

# Unpacking Prevention Capacity: An Intersection of Research-to-practice Models and Community-centered Models

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**Abstract** Capacity is a complex construct that lacks definitional clarity. Little has been done to define capacity, explicate components of capacity, or explore the development of capacity in prevention. This article represents an attempt to operationalize capacity and distinguish among types and levels of capacity as they relate to dissemination and implementation through the use of a taxonomy of capacity. The development of the taxonomy was informed by the capacity literature from two divergent models in the field: research-to-practice (RTP) models and community-centered (CC) models. While these models differ in perspective and focus, both emphasize the importance of capacity to the dissemination and sustainability of prevention innovations. Based on the review of the literature, the taxonomy differentiates the concepts of capacity among two dimensions: *level* (individual, organizational, and community levels) and *type* (general capacity and innovation-specific capacity). The proposed taxonomy can aid in understanding the concept of capacity and developing methods to support the implementation and sustainability of prevention efforts in novel settings.

**Keywords** Capacity · Dissemination · Implementation · Prevention

## Introduction

The primary purpose of this article is to unpack the concept of capacity. Unpacking a concept involves breaking the concept down into orderly and manageable sets of component units (Sartori 1970). The concept of capacity is often used to describe the skills, motivations, knowledge, and attitudes that underlie the accomplishment of actions or tasks. While much is written about capacity and capacity building especially as it relates to international development efforts (e.g., Hawe et al. 1998; Ayele and Wield 2005), much less has been done to define capacity, explicate components of capacity, or explore the development of capacity as it pertains to prevention. The concept of capacity has been conceptualized in many ways; capacity and the act of capacity building have been assigned multiple discrepant meanings. This article represents an attempt to analyze the complex concept into meaningful components. We propose a taxonomy of capacity that can be useful for understanding capacity and developing methods to support the implementation and sustainability of prevention efforts in novel settings.

In this article, we operationalize capacity and distinguish among types and levels of capacity as they relate to dissemination and implementation. A taxonomy for types and levels of capacity is presented. We ground our taxonomy in research and describe the value of this taxonomy as it relates to research and practice. To operationalize capacity, we explored the literature from two differing perspectives (RTP and CC models). Our effort was focused on creating a useful taxonomy of capacity and reviewing theory and research and examining evidence that capacity is associated with successful change in practice and/or implementation of prevention. As a result, we propose that the concept of capacity be differentiated among two

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dimensions: *level* (individual, organizational, and community levels) and *type* (general capacity and innovation-specific capacity). We think that the ability to support changes in practice (either adoption of new practices or adaptation of existing practices) requires attention to a range of capacities. This article attempts to clarify and provide theory and research on these distinctions so that a broader framework for supporting change via capacity building can emerge.

The article is organized as follows. After presenting definitions of capacity, we describe and differentiate RTP and CC models. Each model takes a different perspective on how practice evolves. By examining both perspectives, it is presumed that a more comprehensive understanding of capacity will emerge. Second, we unpack the concept of capacity by describing the differences between innovation-specific and general capacity and the distinctions among individual, organizational, and community level capacities. Finally, recommendations for strengthening approaches to researching and building capacity will be given.

## Defining Capacity

Capacity is a complex construct, which has been defined in multiple ways. One relatively simple definition of capacity is: the skills, motivations, knowledge, and attitudes necessary to implement innovations, which exist at the individual, organization, and community levels (Wandersman et al. 2006). Others (e.g., Goodman et al. 1998) have offered parallel definitions of capacity, emphasizing the importance of skills, knowledge and ability. Significantly, there are other concepts in the field that have similar definitions (e.g., competency, readiness). Hoge et al. (2005) define a *competency* as “a measurable human capability...comprised of knowledge, a single skill or ability, or personal characteristic—or a cluster of these building blocks.” For example, there is attention focused on identifying and fostering workforce competencies in a number of health-related fields. While competencies are usually defined for individual performance rather than organizational or community functioning, competency closely parallels the general idea of capacity. Finally, the concept of *readiness* has been used primarily by research-to-practice (RTP) models to signify that the practitioner, organization, or community is prepared to successfully receive and implement an innovation (Edwards et al. 2000). Models of community readiness emerged from a literature outlining stages of individual readiness and strive to support effective program implementation (Edwards et al. 2000).

A comparison of characteristics defined as capacities, competencies, or readiness suggests that there may be significant overlap between these constructs. Definitions

converge and support the importance of understanding the knowledge, skills, abilities, attitudes, and motivation and, importantly, focus on identifying these factors at the individual, organizational, and community levels. The purpose of developing literatures on capacity, competency, and readiness is ultimately to improve practice, although there may be differing focus on type/level. Thus, we propose that these constructs, while distinct in their conception and use in the field, are actually quite similar in meaning and purpose. Therefore, efforts to bridge separate research in these areas should be fostered when appropriate. We have included research on competencies and readiness in our review of the literature on capacity, where it was applicable.

It is important to understand capacity in the current context of dissemination of innovations and sustainability of those innovations once they are implemented. In an era of increasing demands for accountability from private and public funding sources, sustainability has become a common expectation in prevention, treatment, and education efforts. A central premise is that efforts to promote the use of effective or evidence-based practices in new settings should not lead to dependence of those settings on the entities that promote or support the use of those practices. In other words, when programs, processes, principles, and policies are implemented in new settings, funders expect the setting to demonstrate that programs are implemented with quality, achieve anticipated results, and can be continued without reliance on external consultants or resources.

