

What Gets Noticed: How Barrier and Facilitator Perceptions Relate to the Adoption and Implementation of Innovative Mental Health Practices

Bev Seffrin · Phyllis C. Panzano · Dee Roth

Received: 8 February 2008 / Accepted: 1 June 2009 / Published online: 16 July 2009
© Springer Science+Business Media, LLC 2009

Abstract This mixed-method study examined the facilitators and barriers discussed by 166 informants interviewed from 78 innovative mental health projects. Facilitator and barrier coding reflected two dimensions: the topic of the comment (e.g., funding); and the time phase of the issue's influence (e.g., pre-decision). Proportions of facilitators to the sum of facilitator and barrier comments made by project informants were calculated. Overall, facilitator proportions were higher for projects that proceeded with implementation than those that did not adopt the practice. In addition, facilitator proportions were generally highest at pre-decision and lowest at full implementation for implementing projects.

Keywords Evidence-based practice · Innovation · Facilitator · Barrier · Risk

Introduction

Experts in mental health share a conviction that conscientiously expediting the diffusion of evidence-based mental health practices into provider settings would result in substantial benefits to a variety of stakeholders (e.g., Mental Health: A Report of the Surgeon General 1999). Despite this expectation, the delay in moving research-based mental health practices into usage has been estimated

at a decade or more (Corrigan et al. 2001). Based upon this acknowledged gap between scientific evidence and common practice, a branch of mental health research has prioritized the effort to identify mechanisms that underlie the adoption of evidence-based practices by providers and to investigate the factors that delay the transfer of these practices to broad usage (e.g., Goldman et al. 2001; Barwick et al. 2005).

There is a rich literature which suggests that risk-related assessments have a bearing on organizationally-important decisions and on the dispositions of organizational projects (e.g., MacCrimmon and Wehrung 1986). The innovation adoption literature lends support to the idea that innovation attributes (e.g., complexity, relative advantage, trialability) with implications pertaining to risk (e.g., ease of use, cost/benefit, gain/loss) have been linked to the decision to adopt innovations (e.g., Rogers 1995; Tornatzky and Klein 1982). In fact, Panzano and Roth (2006) found direct support for their conceptualization that the decision to adopt innovative mental health practices (IMHPs) is an organizationally important decision involving risk. Perceived risk was found to explain a substantial part of what differentiated adopters from non-adopters. Furthermore, perceived risk was found to be associated with other assessments (e.g., strength of scientific evidence; evidence from the field), especially to views about the capacity to manage implementation-related risks.

However, attributes of innovations are expected to interact with organizational characteristics and contexts resulting in differences among organizations in the perceived costs and benefits of adopting innovations (Damanpour 1987, 1991; Frambach and Schillewaert 2002; Meyer and Goes 1988). This explains why the perceived risk of adopting a particular innovation can vary from organization to organization (Panzano and Roth 2006).

B. Seffrin (✉) · P. C. Panzano
Decision Support Services, Inc., 27 East Russell Street,
Suite 302, Columbus, OH 43215, USA
e-mail: bseffrin@columbus.rr.com

D. Roth
Office of Program Evaluation and Research, Ohio Department
of Mental Health, Columbus, OH, USA

It is reasonable to expect that the specific mix of factors seen as hindering (i.e., barriers) and supporting (i.e., facilitators) the adoption and implementation of a given innovation may vary by organization. In turn, these differences may impact beliefs (e.g., capacity to manage risk) that affect the perceived risk of adopting the innovation and/or the risk of proceeding with implementation (Panzano and Roth 2006). In other words, differences in organizational context reflected in views about barriers and facilitators may partly explain the decision to adopt innovations and also account for the extent to which practices are sustained (Glisson 2002). Thus, it is important to examine these views to better understand the decision-making contexts.

This exploratory investigation will examine the content of interviews with key organizational informants in terms of the identification and discussion of certain factors (i.e., barriers and facilitators) that occurred during the consideration, adoption, planning and/or implementation of IMHPs that could reasonably be expected to be linked to risk perceptions. More specifically, barriers and facilitators will be classified and analyzed in terms of content (e.g., financial, system) and the time phase during which they emerged (e.g., pre-decision, full implementation). Particular attention will be given to the relative consideration given by informants to facilitators versus barriers during the course of these non-directive interviews.

Two exploratory research questions will be investigated. First, do the content and relative frequency of facilitators and barriers mentioned that pertain to the pre-decision phase vary as a function of decision status (i.e., IMHP non-adopter versus implementer)? For example, do non-adopters tend to report fewer facilitators pertaining to the pre-decision time-period, relatively speaking, than do their implementer counterparts? Second, do the content and relative frequency of facilitators and barriers mentioned vary over time among implementers?

