual adaptation process.

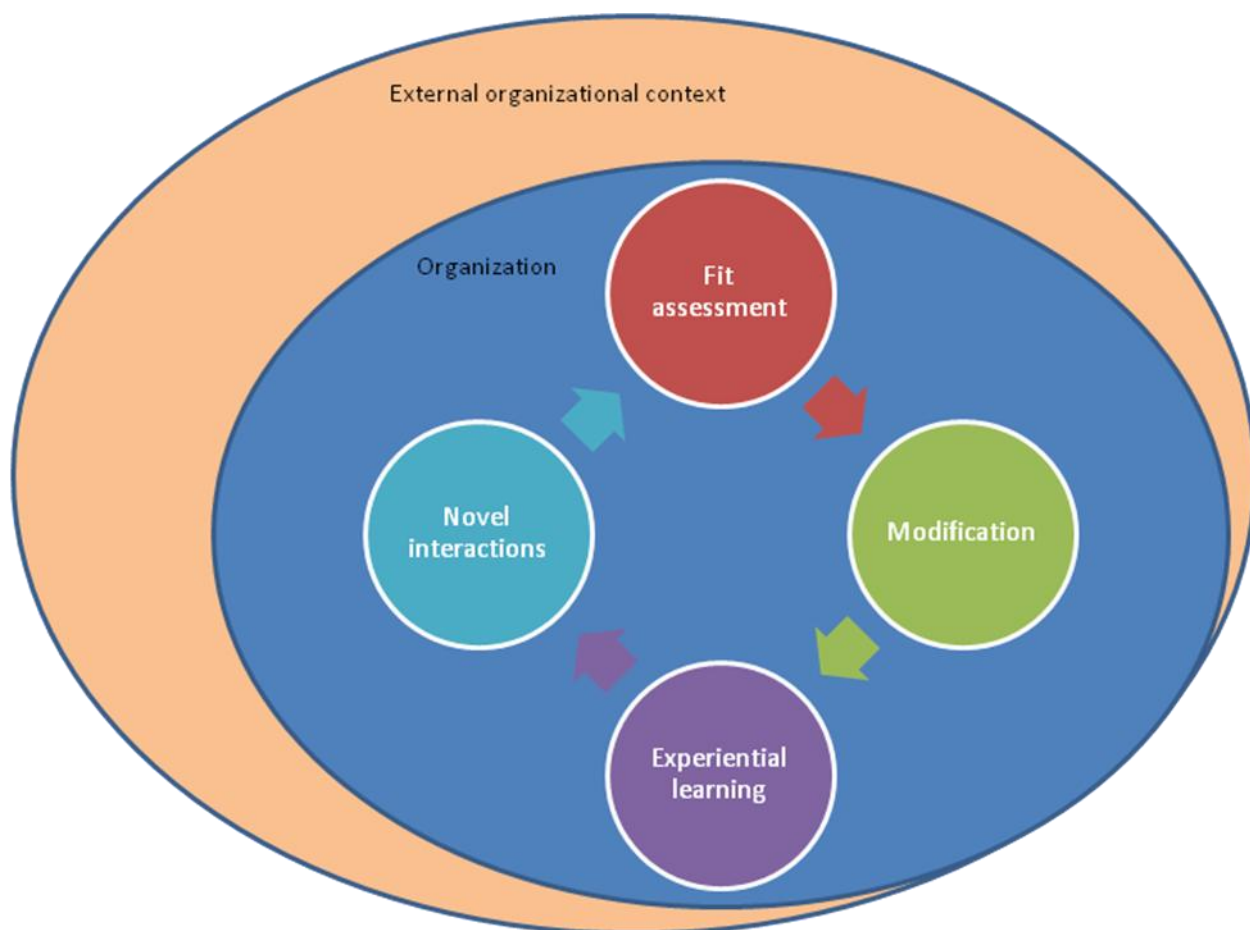


Table 1
Participant information.

