Using organization theory to understand the determinants of effective implementation of worksite health promotion programs

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Abstract

The field of worksite health promotion has moved toward the development and testing of comprehensive programs that target health behaviors with interventions operating at multiple levels of influence. Yet, observational and process evaluation studies indicate that such programs are challenging for worksites to implement effectively. Research has identified several organizational factors that promote or inhibit effective implementation of comprehensive worksite health promotion programs. However, no integrated theory of implementation has emerged from this research. This article describes a theory of the organizational determinants of effective implementation of comprehensive worksite health promotion programs. The model is adapted from theory and research on the implementation of complex innovations in manufacturing, education and health care settings. The article uses the Working Well Trial to illustrate the model’s theoretical constructs. Although the article focuses on comprehensive worksite health promotion programs, the conceptual model may also apply to other types of complex health promotion programs. An organization-level theory of the determinants of effective implementation of worksite health promotion programs

As the field of worksite health promotion has matured, the science supporting the field has moved toward the development and testing of more comprehensive approaches to improving employee health. Comprehensive approaches can take several forms, including (i) integrating worksite health promotion, occupational health and safety and health care and disease management programs [1–6], (ii) targeting health behaviors with interventions operating at multiple levels of influence [7–11] and (iii) addressing multiple determinants of workplace health, including work conditions and related stressors [12–16]. The movement toward comprehensiveness—evident in the United States, Canada, Australia and Europe—is supported by a growing body of theory and research indicating that employee health results from a complex interplay of intrapersonal, interpersonal, organizational, community and cultural factors [5, 17–21]. Results from randomized controlled trials suggest that comprehensive worksite health promotion programs can produce meaningful changes in employee health [22–26].

While theory and research on worksite health promotion have advanced significantly, theory and research on implementation have not kept pace. The disjuncture in the state-of-the-science in these two areas poses problems for researchers and practitioners alike. Comprehensive worksite health promotion programs are complex and challenging to implement [27, 28], even within the supportive context of an intervention trial, where research staff members bear a significant portion of the
implementation burden. This disjuncture arises, at least in part, because health promotion researchers have focused less attention on implementation than they have on efficacy, adoption, diffusion or even sustainability [29–34]. Observational and process evaluation studies have identified factors that facilitate or impede the implementation of worksite health promotion programs, such as leadership support, employee involvement and training [11, 35–37]. Yet, these study findings have not been integrated into a theory of implementation that predicts or explains how these and other factors individually and jointly determine implementation success, whether some factors are more important than others under different conditions or how implementation processes and outcomes reinforce or undermine these factors. Worksite health promotion research informed by such a theory, however, could strengthen the evidence base for guiding implementation efforts inside and outside randomized controlled trials.

This paper presents a theory of the determinants of effective implementation of complex innovations in organizations. Developed by Klein and her colleagues [38–40] in their investigations of information technology implementation in manufacturing settings, the theory has been adapted, tested and refined by researchers examining the implementation of various complex innovations in businesses, schools, clinical research networks and other organizational settings [39, 41–43]. The theory is suitable for studying innovations where (i) organizational members cannot adopt the innovation until the primary adoption decision has occurred at a higher level of authority; (ii) implementation requires specialized training, resource allocation and support and (iii) active, coordinated innovation use by many organizational members is necessary for the innovation to generate benefits for the organization that adopts the innovation [38, 41, 44]. Comprehensive worksite health promotion programs typically possess these characteristics.

Although the paper focuses on the implementation of comprehensive worksite health promotion programs, the theory it presents could also be used to study the implementation of other complex health promotion programs possessing these characteristics. Examples include multifaceted obesity interventions in middle school settings, HIV prevention programs in local health departments and cancer risk reduction programs in African-American churches. The more complex the health promotion program, the greater the potential utility of the theory for studying implementation processes and outcomes.

What is a theory of implementation?