Methods

The Innovation Diffusion and Adoption Research Project (IDARP) was mounted soon after the initiation of the Ohio Department of Mental Health's Quality Agenda which promotes action in three arenas: consumer outcomes, quality improvement and evidence-based practices. Eight coordinating centers of excellence (CCOEs) were established to serve as statewide champions and technical experts to facilitate the uptake of selected IMHPs, including evidence-based and promising practices, within the system (Panzano et al. 2005). A deliberative process informed by university-based experts on organizational behavior resulted in four of these IMHPs being chosen as

the focus for IDARP because it was expected that provider experience with these practices would be diverse, providing variability in the data collected (Panzano and Roth 2006). These practices include: (1) Cluster-based planning, a research-based consumer classification scheme (Rubin and Panzano 2002); (2) Integrated dual disorder treatment, an evidence-based practice tailored to individuals with co-occurring mental illness and substance abuse issues (Drake et al. 2001); (3) Multisystemic therapy (MST), an evidence-based practice involving intensive home-based treatment for youths (Henggeler et al. 1998); and (4) The Ohio medication algorithms for schizophrenia and depression based on the Texas Medication Algorithms Project (Chiles et al. 1999).

Informants and Interviews

In addition to its survey (i.e., quantitative) methodology, the IDARP study included a longitudinal qualitative research component that involved interviewing key informants (Kumar et al. 1993) at participating organizations (see Panzano et al. 2005). These non-directive interviews offered a particularly valuable source of information about barriers and facilitators encountered prior to and, when relevant, after the adoption decision because they involved informants who were profoundly engaged in these organizational processes (e.g., executives, caregivers, collaborating organizations) and because of the deep and rich descriptive detail that these individuals provided (Patton 1990).

The CCOEs promoting and supporting these four practices provided IDARP with contact information for organizations that had experience with the process of considering, adopting and/or implementing these IMHPs. Each of these organizations was contacted and if the project was under consideration or early in the implementation process, interviews were requested with one or two informants who were knowledgeable about the project such as the CEO and Clinical Director. If the project was in full implementation, interviews were requested with one or two additional informants involved directly with the practice such as the project manager, quality manager and/or front-line staff. While the IDARP research was longitudinal, this analysis is limited to data gathered at the time of first contact with the projects (described next).

To ensure standard interviewing techniques, IDARP interviewers underwent rigorous training and participated in practice interviews that were systematically critiqued. Two-person teams conducted hour-long interviews with each key informant from the IMHP projects. Interviews followed a written protocol and opened with the collection of biographical information about the interviewee (e.g., title). Next, the non-directive portion of the protocol (based

on Nutt 2002) elicited project information. Although projects were in various stages of development and execution, the non-directive portion of the first contact interviews consistently assessed the informant's initial awareness of the IMHP, then moved to the developments that occurred during the consideration and/or planning and/or implementation of the project, and ended with the anticipated next steps for the project. Neutral interview questions were worded to elicit description of the interviewee's experience with the IMHP without influencing the valence of the response. For example, a frequent prompt by interviewers was neutrally phrased: "What happened next?" The final portion of the interview consisted of several structured questions about the project (i.e., multiple choice and Likert-type items).

Interview teams collaborated to approximate a verbatim transcript of each interview. These transcripts were imported to the Atlas.ti qualitative software package where a variety of codes were attached to the interview texts. Most coding occurred within the open-ended portion of the interview, but pertinent comments made by informants throughout the entire interview were scrutinized by coders. Inter-rater reliability of coding was bolstered by ongoing group training sessions, team collaboration on coding of interview texts and extensive written protocols.

Facilitators and Barriers

This analysis focuses on coded facilitator and barrier mentions from the texts of the IDARP interviews. A facilitator is defined as an event or condition that favors the adoption decision, the advancement of the project or sustained implementation. A barrier is defined as an event or condition that hinders the adoption decision, the advancement of the project or sustained implementation. Facilitator and barrier codes reflected two dimensions: the content topic of the facilitators or barriers (e.g., funding issues); and the time phase during which the facilitator or barrier occurred or had influence (e.g., prior to the adoption decision).

Five a priori content topics of facilitators and barriers were developed based upon literature pertaining to the adoption and diffusion of evidence-based practices (e.g., Corrigan et al. 2001; Goldman et al. 2001; Rosenheck 2001) and deliberation of the research team. These topics related to the CCOE, project funding, project staff, the system in which the project operates and a miscellaneous category to capture all other issues. These topics were subdivided following content analyses of the coded interviews. For example, the content topic "staff" was separated into "staff attitudes" (see Seffrin 2007) and "staffing" (defined below). Meanwhile, the most frequently mentioned topic that emerged from the

miscellaneous category related to the fit of the IMHP with the organization (detailed below). Content topics included in this paper are not exhaustive of all topics mentioned by interviewees, but represent 83.67% (2,537/3,032) of all facilitators and barriers identified during coding. The five topics defined below are the focus of this paper based upon their prevalence, diversity and universality across projects:

- (1) CCOE: a purveyor entity that promotes the IMHP and provides information and technical assistance to interested organizations throughout Ohio (Panzano et al. 2005);
- (2) Funding: Financial resources available or needed to support the practice;
- (3) IMHP Fit: The logistical and philosophical fit of the practice with the organization, considering local demand for the practice, evaluation of the IMHP, compatibility between the IMHP and the organization, and internal knowledge related to the practice;
- (4) Staffing: Availability of dedicated personnel to carry out the practice, impacted by recruitment, retention, turnover and the competing priorities encountered by project staff; and
- (5) System: The network in which the project operates, ranging from collaborative entities in the immediate community to statewide funding streams.