Recently, interest in capacity and capacity building as it relates to prevention has increased. Federal funding streams are targeting the development of “capacity building” efforts (e.g., CDC-DASH School Capacity Building Project, Georgetown TA center); however, these efforts are challenged by uncertainty about how to define capacity and how it should be developed. It is in this context for accountability and sustainability that the need for the Interactive Systems Framework for Dissemination and Implementation (ISF, Wandersman et al. 2008), and the centrality of capacity emerged. The ISF is a heuristic framework that identifies three systems that carry out the activities necessary to support the dissemination and implementation of prevention innovations. The development and use of different types of capacity are key activities identified by the ISF.

In order to develop the ISF, we examined the literature from two converging perspectives: the RTP perspective, which focuses on the means by which innovations (new programs, processes, and policies) are disseminated into new contexts, and community-centered models (CC), which focus on how practice emerges and changes in local contexts. The concept of capacity is a central feature of both models. Whether we are focusing on the way innovations are absorbed or are focusing on the way that

practice changes within settings, the knowledge, skills, abilities, attitudes and motivation that underlie practice are central to understanding how and when change in practice occurs.

### Comparing RTP and CC Models

As Wandersman (2003) notes, the dominant intervention science paradigm is a RTP model based on a biomedical approach developed at the National Institutes of Health. The model provides a sequence for producing high quality evidence demonstrating that an intervention works. The RTP model is based on a view of science that is first about describing a phenomenon (e.g., epidemiology or risk and protective factors) followed by experimentation with an emphasis on control and internal validity (efficacy trials). There is then a movement to generalizability (effectiveness trials) and then practitioner utilization. Thus, these models focus on how research is brought into practice and on the innovation source (Klein and Sorra 1996). The pressures and contingencies of academia and business support the production of innovation (e.g., something new). An example of an RTP model is the five box model described in the Institute of Medicine Report on Reducing Risks for Mental Disorders (Mrazek and Haggerty 1994).

Community-centered models offer a different approach to improving practice. Although authors have described different variations of CC models (e.g., Macauley and Nutting 2006; Miller and Shinn 2005; Mohrman et al. 2003; Sandler et al. 2005; Schorr 2003; Wandersman 2003; Wells et al. 2004), they all share a number of common elements. At their core, CC models are focused on the evolution of practice in local contexts. In contrast to RTP models, which are focused primarily on the source of innovations (e.g., university-based research systems), CC models emphasize the user of that source when conceptualizing dissemination (Klein and Sorra 1996). CC models emphasize the improvement of existing practice and service delivery over the introduction of something new. To better understand the differences between the RTP and CC perspectives, they are contrasted below in terms of perspective and focus.

#### Perspective

RTP models frame the adoption of innovation from the perspective of the researcher. Price et al. (1998) note that the dominant paradigms attempt to bring research to practice through either a technology transfer approach or a perfect replication approach. In the *technology transfer* approach, the innovation is a relatively fixed technology and the practitioner or organization is a passive recipient of the innovation and would adjust to the product. Alternately,

a *perfect replication* approach assumes that that if the research evidence is substantial (e.g., effectiveness trials) then the innovation should be adopted as in the original. In both approaches, the practitioner is seen as a relatively passive recipient of the science and the general approach is for the practitioner to deliver the intervention as prescribed (Wandersman 2003).

Alternately, CC models frame the movement of innovation from the perspective of the consumer or practice system; the practitioner perspective is instrumental to the improvement of practice. Wandersman (2003) explained that CC models “begin with the community and ask what it needs in terms of scientific information and capacity building in order to produce effective interventions” (p. 230). The community (or practitioner) is the primary and active actor in these models, rather than being the recipient of an innovation or product developed through research external to the unique context of a specific community.

#### Focus

In RTP models, the focus is on the transfer of knowledge, or best practices, from science to practitioners or communities. These models emphasize the control of independent variables and identification of main effects through statistical analyses. Local context is often seen as a barrier to implementing innovations with fidelity or as sources of “noise” or statistical error that adversely affect results. The research system values the strength of the research approach. The needs of the researcher include contributions to the science, career demands on the researcher (e.g., tenure and promotion), and funding requirements (e.g., criteria for funding and peer review structure). Resources include institutional support from the researcher’s institution and funding from government agencies and foundations to produce research that can be basic or applied, depending upon the funder.

In a CC model, the focus is on improving practice within the local context. The dissemination of an innovation is one potential method to improve practice, however practice may also improve in other ways (such as through the use of processes such as continuous quality improvement or the implementation of certain principles). The focus is not on the “product,” but on what the product is intended to do. Community-centered models are not necessarily focused on anything “novel” but emphasize improvement upon existing practice. Integral to these models is an appreciation of the needs and resources of the community and models are adapted to address the complex reality of communities (Wandersman 2003). The models consider what the needs of the community are and then look at the resources and capacity of the community to adapt innovations in a way that can meet these needs.

## Capacity

While different in perspective and focus, both RTP and CC models emphasize the importance of capacity in effectively improving practice. The consideration of capacity is essential given that a mismatch between program requirements and capacity to meet these requirements can lead to implementation failure or dissemination failure (Miller and Shinn 2005). Due to distinctions in perspective and focus, RTP and CC models place different weight on the value of innovation and interpret the success or failure of dissemination or changes in practice dissimilarly. Innovation is the *conditio sine qua non* of RTP models; researchers and research systems are driven to create novel concepts and technologies. From the CC perspective, it is reasonable to assume the practical side of change management favors adoption with the least amount of innovation. RTP models emphasize gaps in capacity at the practitioner or organizational levels when dissemination failure occur, while CC models highlight gaps in the innovation that did not wholly account for the specific needs and resources of the practitioner or organization.