A theory uses concepts and arguments to describe a causal change of events that produce an outcome of interest. ‘Implementation’ can be defined as a course of action taken to put into use an idea, decision, procedure or program [38, 45–47]. When putting something new into use, the immediate outcome of interest is initial use or early use. A theory of implementation, therefore, uses concepts and arguments to predict or explain how courses of action taken to put an idea, decision, procedure or program into use result in observed patterns of initial use or early use.

A theory of implementation can be distinguished from a program theory, a program planning model and a theory of innovation adoption and diffusion. A program theory predicts or explains how a program works or is supposed to work [48]. It explains how or why program activities (i.e. interventions) address the determinants of a problem and generate observed or desired program outcomes (e.g. improved health). An implementation theory predicts or explains implementation success. It explains how or why implementation activities (e.g. planning, training and resource allocation) generate observed or desired program use (e.g. employee participation in program activities). A good program theory can explain how and why a comprehensive worksite health promotion program reduces cancer risk, yet say little about how or why some organizations implementing such a program achieve more consistent, high-quality and appropriate program use than others do.

A program planning model is a tool designed to help researchers and practitioners identify high-quality programs, prioritize program options based
on population needs and interests and develop a plan for program implementation and evaluation [49, 50]. A program planning model is not intended for use as a theory of implementation. It does not offer a set of concepts and arguments that can be translated into testable hypotheses to predict or explain how or why different implementation activities produce differences in program use or outcomes. Instead, a program planning model is intended as a practical guide. It describes step-by-step procedures for program development, deployment and evaluation. While valuable for guiding practice, a program planning model has limited usefulness for guiding implementation research.

Finally, a theory of innovation adoption is distinguishable from a theory of implementation. Adoption, according to Rogers [46, p. 177], is ‘a decision to make full use an innovation as the best course of action available’. Implementation is the process (the course of action) of putting an innovation into use. As Rogers [46, p.179] points out, ‘Until the implementation stage, the innovation-decision process has been a strictly mental exercise of thinking and deciding. But implementation involves overt behavior change as the new idea is actually put into practice.’ In a sense, then, adoption is a behavioral intention. Most studies of innovation diffusion blur the distinction between the cognitive (decisional) aspects of adoption and the behavioral aspects of implementation. Such blurring is not problematic if the transition from decision to action is relatively simple and straightforward, which is often, although not always, the case with respect to ‘individual’ behavior. With respect to ‘organizational’ behavior, the transition from decision to action is not at all straightforward. In organizations, those who make the adoption decision often are not directly involved in implementing the decision. Moreover, implementation itself often involves collective behavior change by many employees. Thus, in organizations, the adoption–implementation gap can be quite substantial. In a sense, a theory of implementation picks up where a theory of adoption leaves off. It seeks to explain and predict what happens after the adoption decision takes place.

Taking an organizational perspective on implementation

We regard the implementation of comprehensive worksite health promotion programs as an organizational act and view the successful implementation of such programs as an organizational issue. We focus on the organizational level of analysis—and, hence, offer an organization-level theory of implementation—for three reasons. First, organizations typically employ what Rogers [47] calls an ‘authority-based innovation decision process’. The authority to decide whether or not an organization will adopt a comprehensive worksite health promotion program rests in the hands of a few individuals, usually senior managers [51]. The hierarchical structure and division of labor found in many organizations often produce a differentiation of decision makers, program implementers and program users. This differentiation, in turn, generates organizational dynamics relevant to a theory of implementation. Second, implementing a comprehensive worksite health promotion program is a collective endeavor; it is not something that individual employees can do independently or without assistance. Due to job specialization and task interdependence, implementation activities (e.g. planning, promotion, training, resource allocation, pilot testing) must be coordinated and synchronized for employees working in different functional departments, work shifts and work locations. Organizational issues such as administrative coordination, resource allocation and technical support are germane to a theory of implementation. Finally, senior managers expect, or at least hope, that comprehensive worksite health promotion programs will produce ‘collective’ benefits, such as improved workforce health, improved productivity or lower health care costs. Collective benefits result from collective program use. Even the personal benefits that individual employees realize depend to some extent on collective program use. Protection from workplace accidents, for example, can depend on collective use of safety procedures. Continued availability of program components (e.g. support groups, exercise classes and health food choices)
can also depend on collective use. When collective use is important, it makes sense to conceptualize implementation effectiveness as organization-level construct and focus attention on organization-level determinants.