Time Phase Categories

Three a priori time phase categories were adapted from existing literature (Rogers 1995), and coders assigned the single time phase in which each facilitator and barrier event occurred or had influence according to the informant. These time phases included: (1) pre-decision, the phase that begins with the initial awareness of the new practice by the organization and ends with the decision to adopt or to not adopt the practice (comparable to Rogers' initiation activities); (2) early implementation, the phase that begins once the decision to adopt the practice has been made and ends when the practice is kicked off at the organization (e.g., clients are accepted into the practice). This time phase is similar to the redefining and restructuring stages of Rogers' implementation activities. Finally, (3) full implementation is the phase that begins once the IMHP is actively practiced at the organization and lasts as long as the practice is sustained (compare to the clarifying and routinizing stages of Rogers' implementation activities). Table 1 contains excerpts of informant comments that were coded for each content topic and time phase, although these comments are best understood and classified in consideration of full interview texts.

Table 1 Excerpts of coded facilitator and barrier comments, identifying content topics and time phases

Topic	Quotation	Coding
CCOE	“It’s one thing to see research on MST, but [the CCOE] was able to bring the model to Ohio and tell us how to apply it here”	Facilitator Pre-decision
Funding	“There’s no money in the county or the state. If you can’t be self-sufficient, you can’t keep going”	Barrier Full implementation
IMHP Fit	“We had been doing SAMI services for years and we had a working familiarity with the Dartmouth model. We had a commitment to work with dually diagnosed clients”	Facilitator Pre-decision
Staffing	“It took forever to recruit staff”	Barrier Early implementation
System	“We don’t have enough collaboration across the systems”	Barrier Pre-decision

Data Conversion and Analysis

Following the coding of the interviews, data were converted to counts of comments. The rationale for counting interview comments is that issues of importance to organizations that are considering adopting or are currently implementing IMHPs will also be more salient to project informants. Salience is expected to impact the ease with which pertinent information is retrieved from memory (i.e., cognitive availability), manifested by interviewees citing important issues with greater frequency than unimportant ones (e.g., Taylor 1982; Taylor and Fiske 1978; Tversky and Kahneman 1973). Furthermore, because theory and research suggest that issues which “engulf attention often have a disproportionately large impact on the judgment process” (Folkes 1988; Taylor et al. 1979, p. 357), it is reasonable to conclude that the frequency at which issues are mentioned is important to consider in understanding decision and implementation outcomes. Consistent with this logic, Hoffman and Maier (1979) provided evidence for the importance of considering the number and valence of comments made by decision-making groups. Using an index created by subtracting the count of negatively valenced comments (e.g., barrier mentions) from the number of positively valenced comments (e.g., facilitator mentions), they effectively predicted groups’ problem-solving decisions.

Counts of facilitators and barriers were aggregated to the project level by averaging the total number of comments in each category across project informants. Aggregating to the project level allowed the viewpoints of all project informants to be represented in the inquiry, providing more

complete information for each project (Klein et al. 1994; Rousseau 1985). Also, averaging the number of comments made across project informants controlled for the differing numbers of informants per project, weighting all projects equally in the analyses.

The first research question compared projects within two decision statuses (i.e., non-adopter and implementer projects; Panzano and Roth 2006). Only pre-decision comments were considered for this research question, as this is the only time phase that was common to the two types of projects. The second research question investigated facilitators and barriers across the time phase in which they occurred. Only implementer data were analyzed for this research question, because only these projects had experienced all three time phases.

Data to test research questions were treated in two ways. First, mean numbers of facilitators or barriers per project were compared within decision status (e.g., within non-adopter projects) and time phase (e.g., within early implementation time phase) to examine each issue’s within-group relevance. In contrast, between-group comparisons were achieved by using proportions of facilitators to all comments. Proportions preserve the integrity of the relationship between the facilitators and barriers, while presenting this relationship in a simplified and standardized manner. In addition, proportions offer the important benefit of controlling for differences between informants (e.g., more interview time devoted to the pre-decision time phase by non-adopter informants than by implementer informants, talkativeness of informants, etc.) by focusing on the relative number of facilitators to all comments.

The proportions of facilitators to all comments were calculated by dividing the average number of facilitators by the sum of the average numbers of barriers and facilitators in each category for each project. For example, if informants from a project averaged one facilitator comment for every one barrier comment, then the proportion of facilitators would be $1F/(1F + 1B)$, or 0.50. A proportion less than 0.50 reflects that more barriers were mentioned than facilitators, for example, $1F/(1F + 3B)$ is a proportion of 0.25. A proportion greater than 0.50 reflects that more facilitators were mentioned than barriers, for example, $3F/(3F + 1B)$ creates a proportion of 0.75. Proportions are expected to reflect the extent to which facilitators are more salient than barriers to the organizations participating in this study (e.g., Folkes 1988).

