

“Shielding” the Knowledge Transfer Process in Human Service Research

Gretchen L. Gano

Yale University

Jocelyn Elise Crowley

Rutgers University

David Guston

Arizona State University

ABSTRACT

Knowledge utilization studies aim to understand the pathways whereby research moves from a specific set of producers to a specific set of consumers. Broadly speaking, two sets of explanations exist: (1) the engineering model, which focuses on the inevitability of science in advancing knowledge, and (2) the socio-organizational model, which stresses the importance of communication between and among groups as the critical factor in promoting utilization. This study asks both research managers at the Department of Health and Human Services and representatives from a particular set of consumer organizations to elaborate on the qualities of the research process that make knowledge most useful to them. We find that the qualities valued in both communities signal convergence around a novel third approach—the shield model—in which aspects of the original two models reinforce a powerful professional norm of objectivity that shelters the knowledge production and transmission process from external political pressures.

Given the increase in social science scholarship that attempts to affect public policy, it is not surprising that there has been a concomitant growth in work that aims to understand the ways in which such knowledge crosses the boundary between producer and consumer. Knowledge utilization studies aim to map out the conditions under which research findings move from the institutional setting in which they are created to another in which they are reduced to practice or utilized. This movement often occurs from academia to government agencies, from agencies to street-level practitioners, and from all of these to policymakers

This material is based on work supported by the National Science Foundation under Grant No. SES 0322505. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation. The authors would like to thank Barry Bozeman, M. B. Crowley, the various employees of the Department of Health and Human Services and the downstream organizations who generously gave of their time and expertise, and the anonymous reviewers who helped improve the quality of the manuscript. All remaining errors are our own. Kindly address correspondence to Jocelyn Elise Crowley at jocelync@rci.rutgers.edu.

doi:10.1093/jopart/muj013

Advance Access publication on April 26, 2006

© The Author 2006. Published by Oxford University Press. All rights reserved.

For permissions, please e-mail: journals.permissions@oxfordjournals.org.

(Bozeman 2000; Kingsley, Bozeman, and Coker 1996; Knott and Wildavsky 1980; Nagel 1990; Rich 2001; Weiss and Bucuvalas 1980). In addition to building theory, knowledge utilization studies seek to understand how knowledge transmission occurs within particular policy domains, such as education, health services, and justice reform (Hall et al. 1975; Johnson 1980; Landry, Lamari, and Amara 2003; Lavis, Ross, and Hurley 2002; Seashore Louis 1992; Shonkoff 2000). These studies seek not only to define the ways in which research findings are transmitted effectively among diverse stakeholders but also how they might be used to improve programmatic outcomes.

One understudied relationship is that between social policy agencies in the U.S. federal government and what we call “downstream” organizations: academic institutes, professional associations, budgetary agencies, and nonprofit organizations. Downstream organizations play a significant role in shaping public policy due to the unique, symbiotic relationship that they share with federal agencies (Weiss 1992). This critical role becomes apparent when we consider that a significant value embedded within contemporary bureaucracies is their relative insulation from political pressures surrounding lawmaking. The extent to which this value is realized, of course, is a matter of debate. But because downstream organizations are not as stringently constrained by the norms of independence from “politics” as are civil servants, they can more easily assume the role of knowledge-movers to both lawmakers and the public alike.

How does this knowledge transmission take place, and why? Scholars have yet to settle this question, but Landry, Lamari, and Amara (2003) provide a helpful starting point by grouping the bulk of research in this area into two sets of explanations. The first, the engineering model, holds that utilization will occur when the imperatives of technical advancement are too great to ignore.¹ There is, in a sense, a knowledge-push behind the spread of a particular idea beyond the confines of its original domain. The engineering perspective views the value of research to its consumers as lodged in its apparent objective and unbiased nature. The second explanation, the socio-organizational model, maintains that what matters most in promoting utilization is not so much the research behind a particular idea, but the existence of linkages that foster interaction between researchers and users. In this view, interpersonal contacts and ease of communication between individuals from different backgrounds and between organizations and groups with different goals are the primary drivers behind informational exchange.

This analysis explores knowledge utilization between one particular set of information producers—human service research managers at the U.S. Department of Health and Human Services (HHS)—and one set of its consumers—analysts at downstream organizations that mediate research that ultimately impacts programmatic decisions at the national, state, and local levels. We address a critical question: Does the engineering or the socio-organizational model better describe the ecology of social policy research and development (R&D), an environment inclusive of both the producers of research and its consumers? Improving on past studies that only explore the indicators of use by looking at knowledge producers or consumers in isolation, this analysis asks individuals from both sides what factors matter most to them in terms of advancing utilization. This dual approach thus enables us to discern whether the perspectives of agency research managers

1 Note that Landry, Lamari, and Amara (2003) use the term “engineering model” to describe the importance of research design and scientific rigor in relaying information from producers to consumers. Their terminology is not derived from a substantive account of the various attributes of the engineering profession itself.

and downstream organizations converge on the most significant forces in promoting the uptake of human service research findings.