**An organizational theory of implementation effectiveness**

Organizations implementing comprehensive worksite health promotion programs face two key tasks: (i) adapting the program and the organization to each other in order to achieve a strong fit, or at least a reasonable degree of compatibility [52] and (ii) building targeted employees’ acceptance of and involvement in the program [38]. ‘Targeted employees’ include those expected to use the program directly (users) and also those expected to support the program’s use (implementers). These two groups may overlap in whole, in part, or not at all.

We view a comprehensive worksite health promotion program as a complex innovation. A complex innovation is a new idea, practice, program or technology whose implementation requires collective action and whose use entails collective behavior change. Figure 1 depicts our theory of implementation. We propose that effective implementation is a function of the organization’s readiness for change, the quality of the implementation policies and practices that the organization employs, the climate for implementation that results and the degree to which targeted employees perceive innovation use as congruent with their values. Organizational benefits result from effective implementation provided the innovation was initially efficacious and remains so during implementation. Implementation outcomes, in turn, have implications for continuing and future implementation efforts.

To illustrate the theoretical constructs associated with implementation effectiveness, we consider the national Working Well Trial, the largest federally funded worksite cancer prevention trial in the United States (1989–2004). The Working Well Trial involved 111 worksites based at four study centers (Harvard/Dana Farber Cancer Institute, Brown/Miriam Hospital, MD Anderson Cancer Center and University of Florida). Worksites randomized into the experimental groups received a 2-year comprehensive health promotion intervention aimed at reducing cancer risk by increasing employees’ consumption of dietary fiber and reducing consumption of dietary fat and use of tobacco products and changing the worksite environment to support these employee health changes. We use the

![Figure 1](image.png)

Fig. 1. Determinants of implementation effectiveness.
Working Well Trial to provide a common frame of reference and to reduce the level of abstraction in the model description that follows.

Organizational readiness for change

Organizational readiness for change refers to the extent to which targeted employees (especially the implementers) are psychologically and behaviorally prepared to make the changes in organizational policies and practices that are necessary to put the innovation into practice and to support innovation use. As noted earlier, implementing complex innovations usually entails making a host of interrelated changes in organizational structures and activities. In the Working Well Trial, for example, implementing the smoking intervention entailed organizing an employee advisory board (EAB); identifying the original smoking policy (if one existed) and its level of enforcement; drafting new, more restrictive smoking policies that were state-of-the-science and acceptable to the EAB; creating a communication plan to inform employees of the new policy and the consequences associated with violations of the policy; implementing the new policy by distributing no smoking signs; removing ashtrays; installing smoke detectors; informing visitors of the new policy; monitoring compliance with the policy; enforcing the policy; conducting educational campaigns to raise awareness of the risks of secondhand smoke; and offering a variety of smoking cessation opportunities to assist smokers who may be prompted to quit as a result of the new policy (e.g. offering self-help programs, nicotine replacement drugs, self-assessment and feedback and contests to encourage smoking cessation).

Organizational readiness to make changes such as these is reflected in the level of change commitment and change efficacy. Similar to Bandura's notion of collective efficacy [53], change efficacy refers to targeted employees' shared beliefs in their collective capabilities to organize and execute courses of action that will lead to successful implementation. These shared beliefs result from targeted employees' common exposure to external and internal stimuli, including past performance in implementing change [54, 55]. As with change commitment, we emphasize shared beliefs and collective (or group-referenced) capabilities because implementation entails collective action among interdependent individuals and work units. As Bandura and others note [56–58], efficacy judgments refer to action capabilities; they are not about outcome expectancies or assessments of knowledge, skills or resources [56]. Change efficacy is higher when people share a sense of confidence that collectively they can implement a complex innovation (e.g. a new smoking policy as part of a comprehensive worksite health promotion program).