The examination of data represents a mixed-methods design in which a qualitative data-gathering method informed a quantitative analysis. Mentions of facilitators and barriers by interviewees were counted, summed and averaged within project. Proportions of facilitators to total comments were calculated. *T*-tests and ANOVAs with

Tukey's HSD post-hoc tests were used to investigate all research questions at the project level of analysis.

This research met the requirements of the human subjects review process of the Ohio Department of Mental Health, Office of Program Evaluation and Research. In addition, the archival data on which these analyses are based satisfied the requirements of the Internal Review Board of The Ohio State University. The authors of this manuscript have no known conflict of interest with regard to their roles in the research or in presenting findings from the study. All authors certify responsibility for the content of this paper.

Results

Participants

CCOEs identified 93 IMHP projects, of which 91 (97.85%) participated in the interview component of the IDARP research. About 193 informants ($\bar{x} = 2.12/\text{project}$, $SD = 1.17$) were interviewed during the first contact with participating projects between December 2001 and December 2003. There were 37 ($\bar{x} = 1.28/\text{project}$, $SD = .65$) informants interviewed from 29 (31.87%) non-adopter projects. Specifically, 23 (79.31%) non-adopter projects had one informant, five (17.24%) had two informants, and one (3.45%) had four informants. Turning to implementers, there were 129 ($\bar{x} = 2.63/\text{project}$, $SD = 1.17$) informants interviewed from 49 (53.85%) projects. Specifically, 6 (12.24%) implementer projects had 1 informant, 20 (40.82%) had 2 informants, 14 (28.57%) had 3 informants, 6 (12.24%) had 4

informants, 1 (2.04%) had 5 informants, and 2 (4.08%) had 6 informants. In addition, there were 27 informants interviewed from 13 (14.28%) projects that had decision statuses that were not relevant to the research questions (Panzano and Roth 2006).

Statistical Testing of Research Questions

The first research question asked whether mentions of facilitators and barriers by informants vary by project decision status. On average, the most frequently mentioned facilitator topic among non-adopter projects was the system in which the project would operate, followed by the CCOE. Differences in the mentions of facilitators by topic were statistically significant. For example, there were significantly more mentions about system facilitators than about IMHP fit, funding or staffing. See Table 2 for complete details of statistical tests.

Like their non-adopter counterparts, the topic that averaged the most facilitator mentions among implementer projects was the system in which the project would operate, followed by IMHP fit. Differences in the average mentions of facilitators by topic were statistically significant. For example, there were significantly more mentions about system facilitators than about the CCOE, funding or staffing. See Table 2 for complete details of statistical tests.

Turning to barriers, non-adopter projects averaged the most mentions about funding, followed by the system and IMHP fit (see Table 2 for details). There were no significant differences in the average number of barriers identified.

On average, the most frequently mentioned barrier among implementer projects related to the system in which

Table 2 Descriptives of average facilitator and barrier mentions by content topic and within decision status at the project level of analysis (pre-decision time phase only)

	CCOE		IMHP Fit		Funding		Staffing		System		<i>F</i>
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	
Facilitators											
Non-adopter ^a	1.80	1.44	1.03	1.29	0.34	0.89	0.09	0.38	2.64	3.33	10.20 ^c
Implementer ^b	0.34	0.44	0.56	0.65	0.29	0.42	0.06	0.14	0.78	0.85	12.30 ^d
Barriers											
Non-adopter	0.91	2.29	1.22	1.62	1.91	2.46	1.00	1.46	1.75	2.53	1.30 ^e
Implementer	0.03	0.11	0.14	0.29	0.14	0.23	0.04	0.12	0.23	0.47	4.45 ^f

^a $n = 29$; $df = 144$

^b $n = 50$; $df = 249$

^c $P < .001$. Significant differences, non-adopter facilitators: more mentions of system than IMHP fit, funding and staffing; and more mentions of CCOE than funding and staffing

^d $P < .001$. Significant differences, implementer facilitators: more mentions of system than CCOE, funding and staffing; and more mentions of IMHP fit than staffing

^e No significant differences, non-adopter barriers

^f $P < .01$. Significant differences, implementer barriers: more mentions of system than staffing and CCOE; and more mentions of IMHP fit than CCOE

the project would operate. IMHP Fit and funding tied for the second most frequently mentioned barrier. Differences in the average mentions of barriers by topic were statistically significant. For example, there were significantly more barrier mentions about the system than about staffing or the CCOE. See Table 2 for complete details of statistical tests.

Next, the proportions of facilitator comments to all comments were compared by the decision status of the project. Table 3 shows that implementer projects discussed a significantly higher proportion of facilitators than did

Table 3 Descriptives of proportions of facilitators to all comments [i.e., facilitators/(barriers + facilitators)] by decision status for all content topics at the project level of analysis (pre-decision time phase only)

	Non-adopter		Implementer		df ^a	t
	\bar{x}	SD	\bar{x}	SD		
CCOE	.77	.36	.90	.24	50	-1.49
IMHP Fit	.45	.44	.78	.32	57	-3.27**
Funding	.12	.24	.64	.39	44	-5.13**
Staffing	.08	.21	.59	.49	24	-3.65***
System	.59	.38	.75	.37	60	-1.63
Total ^b	.52	.21	.77	.25	74	-4.39***

^a Degrees of freedom vary based on number of projects that had no comments for the topic

^b Total represents the five topics shown on this table

** $P < .01$

*** $P < .001$

non-adopter projects for three of five content topics, including IMHP fit, funding and staffing. In addition, the proportion of facilitators for the totaled content topics was significantly higher for implementers than for non-adopters.