ID	SSA Yrs	Gender	Race	Education/Training	Previous work experiences	Reason hired	SSA roles	Intx roles/titles
P1	6	F	Cauc	BA, Economics; MSW; LCSW	Computer consulting company; career change to social services	Hired into Hope Center to help implement DBT	Mental health clinical practitioner (Hope Center, PSR), supervisor PSR	DBT, lead implementation; Seeking Safety, facilitator & manager
P2	10	F	Cauc	BA, English; M.Ed.	Vocational services; worked for a small organization	SSA assumed small organization	Associate Director of community resource development; project management	IPS, lead implementation person; CBITS, project director
P3	11	F	Cauc	Ph.D., clinical psychology	Substance abuse specialist at V.A., social service agency	Hired to get Pathways Home licensed by DASA	Licensing, QI, Director of community resource development	DBT, consultation group member; IPS; grant-writing
P4	7	M	Af Amer	Life experiences with substance use & homelessness	Manager at housing facility for developmentally disabled men	Hired into Hope Center as PT prosumer	Prosumer, mental health worker, supervisor 3 programs serving homeless people	Co-facilitator Seeking Safety
P5	11	M	Cauc	MA, art therapy; LCPC	International work with immigrants & refugees	Hired as art therapist	Mental health clinical practitioner, trainer, clinical manager refugee program	CBITS, lead implementation person
P6	3	M	Cauc	BA, philosophy; MA, psychological counseling	General contractor; volunteer with homeless substance users at Travelers and Immigrants Aid; 20 yrs experience with ACT at other agencies	Hired as clinical manager for one of two CST teams	Clinical manager for one, then two CST teams	CST, clinical manager
P7	20	M	Cauc	MS, human service administration; MA, counseling	Substance abuse specialist at methadone clinic	Hired as substance abuse specialist	Substance abuse specialist, ACT team member, project administrator, director Pathways Home, director of community resource development, senior director	Internal training on motivational interviewing, harm reduction and trauma-informed services

Table 2
Intervention information.

	Reason selected	Added/replaced	Staff selected	How participants selected	Adaptations	Reasons	Formal continuation	Informal continuation
DBT	Symptom match; clinical director	Add-on to Hope Center services	Hired to help implement DBT; self-selected (P03); identified	From within PSR	Population; Content; format; incentives	Different people every week so it was difficult to build on; experience & resources (e.g., union restrictions); to increase participation without being punitive	N	Y; DBT lite group
SS	Increased focus on trauma	Replaced M-TREM	Shifted from M-TREM	From within PSR	Content; format; incentives	Adapted check-in to reflect harm reduction approach & not every woman in group has substance use disorder; variable participation; to increase participation without being punitive	Y	
IPS	Part. Interest; difficult to fund	Add-on	Hired; Management	Referrals from case managers	Structure	Limited staff and money	N	N
CBITS	Would enhance grant application; most malleable for the 2 providers	Add-on	Management	Referrals from schools, community/family members	Population; content; evaluation; format	Multiple languages spoken; clinical experience; family comfort levels	Y; midway through initial grant	
CST	fee-for-service switch in 2007; moved from ACT to CST	Replaced ACT in 2007	Hired	Community outreach, referrals from court, shelters	Structure	Cost; increased peer-to-peer support	Y	

Table 3.

Sample coding scheme.