Organizational readiness for change is innovation specific. An organization can exhibit high readiness with respect to one innovation and low readiness with respect to another. For example, during the Working Well Trial, the Environmental Protection Agency categorized secondhand smoke as a Class A carcinogen. That larger social contextual influence prompted employers to consider implementing more restrictive smoking policy changes, thus putting the organization at a level of high readiness to change. However, during that same time period, many of the same organizations were not aware or concerned about having healthy foods available in the cafeteria or vending machines. Thus, they exhibited low readiness to change related to access to healthy foods while exhibiting a high level of readiness to change the smoking policy. We posit that organizations that exhibit high readiness are more likely than those that exhibit low readiness for change to initiate the changes in organizational structures, policies and practices that are necessary...
to support innovation use and to do so more effectively.

Implementation policies and practices

Implementation policies and practices refer to the plans, practices, structures and strategies that an organization employs to put the innovation into place to support innovation use [38]. Implementation policies and practices are the means by which an organization assimilates an innovation in order to achieve an acceptable level of operational, cultural and strategic fit. The assimilation process, as others have noted, entails a mutual adaptation of the innovation and the organization [52, 59]. Some implementation policies and practices are temporary measures that intentionally or naturally disappear when the organization reaches desired levels of innovation use. Others remain in place long after the implementation phase in order to support and reinforce continued innovation use.

Organizations can make use of a rich inventory of implementation policies and practices including training and technical support, rewards or incentives, persuasive communications, end-user participation in decision making, workflow or workload changes, alterations in staffing levels or mix, new reporting relationships and/or documentation, monitoring or enforcement policies/procedures. The Working Well Trial smoking intervention illustrates a variety of interrelated implementation policies and practices that worksites can employ to deploy a worksite health promotion program and support program use. Some of these implementation policies and practices were explicitly defined as ‘intervention strategies’, such as working with the EAB to facilitate drafting the new policy, creating a comprehensive communication plan and timetable, creating employee engagement and soliciting employee input on the implementation of the policy. Other implementation policies and practices were perhaps less obvious, but no less important, such as adjustments to employees’ work schedules to permit participation in smoking cessation programs that were offered, and related alterations in unit workload, workflow and production levels to accommodate these demands. In addition, budget redeployment to support the program and its implementation was carried out.

Because fit is context dependent, the specific implementation policies and practices needed to support putting an innovation into practice and support its use may vary considerably by innovation and across organizations. For example, training may be essential when asking cafeteria workers to change recipes so that healthier foods can be served in the cafeteria. However, training may not be necessary to enact a restrictive smoking policy. Likewise, for a given health promotion program (e.g. creating access to healthier foods at work), training may be critical for some worksites (given existing knowledge and skill levels), but less so for others. Generally speaking, the more implementation policies and practices, the better 38. However, the presence of some high-quality practices and policies may compensate for the absence or low quality of other policies and practices. For example, high-quality in-person training might substitute for poor-quality program manuals. Finally, different mixes of implementation policies and practices can produce the same results [45, 60]. Following Klein and Sorra, we posit that an organization’s implementation policies and practices influence innovation use by shaping the organization’s implementation climate.

Implementation climate

Implementation climate refers to targeted employees’ shared perceptions of the extent to which use of a specific innovation is rewarded, supported and expected [38]. Implementation climate is a gestalt based on employees’ shared information about, discussions of and experiences with the organization’s implementation policies and practices. Through interactions with each other and with implementation policies and practices, targeted employees develop a collective sense of the organization’s priorities and sanctioned means for achieving those priorities [60–62]. Colloquially, an organization’s implementation climate offers targeted employees answers to the following questions. Are we expected to do this? Can we in fact do this (e.g.
do we have the resources, the time)? And, if we do this, what will happen?

