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Knowledge-for-Action Theories in Evaluation: Knowledge Utilization, Diffusion, Implementation, Transfer, and Translation

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Abstract

Five knowledge-for-action theories are summarized and compared in this chapter for their evaluation implications: knowledge utilization, diffusion, implementation, transfer, and translation. Usually dispersed across multiple fields and disciplines, these theories are gathered here for a common focus on knowledge and change. Knowledge in some form (ideas, innovation, skills, or policy) moves in some direction (laterally, hierarchically, spreads, or exchanges) among various stakeholders (knowledge producers, end users, or intermediaries) and contexts (national, community, or organizational) to achieve some outcomes (intended benefits, unanticipated outcomes, or hijacked effects). Although rooted in different disciplines, sensitive to different key indicators, and following different process paths, these theories individually and collectively provide multiple lenses on the evaluation of complex interventions. A table compares key theory points of disciplinary roots, type of knowledge, movement of knowledge, contextual influences, and the added lens of each theory. These lenses are used to analyze the set of theories for evaluation implications. © Wiley Periodicals, Inc., and the American Evaluation Association.

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This chapter begins with a practice-based evaluation dilemma: how to assess the outcomes of a nationwide public health intervention. Although the intended outcome of this intervention was substance abuse reduction, the dilemma will be familiar to many evaluators. The intervention consisted of 31 types of training programs, conducted at 249 separate sites, by multiple providers, with approximately 9,500 participants, over a 5-year period. There was no one outcome or stakeholder to answer questions about intended effects of this complex intervention. What was to count as success? Who would decide?

Hunting down objectives for individual programs did little to answer broader questions about intervention effects. Somewhere in the process, however, it became clear that a number of overlying theories about change (some explicit, others implicit) not only shaped where outcomes were sought, but whether stakeholders valued those outcomes. For example, funders wanted to know whether intended beneficiaries used knowledge gained from program participation. Knowledge utilization theory offered guidance on understanding the parameters of use, but other theories were needed to understand issues of fidelity, power, language, and knowledge movement. Did learning move as intended from the training site to the community context, or did it morph into alternative, adapted skills (transfer theory)? Did intended beneficiaries have the authority or opportunity to use a new skill (implementation theory)? Were ideas translated into actionable messages for intended beneficiaries (translation theory)? If intended beneficiaries shared but did not use their program experience, does that spread of knowledge count as nonuse or success (diffusion theory)?

To answer these questions, this chapter offers a summary review of individual theories and applies that knowledge to comparisons among and between theories and their implications for program evaluation.

Knowledge-for-Action Theories

Five knowledge-for-action theories or processes are the focus of this chapter: knowledge utilization, diffusion, implementation, transfer, and translation. Each of these theories offers evaluators an added lens to view program and policy process and outcomes (Ottoson, 1997). But, first, a few more questions: Are these theories? Why these five? Why the knowledge-for-action moniker? How can they benefit evaluation?

Theory is used here with a small "t" as "a set of beliefs that underlie action" (Weiss, 1998a, p. 55). The five selected theories all focus on knowledge and change. Knowledge in some form (ideas, innovation, skills, or policy) moves in some direction (laterally, hierarchically, spreads, or exchanges) among various stakeholders (knowledge producers, end users, or intermediaries) and contexts (national, community, or organizational) to achieve some outcomes (intended benefits, unanticipated outcomes, or hijacked effects). These theories are collectively referred to here by their intent and

movement of knowledge as *knowledge-for-action*. Others have used this label and multiple other terms to describe the movement of knowledge into action (Argyis, 1993; Graham et al., 2006). Limited by space, these five theories were picked because they have history, literature, practical applications, disciplinary support, and, in some cases, legal or professional requirements. They stand in contrast to other kinds of processes, such as "application," which is a commonly used term but a poorly studied process (Ottoson, 1995).

It is time these various understandings of change met as subheadings in the same chapter. While many of these processes acknowledge roots in knowledge utilization, it is not clear that knowledge utilization reciprocates awareness of its extended family. The intent in this effort is not to promote or improve the evaluation of any individual knowledge-for-action theory, such as doing better transfer evaluation; rather, the intent is to understand these theories, individually and collectively, in ways that would benefit any evaluation. For example, what can be learned from transfer theory that would benefit any evaluation? These theories have commonalities and differences that can widen the peripheral vision and perspective of those involved in the evaluation of complex systems and processes. Taken individually or together, they explain "what the outcomes are outcomes of" (Weiss, 1998a, p. 10).