Code	Definition	Sample Text (@XX = system level code)
Learning – intervention	<i>Formal and informal learning about the content, structure and value of an intervention; includes training (formal) & experiential (informal) learning; includes different types of learning (skills, principles, values).</i>	@participant: I think people would often approach [voc specialist], and say I want a job, hook me up, can you get me a job? They were initially thinking more like she had a set of jobs in her pocket and she could get them one. so we had to educate participants as to what the model was and what she could do for them.
		@ivee: And the consequence of that is that it took about a full year for us to get a system in place that even resembled the model. After that year, what we did is we sat down and we compared what we were doing to the fidelity scale that that model had, which was a very useful exercise. S: so there was an existing fidelity scale? Yes, and it really served as the template for the way that we developed our programming. So we weren't just doing a fly by night. and because of that what we did is like had a retreat or something, we made very conscious adjustments in the type of service that we were providing and again, while we really attempted to do direct work placement, there was just a lot of pull to do other things. To do job training type of activities, and that's not at all what we were trying to do, so there is a huge education component about that.
		@staff: so I think the difficulty was educating case managers as to where they could be useful and helpful, and what they could do in advance of referring someone to the vocational specialist. So I think that there was some challenge in getting them to share some of the responsibility for the vocational

		<p>services</p> <p>S: because up until this point, they'd been responsible for everything?</p> <p>Yah, but not that they were probably doing much vocational service, it was pretty much like oh just go talk to [voc specialist]. And I think there was some challenge in that, because the idea would be that they would be able to do some work and help out in some ways and that was really hard. And they totally are maxed out so they saw it as more work to do.</p> <p>@non-SSA: So work search, interviews, getting them into the community to visit work sites that may be of interest to them, getting them exposed to it, developing resumes, but we didn't do anything like a job club or job training workshops or things like that, we didn't spend our time doing that. So we also had to do quite a bit of employer development so there was this outreach component to employers to identify people that would work with us, educate them about our model.</p>
Learning - other systems	<p><i>Formal and informal learning about funding, schools, etc; the interventions bring SSA staff into contact with other systems that they've previously had little or no contact with; perhaps different kinds of contact with these systems too; 5/22: includes learning about other staff members within SSA also</i></p>	<p>@ivee: even though supposedly there's been 800 social workers and counselors within the Chicago Public School system trained in CBITS, and that it's one of the governor's initiatives, that information is not out there or these principals didn't know about it. And they have so much on their plates to deal with in these schools that I think one more agency coming into their school and saying, hey, look at us, we have this to offer, they seem pretty saturated. So it took awhile, like at [local high school] to get back in there, get the principal's support, and probably over the last 4 months it's actually finally come together and there's an assistant principal now that finally gave us the thumbs up to come in and do CBITS and so we're</p>

		<p>now just beginning to do the screening piece, getting consents from parents so hopefully we'll have a group running after spring break. There's not a lot of, I think it's a tough system to work in obviously, the Chicago Public Schools, they're pretty stressed out. The systems are pretty stressed out, the teachers are pretty stressed out, the principals are pretty stressed out, they could all use a good CBITS program. They're tough systems, they're traumatized systems in a way, so accessing them and just bringing the service that really wouldn't put them out much. I mean we're not asking much from the schools, we're asking to provide these services for refugee kids and what we need is a space and some time.</p>
Changing structure	<p><i>Changes made to structures related to the intervention; for example, adding administrative personnel, moving staff around, creating advisory council, etc</i></p>	<p>@SSA: there's some evidence that peer-to-peer support is really effective, and especially we think, again this isn't necessarily evidence-based but we think that our peers are especially helpful in engaging homeless people because the experience of homelessness is a very unique experience. So the people we engaged to be prosumers, we actually, they're only hired if they're ready, willing and able to integrate their story of homelessness and mental illness in to their [CST] work. That's the value they bring. In fact, we think of it as like bringing a bachelor's degree in, so they're paid at the same rate as a bachelor's level person.</p>

Table 4.

Sample of master timeline of events at the extra-organizational, organizational, staff and intervention levels.