Organizations can create a strong implementation climate by making use of a variety of implementation policies and procedures that enhance organizational members’ means, motives and opportunity for innovation use [38, 45, 60]. For example, organizations can strengthen the implementation climate by making sure that targeted employees have easy access to high-quality training, technical assistance and documentation (all of which enhance knowledge and skills); engaging employees in decision making about innovation design and implementation (e.g. through an EAB); providing incentives for use and providing feedback on innovation use (all of which enhance motivation) and by making the innovation easily accessible or easy to use, giving targeted employees time to learn how to deliver and use the innovation, and redesigning work processes to fit innovation use (all of which increase opportunities or remove barriers).

Like organizational readiness for change, implementation climate is innovation specific. An organization can have a strong implementation climate for one innovation and a weak implementation climate for another. The same might be true for specific interventions in a comprehensive worksite health promotion program. In the Working Well Trial, for example, some worksites established a stronger implementation climate for the smoking intervention than for the nutrition intervention [11, 28]. WellWorks-2, a related worksite health promotion trial, reported similar variability in implementation climate related to norms about nutrition, occupational exposures and smoking interventions [18]. This specificity is what differentiates implementation climate from more general constructs like organizational climate or organizational culture [38, 63].

**Implementation effectiveness**

Implementation effectiveness is an organization-level construct that refers to the aggregated consistency, quality and appropriateness of innovation use within an organization [38, 39, 41]. Like Linnan and Steckler [64], we regard implementation effectiveness as a multidimensional construct that includes reach (appropriateness), dose delivered (consistency), dose received (consistency) and fidelity (quality). Although reach and dose received can be viewed as characteristics of the intended audience, we regard them as indicators of implementation effectiveness because they reflect, at least in part, the choices that get made and the processes that get used when putting a program into practice. These choices include how to adapt the innovation, the program strategies and the worksite to each other.

Generally speaking, the stronger an organization’s implementation climate, the greater the likelihood that targeted employees will exhibit consistent, high-quality, appropriate innovation use. There are, however, limits to implementation climate. A strong implementation climate may be sufficient to promote compliant innovation use if it generates enough normative pressure [18] or includes explicit incentives and/or penalties [65]. Committed, enthusiastic innovation use, however, requires more than a strong implementation climate; it also requires a good fit between the innovation and targeted employees’ values.

**Innovation-values fit**

Innovation-values fit refers to the extent to which targeted employees perceive that innovation use will foster the fulfillment of their values [38, 41, 60, 66]. Values are concepts or beliefs that (i) pertain to desirable end states or behaviors, (ii) transcend specific situations and (iii) guide the selection and evaluation of behavior and events [67]. Values vary in terms of their crystallization or the degree of consensus with which a concept or belief is shared [18, 68]. While individual differences exist in values, given our interest in implementation effectiveness rather than individual innovation use, we focus instead on values that are shared by either all employees (organizational values) or groups of employees (group values). For example, worksite health promotion might be valued widely, or it might be valued only by certain groups of employees. Values vary not only in crystallization but also in intensity, or the amount of feeling attached to a concept or a belief [18, 68]. Worksite health promotion might be valued strongly and considered
a priority, or it might be valued weakly and considered desirable perhaps but not necessary.

When an organization adopts an innovation, targeted employees form judgments about the extent to which an innovation is congruent with their values. Rogers [46] makes a similar point, albeit at the individual level of analysis, when he notes that potential adopters consider the compatibility of an innovation with existing values and previously introduced ideas. A good fit exists when targeted employees regard the innovation as congruent with their high-intensity values. A poor fit exists when targeted employees view the innovation as incongruent with their high-intensity values. A neutral fit exists when employees see the innovation as either moderately congruent with their high-intensity values or moderately incongruent with their low-intensity values.