Knowledge-for-Action Theories: A Summary Review

The following summaries of individual knowledge-for-action theories identify the roots, key variables, processes, and evaluation implications that are compared in Table 1.1. These summaries set the stage for the intertheoretical exchanges that follow. The summaries draw on, but are not limited to, the in-depth discussion of knowledge utilization, diffusion, implementation, transfer, or translation theories in Chapters 2 through 6, respectively, in this issue.

Knowledge Utilization. Knowledge utilization embeds itself in both evaluation theory (Shadish, Cook, & Leviton, 1991) and program evaluation standards (Joint Committee on Standards of Educational Evaluation, 1994). Its roots lay at the intersection of science and philosophy and subsequent waves of knowledge utilization research (Backer, 1991). Early on, Weiss (1979) described multiple models of use, Patton (1997) focused on process as use, and Henry and Mark (2003) suggested a shift to focus to influence. Research knowledge is the *what* that moves in knowledge utilization theory (see Table 1.1). Models of knowledge use have been grouped by field (public policy or business), type of end user (researcher, consumer), or context (organization, society; Edwards, 1991). Key contextual influences on knowledge utilization include the roles of end users, timing, resources, social conditions, leadership, politics, and communication (Beyer & Trice, 1982; Kingdon, 2003; Landry, Amara, & Lamari, 2001; Yin & Gwaltney, 1981).

Table 1.1. Comparing Knowledge-for-Action Theories

Theory	*Roots*	*What Moves?*	*How?*	*Key Influences on Process*	*Added Lens*	*Evaluation Implications*
Knowledge utilization	Intersection of science and philosophy	Research knowledge	Instrumentally Conceptually Symbolically As process	Time Resources Support Leadership Politics	Many meanings of use, nonuse, and misuse	Value linked to meaning of use by intent, stakeholder, and context
Diffusion	Rural sociology and communication	Innovation	Innovation is communicated through channels over time among members of a social system	Innovation characteristics Social system Time Communication channels	Spread	Outcomes link to adoption curve Innovation may be adapted
Implementation	Political science and public administration	Policy Program	Top down Bottom up Contingency Democratic Networked	Policy Context Stakeholders Politics, power Values Administration	Sociopolitical factors Feasibility	System influences Value transparancy Contribution Process matters
Transfer	Science and technology	Learning Technology Policy	Mechanisms such as training, implementing, diffusing, or marketing	*What* moves Mechanism Context	Direction of movement Comparability of contexts	Initial and final *what* are comparable
Translation	Linguistics and communication	Research products or syntheses	Communication Ongoing interaction and exchange	Stakeholders Politics, power Commitment Capacity Communication	Language	Sustain stakeholders Informed decisions Outcome link

To engage the knowledge utilization lens effectively, evaluators need to understand the parameters of use in context and to be savvy about how knowledge engages in practice. "Did they use it?" is too simplistic a question.

Diffusion. In contrast to knowledge utilization, diffusion evolved toward a more unified theory and definition (Tornatzky & Fleischer, 1990) across multiple disciplines (Green & Johnson, 1996). Rooted in communications theory, diffusion is understood to be "the process by which an *innovation* is *communicated* through certain *channels* over *time* among the members of a *social system*" (Rogers, 2003, p. 7). In the unifying work of Rogers (2003), the *what* that moves in diffusion is an innovation (see Table 1.1); its shape can be as diverse as a product, practice, program, policy, or idea. An S-shaped (cumulative) curve represents the uptake, acceleration, and decline of innovation adoption in a population. Innovation characteristics that influence adoption include its perceived relative advantage, compatibility, complexity, trialability, and observability. Other broad influences on diffusion are the social system, time, and communication channels. Evaluation implications emerging from diffusion theory include the concept of spread, differences in adopters over time, and innovation adaptation.