This article is organized as follows. First, we present in detail the two models of knowledge utilization considered here: the engineering and the socio-organizational. Second, we lay out a brief institutional history of knowledge production at HHS. Third, we describe our methodology. Fourth, we relate from our data how the management structure of R&D at HHS, as well as the attitudes of personnel employed by downstream organizations, embody the engineering model more fully than the socio-organizational one, but that neither fully captures the subtle and always present influence of the other. We therefore document convergence between these producers and consumers with respect to their views of knowledge utilization, but we propose that this new synthesis be called the "shield model" to describe the nature of the priorities we find. We conclude that developing this new model is only a first step toward formulating in concrete terms how the funding, management, and utilization of social R&D—its research ecology—result in societal outcomes.

KNOWLEDGE UTILIZATION: THEORETICAL FRAMEWORKS

When is knowledge most likely to be transferred from one setting to another? There are a variety of different ways in which scholars have come to map out the exact processes that are at the locus of knowledge transmission. One useful approach has been proposed by Landry, Lamari, and Amara (2003), who studied the knowledge transmission process between a similar set of sophisticated partners as we do here; their producers were university scholars, and their consumers were Canadian governmental agencies. According to Landry, Lamari, and Amara (2003), the research on the drivers of successful knowledge utilization generally falls into one of two camps: the engineering model and the socio-organizational model.

Engineering Model

The engineering model of knowledge utilization places substantial weight on the technical merits of knowledge as the key to transmission. Also known as science-push or technology-push, the engineering model portrays researchers as constantly seeking answers to societal problems. When they make marginal improvements in understanding a particular phenomenon, these new understandings gradually make their way into improved manifestations of public policy on the ground. Research from academic or other perceived-to-be objective sources helps modify services by offering a map of enhancements that policymakers then incorporate into laws, rules, regulations, or common, everyday procedures (Landry, Amara, and Lamari 2001; Landry, Lamari, and Amara 2003). Technical progress and virtuosity are the catalysts for knowledge utilization in this model, and the output or by-product of the framework is high-quality scientific evidence.

Scholars have tended to operationalize these engineering explanations by contrasting the roles of quantitative versus qualitative research or theoretical versus applied research in knowledge utilization. This approach is limited, however, by the indeterminate directional influence of these factors. For example, quantitatively rigorous studies may be received more attentively than qualitative studies because the findings seem more concrete to end-users. On the other hand, end-users may resist quantitative studies that are too technical or difficult to comprehend, and thus they may prefer qualitative research (Dunn 1983).

Similarly, theoretical analyses may be a hallmark of pathbreaking scientific studies but may be ignored by those closer to the problem as too abstract for “real world” applications.

Because these past formulations lead to ambiguous predictions, their usefulness in exploring the impact of the engineering model is somewhat limited. One way to circumvent these difficulties is to ask both producers and consumers about the extent to which certain methodologically driven, technical aspects of a study matter to them. Although there are many potential indicators of this type of commitment, we use the value placed on program peer/merit review procedures and the incorporation of experimental design to operationalize these technical aspects.² The extent to which both sides value these traditional hallmarks of sound scientific practice is evidence of the relative importance of the engineering model for knowledge utilization.

Socio-Organizational Models

Rather than assume the atomistic, individualized approach that characterizes the engineering model, proponents of socio-organizational models argue that context matters most in knowledge utilization, thereby emphasizing the importance of social aspects of knowledge transactions. These models can be further divided into three subcategories based on the specific type of interrelationships between producers and consumers that can either help or hinder the transmission of information: organizational interests, two communities, and interactions.

The organizational interests subcategory emphasizes that certain organizational differences—such as size, types of policy domains, job structure, and environmental constraints—all lead to an underutilization of particular types of research. These barriers can be overcome when producers of knowledge focus on users’ end needs rather than merely the advancement of scholarly knowledge (Frenk 1992; Lyall et al. 2004; Oh and Rich 1996). For example, in welfare reform, scholars might be interested in the particular constellation of political forces that led to the passage of time limits on the receipt of public benefits, while practitioners might be more interested in the impact of time limits on their clients’ job searches. The organizational interests explanation would argue that scholars should refocus on the knowledge needs of the practitioners in order to maximize their policy influence.

The two communities subcategory argues that professionals in government agencies and academics live in two different cultures (Caplan 1979; Snow 1964). In one culture, government professionals prefer end-user knowledge and readable texts in contrast to more arcane analyses. In the second culture, academics prefer scholarly knowledge and technical jargon to more mainstream-oriented reports. Both groups end up working at cross-purposes, although the resulting underutilization of knowledge can be overcome with a concerted effort. For example, utilization can be increased when researchers invest time and money to adapt their products to meet the needs of end-users. In addition, end-users can increase their utilization by familiarizing themselves with the work of academics, for example, by attending conferences.