In the follow-up worksite-based study to the Working Well Trial (Working Healthy 2), for example, Linnan et al. [69] found that most managers (75%) felt that it was very important to have worksite health promotion programs in their companies. Moreover, managers at different levels (senior, middle and line) did not differ significantly in the importance they ascribed to worksite health promotion programs or in their beliefs about organizational benefits that worksite health promotion programs can produce. These findings suggest that worksite health promotion represented a high-intensity group value; whether it represented a high-intensity organizational value would depend on how non-management employees feel about worksite health promotion. By contrast, managers at different levels disagreed in their beliefs about the appropriate scope of employer responsibility for employee health. Although nearly all managers agreed that employers had a responsibility to protect employees from hazards and accidents, line supervisors were significantly less likely than middle or senior managers to believe that employers had a responsibility to encourage employees to make healthy lifestyle choices. This implies that line supervisors as a group saw a poorer fit between their values and the trial’s smoking and nutrition interventions than did middle or senior managers as a group.

Table I summarizes the predicted effects of different combinations of implementation climate and innovation-values fit on implementation effectiveness. Klein and Sorra [38] propose that, even in the context of a strong implementation climate, innovation use could range from merely compliant use to committed use depending on the innovation’s fit with targeted employees’ values. What happens when the innovation exhibits good fit with the high-intensity values of some groups of targeted employees, but poor fit with the high-intensity values of other groups? The answer, say Klein and Sorra [38], depends on whether or not one of the opposing groups has formal power over the other. When innovation-values fit is good for the higher authority group and poor for the lower authority group, then the higher authority group will use its power to strengthen the implementation climate. As suggested in the first cell of Table I, resistance or, at best, compliant innovation use is likely to result. When innovation-values fit is good for the lower authority group and poor for the higher authority group, the higher authority group is likely to undermine the implementation climate by, say, withholding resources or imposing limitations on innovation use. Again, as Table I suggests, sporadic or inadequate innovation is likely to result as lower authority groups with good innovation-values fit experience frustration and disappointment. When neither group has power over the other, the strength of the organization’s implementation climate determines which group gains advantage any overt or covert conflict that arises over innovation implementation. When the climate is strong, the group with good innovation-values fit gain the upper hand as management throws it weight behind the implementation effort. When the climate is weak, the group with poor fit gains the upper hand and innovation use remains limited or declines.

The aftermath of implementation: some conjectures

Like other researchers, we distinguish between implementation effectiveness and innovation effectiveness [38, 39, 41, 45]. As an organization-level construct, innovation effectiveness refers to the
benefits an organization realizes from an innovation [38]. For comprehensive worksite health promotion programs, these benefits could include improved workforce health, lower health care costs, increased productivity, improved employee morale and/or enhanced public image. Implementation effectiveness is a prerequisite for innovation effectiveness. However, if the program theory itself is faulty or if (during implementation) the program has been adapted in ways that undercut its efficacy, no amount of consistent, high-quality and appropriate use will generate the benefits anticipated by program adoption.

Klein and Sorra [38] speculate that innovation implementation results in three possible outcomes (see Table II). In the first scenario, which we call 'Success Creates Momentum', the organization effectively implements the innovation and realizes anticipated benefits. When this occurs, implementation climate strengthens as management support and resources for implementation grow. If the innovation exhibits good fit with organizational values, those values get reinforced from the innovation’s success. If the innovation exhibits poor fit with organizational values, a shift in values may occur. In both cases, confidence grows in the organization’s ability to implement the innovation and, possibly, other innovations as well. If innovation-values fit diverges across groups, the group with good fit feels vindicated and gains credibility and support, while the group with poor fit loses credibility and support.

In the second scenario, which we call 'Failure Creates Doubt', the organization effectively implements the innovation but does not realize anticipated benefits. When this occurs, implementation climate loses strength (detracting). If innovation-values fit diverges across groups, the group with good fit feels vindicated and gains credibility and support, while the group with poor fit loses credibility and support.