Implementation. "Implementation is an iterative process, in which ideas expressed as policy, are transformed into behavior, expressed as social action" (Ottoson & Green, 1987, p. 362). Rooted in political science and public administration, implementation reflects a stage in the policy process sandwiched between policy development and policy impact. The *what* that moves in implementation is a policy or program (see Table 1.1). Implementation models and theories have variously described this process as bottom up, top down, contingency, democratic, or networked (Goggin, Bowman, Lester, & O'Toole, 1990; O'Toole, 2000). In their classic tale of implementation, Pressman & Wildavsky (1984) describe how policy changes as it engages multiple contexts, organizations, and stakeholders reflecting varied agendas, value differences, administrative practices, and politics. Continuing and contemporary challenges to macrolevel policy implementation include economic downturns, political shifts, and networked governance. Implementation adds a sociopolitical lens to evaluation, with special attention to power differentials among stakeholders and its implication for negotiating value in a transparent and democratic process.

Transfer. The diverse transfer literature spans multiple disciplines, fields, professions, and contexts. Transfer is both a ubiquitous and ambiguous concept. Evaluators using this lens need to consider three components central to any transfer process: the *what,* the context, and the mechanisms of transfer (see Table 1.1). The *what* that transfers might be a product, process, idea, skill, know-how, best practice, regulation, research, or policy (Bozeman, 1988; Haskell, 2001; Mossberger & Harold, 2003). The context of origin shapes *what* transfers and the context of application whether and how what is transferred engages in a new setting. For example, in learning

transfer, key contextual variables include learner characteristics, the work site, and pedagogy (Baldwin & Ford, 1988); in technology transfer, key variables are location, economics, and mission (Bozeman, 2000). Transfer movement is most often described as unidirectional, but the direction also might be lateral or hierarchical. The movement or mechanism of transfer may involve other change processes; for example, learning may transfer by the mechanism of training, or policy may transfer by the mechanism of implementation.

Translation. With roots in applied linguistics and communication, knowledge translation is a transdisciplinary, multilevel knowledge-for-action theory. In the recent explosion of knowledge translation literature (Tugwell, Robinson, Grimshaw, & Santesso, 2006), translation has been conceptualized as the practice, science, and art of bridging the "know-do gap" between knowledge accumulation and use (World Health Organization, 2006). The *what* that moves in knowledge translation is research products or synthesis (see Table 1.1). Knowledge translation assumes a path that has been variously described as multidirectional, circular, or iterative; however, its stages or situations are described by some as unidirectional, for example, knowledge translation from basic to applied research (Hiss, 2004). The research-initiated messages of this communications-driven process are translated with stakeholders through a complex set of interactions, including synthesizing research, developing actionable messages, improving practitioner or public awareness, and adapting and reporting findings to multiple audiences and contexts. Fidelity is not a key determinant of translation success.

Added Lenses and Implications for Evaluation

From individual theory summaries, this chapter now turns to cross-theory comparisons using the added lenses introduced in Table 1.1. By virtue of their emphasis, uniqueness, research, or roots, these lenses add in-depth understandings of selected components of the change process. The following discussion explores common and disparate ground among theories and the evaluation implications for the set of theories.

Translation Theory Adds the Lens of Language. In practice, these various terms, such as *transfer* or *use,* are tossed around continuously, informally, and often lightly. Translation theory reminds us that language matters. For example, one stakeholder's "transfer" might be another stakeholder's "implementation." These terms mean something, and evaluations benefit when that meaning is understood and shared in context.

All of these knowledge-for-action theories evolved over time. Such evolution includes adding, expanding, or sharpening theoretical constructs. Examples include the movement from instrumental to conceptual understandings of use (Weiss, 1998b), the addition of an implementation phase to the innovation adoption process of diffusion, and the increasing role of context in transfer theory. For some theories, such as implementation,

evolution has meant waxing, waning, and morphing over time in levels of interest, disciplinary commitment, and focus. While some theories evolved, new ones, such as translation, were born. To know a theory at one point in time and use that experience and language to embrace or to stereotype it henceforth is fallacy. Even if the language of theory remains the same, the concepts and constructs may not.