These divergent perspectives then emphasize a different locus for possible solutions. RTP models argue that the practitioner or setting should change to better support implementation of the innovation, while a CC model would support adaptation of the innovation to better fit the needs and resources of the community or the adoption of a different innovation altogether. Thus, different attributions to the causality of dissemination failure lead to a chicken-and-egg problem and progress in the scientific and practical understanding of capacity is stalled. While RTP and CC models differ in many respects, they converge in understanding that the dissemination of innovation and implementation of changes in practice are complex and rely on different individual, organizational, and community capacities. It is this area of consensus between models that supports the construction of a more comprehensive capacity framework.

### Types of Capacity (General and Innovation-specific)

To better understand capacity, we find it helpful to distinguish between two types of capacity: general capacity and innovation-specific capacity. In reviewing the literature, we noted that these proposed types of capacity were rarely differentiated. Innovation-specific capacity refers to specific motivation and skills (at the individual level) and human, technical, and fiscal conditions (at the organizational level) which are necessary to successfully implement a particular innovation (Livet and Wandersman 2005). General capacity refers to skills or characteristics (at the individual level) and the overall functioning (at the

organizational and community levels) that are associated with the ability to implement or improve any innovation.

This is not a novel distinction. Howe et al. (1997) describe a continuum of capacity that reflects key differences between innovation-specific and general capacities. The lowest tier is the capacity to successfully deliver a particular program in response to an issue within the community, thus referring to innovation-specific capacity. The middle tier is the capacity to deliver the program and then sustain that program. The highest tier, which parallels the concept of general capacity, is the capacity not only to sustain a particular program, but also to identify new community problems as they arise and develop ways of addressing them.

The distinction between innovation-specific and general capacity emerges from questions of whether capacity is a “means to an end” (i.e., “merely” a way to improve the delivery of a particular program of interest) or whether increased capacity is a desirable end in and of itself (Labonte and Laverack 2001). General capacity building focuses on enhancing the infrastructure, skills, and motivation of an organization, but does not focus on a specific innovation. While this type of support does not directly assist with the adoption of specific innovations, research on organizational factors suggests that organizations that are functioning well are better able to implement innovations (Livet et al. 2008). General capacity building may take place in conjunction with support for implementation of a specific innovation, or as a separate activity not associated with dissemination activities. It is important to note that the literature, though sparse, supports the importance of general capacity building in the process of promoting effective prevention (see Livet et al. 2008). Importantly, both RTP and CC models emphasize the importance of capacity in the successful implementation of innovation and overlap in their emphasis on both innovation-specific and general capacity.

The distinction between general and innovation-specific capacities is heuristic and approximate. We accept that any particular capacity may have both general and innovation-specific attributes and that innovation-specific and general capacities overlap considerably. The distinction is further complicated by the growth of initiatives focused on developing general capacities. Systematic efforts to develop general capacities may represent innovations in and of themselves. For example, evaluation capacity building efforts such as Getting to Outcomes (GTO, see Chinman et al. 2008) and quality management efforts such as Quality Function Deployment (QFD; Smith-Daniels and Sandler 2008) may be considered innovations as they represent the introduction of novel strategies within the practice system; however, these efforts are intended to benefit multiple programs or initiatives within a practice system. When considering the *capacity* to implement GTO

or QFD, the distinction between innovation-specific and general capacity may still be useful.

#### Levels of Capacity (Individual, Organizational, Community)

Innovation-specific and general capacities can be discussed at the individual, organizational, and community levels. While individual, organizational and community levels of capacity are distinguished here and in the literature, these levels of capacity are closely inter-related. For example, an organization that has a highly trained and capable staff is likely to be functioning with a higher level of capacity than one where staff has less capacity. Viewing the same example at another level of analysis, it is also possible that organizations that have high levels of capacity may be better able to develop and retain individual staff members who are highly capable. However, it is important to remember that community, organizational, and individual levels are distinct levels rather than solely an aggregate of the level below; community capacity should not be conceptualized as solely the combined capacity of the organizations in that community (just as organizational capacity has unique elements outside of summed individual capacities).

The following sections provide information about capacity drawn from RTP and CC models. The information

is organized into general capacity and innovation-specific capacity at the individual, organizational, and community levels. Table 1 provides a summary the main elements of capacity in each of these areas. Tables 2–6 include more specific elements of general and innovation-specific capacity at the various levels and identify the sources that identify these elements. These elements are drawn from the literature examined, which includes a mix of empirical research (e.g. Kallestad and Olweus 2003), literature reviews (e.g. Greenhalgh et al. 2004), and theoretical conceptualizations of capacity (e.g., Goodman et al. 1998).