### Table I. Implementation climate and innovation-values fit: employee reactions and innovation uses

<table>
<thead>
<tr>
<th>Innovation-values fit</th>
<th>Poor</th>
<th>Neutral</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong implementation climate</td>
<td>Employee resistance: compliant use, at best</td>
<td>Employee indifference: adequate use</td>
<td>Employee enthusiasm: committed, consistent use</td>
</tr>
<tr>
<td>Weak implementation climate</td>
<td>Employee relief: little or no use</td>
<td>Employee disregard: little or no use</td>
<td>Employee frustration: sporadic, inadequate use</td>
</tr>
</tbody>
</table>

Adapted from Klein and Sorra [38].

### Table II. Consequences of implementation

<table>
<thead>
<tr>
<th>Implementation climate</th>
<th>Success creates momentum</th>
<th>Failure creates doubt</th>
<th>Failure creates pessimism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grows stronger (reinforcing)</td>
<td>Loses strength (detracting)</td>
<td>Grows weaker (depleting)</td>
<td></td>
</tr>
<tr>
<td>Innovation-values fit</td>
<td>Organizational values</td>
<td>Group values</td>
<td></td>
</tr>
<tr>
<td>If good fit existed</td>
<td>Values reinforced; confidence grows</td>
<td>Vindicated; credibility grows</td>
<td></td>
</tr>
<tr>
<td>If poor fit existed</td>
<td>Values shift possible; confidence grows</td>
<td>Questioned; credibility weakens</td>
<td></td>
</tr>
<tr>
<td>‘Good-fit’ group</td>
<td>Values challenged; confidence questioned</td>
<td>Vindicated; credibility grows</td>
<td></td>
</tr>
<tr>
<td>‘Poor-fit’ group</td>
<td>Values reinforced; pessimism grows</td>
<td>Questioned; credibility weakens</td>
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climate loses strength as management support and resources for implementation decline. If the innovation exhibits good fit with organizational values, those values may be called into question. So too might confidence in the organization’s ability to implement change. If the innovation exhibits poor fit with organizational values, those values are reinforced as a general sense develops that the innovation was unlikely to work anyway. If innovation-values fit diverges across groups, the group with poor fit feels vindicated and gains credibility and support, while the group with good fit loses credibility and support.

In the third scenario, which we call ‘Failure Creates Pessimism’, the organization does neither implement the innovation effectively nor realize any anticipated benefits. When this occurs, implementation climate—which was probably weak to begin with—becomes even weaker unless management takes drastic corrective action to reverse the situation. If the innovation exhibits good fit with organizational values, those values may be challenged and pessimism may grow about the organization’s ability to implement change. If the innovation exhibits a poor fit with organizational values, a sense of empowered resistance may grow among those who savor the thwarting of the implementation effort. This may be especially likely if innovation adoption is externally mandated. Again, if innovation-values fit diverged across groups, the group with poor fit feels vindicated and gains credibility and support, while the group with good fit loses credibility and support.

**Discussion**

In this paper, we described a theory of implementation that, with additional testing and refinement, could prove useful for explaining and predicting the effective implementation of innovations like comprehensive worksite health promotion programs. We argued that an organization-level theory of implementation is well suited for this task because such programs are typically adopted through authority-based decision-making processes, exhibit high levels of implementation complexity and require active participation by managers and employees in order to generate organizational benefits. Further, we noted that other organizations (churches, schools and health centers) that make decisions about offering health promotion programs share these characteristics.

It is natural to ask when one should use an organization-level theory of implementation instead of a more familiar theory, such as Rogers’ Diffusion of Innovation Model. Our answer is that all theories apply most readily to contexts that they were designed to address originally. All theories contain implicit or explicit assumptions that reflect their origins in particular theoretical or applied contexts. When a good match exists between the context of a theory’s application and the context of a theory’s origin, then insight is gained. When a poor match exists, a partial or even distorted picture results.