The second research question asked whether the identification of facilitators and barriers among implementer projects varies depending on the time phase of the project. On average, the system was the most frequently mentioned facilitator in all three time phases. Differences in the average mentions of facilitators were statistically significant for all three time phases. For example, in early implementation, there were significantly more facilitator mentions about the system than IMHP fit. For full implementation, there were significantly more facilitator mentions about system than funding. See Table 4 for complete details of statistical testing.

Turning to barriers, the barrier topic with the most average mentions for pre-decision was the system in which the project operated. During early and full implementation, staffing barriers were most frequently mentioned followed by funding barriers. Differences in the average mentions of barriers were statistically significant for all three time phases. For example, in both early and full implementation, there were significantly more barrier mentions about the staffing and funding than about the CCOE. See Table 4 for complete details of statistical testing.

Finally, the proportions of average facilitator comments for implementer projects were compared across the three time phases. Table 5 shows that for all categories, the

Table 4 Descriptives of facilitator and barrier mentions by content topic and within time phase at the project level of analysis (implementer projects only)

	CCOE		IMHP fit		Funding		Staffing		System		F ^a
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	
Facilitators											
Pre-decision	0.34	0.44	0.56	0.65	0.29	0.42	0.06	0.14	0.78	0.85	12.30 ^b
Early implementation	0.29	0.48	0.19	0.33	0.40	0.65	0.24	0.39	0.56	1.00	2.81 ^c
Full implementation	0.52	0.65	0.46	0.70	0.30	0.55	0.46	0.71	0.82	1.10	3.11 ^d
Barriers											
Pre-decision	0.03	0.11	0.14	0.29	0.14	0.23	0.04	0.12	0.23	0.47	4.45 ^e
Early implementation	0.05	0.17	0.18	0.31	0.31	0.60	0.34	0.53	0.24	0.46	3.32 ^f
Full implementation	0.28	0.57	0.66	1.14	1.00	1.66	1.16	1.54	0.73	1.24	3.43 ^g

^a $n = 50$; $df = 249$

^b $P < .001$. Significant differences, pre-decision facilitators include: more mentions of system than CCOE, funding and staffing; and more mentions of IMHP fit than staffing

^c $P < .05$. Significant differences, early implementation facilitators include: more mentions of: system than IMHP fit

^d $P < .05$. Significant differences, full implementation facilitators include: more mentions of system than funding

^e $P < .01$. Significant differences pre-decision barriers include: more mentions of system than staffing and CCOE

^f $P < .01$. Significant differences, early implementation barriers include: more mentions of: staffing and funding than CCOE

^g $P < .01$. Significant differences full implementation barriers include: more mentions of: staffing and funding than CCOE

Table 5 Descriptives of proportions of facilitators to all comments [i.e., facilitators/(barriers + facilitators)] by time phase for all content topics at the project level of analysis (implementer projects only)

	Pre-decision		Early implementation		Full implementation		<i>df</i> ^a	<i>F</i>
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD		
CCOE	.90	.24	.82	.37	.73	.38	83	1.77
IMHP fit	.78	.32	.50	.44	.42	.41	96	8.24 ^b
Funding	.64	.39	.57	.38	.31	.39	81	5.87 ^c
Staffing	.59	.49	.40	.40	.33	.35	75	1.81
System	.75	.37	.68	.41	.52	.40	110	3.45 ^d
Total	.77	.25	.63	.24	.49	.24	137	11.38 ^e

^a Degrees of freedom vary based on number of projects that had no comments for the topic

^b $P < .001$. For IMHP fit, there are significantly greater proportions of facilitator comments in the pre-decision time phase than in the early and full implementation time phases

^c $P < .01$. For funding, there are significantly greater proportions of facilitator comments in the pre-decision and early implementation time phases than in full implementation

^d $P < .05$. For system, there is a significantly greater proportion of facilitator comments in the pre-decision time phase than in the full implementation time phase

^e $P < .001$. Overall, there are significantly greater proportions of facilitator comments in the pre-decision and early implementation phases than in full implementation

highest proportion of facilitators was discussed during pre-decision and the lowest proportion of facilitators was discussed during full implementation. Significant differences between time phases were found for the proportions related to three of the five content topics including IMHP fit, funding and system, and for the totaled content topics. For example, the proportion of facilitators for the totaled content topics was significantly higher for both the pre-decision and early implementation time phases than for full implementation. See Table 5 for complete details of statistical testing.

Discussion

In this study, there were similarities and differences related to the relative frequency that facilitators and barriers were discussed by informants based upon: (1) the decision status of the project; and (2) the time phase of the implementation. In addition, analyses of the proportions of facilitators to all comments revealed that for most topics: (1) implementer projects identified a greater proportion of facilitator comments than did non-adopters; and (2) proportions of facilitator comments made during interviews were consistently highest for the pre-decision time phase and lowest for the full implementation time phase. It is important to note that these exploratory analyses are presented with the intention of generating rather than testing hypotheses. Therefore, the discussion that follows is preliminary and it will be important to replicate the findings in future studies, investigating a priori hypotheses.