#### Individual Capacities

The capacities of *individual* members of organizations and communities play an important role in their ability to implement an innovation. While unified conceptualizations of community capacity and organizational capacity exist which identify specific elements theorized to be important to each construct, we have not found a sufficient description of individual capacity as it relates to the implementation of prevention programming. This lack of a unifying theoretical framework does not mean that individual level staff and administrator characteristics have not been identified or are not important. On the contrary, a number of empirical studies have identified different individual-level elements of importance (Amodeo and Gal

**Table 1** Elements of capacity and features affecting dissemination

	Innovation-specific	General
Individual	Understanding/Knowledge of innovation and the problem Perceived capacity to implement innovation Buy-in/Attitude toward innovation	Staff capability Staff background Staff openness
Organizational	Fit with organization Organizational support for innovation Organizational buy-in Technical assistance and training Capacity to evaluate innovation implementation and use	Effective leadership Clear vision/Mission Organizational structure Effective management style Organizational climate Resource availability Collective staff capability Community linkages/Relationships
Community		Leadership Participation and opportunities for participation Resources Connections among people and organizations Connections with outside communities and institutions Sense of community Norms and values Commitment Community power Community knowledge and skills

1997; Boehm and Litwin 1997; Cooke 2000; DiFrancesco et al. 1999; Ennet et al. 2003; Kallestad and Olweus 2003; MacDonald and Green 2001; Michel and Sneed 1995; Redman et al. 1987). Moreover, the expanding literature related to behavioral workforce competencies focuses entirely on necessary knowledge, skills, ability, and behaviors at the individual level (Hoge et al. 2005). Individual innovation-specific and general capacities are discussed in more detail below.

### *Individual Innovation-specific Capacities*

Both RTP and CC models appreciate the influence of individual, innovation-specific capacity on successful dissemination and implementation of prevention programming. Table 2 shows some individual level characteristics that are related to implementation of specific innovations. We have grouped these characteristics into three main components of individual level capacity: understanding, perceived capacity, and buy-in; these characteristics have also been used to describe individual competencies and/or readiness in different models.

For example, Schoenwald and Hoagwood (2001) describe several attributes of practitioners associated with the adoption of evidence-based treatment including the presence of specialized training, the discipline and status of the practitioner (professional, paraprofessional), the

**Table 3** Individual general capacity

Education level (Michel and Sneed 1995)
Staff attributes (growth, efficacy, adaptability) (Simpson 2002)
Absorptive capacity for new knowledge (Greenhalgh et al. 2004)
Tolerance of ambiguity (Greenhalgh et al. 2004)
Intellectual ability (Greenhalgh et al. 2004)
Motivation (Greenhalgh et al. 2004)
Values (Greenhalgh et al. 2004)

endorsement of the intervention model, incentives, and the anticipated longevity of intervention. In her Pathways Model, Schorr (2003) details the elements that are necessary for an intervention to be successful and the majority of them concern issues of capacity. She notes that a high level of technical competency among staff is a vital element of implementation and dissemination process.

Largely informed by Rogers' (1995) formative work, conceptual models of the adoption of innovation offer different types of individual capacities important across stages of adoption. Hall and Hord (2006) suggest that the degree to which individual concerns (which vary across stages of adoption) are addressed are important determinants of adoption. For example, in the Preadoption Phases (awareness, persuasion, and decision), potential adopters need to be aware of the innovation, what it does, how to use it, and how it will affect them (costs and benefits). During

**Table 2** Individual innovation-specific capacity

Understanding
Perception of the problem/Issue and the importance of intervening (Kallestad and Olweus 2003)
Awareness and knowledge of innovation (what it does, how to use it, how it will affect them (Hall and Hord 2006; Kallestad and Olweus 2003; Livet and Wandersman 2005; MacDonald and Green 2001)
Awareness of the organization's plan to adopt the innovation (Greenhalgh et al. 2004)
Continued access to information about innovation (Hall and Hord 2006)
Relevant professional education and specialized training (Boehm and Litwin 1997; Schoenwald and Hoagwood 2001)
High levels of technical competency (Schorr 2003)
Experience with similar activities/Interventions (Amodeo and Gal 1997; MacDonald and Green 2001)
Perceived Capacity
Perceived ability to implement the program (Cooke 2000; DiFrancesco et al. 1999)
Perceived complexity of the innovation (Rogers 1995)
Comfort with the delivery method (Ennet et al. 2003)
Buy-in
Attitude toward innovation (Livet and Wandersman 2005; MacDonald and Green 2001)
Endorsement of model (Schoenwald and Hoagwood 2001)
Commitment (Livet and Wandersman 2005)
Perception of the positive payoffs from the innovation (Livet and Wandersman 2005; Redman et al. 1987; Rogers 1995)
Anticipated outcomes of the innovation (Schoenwald and Hoagwood 2001)
Anticipated longevity of the innovation (Schoenwald and Hoagwood 2001)
Perceived incentives for using the innovation (Schoenwald and Hoagwood 2001)
Adequate feedback about consequences of adoption/Innovation (Hall and Hord 2006)