Rogers developed his Diffusion of Innovation Model from studies of individuals making voluntary decisions to adopt relatively simple innovations that they could implement with ease and experience the full benefits of innovation use regardless of whether others also used the innovation (e.g. physicians’ adoption of new antibiotics or farmers’ use of a new pesticide) [70]. Given this context of origin, the model applies most readily to those situations involving optional innovation decisions, low implementation complexity and low outcome interdependence. While some worksite health promotion programs seem to meet these criteria, many do not, especially when implemented outside the highly supportive context of an intervention study. It is precisely in those situations that do not meet these criteria where implementation proves most challenging and where an organization-level theory might be more useful.

Although the theory we describe focuses on the organizational determinants of implementation effectiveness, the broader social, cultural, economic and regulatory context in which organization operates will influence the implementation of comprehensive worksite health promotion programs. To keep the presentation brief, we concentrated on a parsimonious set of intraorganizational constructs.
Adding constructs would make the theory more complex and, perhaps, more accurate. For example, government regulations often shape the policies and practices that organizations use to implement worksite health promotion programs. Likewise, organizational climate and culture could also shape implementation policies and practices, employees’ perceptions of those policies and practices or both.

Implications for research
The theory described in this paper is best suited for multiorganizational research using longitudinal study designs. Both quantitative and qualitative approaches merit consideration. Survey research methods would enable more precise quantitative estimation of relationships among the model’s constructs. Multiple case study research methods, on the other hand, would offer insight into the nuances of model constructs and the subtle influences of social and organizational context. In either case, a multiorganizational study design is necessary in order to align the level of analysis with the level of theory. With the exception of innovation-values fit (which we posit may vary between groups within an organization), all of the model’s other constructs are conceptualized at the organizational level. Therefore, the relationships among these constructs must be analyzed at the organizational level.

The construct of implementation climate has the potential to significantly advance research on implementation. As Klein and Sorra [38, p. 1072] observe, ‘The climate construct subsumes and integrates many findings of past implementation research’. Because innovation-organization fit is context dependent, the specific implementation policies and practices that support innovation use may vary considerably across innovations and organizations. The search for the critical policy or practice that determines implementation effectiveness (e.g. training) is likely to prove fruitless since specific policies and practices may show little or no consistent relationship to implementation effectiveness across innovations and organizations. If Klein and Sorra [38] are correct that implementation policies and practices are cumulative, compensatory and equifinal, then the construct of implementation climate represents a parsimonious way to integrate research findings for disparate innovations and organizations.

The theory that we describe could be combined fruitfully with process evaluation. Process evaluation is a method—a set of procedures for assessing program deployment and functioning. Researchers conduct process evaluation studies to document the nature and extent of program implementation in order to improve program delivery, assess program fidelity or relate program implementation to program outcomes. A theory of implementation could enrich process evaluation research by informing researchers conceptualization, measurement and analysis of implementation. Conversely, process evaluation provides a valuable opportunity to test and refine a theory of implementation that can guide future practice and research, while still accomplishing the aforementioned, customary aims of process evaluation.

Implications for practice
The theory we describe is best suited for guiding research into the determinants of effective implementation of comprehensive worksite health promotion programs and other complex innovations in organizations. A rich literature exists that offers guiding principles, step-by-step instructions and ‘best practice’ models for practitioners seeking to implement worksite health promotion programs. This literature represents the best available thinking and advice on what works (and what does not) when it comes to implementation. More theory-driven research on implementation could strengthen the evidence base upon which this literature draws.

Conclusions
Given the substantial investment of time, energy and resources involved in implementing comprehensive worksite health promotion programs, the development of a stronger knowledge and theory base to guide implementation efforts could make a significant contribution to improving health promotion efforts and, perhaps ultimately, enhancing population health. The robustness of this knowledge base will depend, in turn, on more
theory-driven research into the determinants of effective innovation implementation in organizations. In this article, we introduced to the health promotion community a theory of implementation developed specifically for complex innovations in organizational settings, and shared an application for the worksite setting. We encourage researchers to further test, refine and adapt this theory to enhance further its utility for research and practice in a variety of settings where complex interventions are undertaken.

Conflict of interest statement

None declared.

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Received on October 30, 2007; accepted on March 4, 2008