² Our variables are more concerned with microlevel processes than those proposed by Landry, Lamari, and Amara (2003) to operationalize the engineering model. They look at the use of quantitative, qualitative, and theoretical studies, as well as the advancement of scholarly knowledge, in predicting knowledge utilization from the engineering perspective.

Finally, the interactions perspective suggests that utilization increases when researchers and users have sustained and intense interactions (Huberman 1987, 1995). Interactions can occur throughout the research process, and not only at the dissemination stage. For example, at the beginning of this process, researchers and users can collectively brainstorm interesting ideas through their daily discussions that then lead to the posing of a formal research question. Because collaboration begins so early, the research is more likely to produce results that are useful to both parties. This perspective also emphasizes the critical role that "linkage mechanisms" play in filtering information, such as the maintenance of informal personal contacts, active participation in committees, and the transmission of reports to nonacademic organizations. The more of these mechanisms that are in use, one can surmise, the higher the level of utilization.

While each is slightly different in terms of emphasis and the identity of the producers and consumers considered, all of the socio-organizational models argue that the clash of institutional norms often prevents the productive exchange of information between organizations. More important, all of these explanations stress the ability of social networking to trump the nature and quality of the scientific product in moving ideas forward—as in evaluation research, where many scholars have pointed to the increased emphasis placed on stakeholder participation rather than "pure science" in analyzing social programs (Smith 2001). These models identify social linkages as the key catalysts in the movement of knowledge between contexts to produce the central output of social capital.

To understand the extent to which socio-organizational factors promote or inhibit knowledge transmission between these groups, we asked both producers and consumers about the degree of emphasis placed on interpersonal contacts and the methods and ease of dissemination techniques between them.³ The extent to which both sides value these concepts in the consideration of the research that they assess is evidence of the importance of the socio-organizational model for promoting knowledge utilization.

HISTORY OF HUMAN SERVICE RESEARCH AT HHS

Before mapping out how these theoretical approaches to knowledge utilization operate on the ground, we must first understand the uneven and politically charged history of human service and social policy R&D in the United States. Immediately after World War II, large philanthropies, notably the Ford Foundation, far outpaced the defense-focused federal government in human service research by supporting projects in anthropology, psychology, and sociology (Smith 1990). However, the John F. Kennedy and Lyndon Johnson administrations began to change the balance between the public and private sponsorship of social and behavioral research by incorporating more academics into government to support the emerging social policies embodied in the Great Society. By 1966, social and behavioral scientists accounted for about 12 percent of the scientific personnel within government. Between 1961 and 1968 aggregate funding for social and behavioral science jumped from \$384 million to \$804 million, almost evenly split between public and private sponsorship (Featherman and Vinovskis 2001).

³ Our variables are a subset of those utilized by Landry, Lamari, and Amara (2003) to operationalize the socio-organizational model. They used variables that capture users' needs, the users' context, the work relevance use of the research, the policy relevance use of the research, the type of agency under consideration, the number of employees in the agency under consideration, the adaptation of products to users, the acquisition efforts of users, and the intensity of linkages between researchers and users.

The Department of Health, Education, and Welfare (HEW) was the most significant source of quality social science. HEW's Office of the Assistant Secretary for Program Coordination, established in 1965, became the government's first major research division to study human service issues. Renamed the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in 1967, the office added a new evaluation branch to improve programmatic outcomes (Britten 2004). ASPE also added technical competency after the gradual dismantling of the Office of Economic Opportunity (OEO), initially located within the Executive Office of the President. By 1975, many OEO experts in community action, poverty, health, employment training, and education relocated to ASPE, whose staff increased to about 150 behavioral and social scientists (Featherman and Vinovskis 2001; Lawlor 1979).

Under the Richard Nixon, Gerald Ford, and Jimmy Carter administrations, ASPE contributed to the development of welfare and health care proposals for reform and oversaw the first set of major social experiments in American history, including the Seattle-Denver Income Maintenance Experiments, to test the potential disincentive effects of cash transfers on the labor supply of lower-income citizens, and the Gary Income Maintenance Experiment, to explore the impact of cash transfers combined with day care and social services on the work behavior of black urban families. The office also became increasingly adept at using generalized econometric modeling techniques to understand human behavior in response to changing policy incentives. By the late 1970s, ASPE had about three hundred employees (Britten 2004).