**Table 4** Organizational innovation-specific capacity

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Fit
Fit with goals, values, norms, and practices (Greenhalgh et al. 2004; Klein and Sorra 1996; Rogers 1995)
Fit with organizational and program needs (Greenhalgh et al. 2004; Simpson 2002)
Ability to adapt innovation to suit organizations' needs (Hall and Hord 2006; Rogers 1995)
Ability to select appropriate innovations (Fixsen et al. 2005)
Appropriate selection of staff to implement innovation (Fixsen et al. 2005)
Support
Strong administrative support (Elliot and Mihalic 2004)
Formal organizational commitment (Elliot and Mihalic 2004)
Commitment to provide necessary resources (Elliot and Mihalic 2004)
Climate for implementation of innovation (ensuring employee skill in innovation use, providing incentives, removing obstacles) (Klein and Sorra 1996)
Ability to support staff in implementation (training/support) (Hall and Hord 2006; Rogers 1995)
Ability to assist in sustainability of innovation (Fixsen et al. 2005)
Buy-in
Staff agreement on program values (Osher and Hanley 2001)
Type of decision making processes used to select innovation (Schoenwald and Hoagwood 2001)
Number and strategic placement of supporters in the organization (Greenhalgh et al. 2004)
Well-connected local champion (Elliot and Mihalic 2004)
Credibility of program within the community (Elliot and Mihalic 2004)
Potential for program sustainability (Elliot and Mihalic 2004)
Training and technical assistance
Technical capacities (access to information and program related materials, access to training & technical assistance materials) (Livet and Wandersman 2005)
Training needs (Simpson 2002)
Pre-service and in-service training (Fixsen et al. 2005)
Supervision (frequency, nature, functions) (Schoenwald and Hoagwood 2001)
Ongoing consultation and coaching (Fixsen et al. 2005)
Evaluation capacity
Presence of systems and skills to evaluate the effect and relative advantage of the innovation (Fixsen et al. 2005; Greenhalgh et al. 2004)
Ability to develop a monitoring system (Fixsen et al. 2005)

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early use (implementation), potential adopters need to have continued access to information about what the innovation does along with training and support. Established users need adequate feedback about the consequences of adoption and opportunity to adapt and refine the innovation.

In sum, the studies provide some important characteristics that may facilitate the successful implementation of innovation, though further research in this area is needed. Because most studies focused on gaining a retrospective understanding of user-specific characteristics that support the successful adoption of innovation, findings are somewhat limited. What clearly emerges from this literature is that individual readiness (i.e., individual characteristics like motivation *and* individual skills/abilities) does affect the movement of innovation. The ISF highlights the fact that application of these individual level capacities is necessary for the functioning of the prevention delivery system.

### *Individual General Capacities*

Research has identified individual level characteristics and roles which are associated with general ability to function within an organization and to use innovations or adjust to changes in practice. Table 3 provides an overview of some of the literature suggesting that individual general capacities impact the implementation and dissemination process.

Individuals within an organization are likely to take on different roles; the successful execution of these roles promotes change. Additionally, as individual and personality characteristics are likely to influence the role each individual takes on, another level of practitioner-specific variability arises. Rogers (1995), for example, discusses how the roles individuals play are influenced by their level of education and economic freedom. Thus, while there are specific roles for people in the adoption of innovation, person-specific characteristics may heavily determine who

**Table 5** Organizational general capacity

## Leadership

Leadership development, Board development and Management (Fredericksen and London 2000; Livet and Wandersman 2005; Miller et al. 2003)

Clear, Articulated vision/Mission statement (Fredericksen and London 2000; Greenhalgh et al. 2004; Miller et al. 2003; Simpson 2002)

Strength of leadership (Greenhalgh et al. 2004)

## Organizational structure/Management style

Size, maturity and specialization of the organization (Greenhalgh et al. 2004)

Centralization (Livet and Wandersman 2005)

Flexibility/Formalization (Livet and Wandersman 2005)

Complexity (Livet and Wandersman 2005)

Intra-agency communication (Livet and Wandersman 2005; Simpson 2002)

Collaboration (Livet and Wandersman 2005)

Staff and department autonomy (Greenhalgh et al. 2004; Simpson 2002)

Written policies and procedures (Fredericksen and London 2000)

Planning activities as evidenced by a strategic plan (Fredericksen and London 2000)

Written goals and objectives (Fredericksen and London 2000)

Managerial relations (Greenhalgh et al. 2004)

Decentralized decision making (Greenhalgh et al. 2004)

Clarity on staff roles (Fredericksen and London 2000; Livet and Wandersman 2005)

Ability to retain skilled staff (Frederickson and London 2000)

Human resources and volunteer management (Frederickson and London 2000; Miller et al. 2003)

## Organizational climate

Fit between staff & the organization (Livet and Wandersman 2005)

Receptive context for change (Greenhalgh et al. 2004; Simpson 2002)

Staff cohesion (Simpson 2002)

Perception that current situations/Practices are intolerable—tension for change (Greenhalgh et al. 2004; Simpson 2002)

Tolerance for experimentation and risk taking (Greenhalgh et al. 2004)

Understanding of strengths, weaknesses (Fixsen et al. 2005)

Ability to build support and buy-in from staff (Fixsen et al. 2005)

Facilitative administrative support (Fixsen et al. 2005)

## Resource availability

Fiscal development & grant writing (Livet and Wandersman 2005; Miller et al. 2003)

Formal budget and financial statements (Fredericksen and London 2000)

Sources and predictability of funds (Fredericksen and London 2000)

Adequate facilities and equipment (Simpson 2002)

Organizational/Staffing ability (Elliot and Mihalic 2004; Simpson 2002)

Adequate training (Simpson 2002)

Adequate infrastructure and support (Fredericksen and London 2000)

Availability of resources for new projects (Greenhalgh et al. 2004)

Presence of data capture systems (Greenhalgh et al. 2004)

Compensation for staff (Frederickson and London 2000)

## Staff capacity

Staff skills, education, and expertise (Fredericksen and London 2000; Livet and Wandersman 2005)

## External relationships

Community participation in board selection (Fredericksen and London 2000)

Community support for the board (Fredericksen and London 2000)

Board and staff representative of community demographics (Frederickson and London 2000)

Inter-organizational networks, collaborations (Greenhalgh et al. 2004; Livet and Wandersman 2005)