Could any one of these theories be the overarching theory to all others? While knowledge utilization may attempt to float off with the umbrella metaphor (Backer, 1991), it is not without challenges. The roots, the concepts, the language, and the culture around these theories show them to be related but not synonymous. Multiple theoretical umbrellas covering different aspects of a change process may be a more apt metaphor than one umbrella covering all.

Not only is an umbrella a problematic metaphor among theories, it is a problematic metaphor within theories. Diffusion, with its synthesizing work by Rogers (2003), probably comes closer to having a unified theory and common conceptual model than any of the other theories. The other four knowledge-for-action theories comprise multiple, even competing, theories that may be comprehensive, context driven, variable illuminating, or field specific. While some lament the lack of unifying theory, others reject or lament the idea of a single theory as antithetical to context-specific change (Estabrooks, Thompson, Lovely, & Hofmeyer, 2006).

Despite differences, commonalities exist among theories. For example, an instrumental understanding of knowledge utilization, early transfer theory, and top-down implementation all use fidelity as a criterion of success, that is, knowledge, technology, or policy is unchanged by context. In contrast, a symbolic understanding of knowledge utilization and a bottom-up view of implementation theory share a political understanding of change that includes knowledge and policy adaptation as part of a definition of success. Furthermore, bottom-up implementation and translation theory share a common interest in early stakeholder involvement in the change process and local relevance.

The commonalities, the differences, and the crossovers make the translation, interpretation, and retranslation of these theories a process in itself. The evolution of these theories can result in greater commonalities among the theories than within them. Language matters, and so does meaning in context.

Transfer and Diffusion Theories Add the Lens of Movement. The five selected theories all consider how knowledge moves among various stakeholders and contexts to achieve outcomes. Transfer theory adds multiple views on linear point A to point B movement, and diffusion adds the concept of spread. Together these theories sharpen the lenses on what moves, where it moves, the pattern of movement, the context of movement, and key influences on movement.

What Moves. Table 1.1 summarizes the *what* that moves in each of these theories that shapes the change process and outcomes. Understanding the

what is consistent with evaluation theory about the need to understand the evaluand before marshaling value indicators and knowledge construction procedures. The evaluand shapes process and outcomes.

How It Moves. Movement of the *what* might be one-way, bidirectional, multidirectional, or some combination of these. Lateral and hierarchical concepts of movement may be as much about power as they are about structure. Early knowledge utilization, implementation, and transfer theories emphasized one-way, top-down movement. Researchers, politicians, or entrepreneurs created knowledge, policy, or technology that moved to intended beneficiaries. Later theories of bottom-up or evolutionary implementation and participatory research tended to keep the one-way focus, but turned the process on its head by moving the *what* from the community or consumers to researchers and politicians. Translation theory purports a bidirectional approach with knowledge created at multiple points. Diffusion and networked approaches to implementation go beyond the "from-to" movement to the concept of spread or the metaphor of a web. Keeping an eye on such dizzying movement requires that evaluators use more than one pair of lenses. For example, evaluating a bottom-up innovation that became a top-down policy before diffusing to other sites required a broader lens than any one theory could offer (Hubbard & Ottoson, 1997).

Context of Movement. In a contemporary understanding of all these theories, context matters. It shapes process and outcomes. General contextual variables that cut across these theories include timing, location, opportunity, resources, social support, leadership, organizational structures, politics, and communication. Transfer theory assumes that the comparability between starting and ending contexts aids transfer. Implementation and translation theories anticipate contextual differences and influences in shaping what moves. Diffusion theory considers how contextual factors, including social norms, affect decision making about innovation adoption. No matter how new the innovation, rigorous the knowledge production, or savvy the policy, context has the potential to shape it, sink it, or salvage it. Evaluators need to work with stakeholders to identify and account for contextual influences.

Key Stakeholders. Determination of the priority end users and intermediaries is shaped by theory. The priority end user for knowledge utilization is the decision maker; for diffusion, the priority end user is the adopter, which changes over time; for implementation, the priority end user is the intended beneficiary; for transfer, the priority end user is the consumer, organization, or country; and for translation, the priority end user might be one of the six P's: public, patient, press, practitioner, policymaker, or private sector (Tugwell et al., 2006). The felt need, motivation, and receptivity of end users shape whether and how knowledge, policy, or an innovation is adopted or received. To reach the end user, individual theories identify some type of intermediary or mechanism between the producers and users of knowledge. For example, diffusion has change agents and opinion leaders

(Rogers, 2003), translation suggests knowledge brokers (Lomas, 2000), and transfer describes various mechanisms. Whether and how the intermediary role is performed has the potential to shape process and outcomes.