After losing staff during the cutbacks of the 1980s, ASPE gradually came to be composed of five offices: (1) the Office of Disability, Aging, and Long-Term Care Policy, focusing on elderly Americans and their increasing health-related needs; (2) the Office of Health Policy, conducting health-related and health care financing research; (3) the Office of Human Services Policy, concentrating on welfare, service delivery, and policies impacting children, youth, and families; (4) the Office of Planning and Policy Support, pursuing research activities that often cross departmental lines on broad-based public health initiatives among racial and ethnic minorities; and (5) the Office of Science and Data Policy Issues, coordinating science policy issues in privacy, bioethics, and environmental health.

Two other offices are also responsible for significant human service research: the Office of Planning, Research, and Evaluation (ORPE) within the Administration for Children and Families (ACF) and the Administration on Aging (AoA). ACF's mission is to ensure the social and economic well-being of America's youth and families. OPRE conducts research to improve the effectiveness and efficiency of programs that serve these constituencies. OPRE's main tasks include program planning, analysis, and the synthesis and dissemination of research findings. OPRE accomplishes these tasks within three core research divisions: Economic Independence, Child and Family Development, and Data Collection and Analysis. Most recently, Congress has charged OPRE with analyzing the effects of welfare reform brought about by the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA).

The AoA, begun in 1965 with the passage of the Older Americans Act, is primarily responsible for authorizing grants to the states and localities to provide services for aged Americans. These services include nutrition programs, care-giving assistance, and health-promotion activities that are targeted toward the elderly. A much smaller part of its portfolio is dedicated to research and demonstration grants in these areas.

The total funds that these three agencies—ASPE, OPRE, and AoA—expend on social policy R&D is about \$50–75 million per year, a sliver of the \$28 billion that HHS spends on biomedical R&D (Intersociety Working Group 2004). However, this spending is a critical portion of the federal social science portfolio, both in its role in building the capacity for social research and in its role in informing policy.

METHODS

The data for this article come from thirty-four, in-depth, semistructured interviews of both agency and downstream users that took place during the winter of 2002 through the summer of 2004. In identifying potential respondents at HHS, we were most interested in selecting candidates from ASPE, OPRE, and AoA who managed an active portfolio of human service research projects.

To select potential interviewees, we searched public information sources on the Web to locate current, topical reports on subjects of interest that were being generated within these various agency suboffices, along with the names of their respective managers. We then created lists of interview candidates and submitted them to the directors of these offices for review. Directors often added to our lists and sometimes tried to subtract from them. We took their recommendations seriously, but we sometimes chose to interview personnel not on their lists. Through this iterative process, we secured twenty-five, in-person interviews with research managers of various ranks. These confidential interviews lasted approximately one hour. We tape-recorded, transcribed, and analyzed the interviews using grounded-theory methods with the aid of the software program Atlas.ti. Central to our research strategy was the identification of common themes and markers across the interviews that enabled us to infer respondent support for the engineering, socio-organizational, or other model of the knowledge transmission process.

With a potentially limitless set of research consumers in downstream organizations to interview, we had to devise ways of restricting our search. Our first strategy was to request from each office director a list of contacts believed to be active consumers of HHS research. Two out of the three directors generated such a list, and we chose to interview a subset of these suggested respondents with the aim of maximizing organizational diversity. One director declined to provide such a list to us. In this case, we combed through publicly available research reports to identify potential consumers.

In the end, we conducted nine, in-depth, telephone interviews with these downstream users. As described earlier, our downstream users came from academic institutes, professional associations, budgetary agencies, and nonprofit organizations; they also held a variety of positions within these organizations including research analyst, budget analyst, chief executive officer, and director. Overall, some of these groups focused on a very narrow slice of human services policy, while other groups focused on a broad array of domestic and foreign policy issues. These groups also had a diverse set of funding sources; they received financial support from taxpayers, foundations, corporations, individuals, membership dues, and even grants from HHS itself. Finally, none of these downstream users had direct, daily contact with service recipients on the ground. Instead, these were users who played a fundamental role in interpreting, disseminating, and providing advice for a whole range of intermediary clients, including legislators, nonprofit agencies offering direct services to individuals, state and local community groups, and other networks of

similarly structured groups. We tape-recorded these interviews, which lasted approximately thirty minutes, transcribed them, and then analyzed them with the help of Atlas.ti.

RESULTS: THE FACILITATION OF KNOWLEDGE UTILIZATION IN HUMAN SERVICE AND SOCIAL POLICY RESEARCH

As described above, we operationalize the engineering model by focusing on respondents' statements about the importance of peer/merit review and experimental design. In contrast, we operationalize the socio-organizational model by analyzing the respondents' statements about issues of interpersonal contact and dissemination strategies. Overall, we find that both the producers and consumers of this research place an extraordinarily high value on study attributes indicative of the engineering model in promoting utilization. Both parties valued research qualities associated with the socio-organizational model, but to a noticeably lesser degree. However, we also found that neither model is exclusive or pure. In lending support for the engineering model, respondents described the value of the norms of knowledge production not only for the sake of soundness or integrity but also, importantly, for the sake of the shelter for their institutional goals that this integrity provides. Reciprocally, respondents providing evidence for the socio-organizational model focused much more on constructing social linkages that protect the soundness and integrity associated with their projects, rather than on building social ties that might serve more professionally oriented networking ends. We ultimately use these findings to build our third approach—the shield model—in mapping out these knowledge utilization processes.