**Table 6** Community capacity

## Leadership

Leadership (Edwards et al. 2000; Goodman et al. 1998; Labonte and Laverack 2001)

Pluralistic Leadership (Zimmerman 2000)

## Participation &amp; opportunities for participation

Participation (Eng and Parker 1994; Goodman et al., 1998; Labonte and Laverack 2001)

Opportunities for citizen participation (Zimmerman 2000)

Machinery for facilitating participant interaction and decision-making (Eng and Parker 1994)

Settings for citizen involvement (Zimmerman 2000)

Open government structure (Zimmerman 2000)

## Resources

Resources (Edwards et al. 2000; Goodman et al. 1998; Mendel et al. 2004; Sabol et al. 2004)

Resource mobilization (Labonte and Laverack 2001)

Resources accessible to all residents (Zimmerman 2000)

## Connections among people and organizations

Social & Inter-organizational networks (Goodman et al. 1998)

Links with others (Labonte and Laverack 2001)

Social support (Eng and Parker 1994)

Community linkages (Mendel et al. 2004)

Community networks of civic participation (Putnam 1993)

Well connected organizations (Zimmerman 2000)

Connections within and across spheres of social control (Sabol et al. 2004)

## Connections with outside communities and institutions

Connections with outside communities and institutions (Sabol et al. 2004)

Role of outside agents (Labonte and Laverack 2001)

Management of relations with wider society (Eng and Parker 1994)

## Sense of community

Community trust (Goodman et al. 1998)

Sense of community (Putnam 1993; Sabol et al. 2004; Sampson et al. 1997)

Community climate (Edwards et al. 2000)

## Norms and values

Community values (Goodman et al. 1998)

Community norms and attitudes (Mendel et al. 2004)

Community norms (Putnam 1993)

## Commitment

Commitment (Eng and Parker 1994)

Willingness to intervene for the common good (Sabol et al. 2004; Sampson et al. 1997)

## Community power

Community power (Goodman et al. 1998)

Program management by the community (Labonte and Laverack 2001)

## Community knowledge and skills

Skills (Goodman et al. 1998)

Understanding of community history (Goodman et al. 1998)

Problem assessment (Labonte and Laverack 2001)

Critical reflection (Goodman et al. 1998)

Asking why (ability to critically assess causes of inequalities) (Labonte and Laverack 2001)

Residents' participatory skills (Zimmerman 2000)

Clarity of situational definitions (Eng and Parker 1994)

Knowledge about the problem (Edwards et al. 2000)

Community knowledge of existing prevention efforts (Edwards et al. 2000)

Articulateness/Communication (Eng and Parker 1994)

Conflict containment and accommodation (Eng and Parker 1994)

ultimately plays which roles. Similarly, competency research suggests that personal characteristics such as flexibility and compassion impact quality service provision across health-related fields (Hoge et al. 2005).

### Organizational Capacities

We have conceptualized *organizational capacity* as the characteristics that an organization needs in order to function and successfully carry out activities like prevention innovations. Researchers have identified different key elements of organizational capacity based on experience in the field and reviews of relevant literature (Elliot and Mihalic 2004; Frederickson and London 2000; Greenhalgh et al. 2004; Klein and Sorra 1996; Livet and Wandersman 2005; Miller et al. 2003; Simpson 2002).

Certain elements of organizational capacity are identified in all or most of these theories of organizational capacity. The aggregate characteristics of an organization's staff and the way that staff and volunteers relate to each other are clearly viewed as important components of capacity. Leadership and sufficient technical and fiscal resources for implementation are other organizational characteristics identified as important in many of the theories described here. There are also some important differences in the theoretical perspectives described. For example, organizational commitment or readiness to implement a given intervention is identified by some theorists (e.g., Livet and Wandersman 2005; Simpson 2002). Others ignore innovation-specific capacities in lists of important organizational capacities (Frederickson and London 2000; Miller et al. 2003).

While the conceptualizations described here are not exhaustive, we provide some recent examples relevant to the ISF. Tables 4 and 5 provide a comparison of the different elements identified, and highlights some of the common elements of these different conceptualizations. We divided the elements identified into innovation-specific and general capacities.

#### *Organizational Innovation-specific Capacities*

At the organizational level, adoption and implementation of a specific innovation often entails formal procedures for decision making, evaluation, and sustainability. Most studies of organizational adoption of innovations suggest that the process of adoption is complex, organic, and messy (Greenhalgh et al. 2004). Table 4 outlines the organizational innovation-specific capacities identified through the literature review including fit, support, buy-in, training and technical assistance, and evaluation capacity.

The literature on innovation adoption offer several indicators of system readiness for the adoption of specific

innovations including the perception that current situations/practices are intolerable (tension for change); access to information about the innovation and organizational support for implementation; the fit with existing organizational goals, norms, values, and practices; the number and strategic placement of innovation supporters within the organization; the presence of systems and skills to evaluate the effectiveness and relative advantage of the innovation (DiFranceisco et al. 1999; Greenhalgh et al. 2004; Kallestad and Olweus 2003; Redman et al. 1987).

In addition, inter-organizational networks, collaborations, and other features of the outer context affect movement of innovations. For example, awareness of the proportion of comparable organizations that plan to adopt an innovation influences the decision to adopt an innovation. Political directives such as policy mandates and intentional dissemination strategies can also influence the decision to adopt.