In summary, the transfer and diffusion lenses add multiple perspectives on the complexity of change. It is not just *what* moves, how it moves, the context through which it moves, or the key stakeholders that influences the process and outcomes of programs, policies, and innovations. It is all of these combined.

Knowledge Utilization Adds the Lens of Use. All of these knowledge-for-action theories connect with use at some point. Although the *what* of knowledge utilization theory is research knowledge, this theory sharpens the lens on two key variables to consider in evaluation: timing and fidelity.

Time. The length of time it takes for the *what*—knowledge, innovation, or policy—to move from production to action has varying importance for these theories and evaluation. Timeliness or least delay (Hiss, 2004) generally is considered a good thing. Implementation theory might like quick results, but its practical side prepares for the effects of time and context on policy and program intent. As knowledge utilization theory evolved (Weiss, 1998b), the time dimension in its theories grew from a short gap into long and winding roads. Finding the link between research in one decade and informed policy change in another (Ottoson et al., 2009) changed the work of evaluation from attribution to contribution. In diffusion theory, adopters vary over time, with early adopters more likely to be social leaders, educated, and connected to an expansive network compared to late adopters, who tend to be more skeptical and have lower socioeconomic status, fewer resources, and smaller networks. In translation theory, the use or translation of ideas is conceived as an ongoing time line rather than an end-of-process event. The time dimension in these theories shapes evaluation methods, as well as key variables.

Fidelity and Valuing. How much can the *what*—knowledge, innovation, technology, or policy—change and still be considered successfully transferred, used, diffused, translated, or implemented? What counts as success from the perspective of these knowledge-for-action theories? This is a core evaluation question about valuing.

A contemporary understanding of all these theories allows for some level of change in the *what* as it moves across time, context, stakeholders, intents, and resources. These theories are awash with the realities of change. Knowledge utilization theory asks an array of value-related questions about how much of *what* is used over time, by whom, and how well. From an implementation perspective, the increasing involvement of networks ensures increasing numbers of stakeholders and competing agendas that challenge notions of fidelity and complicate valuing. Translation focuses less on changing knowledge than on changing the message, or the mode of message delivery, so that the research is accessible and understood by intended

beneficiaries. Diffusion does not hold to the invariance of the innovation; rather, it anticipates adaptability to fit the context as an aid to adoption and maintenance over time. Even transfer theory, associated most closely with a fidelity stance, recognizes that change in the *what* may occur.

The extent to which fidelity is important in these various change processes depends on several factors. First, it depends on what is being moved. Fidelity concerns become increasingly anticipated as abstract ideas move toward more concrete representations of knowledge—for example, reformulated messages, packaged programs, or boxed innovations. Second, the importance of fidelity depends on stakeholder stance. The inventor, politician, or researcher who produced the innovation, policy, or knowledge may have a higher stake or expectation of fidelity than intended users, beneficiaries, or consumers, who have to figure out how to act in context. This leaves a critical role for evaluators to negotiate among stakeholders about expectations of fidelity and their role in determining success. Finally, when the time dimension is added to characteristics of what is moved and over which context, the *what* itself becomes increasingly challenging to find, let alone measure its fidelity.

Implementation Theory Adds the Social-Political Lens. With an exploration of social-political factors within each of these knowledge-for-action theories, the implementation lens sharpens a view of power, resources, and relationships within theories. No matter how strong the *what,* how well timed its arrival, how supportive the context, or how receptive the stakeholders, social-political factors can shape both the processes and outcomes of change. Who has the resources or political capital to benefit from research knowledge, the latest innovation, or changed policy? Who has the power to receive that *what* and break it, shape it, or share it? The implementation lens has particular relevance to valuing theory in evaluation. What is valued? Who decides?