Decision Status

The first research question asked whether interviewees' observations about pre-decision issues varied depending on the project's decision status. Both non-adopter and implementer project informants cited system facilitators most frequently, and funding and staffing facilitators least frequently. In fact, staffing facilitators and barriers were rarely mentioned by non-adopter or implementer informants during the pre-decision time phase, suggesting that some issues are minimally relevant during certain time frames. However, complete data were reported for the readers' interest and as points for comparison to other content topics and time phases. Meanwhile, the three most frequently cited barriers were common across decision status (i.e., system, funding and IMHP fit), although the order varied slightly. When it came to barriers, implementer informants mentioned the system and the IMHP fit significantly more often than some other issues (e.g., CCOE), but there were no significant differences in the frequency of barriers mentioned across content domains by non-adopter informants.

These findings suggest that certain issues are salient to organizations engaged in considering the adoption of IMHPs regardless of decision status. During pre-decision, non-adopter and implementer informants discussed both facilitators and barriers related to the system context and the extent to which the IMHP represented a good fit for their organization more frequently than other topics (e.g., staffing). This pattern of findings is consistent with the growing body of research that suggests the system in which

an organization operates is a key factor with implications for innovation, adoption and implementation (e.g., Glisson 2002). In addition, it attests to the importance given to innovation-organization fit or compatibility (e.g., Rogers 1995; Tornatzky and Klein 1982) in the innovation implementation literature (e.g., Klein et al. 2001; Klein and Sorra 1996).

During the pre-decision time phase, the proportions of facilitator comments were significantly higher (i.e., more positive) for implementer projects than for non-adopter projects for three of five content topics (i.e., IMHP fit, funding and staffing) and for the total of all barriers and facilitators mentioned. On average, 77% of comments made by implementers at pre-decision dealt with facilitators compared to 52% of comments made by non-adopters. Consistent with this overall pattern, only 12% of funding comments made by non-adopters were facilitators, compared to 64% of funding comments made by implementers. One non-adopter informant explained, “The executive committee was not interested in trying to cobble the money together for this. Everyone’s funding is stretched very thin.” Similarly, 8% of non-adopter staffing comments were facilitators, compared to 59% of staffing comments made by implementers. A non-adopter noted, “I really don’t have enough FTEs [to enable the organization to adopt the IMHP]”. Regarding the fit of the IMHP to their organizations, 45% of non-adopter comments were positive, compared to 78% by implementers. One non-adopter informant summed up the lack of fit with the IMHP by saying, “Our [client] population just didn’t fit neatly with the [IMHP].”

As stated earlier, the proportion of facilitators is an operational measure which reflects the relative attention devoted to facilitators by project informants during the course of interviews (e.g., Taylor 1982). Common logic suggests that recognizing barriers (e.g., threats) will thwart and recognizing facilitators (e.g., opportunities) will foster adoption (e.g., Thomas and McDaniel 1990). Therefore, an assumption was made that proportions partly reveal the extent to which adoption facilitators are more salient than barriers to the organizations participating in this study (e.g., Folkes 1988); and the extent to which organizations are inclined or disinclined to move forward with adoption. Whether the extent to which facilitators “engulf the attention” of decision-makers (e.g., Folkes, p. 357) is actually linked to other risk-related perceptions (e.g., capacity to manage risk, Panzano and Roth 2006) remains an empirical question.

Time Phase

The second research question asked whether implementer projects identify facilitators and barriers differently based

upon the time phase of the project. Results showed that the system was the primary focus of facilitator comments across all three time phases, although the focus of the second most mentioned facilitator shifted as implementation progressed. During pre-decision, the attention given to discussing IMHP fit facilitators suggests the importance placed on assessing the compatibility between the IMHP and the organization prior to making an IMHP adoption decision. During early implementation, facilitators related to marshalling funding resources became a major focus for these projects. During full implementation, the salience of the CCOEs and their expertise related to the IMHPs was emphasized.

For barriers, the most mentioned content topics shifted across time. During pre-decision, implementer projects primarily focused on system barriers that impeded the adoption of the IMHP. During early- and full implementation, these projects primarily focused on barriers related to staffing the IMHP, such as recruiting new staff or dealing with the conflicting demands placed upon existing staff. One implementer exclaimed, “Recruitment! The hassles that we had! In a rural area, it’s very hard to recruit [qualified] people to do this work.”

Meanwhile, barriers related to funding were salient throughout all three time phases of implementation, as funding was consistently mentioned second most frequently. One informant alluded to an unexpected barrier that occurred during full implementation when he explained that the funding for his IMHP project shrunk by 25% during the first year of implementation.