	1999	2000	2003	2005	2006	2007	2008	2009	2010	2011
External						July 2007 - DMH Rule 132 passed	July 2008 - IL DMH Rule 132 goes into effect; Fee-for-service model established			January 2011 - IL DMH Utilization Management program in effect; requires regular reauthorization of services
SSA			September 2003 - SAMHSA-funded Hope Center for substance abuse and homelessness opens	Philosophy of Care developed - harm reduction and trauma-informed care are emphasized	June 2006 - Hope Center closed; staff left/ absorbed into other parts of SSA				July 2010 - Clinical director leaves	
P5	Became intern at SSA	Hired at SSA			Begins work with DBT	Promoted to program manager		Begins work with CBITS		
DBT				July 2005 - DBT implementation starts	February 2006 - first DBT client seen			March 2009 - DBT ends (final consultation group)		
CBITS							Collaborative grant planning & writing	July 2009 - NCTSN grant begins		

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Amendment to Research Protocol and/or Consent Document – Expedited Review
UIC Amendment # 1

January 27, 2011

Sarah Beehler, BA
Psychology
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Chicago, IL 60612
Phone: (773) 470-6509 / Fax: (312) 413-4122

RE: **Protocol # 2010-0769**
“Sustainability of Evidence-Based Mental Health Interventions”

Dear Ms. Beehler:

Members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research and/or consent form under expedited procedures for minor changes to previously approved research allowed by Federal regulations [45 CFR 46.110(b)(2)]. The amendment to your research was determined to be acceptable and may now be implemented.

Please note the following information about your approved amendment:

Amendment Approval Date: January 20, 2011

Amendment:

Summary: UIC Amendment #1, dated 18 January 2011 and submitted to OPRS 19 January 2011, is an investigator-initiated amendment submitting revised consent documents with language stating that subject's employment status will not be affected by their research participation decision as per the SSA IRB (Consent document, version 3, 1/12/2011).

Approved Subject Enrollment #: 25

Performance Sites: UIC

Informed Consent(s):

a) Evidence-Based Intervention Sustainability; Version 3; 01/12/2011

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
01/19/2011	Amendment	Expedited	01/20/2011	Approved

Please be sure to:

→ **Use only the IRB-approved and stamped consent document(s) and/or HIPAA Authorization form(s) enclosed with this letter when enrolling subjects.**

→ Use your research protocol number (2010-0769) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,
"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB #2 has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 996-0548. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Brandi L. Drumgole, B.S.
 IRB Coordinator, IRB # 2
 Office for the Protection of Research Subjects

Enclosure(s):

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**
2. **Informed Consent Document(s):**
 - a) Evidence-Based Intervention Sustainability; Version 3; 01/12/2011

cc: Dina Birman, Psychology, M/C 285
 Gary E. Raney, Psychology, M/C 285

CV

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HONORS & AWARDS

2005, 2009, University Fellowship, University of Illinois—Chicago

2008, First Place Award Recipient, SCRA Division 27 Student Poster Award,
 Midwestern Psychological Association Conference, Chicago, IL

RESEARCH EXPERIENCE

2010-2011, Research Assistant, Chicago, IL

David Henry, Ph.D.

Responsibilities include data analysis and measurement modeling in SPSS, SAS, MPlus for an effectiveness trial of a family-centered intervention to prevent aggression and related problem behaviors in children. Analyzing implementation dosage, fidelity and process measures to understand intervention implementation separately and in relation to intervention outcomes.

2009-2010, Research Assistant, Chicago, IL

Edison Trickett, Ph.D.

Responsibilities included conference planning and follow-up, reviewing literature in multiple content areas, and writing and preparing manuscripts for publication.

2007-2009, Research Assistant, Chicago, IL

World Relief Chicago Project.

Funded by the Robert Wood Johnson Foundation. Collaborative evaluation of comprehensive school-based mental health program serving refugee children in Chicago. Responsibilities included database management in Access, working closely with agency staff to collect demographic, services and outcomes data; data analysis; communicating project progress and impact to project stakeholders (program directors, clinicians, RWJ staff, principals, etc); and training agency staff on clinical

measures.

Project Director: Dina Birman, Ph.D.

2005-2009, *Research Assistant*, Chicago, IL

International Institute of New Jersey Project.