While the initial impetus here was to use the implementation lens to look within knowledge-for-action theories, that lens instead is used to look at the whole set of theories themselves. What are visible through the implementation lens are not just theories; these are also movements, cultures, and institutions. The first observation is that these theories spring from different disciplines, issues, and contexts. Although they may share some common roots, these theories start with different assumptions, intent, and disciplinary perspective. Few professionals have an ecumenical education that spans all of these theories, credentialed competence in them, or the ability to break the tower of theoretical and methodological Babel down to a common language.

Added to this observation is a kind of referencing or dismissal among theories of each other. True enough, there is some intertheory referencing, particularly to use. It is the lack of references among theories, however, that exposes the gaps among them. For example, it is unclear how the knowledge brokers of the new millennium translation (Lomas, 2000) have benefited

from the experiences of the linking agents who played an early role in dissemination and translation (Havelock, 1967). Unawareness is one thing, but disparaging remarks among the theories take the separation a step further. For example, diffusion theory explains that the adoption of an innovation is not necessarily "a passive role of just implementing a standard template of the new idea" (Rogers, 2003, p. 17). "Mere transfer" has been used to criticize the inadequacy of transfer theory to explain the complexities of moving learning into practice. It is hard to imagine that anyone who understood contemporary implementation or transfer theory would refer to such processes as "passive," "just," or "mere." What is going on here?

One explanation from an implementation perspective is that these theories have been institutionalized in various ways. For example, the National Institutes of Health has established the Office of Transfer Technology; the Centers for Disease Control and Prevention has established the Division of Diabetes Translation; the health administration field has launched the *Journal of Implementation Science;* Rogers's book *Diffusion of Innovations* (2003) is in its fifth edition; and the University of Alberta has established the Knowledge Utilization Studies Program. The institutionalization of these theories shows a commitment or generation of resources, legitimization, agenda setting, voice, and authority. The lens for viewing change gets set, at least for a time.

Turned on itself, the implementation lens shows the potential shelf life of these theories. The implementation boom of the 1970s dropped off by the mid-1990s when implementation was pronounced dead. By the early millennium, implementation was reborn in the health administration field. Will the current explosion of literature in translation theory follow a similar path?

Recommendations for Evaluators: Adjust the Lenses

For evaluators negotiating within and across the culture and context of the theories reviewed here, staying grounded in evaluation theory provides perspective. The additional theoretical lenses reviewed here complement evaluation theory by providing depth and perspective on the change process. Evaluations benefit when theories are exposed and understood, variables influencing change are clarified, use is revealed for all its complexities, and the context within and around change is made transparent.

Change theories inform evaluation theories of social programming, valuing, knowledge use, knowledge construction, and evaluation practice (Shadish et al., 1991). For example, "good" social program theory explains the evaluand, including the intended change process by which it proposes to contribute to social betterment. While some evaluators and stakeholders place emphasis on the outcomes of social program theory, "lenses" was deliberately chosen as a metaphor for the intent of this chapter. The change process needs to be seen, its workings visible, and the influence of process on outcomes transparent. Outcomes are not conceived in an immaculate process.

The values inherent in these über theories of knowledge-for-action offer what counts as success (or not) and why. They direct attention to different process indicators and outcomes. For example, success from a transfer perspective might be an intact skill moving from a training context to a work site. From a knowledge utilization perspective, this example represents instrumental use rather than conceptual use. Neither of these theories looks at knowledge spread, an indicator of success from a diffusion perspective. Together these theories help answer the difficult questions of evaluation: What will be valued? Who decides?

Evaluation practice and the use of evaluation findings are enhanced by an understanding of these not just as theories but also as supporting disciplines, professional cultures, and institutionalized perspectives. This acculturation of change shapes an understanding of key variables, stakeholders, values, and outcomes. For example, an evaluator working in a context shaped by diffusion and translation theories benefits from an understanding that use of evaluation findings is shaped by more than communication messages, language, and opinion leaders. Adding an implementation perspective sharpens an understanding of the role of context, power, and resources. Evaluators often cross multiple boundaries in their work. They are not bound to praise translation, push diffusion, or punish transfer as the only understanding of change. Our loyalties are not to any single process, but rather to understanding whether and how process unfolds and what its implications are for valuing.

Taken together, an understanding of change as theory and culture influences evaluators' understanding of process, flags key indicators, and explains use in context in ways that influence knowledge construction and evaluation practice.

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