The analysis of facilitator proportions to total comments revealed a significant pattern of diminishing facilitator proportions over time for three of the content topics (IMHP fit, funding and system) and for the total of all facilitators and barriers mentioned, in which proportions were lowest during full implementation. As one informant admitted, “When the decision (to adopt the IMHP) was made, I began to whine”. This pattern of diminishing proportions is likely to reflect the emergent and ongoing operational challenges that organizations face in the course of implementing and potentially sustaining IMHPs within environments in which resources are both scarce and shifting (e.g., staff turnover; e.g., Blasinsky et al. 2006).

Conclusions

This study suggests that the IMHP adoption decision may be influenced by the relative salience of facilitators and barriers to mental health providers during the pre-decision phase. If so, entities interested in fostering the adoption and diffusion of IMHPs need to develop a thorough understanding of the views of potential adopters about barriers

and facilitators to adoption, recognizing that specific arrays are likely to vary as a function of context. In some cases, such things as the provision of new information and exposure to IMHP experts (e.g., developers, peer organizations implementing the IMHP) may be adequate to shift views. In other situations, knowledge about arrays may suggest that other avenues need to be taken (e.g., system intervention, Glisson 2002) in order to pave the way for adoption and implementation.

Findings also suggest that the relative salience of facilitators tends to diminish as implementation efforts progress. This is not surprising given the many operational challenges to implementing innovations. However, it also suggests that organizational leaders must maintain strong and visible support for innovation implementation efforts until innovative practices become stable and cross what Repenning (2002) has coined the motivation threshold.

Limitations

The data on which these analyses are based reflect the perceptions of key informants. No attempt was made to determine the extent to which these perceptions mirror an objective reality. However, the data were considered worthy of study based on the notion that perceptions of top managers drive organizational decisions and action (Ajzen 1991; Hambrick and Mason 1984). Future work is needed in which objective indices (e.g., financial data) are used to calibrate facilitators and barriers to implementation.

A key informant design involving interviews (Kumar et al. 1993) was used for data gathering, and results are limited by the usual issues related to this method (e.g., impression management; Goffman 1959). For example, informants may have been inclined to rationalize the adoption decision by selectively emphasizing positive or negative factors to bolster the wisdom of their decisions (i.e., cognitive dissonance, Festinger 1957). In addition, retrospection was required of informants. However, compared to research using the same design (e.g., Nutt 2002), the time lag was sufficiently brief to limit memory effects.

In a majority of cases there was a single informant for non-adopter projects, but multiple informants for implementer projects. Frequently, only one individual at non-adopter agencies had considerable knowledge of the IMHP project, and to demand additional informants from those sites may have added noise to the data, or endangered research participation. To control for the discrepancy in the number of project informants, data were averaged and aggregated to the project level.

The pace at which implementer projects progressed from the point of considering the IMHP to full implementation could impact the time devoted to discussing each

time phase during interviews and the absolute number of issues identified by informants by time phase. The computation of facilitator proportions was used in this study to compensate for these tendencies, however, other methodologies (e.g., allocating specific interview time segments to discuss each time phase) may also be effective in addressing these issues.

Finally, some of the methods employed in this exploratory study (e.g., the quantification of qualitative data and the use of proportions in analyses) may seem unconventional. A theoretical basis was provided for the argument that the relative attention given to barriers and facilitators might explain the decision to adopt, implement and sustain an IMHP within an organization. Although our findings were compatible with this idea, we hope this manuscript will inspire other researchers to generate and test a priori hypotheses on these topics.

Acknowledgments This research was funded by grant 1168 from the Ohio Department of Mental Health and by grant 00-65717-HCD from the John D. and Catherine T. MacArthur Foundation Network on Mental Health Policy Research. The authors gratefully acknowledge the key contributions made by Emily Bunt, Rick Massatti and Helen Anne Sweeney and the dedication of other members of the research team who made this investigation possible, including: Dushka Crane-Ross, Carol Carstens, Sheri Chaney-Jones, Pud Baird, Vandana Vaidyanathan and Sheau-yuen Yeo. The authors appreciate three anonymous reviewers whose suggestions inspired a transformed and substantially improved manuscript. We are indebted to the organizational participants in the research who gave generously of their time.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Barwick, M. A., Boydell, K. M., Stasiulis, E., Ferguson, H. B., Blasé, K., & Fixsen, D. (2005). *Knowledge transfer and implementation of evidence-based practices in children's mental health*. Toronto, ON: Children's Mental Health Ontario.
- Blasinsky, M., Goldman, H. H., & Unutzer, J. (2006). Project impact: A report on barriers and facilitators to sustainability. *Administration and Policy in Mental Health and Mental Health Services Research*, 33, 718–729.
- Chiles, J. A., Miller, A. L., Crismon, M. L., Rush, A. J., Krasnoff, A. S., & Shon, S. S. (1999). The Texas medication algorithm project: Development and implementation of the schizophrenia algorithm. *Psychiatric Services*, 50, 69–74.
- Corrigan, P. W., Steiner, L., McCracken, S. G., Blaser, B., & Barr, M. (2001). Strategies for disseminating evidence-based practices to staff who treat people with mental illness. *Psychiatric Services*, 52, 1598–1606.
- Damanpour, F. (1987). The adoption of technological, administrative, and ancillary innovations: Impact of organizational factors. *Journal of Management*, 13, 675–688.
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34, 555–590.
- Drake, R. E., Essock, S. M., Shaner, A., Carey, K. B., Minkoff, K., Kola, L., et al. (2001). Implementing dual diagnosis services for