Project Peer/Merit Review

The first concept signaling support for the engineering perspective is the importance of project peer/merit review, which begins at the proposal review process. Research managers at HHS describe the process of developing calls for proposals in this way: staff members introduce proposals for smaller projects, which are selected through an internal competition. Division directors select the ones that go forward. Finally, there is a screening process at the assistant secretary level. The projects that typically fall into this pool are congressionally mandated initiatives, joint efforts between multiple agencies, continuing projects, large-scale centers (such as poverty centers), and infrastructure projects (such as database improvement and model building). Managers do not use the same criteria for evaluating the merits of these projects. More specifically, congressionally mandated projects, seen as core to the agency's mission, assume a higher priority than other initiatives.

HHS evaluates most major, multiyear project proposals using a formal competitive process, which differs for contracts and grants. For example, all parties interested in conducting work for ASPE must first go through a rigorous evaluation process in order to be included on the list of eligible contractors. After this first round of vetting, qualified contractors can then explore published contract announcements, which are typically very explicit about the requirements that must be fulfilled in undertaking and completing the study. All contracting actions operate under the federal acquisition regulations and HHS acquisition regulations. Grant announcements, on the other hand, which specify evaluation criteria, are published in the *Federal Register*. Once awarded and in place, grant programs adhere to the *Code of Federal Regulations* (45 CFR, Part 63). In addition, ASPE grants also follow HHS Grants Policy Directives (GPD), which outline the primary responsibilities of all parties in charge of project management.

Projects under consideration by HHS are subject to strict evaluation. HHS managers referred to the central review body as a “peer panel,” and we retain this characterization. However, in some cases they are really referring to the process of “merit review” because the panels are composed of reviewers mostly from within the organization. Especially for smaller projects, program officers do not engage external reviewers because of budget constraints. One high-level manager made this point quite explicitly:

We primarily use internal panels and internal reviewers. We [often] don't [go outside the organization] partly because we don't have the money to pay for external reviewers, and partly because our volume is not huge, but we are very careful, I think, [as to] how we write the scopes of work and grant announcements, and we're very careful on how we panel them.

There is no formal in-house protocol that governs the evaluation criteria employed by the peer panel. Instead, the criteria have evolved over a history of practice; many of the members of the panel have been employed by the agency for a long time. Newer members who are unfamiliar with the process are quieter in their earliest meetings, but they then learn through participation what the more seasoned members comment on and begin to contribute their own views.

The peer panel is “quality control” rather than an incubator for ideas. One HHS analyst characterized the type of review given in this setting as “not substantive.” In other words, the review does not address the overall worthiness of the project but rather focuses on whether the methodology is appropriate for the question and whether the statement of work and deliverables are appropriate:

The peer panel doesn't come up with the ideas. [It is] just [there for the purposes of] quality control. And it doesn't come into play until, well, first of all, you have to get your research idea approved within your office.

Another interviewee elaborated:

[The panel] is not saying “is this a good issue?”; it's more of a “is the methodology reasonable to the questions, is your statement of work descriptive enough that the contractors are going to come up with what you think they are going to?” . . . In theory, they can reject the project and make you start over. In practice, they don't reject projects; [the panel members] give you guidance and say [revise and resubmit].

Substance, therefore, is not a topic for debate at this stage in the research process. Such discussions have already taken place at a higher level, where priorities are set by political appointees. But review is viewed as essential in protecting the methodological integrity of the work.

The review process does not stop at the proposal phase but actually continues through a project's development and ultimate execution. Typical projects are completed in twelve to eighteen months, although many go on much longer, and evaluation opportunities may be limited to conference calls and a planning session for deliverables. Evaluation while a large project is in the field takes the form of site visits by the program officers and conference calls (as often as biweekly). In some cases, a review group composed of several in-house analysts or researchers from stakeholder offices oversees the project as it goes forward. Such review is used to monitor projects that are particularly costly to execute, like, for example, major surveys or experiments.