#### *Organizational General Capacities*

Both RTP and CC models emphasize the importance of organizational capacities in the implementation and dissemination process. A review of the literature reveals that while differences in terminology prevail across and between models, there is strong and consistent support for the impact of organizational capacities on this process. Table 5 reviews general organizational capacities identified in the research: leadership, organizational structure/management style, organizational climate, resource availability, staff capacity, and external relationships.

Researchers have linked a variety of organizational characteristics that have been identified as components of capacity to successful implementation. Some of these factors have to do with organizational structure and management style, including size (DiFranceisco et al. 1999; Greenhalgh et al. 2004; McCormack et al. 1995; Ringwalt et al. 2002), maturity (Greenhalgh et al. 2004), specialization (Greenhalgh et al. 2004), and organizational structure such as decentralized decision-making (Cooke 2000; Greenhalgh et al. 2004; Kallestad and Olweus 2003; Lempa et al. in press). Others have to do with leadership, including having strong leadership (Greenhalgh et al. 2004; Lempa et al. in press) and clearly articulated program goals/vision (Greenhalgh et al. 2004; MacDonald and Green 2001). Organizational climate (Glisson and Hemmelgarn 1998; Greenhalgh et al. 2004; McCormack et al. 1995 Simpson 2002) has also been identified as important, particularly the sense that the current situation is not tolerable, leading to tension supportive of change, and organizational openness to risk-taking.

An additional important factor is having resources available for innovation (Greenhalgh et al. 2004; Simpson

2002). Greenhalgh et al. (2004) characterize a combination of these factors (strength of leadership, clarity of vision, managerial relations, positioning of visionaries, tolerance for experimentation and risk-taking, and presence of data capture systems) as a receptive context for change. In addition, Greenhalgh et al. (2004) identified the ability to identify and interpret new knowledge, to link it to existing knowledge, and to put it to appropriate use as an essential element of organizational capacity (which they call absorptive capacity for new knowledge).

In their systematic review of the literature on dissemination in the field of health service delivery, Greenhalgh et al. (2004) note that these findings should be interpreted with some caution, as organizational factors likely interact with other factors (like the qualities of the innovation itself). While these determinants represent an organization's general openness to innovation, they may not indicate willingness to adopt a particular innovation. This suggests that it is important to consider an organization's innovation-specific capacity as well as general organizational capacity when looking at dissemination and implementation.

### Community Capacity

Organizational capacity is integrally linked to the capacity of the community an organization is located within. Likewise, the capacity of communities is tied to the capacity of the human services organizations that operate within them. While these two levels of capacity are interrelated, it is important to keep in mind that they are not identical. In this section, we review the literature on community capacity.

Community capacity has been conceptualized in several different ways (Goodman et al. 1998; Labonte and Laverack 2001; Mendel et al. 2004; Sabol et al. 2004). In addition, we identified several constructs closely related to community capacity, including *community competence* (Eng and Parker 1994), *community readiness* (Edwards et al. 2000), *community empowerment* (Zimmerman 2000), *collective efficacy* (Sampson et al. 1997), and *social capital* (Putnam 1993). Table 6 shows some key elements of community capacity as conceptualized by these authors. Most of these conceptualizations focus on the importance of connections within the community, both at the individual level (social connections, social support) and at the organizational level (networking between organizations, as well as formal coalitions). Most also emphasize the importance of community resources. Some focus more on factors such as community leadership, participation of community members, and sense of community (e.g. Goodman et al. 1998; Labonte and Laverack 2001). Others focus more on trust between individuals within a community and the willingness of individuals within a community to intervene directly in community problems and promote

social control (e.g. Sabol et al. 2004; Sampson et al. 1997). The elements of community capacity identified in the literature fall within the definition of general capacities. It is difficult to conceptualize how innovation-specific and general capacities might differ at the community level. For that reason, community capacities are not yet differentiated according to this distinction in this section.

We were able to identify only a few empirical studies of constructs related to community capacity (Eng and Parker 1994; Engstrom et al. 2002; Feinberg et al. 2004; Lochner et al. 1999; Sampson et al. 1997) and we are not currently aware of any studies that show that elements of community capacity predict improved prevention implementation. Lempa et al. (in press) and Chinman et al. (2005) note that the important elements of community capacity so far identified come from the anecdotal evidence of experts engaged in capacity building rather than empirical study. This is not surprising considering the fact that the majority of these conceptualizations have been developed within the past 10 years. Several studies on related constructs have yielded interesting results. Feinberg et al. (2004) report that community readiness is correlated with both coalition functioning and perceptions of coalition effectiveness, which suggests that examining community readiness for prevention may provide one useful way of preparing for implementation of community level interventions. Research on social capital and collective efficacy suggests that communities with high levels of these qualities are likely to have better outcomes (Lochner et al. 1999; Sampson et al. 1997).

While the empirical research on community capacity is limited, community capacity at its core is the ability of the community to identify and address or prevent existing problems. In theory, communities with greater capacity should be better able to support and maintain a prevention delivery system. Such a community would likely include organizations that are able to implement prevention innovations and that have the support of the community to do so. The findings of Feinberg et al. (2005) provide some empirical evidence in support of this assertion, though more research in this area is clearly needed.

### Summary and Discussion

The categorization of capacities according to level and type builds upon several existing frameworks for conceptualizing capacity and capacity building. As mentioned above, the distinction between innovation-specific and general capacity emerges out of a continuum of operational levels of capacity building described by Hawe et al. (1997). The distinction between innovation-specific and general capacities reflects the varied perspectives on organizational change that emerge from RTP and CC models.