Funded by the National Child Traumatic Stress Network (NCTSN), U.S. Substance Abuse and Mental Health Services Administration. Collaborative evaluation of comprehensive school-based mental health program serving immigrant children in New Jersey. Responsibilities included database development and management in SPSS; collecting demographic, services and outcomes data; longitudinal data analysis in SAS; and communicating project progress and impact to project stakeholders (program director, clinicians, NCTSN, teachers, school boards, etc).

Project Director: Dina Birman, Ph.D.

2003-2005, *Research Assistant*, Chicago, IL

SSA International FACES Project.

Funded by the National Child Traumatic Stress Network (NCTSN), U.S. Substance Abuse and Mental Health Services Administration. Collaborative evaluation of comprehensive mental health program serving refugee children in Chicago. Responsibilities included collecting demographic, services and outcomes data for the purposes of internal improvement and participation in the NCTSN Data Core; data analysis in SPSS and SAS; and preparing reports for the NCTSN and project stakeholders.

Project Director: Dina Birman, Ph.D.

WORK EXPERIENCE

2009-2011, *Planning Committee Member & Conference Coordinator*, Chicago, IL

Advancing the Science of Community Intervention Conference.

Funded by the Prevention Research Centers Program at the Centers for Disease Control. Invitation-only conference designed to further community intervention research by bringing diverse stakeholders together to discuss pressing issues and ways forward. Responsibilities included working closely with CDC, UIC and planning committee members to plan and implement all aspects of the conference, documenting emergent conference themes, and evaluating the impact of the conference.

2007-2008, *Practicum Intern*, Chicago, IL

Polish American Association.

Conducted ecological assessment of social service agency serving 1st and 2nd generation Polish immigrants in Chicago. Collaborated with agency staff to assess evaluation needs and design a multi-level, agencywide approach to evaluating 30 social services programs. Developed and conducted evaluation orientation workshop for social services staff members and management.

CONSULTING EXPERIENCE

2010, *Evaluation Consultant*, Chicago, IL

Center for Community Change.

Assisted in designing an internal evaluation of the Campaign for Community Values, a national project aimed at codifying and promoting progressive values in political and policy arenas. Responsibilities include designing the evaluation, formulating evaluation and interview questions, monitoring results and progress of interviews, identifying themes and issues in data collected, and producing a final evaluation report and/or presentation.

2009, *Evaluation Consultant*, Chicago, IL

Jane Addams Resource Corporation.

Assisted in designing an outcome evaluation of the Center for Working Families, a program designed to help low-income families meet their basic needs, create predictable income, and build wealth. Responsibilities included creating a logic model, designing a client survey and establishing analytic strategies for the data collected.

TEACHING EXPERIENCE

Fall 2006 & Spring 2007, *Teaching Assistant* for Writing in Psychology, with Professor Susan Morriss, University of Illinois—Chicago, Department of Psychology

Fall 2005 & Spring 2006, *Teaching Assistant* for Introduction to Community Psychology, with Professor Gary Noll, University of Illinois—Chicago, Department of Psychology

PUBLICATIONS

Beehler, S., Birman, D., & Campbell, R. (Revise & resubmit). The effectiveness of Cultural Adjustment and Trauma Services (CATS): A comprehensive, school-based mental health intervention for immigrant youth. *American Journal of Community Psychology*.

Trickett, E.J., **Beehler, S.**, Deutsch, C., Green, L.W., Hawe, P., McLeroy, K., Miller, R.L., Rapkin, B.D., Schensul, J.J., Schulz, A.J., & Trimble, J.E. (2011). Advancing the science of community-level interventions, *American Journal of Public Health*, 101, 1410-1419.

Allen, J., Mohatt, G., **Beehler, S.**, & Rowe, H.L. (2010). *People Awakening: Collaborative research with Alaska native rural communities to address alcohol use disorders and suicide health disparities*. Manuscript in preparation.

Beehler, S., & Hopper, K. (2010). *Playing the Greek chorus: A brief description of a conference ethnography*. Manuscript in preparation.