Individuals representing downstream organizations echoed the importance of peer/merit review in protecting the integrity of the scientific questions under investigation. Demonstrating their support for such processes, members of these downstream organizations at times served as reviewers for projects that commanded the necessary resources required for external evaluation. One such downstream consumer—a director of a nonprofit organization—endorsed this practice by arguing that peer review “adds to the degree to which [the research] is accepted, given the attention it deserves.” Another downstream interviewee, a research analyst from a nonprofit organization, maintained that HHS compared favorably with other government agencies in its use of peer review. This respondent also argued that this commitment prevented HHS-sponsored studies from deteriorating in quality over time:

I would say that peer review is the primary characteristic of high-quality work, and the agencies that have a rigorous peer review process have higher quality research. . . . ASPE specifically has funded random assignment experimental studies of welfare for fifteen or twenty years. They have been competitively peer reviewed (somehow peer reviewed, I am not sure who the peers were), but certainly the proposals that were submitted were competitive, rigorously reviewed, and points were assigned in the decision process and throughout the implementation. There was just a constant process. These studies are often times ten years or more long, and you could easily drift into doing a low-quality study, [but because of these protections, this does not happen].

Of course, adhering to a strict policy of peer/merit review takes time and resources. Although some downstream interviewees voiced concern that the timelines for the production of HHS research may be slow, they overwhelmingly favored the continuation of such review practices that generate sound results.

The fact that review signals sound research thus supports the engineering model, as respondents universally acknowledge that review enhances quality, particularly over the duration of a long project, and some are willing to sacrifice interest for quality. But the engineering perspective does not completely address how the review process is also about protecting and shielding the research from outsiders with competing interests. More specifically, because the process draws on a community of knowledgeable critics who ultimately are supporters of projects they approve, review is also a way of creating a constituency to defend or shelter a project from potentially hostile political forces.

Experimental Research Design

The second concept indicative of the engineering model of research utilization is support for strong experimental research designs. Exposure to traditional academic training heavily influences the fact that most HHS managers value the merits of experimental designs more highly than most other methodological approaches in understanding social behavior. In fact, many HHS analysts have moved directly from academic settings into the government and maintain close ties with academic institutions. One particular analyst commented on this relationship:

Most of the people who [work here] came from academic backgrounds, and have not just been within the government. And most of them are, their primary identities are, as researchers. . . . And so, issues around the academic type of standards of peer review, publication, interest in publication [are important] . . . [different than] what you think of in terms of nonacademic research type settings.

Overall, HHS managers perceive that they employ experimental designs more frequently than other agencies. A researcher affiliated with OPRE remarked that the orientation toward experimental designs is a unique characteristic of his/her office:

I am not sure experimental design is the gold standard in studies that are done in [other parts of the] government. I think our office is actually unique in these studies—it pushes [experimental designs]. I don't think any other agencies really have as many experimental designs unless you look at NIH [National Institutes of Health] clinical trials, which are totally different.

Research managed by HHS is not just "different"—many HHS managers argue that experimental research designs contribute to the perception that their research is more "objective." One way of achieving objectivity is to aggressively cultivate nonpartisan projects. Indeed, one program officer put it this way:

So I think in our own priorities, we've tried to build in . . . [that] the results will not be just sort of ideological forays, which some quote-unquote research programs do. [We also work hard at] trying to deal with issues that are very broad and likely to mesh with even, sort of, administrations of different parties, of Democrats or Republicans, but at the same time [dealing] with those and particularizing them to a particular administration. And I think it's partly skill, and partly luck, and partly the quality of leadership that we've had in both Democratic and Republican administrations that we've been able to do that.

This "objectivity" is crucial for human service research to evolve over time. Experimental methods used with a high degree of continuity build up strong sets of supporting data on populations of interest, which can then lead to the development of innovative policy interventions that are resilient in the face of changing political climates. Policymakers perceive such studies that are the product of consistent and sustained research as unbiased and professional.

Even with these advantages, adhering to experimental methods is not cost-free. Timeliness may sometimes be sacrificed, and projects of long duration are unresponsive to policy crises that might arise. Perhaps more important, effective research often requires a longer period to accomplish than a four-year presidential administration. Experiments, then, must be hardy, in that analysts must plan them with systematic constraints in mind from the very beginning, as the following respondent elaborated:

Controlled experimental design methodology is powerful, but I think I'd call it brittle. Which means it is easy to wreck. I mean, you have to keep things under control, and so you have to ensure a stable environment for that policy. At the same time, the other weirdo trick about it is if you create a hot house to protect your model, [you will run into trouble], because the more you do that, the more you are going to create something that really bears no relationship to the real world. . . . Administrations come and go, there's constant reorganization, [and] there's political resistance from vested interests. So you have to build something as a kind of experimental model that, despite being experimental, you're pretty sure it is hardy and that it can grow.

Due to the extended periods of time needed for experimental investigations to proceed, most HHS managers pointed out the necessity of choosing "evergreen" topics on which to focus.