Researchers are driven to innovate. The contingency mechanisms of academia and private sector research drive the development of novel products and technologies. As such, concerns around dissemination and implementation focus on the motivation and ability to absorb skills and knowledge related to the products of the research systems. In contrast, CC models focus on the ways that practice evolves in the community. Evolution in the community favors improvement over innovation. That is, a service provider seeks to strengthen practice efficiently. We believe that a taxonomy of capacity that embraces both models' perspectives of capacity has value in improving both research systems and communities.

### Research to Practice Models and Capacity

As noted previously, the bias toward innovation that drives academia and private sector research systems leads to emphasis on innovation-specific capacity, in particular the tools, skills, motivations, and knowledge associated with a particular program or service. This pro-innovation bias in capacity building affects organizations tasked with bringing innovations to scale. For example, content typically addressed in efforts to train providers usually focuses on individual skills (e.g., ability to deliver components of a violence prevention curriculum) or organizational elements (e.g., the presence of a “champion” supporting the innovation). General capacities that have implications for the delivery of evidence-based innovations are rarely addressed by the producers of specific prevention innovations.

Our capacity taxonomy offers the opportunity to expand the range of capacities that can be built and measured during efforts to support implementation of programs, processes, principles, and policies. By including general capacities in conceptualizing the process of implementation, researchers and institutions supporting dissemination of evidence-based practices may increase the probability of successful implementation of prevention programs. For example, strategies of assessing and enhancing community readiness could be added to training protocols and processes in order to promote attention to this community level capacity.

In prevention, education, and health programming, it is widely acknowledged that programs that meet the criteria to become “evidence-based” rarely achieve the level of outcomes attained during research trials when scaled up for dissemination. The absence of attention to general capacity may be a cause of the frequent failure to achieve potential.

### Community-centered Models and Capacity

Due to survival and political realities, CC models tend to emphasize the importance of general organizational

capacity. For example, when looking at how an organization can improve service delivery, the staff may consider what the organizational strengths are and build upon them. If an organization has a strong reputation for community collaboration, it may build this capacity by strengthening their community advisory board and involving community members in the development of a program. However, by focusing only on general capacity, the organization may neglect to focus on integrating new practices in the research literature into their services. Or an organization may focus solely on improving the functioning of the organization and ties with the community and fail to examine the effectiveness or quality of a particular program.

Consider this example of how the consideration of both types of capacity can improve a program. A local parenting program has a strong community reputation for dedicated staff and a focus on the needs of the parents. The program has two sites and the staff works hard to tailor the services at each site to the needs of the parents that attend. However, in order to ensure that the parents are receiving high quality parenting training, the staff also researches the effectiveness and viability of various parenting curricula. They settle on two curricula that they pilot with a group of the parents to assess the cultural compatibility of the curricula. Once they have chosen one curriculum, the staff receives training from a national organization, enabling staff to train other providers in the area. They then integrate the best practice parenting curriculum while still allowing for each of the sites to tailor the format and content of the overall program to the needs of the parents at each site. By considering both general capacity and innovation-specific capacity, the program was able to provide high quality services in an effective way that fit the needs of its consumers.

### Conclusion

In this article, we propose a taxonomy of capacity that uses the categories of type (innovation-specific and general) and level (individual, organizational, and community). These types and levels of capacity emerge from an analysis of the existing literature on dissemination and implementation of innovations and on RTP models and CC models. RTP models take the perspective of researchers, prioritize scientific evidence, are biased toward innovation, and are influenced by the resources and needs experienced within academic settings. In contrast, CC models emphasize the perspective of practitioners, prioritize evidence of the ability to adapt to shifting demands, are biased toward improvement of existing practice, and are shaped by changing demands and resources of the practice context (e.g., shifting funding and policy priorities). While

seemingly different, these two models converge around the concept of capacity. That is, both models indicate that specific and general knowledge, motivations, and skills at the individual, organizational, and community levels are critical determinants of changing practice.

A key point is that the perspective taken (i.e., RTP or CC) influences the relative emphasis on general capacity or innovation-specific capacity building. From the RTP perspective, innovation-specific capacities are prioritized and, generally, are the focus of training and technical assistance. By contrast, CC models favor capacities that assist with addressing the changing demands of their organizational and context. Our analysis suggests that both types of capacity are critical to implementation of evidence-based practices.

There are several important caveats that should be addressed. First, it should be noted that the taxonomy is approximate. It has the same limitations as any categorization that attempts to reduce a complex construct into specific components. During the construction of the taxonomy, we experienced some difficulty coming to agreement about key components, not the least of which was distinguishing organizational and community capacity. Our goal was to identify innovation-specific and general capacities that were distinct to each level, but there is significant overlap in how capacities are conceptualized.

This challenge is exacerbated by differences in terminology within and across the diverse literatures reviewed for this article. Every field develops a unique vocabulary, as is evidenced by the multiple definitions of capacity. Therefore, when attempting to articulate different components of capacity specified in these fields, it is possible that jargon hampered our full understanding of the concepts presented. Despite this limitation, we propose that the diverse literatures reviewed for this article expands its utility and more fully addresses the overarching goal of increasing the conceptual and definitional clarity of capacity. Future refinements of the taxonomy should address these limitations to maximize its utility. Still, the taxonomy identifies meaningful components of capacity drawn from both Research-to-Practice and Community-centered models that are useful in supporting dissemination and implementation of prevention innovations.

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