Beehler, S. (2008). *Evidence of what? An ecological critique of the evidence base of school mental health interventions*. Unpublished manuscript.

Birman, D., **Beehler, S.**, Harris, E.M., Everson, M.L., Batia, K., Liautaud, J., Frazier, S., Atkins, M., Blanton, S., Buwalda, J., Fogg, L., & Cappella, E. (2008). International Family, Adult, and Child Enhancement Services (FACES): A community-based comprehensive services model for refugee children in

resettlement. *American Journal of Orthopsychiatry*, 78, 121-132.

Birman, D., Weinstein, T., Chan, W. & **Beehler, S.** (2007). Immigrant youth in U.S. schools: Opportunities for prevention. *The Prevention Researcher*, 14, 14-17.

Batia, K., **Beehler, S.**, & Birman, D. (2006). An application of a human rights approach to mental health services: SSA for Human Needs and Human Rights. *The Community Psychologist*, 39, 51-55.

PRESENTATIONS

Beehler, S., & Trickett, E. (June, 2011). Contextualizing the push for evidence-based practice in psychology. Presentation at the *13th Biennial Conference of the Society for Community Action and Research, Chicago, IL.*

Beehler, S. (June, 2011). The legacy of evidence-based mental health interventions: What gets sustained and how. Presentation at the *13th Biennial Conference of the Society for Community Action and Research, Chicago, IL.*

Beehler, S., & Campbell, R. (June, 2009). The impact of collaboration: Building a data collection process with a community agency. Presentation at the *12th Biennial Conference of the Society for Community Action and Research, Montclair, NJ.*

Beehler, S., & Campbell, R. (June, 2008). CATS: A model of school-based mental health services for immigrant children. Symposium at the *2nd International Conference on Community Psychology, Lisbon, Portugal.*

Beehler, S., & Birman, D. (May, 2008) The Effects of Comprehensive Mental Health Services on Immigrant Children. Poster presentation at the *Midwestern Psychological Association Conference, Chicago, IL.*

Weinstein, T.L., Tran, N., & **Beehler, S.** (October, 2006). Challenges in working with diverse populations: Insider & outsider experiences from a graduate student perspective. Roundtable discussion at the *2006 Midwest ECO Conference, Saugatuck, MI.*

Birman, D., **Beehler, S.**, Ho, J., & Pulley, E. (2005, March). Mental Health Interventions for Refugee Children: Toward Practice Based Evidence. In D. Birman, Chair, Assessment and Interventions with Traumatized Refugee Children: Initiatives and Innovations among Network Sites. Paper presented at the *Annual Meeting of the National Child Traumatic Stress Network, Alexandria, VA.*

Birman, D., Ho, J., Basu, A., Pulley, E., & **Beehler, S.** (2004, November). Mental Health Interventions for Refugee Children: A review of the literature. In M. Benson, Chair, Challenges and Innovations in Providing Services to Refugee Children. Paper presented at the *Annual Meeting of the International Society for Traumatic Stress Studies, New Orleans, LA.*

Birman, D., Pulley, E., Blanton, S., & **Beehler, S.** (2004, October). Lessons learned in an ongoing university – agency collaboration. In S. Ryerson Espino, Chair, Complexities of collaborative action and representation. Paper presented at the

2004 Midwest Eco Conference, Saugatuck, MI.

PROFESSIONAL SERVICE

Ad-Hoc Manuscript Reviewer:

- ❖ *Implementation Science*, reviewed article on implementation of evidence-based practices in community-based organizations, April 2010
- ❖ *American Journal of Evaluation*, reviewed article on evaluation feedback processes, November 2009 & February 2010
- ❖ *American Journal of Orthopsychiatry*, reviewed article on refugee mental health interventions, September 2009

PROFESSIONAL ASSOCIATIONS

American Evaluation Association
American Psychological Association, Graduate Student Affiliate
Society for Community Research and Action, APA Division 27
Society for Qualitative Inquiry in Psychology, APA Division 5