One recent project with continuity across administrations focused on employment training. The federal government issued waivers to the states under the Aid to Families

with Dependent Children (AFDC) program in order to better understand individual behavior that is shaped by social service programs. One state initiative, the Minnesota Family Investment Program (MFIP), implemented during the mid-1990s, had three components: (1) consolidation of AFDC, food stamps, and Family General Assistance into a single benefit check with one set of governing rules; (2) expansion of financial incentives to work; and (3) tightening the requirements for participation in the Job Opportunities and Basic Skills training program. The study involved an experimental design, randomly assigning applicants and ongoing cases to both experimental and control groups. Among many findings, the study demonstrated that program participants reported higher earnings, higher marriage rates, and a lower incidence of domestic violence than those in the control group.

State demonstrations like MFIP began to mature during this time due to high-level interest in the most effective ways to transition welfare recipients into employment. The research showed that moving people into the workforce quickly was more effective than other remediation programs to address education deficits among lower-income individuals. This particular research took a long time to mature, but it enjoyed support from both Democrats and Republicans because it centered on a commonly held, hardy goal: reducing welfare dependence. Indeed, these experimental results ultimately served as the foundation for the revolutionary PRWORA passed in 1996.

While in this case both political parties agreed on the policy recommendations suggested by these studies, true experimental designs can have unexpected results that may not support the perspectives of current policymakers. HHS analysts who are interested in good experimental design stay true to the models that they have created based on theory and on sound methods. Many of these respondents reported that they do not seek to “fix” a specific model to crank out the answer that they want to find. Of course, one result of this approach might be that results from even sound experimental designs are ignored in hostile political climates. This is a price most HHS managers seemed willing to pay.

HHS analysts also acknowledged that such strict adherence to experimental designs across the agency’s agenda means that there will be gaps in the types of issues that research can appropriately address. One example is homelessness. From an experimental perspective, the homeless population is difficult to sample, and test interventions are hard to implement. Another example is research conducted within rural settings. In one instance, one particular researcher struggled to identify and orient at least three sites that were suitable for conducting methodologically sound research on the topic of no-interest car loans to low-income individuals with the aim of moving them to self-sufficiency:

We really fought hard to get sites for rural [analyses]. [It was] hard to get states to buy in. And, in a lot of ways, it was kind of ironic that we actually got states to buy into rural evaluations, because of the budget crisis. . . . In Tennessee, they had a program there [for distributing] car loans. They used cars in the state motor pool. They gave no-interest car loans to low-income people so that they could drive to employment. . . . One of the issues was, we want to give this to as many people as we can, so how can we do random assignment? Well, the state decided [that] they were going to cut back that program and only give a limited amount of money to it. . . . [In order to achieve random assignment], I had to deal with an ethical problem. They said, well, we want to give this on a first come, first serve [basis]. And we said, well, another option to first come, first serve is also random assignment. . . . And I convinced them it was just as fair. . . . And that . . . was an advantage in going back to the legislature later.

Problems with identifying these sites were thus both technical and political in nature. The agency had to obtain both a large enough sample on one hand and political acceptance from the host states' decision makers—who wanted to make sure the program treated all citizens fairly—on the other.

However, despite the drawbacks associated with experimental designs, HHS managers argue that non-experimental designs may be even more costly across a variety of dimensions. For example, surveys and interviews are time-consuming and labor-intensive, and it is increasingly difficult to obtain a good response rate for such methods when potential respondents have heightened concerns about privacy. Moreover, to these respondents, understanding the depth of an issue may be more important than mapping out its breadth. In fielding their experiments, HHS offices can only take on a limited number of projects, but they end up learning quite a bit more about the issues in question. Indeed, one respondent maintained that this careful selection differs from those processes in other agencies where money is spread over "a zillion different projects that nobody has ever heard of three years later."

Representatives of downstream organizations similarly valued the importance of experimental design in research evaluating social policies. Interviewees noted that highly quantitative studies and trend data can be very important policy tools in Washington, but only if the studies are performed carefully. Part of this care is the use of random assignment within experimental studies, which several respondents argued most distinguishes HHS research from studies produced by other social research organizations. In the assessment of one downstream research analyst in particular, HHS has had an uneven history of employing these methods in the past but has recently expressed a newfound commitment to these approaches. For example, before 1998, when Congress mandated the use of the method in a Head Start study, there had been no large-scale, random assignment, experimental studies associated with that program. With the ever-hardening focus on quality research at HHS, however, the outlook for conducting similar experimental initiatives is now much more positive than in years past.

This is not to say that the use of experimental design, especially involving random assignment, does not present its own set of problems for individuals involved in downstream organizations. In particular, several respondents, echoing the concern of HHS managers, acknowledged that the utility of random assignment for measuring some outcomes is controversial among the general public. One downstream consumer, a research analyst who interacts with state lawmakers in a professional association on a regular basis, pointed out that some legislatures have vigorously debated the issue of allowing random assignment studies to occur under their watch:

In other words, I represent state lawmakers, and a lot of times people don't understand or appreciate random assignment; they think it is cruel. They think it is not helpful. They think it is sort of wrong to hold back from a group of people in order to study [a particular phenomenon].

