An Overview of Knowledge Translation

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INTRODUCTION

Knowledge translation (KT) was traditionally framed as a problem of moving research results into policy and practice. The impetus for the flow of knowledge originated with researchers constructing new knowledge and seeing its utility, or with policymakers and administrators seeing problems in practice and looking to researchers for solutions.

In the 1970s, a shift in focus away from knowledge use was exemplified by Caplan's (1979) two-communities theory, which posits that researchers and policymakers comprise two different communities with two different languages (Jacobson, Butterill, & Goering, 2003). A shift back to knowledge use with a new focus on user-centered design is evident in more recent KT models that provide frameworks for researcher and user interaction in order to build better understanding between diverse groups.

The flow of knowledge from its construction in one context to its use in another context has been variously termed knowledge translation, knowledge exchange, knowledge transfer, research transfer, technology transfer, knowledge transformation, knowledge dissemination, knowledge mobilization, knowledge utilization, and research utilization. The terms are often used synonymously, but a specific term is sometimes used because it highlights a particular component of the knowledge flow process. For example, *knowledge exchange* implies a sharing of information between partners of equal value and focuses on the movement of knowledge between them, whereas *research utilization* implies the transformation of research results into usable knowledge and focuses on embedding the usable knowledge in practice.

Information technologies have the potential to support knowledge translation in powerful ways. Key processes in the translation of knowledge include: (1) knowledge creation, management, and dissemination; (2) recognition of links between existing knowledge and its potential application to problems or practice; (3) translation into usable knowledge in practice; and (4) change in practice.

Information technologies are a natural solution for these knowledge translation processes. For example, group and social software such as blogs and wikis support collaborative construction and sharing of knowledge; knowledge management systems support capture, storage, accessibility, and maintenance of constructed knowledge; and most

Internet-based technologies support dissemination of information. Well-designed virtual communities provide online environments for the kinds of human interaction that enable collaborative exploration of ideas, that foster recognition of potential links between existing knowledge and its application to solve problems or change practice, and that inspire people to transform their practice. Data mining and artificial intelligence techniques can be used to enhance identification of potential links between knowledge in one context and problems in another context.

BACKGROUND

A variety of approaches to knowledge translation have been developed, most focusing on the interaction of researchers, practitioners, and policymakers to move research results into practice. KT is not inherently unidirectional (research to practice), and Lavis et al. (2001) have argued that researcher-user interaction should become standard practice in research contexts, not simply an add-on. This practice has the potential to open new communication channels from knowledge constructed in practice to new research questions and hypotheses. The five models described below demonstrate a variety of KT approaches in use, from a national initiative to a framework for individual researchers.

The Canadian Institutes of Health Research

The Canadian Institutes of Health Research (CIHR) were created in June 2000 by the government of Canada with a mandate that included health research and knowledge translation defined as:

the exchange, synthesis and ethically-sound application of knowledge — within a complex system of interactions among researchers and users — to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products, and a strengthened health care system. (http://www.cihr-irsc.gc.ca/e/29418.html)

This definition acknowledges the importance of interaction between researchers and users in order to develop a sound

translation. CIHR (2004) also recognizes that "knowledge translation strategies and activities vary according to the type of research to be translated…and the intended user audience…."

The Knowledge Translation Strategic Plan 2004–2009 (CIHR, 2004) identifies four strategic directions to promote knowledge translation at a national level:

1. Support KT research, i.e., research on KT concepts and processes;
2. contribute to building KT networks, i.e., networks of researchers and research users;
3. strengthen and expand KT at CIHR, i.e., improve capability to support KT research and, with partners, KT itself; and
4. support and recognize KT excellence, i.e., build and celebrate a culture of KT.

The Ottawa Model of Research Use

Logan and Graham (1998) developed the Ottawa Model of Research Use (OMRU), a holistic, interactive approach to knowledge translation intended for use by policymakers to increase utilization of health research results and by researchers interested in the integration of research results into practice. The six key elements include the practice environment, potential adopters of the evidence, evidence-based innovation, research transfer strategies, the use of the evidence, and health-related and other outcomes.

These elements are continuously evaluated in order:

(1) to identify potential barriers and supports to research use related to the practice environment, potential adopters, and the evidence-based innovation; (2) to provide direction for selecting and tailoring transfer strategies to overcome the identified barriers and enhance the supports; (3) to track the progress of the transfer effort; and (4) to evaluate the actual use of the evidence-based innovation and its impact on outcomes of interest. (Logan & Graham, 1998, p. 230)

Research Implementation Approach

Grol and Jones (2000), the National Cancer Institute (2002), and Caburnay, Kreuter, and Donlin (2001) have developed research implementation approaches. Grol and Jones (2000) describe an iterative process of research implementation and evaluation consisting of "Research evidence → Develop concrete proposal for change → Analysis of target social and organizational context, obstacles to change → Link interventions to obstacles → Develop plan → Carry out plan and evaluate progress" (p. S33).

Based on KT implementation research results, four factors that influence the uptake and continued use of clinical guidelines were identified (Grol & Jones, 2000). These factors include:

1. Features of the guidelines (such as the underlying research evidence and the language of the guidelines),
2. features of the target group,
3. features of the social context/setting, and
4. features of the organizational context.

Lavis, et al.'s Framework

Lavis, Roberston, Woodside, McLeod, and Abelson (2003, p. 222) developed a framework for knowledge transfer based on five questions:

1. What should be transferred to decision makers (the message)?
2. To whom should research knowledge be transferred (the target audience)?
3. By whom should research knowledge be transferred (the messenger)?
4. How should research knowledge be transferred (the knowledge-transfer processes and supporting communications infrastructure)?
5. With what effect should research knowledge be transferred (evaluation)

The framework was derived from a review of the research literature across the five questions, four target audiences (general public/service recipients, service providers, managerial decision makers, and policy decision makers at federal, state/provincial, and local levels) and a range of disciplinary perspectives and methodological approaches (Lavis et al., 2003). For example, with regard to question 1 (What should be transferred to decision makers?), they concluded that action should be taken to transfer knowledge based on a body of research results as opposed to a single published paper to assure validity.

Jacobson, Butterill, and Goering's Framework

Jacobson et al. (2003) developed a framework for knowledge translation focused on building understanding between researchers and user groups. The framework was derived from a review of the literature and the authors' experiences. Articles related to user groups and the knowledge translation process were coded into conceptual categories that emerged from the data. The synthesis of this analysis resulted in a framework containing five domains: user group, issue, research, researcher-user relationship, and dissemination strategies. Each domain consists of a series of questions to guide researchers toward increased understanding of the

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