- clients with severe mental illness. *Psychiatric Services*, 52, 469–476.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Folkes, V. S. (1988). The availability heuristic and perceived risk. *Journal of Consumer Research*, 15, 13–23.
- Frambach, R. T., & Schillewaert, N. (2002). Organizational innovation adoption: A multi-level framework of determinants and opportunities for future research. *Journal of Business Research*, 55, 163–176.
- Glisson, C. (2002). The organizational context of children's mental health services. *Clinical Child and Family Psychology Review*, 5, 233–253.
- Goffman, E. (1959). *Presentation of self in everyday life*. Garden City, NY: Doubleday Anchor Books.
- Goldman, H. H., Ganju, V., Drake, R. E., Gorman, P., Hogan, M., Hyde, P. S., et al. (2001). Policy implications for implementing evidence-based practices. *Psychiatric Services*, 52, 1591–1597.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9, 193–206.
- Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford Press.
- Hoffman, L. R., & Maier, N. R. F. (1979). Valence in the adoption of solutions by problem-solving groups: Concept, method and results. In L. R. Hoffman's (Ed.), *The group problem solving process: Studies of a valence model* (pp. 17–30). New York: Praeger Publishers.
- Klein, K. J., Conn, A. B., & Sorra, J. S. (2001). Implementing computer technology: An organizational analysis. *Journal of Applied Psychology*, 86, 811–824.
- Klein, K. J., Dansereau, F., & Hall, R. J. (1994). Level issues in theory development, data collection, and analysis. *Academy of Management Review*, 19, 195–229.
- Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Review*, 21, 1055–1080.
- Kumar, N., Stern, L. W., & Anderson, J. C. (1993). Conducting interorganizational research using key informants. *Academy of Management Journal*, 36, 1633–1651.
- MacCrimmon, K. R., & Wehrung, D. A. (1986). *Taking risks: The management of uncertainty*. New York: The Free Press.
- Mental health: A report of the surgeon general, (1999). Washington, DC, US Department of Health and Human Services, US Public Health Service.
- Meyer, A. D., & Goes, J. B. (1988). Organizational assimilation of innovations: A multilevel contextual analysis. *Academy of Management Journal*, 31, 897–923.
- Nutt, P. C. (2002). *Why decisions fail*. San Francisco: Berrett-Koehler.
- Panzano, P. C., & Roth, D. (2006). The decision to adopt evidence-based and other innovative mental health practices: Risky business? *Psychiatric Services*, 57, 1153–1161.
- Panzano, P. C., Roth, D., Crane-Ross, D., Massatti, R., & Carstens, C., Seffrin B. A. & Chaney-Jones, S. (2005). The innovation diffusion and adoption research project (IDARP): Moving the diffusion of research results to promoting the adoption of evidence-based innovations in the Ohio mental health system. In D. Roth & W. J. Lutz (Eds.), *New Research in Mental Health*, 16, 78–89.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Newbury Park, CA: Sage.
- Repenning, N. P. (2002). A simulation-based approach to understanding the dynamics of innovation implementation. *Organization Science*, 13, 109–127.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.
- Rosenheck, R. A. (2001). Organizational process: A missing link between research and practice. *Psychiatric Services*, 52, 1607–1612.
- Rousseau, D. M. (1985). Issues of level in organizational research: multi-level and cross-level perspectives. In L. L. Cummings & B. M. Staw's (Eds.), *Research in organizational behavior*, Vol. 7 (pp. 1–37). Greenwich, CT: JAI Press.
- Rubin, W. V., & Panzano, P. C. (2002). Identifying meaningful subgroups of adults with severe mental disabilities. *Psychiatric Services*, 53, 452–457.
- Seffrin, B. (2007). The views look different from over here. *Innovation Diffusion and Adoption Research Project Documents, Bulletin Series*. Office of Program Evaluation and Research, Ohio Department of Mental Health. Retrieved March 1, 2008, from <http://www.mh.state.oh.us/oper/research/idarp/idarp.bulletin.3.pdf>.
- Taylor, S. E. (1982). The availability bias in social perception and interaction. In D. Kahneman, P. Slovic, & A. Tversky's (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 190–208). Cambridge, England: Cambridge University Press.
- Taylor, S. E., & Fiske, S. T. (1978). Saliency, attention and attribution: Top of the head phenomena. In L. Berkowitz's (Ed.), *Advances in experimental social psychology*, Vol. 11 (pp. 249–288). New York: Academic Press.
- Taylor, S. E., Crocker, J., Fiske, S. T., Sprinzen, M., & Winkler, J. D. (1979). The generalizability of salience effects. *Journal of Personality and Social Psychology*, 37, 357–368.
- Thomas, J. B., & McDaniel, R. R., Jr. (1990). Interpreting strategic issues: Effects of strategy and the information-processing structure of top management teams. *Academy of Management Journal*, 2, 286–306.
- Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management*, 29, 28–45.
- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5, 207–232.