In cases such as these, individuals from downstream organizations have to conduct more intermediary work with key stakeholders in order to move certain research projects forward. However, this extra effort usually pays off. One downstream research analyst in particular emphasized that the perception of HHS as a heavyweight broker of knowledge—a reputation partly based on the construction of strong experimental research designs—is extremely important in negotiating partnerships with the states and in establishing test sites for numerous new programs.

The critical importance of experimental design provides additional evidence for the engineering model, even and especially to the point where research managers and users are willing to bear significant costs, including forfeiting some opportunities or being ignored by politically hostile decision makers, in order to conduct quality research. But the importance of experimental design to respondents is not derived merely from its adherence to norms of knowledge production, but also from the sheltering opportunity that such well-designed studies offer to persist in the face of political change, demonstrate their effectiveness through evaluation, and encourage bipartisan appeal.

Interpersonal Contacts

Less important than the engineering factors to both producers and users were factors indicative of the socio-organizational approach, namely, creating strong interpersonal contacts and robust dissemination strategies with other users in mind. Interestingly, to the extent that contacts and dissemination strategies are valued among both groups, they tend to focus on technical contexts and methodological issues that bridge the socio-organizational divide.

At HHS the majority of interviewees reported only moderate contact with research consumers such as downstream organizations. When contact does occur, it is mostly with representatives from state programs rather than with local-level practitioners or, less frequently, the recipients of services. Research managers are conscious about the mismatch between local, constituent-level questions that might arise and the macrolevel planning mentality prevalent in their organization, as the following respondent detailed:

I think our connections with consumers are less apparent and less fully vetted out because that's the least exposure we have in our jobs, and rightfully so. [Let's say] I am a trained social worker and I love working with consumers, but at this level it is very difficult because I don't know the program systems that surround them. I don't know their environment, I have no history, so when I get a constituent that has a question about a program or service, I can't really, knowing my professional training, be the best person to help [him/her].

For HHS managers, then, contact is most often with other researchers who operate at higher levels of the social services system, such as those in downstream organizations. These managers are thus most often exposed not to daily operational issues concerning a specific program but rather to problems related to developing appropriate social science methodology to attack the policy issues of the day. In other words, the type of information gathered is most often used to generate more sophisticated research instruments, such as surveys or other evaluation tools, and not to solve problems on the ground.

Participation and leadership at professional conferences are also common among HHS managers, but these activities are social engagements of a very specific type. Multiple HHS offices sponsor annual conferences on subjects such as welfare reform and Head Start. Researchers perceive this professional contact among peers as a critical part of their jobs, as the following respondent described:

I just yesterday attended a briefing at the Department of Labor. So [these research meetings are] happening all around [us]. We're generating [the research], others are generating it. It's

an industry cluster, so to speak, and so being part of that and having all your tendrils out . . . that makes it work.

In another example of important contact, one respondent described the joint annual conference of the National Council on Aging and the American Society on Aging, which conducted a formal listening session on a proposed "rebalancing initiative" to move seniors out of nursing homes and place them in home- and community-based care. Staff from across the country provided feedback on a targeted set of issues. This respondent pointed out that survey instruments were also used to gather constructive comments from state and local agencies. This respondent's interpretation of contact with stakeholders, like the interpretation of others at HHS, characterized these interactions as a process of soliciting structured methodological guidance about the direction of future research, rather than building social ties.

Downstream consumers concurred that interpersonal contact was only moderately important in promoting knowledge utilization. Most of these respondents argued that the nature of this contact critically depends on the project. Interactions could occur as many as three or four times a day on a collaborative effort, but more often it might mean seeing HHS researchers only occasionally at a conference. One downstream consumer who serves as the director of a nonprofit organization that interacts with providers on the ground put it this way:

I would call it communication variability. This is best illustrated by talking about one program, . . . [the National] Family Caregivers Support Program, which began with the [Amendments to the Older Americans Act] in 2000. AoA has funded a number of innovative projects and a number of national organizations. There has been a flurry of communications in the state about expectations and so forth. The states have a great deal of flexibility. The only thing they absolutely have to do is offer the core of five services [information, assistance, counseling, respite care, and supplemental services]. . . . Other than that, the way in which these programs are run, the sky is the limit. . . . AoA funded these innovative grants for three-year periods. Unfortunately, while they are going on, there's been sporadic communication between the grantees, AoA, and the field.

The main concern of downstream consumers, as with HHS managers, is not so much that social capital between these two groups be created and expanded, but rather that the growth of technical knowledge continue apace. In the above example, this respondent worried about how the findings generated by this research would be communicated to future decision makers once this program ended. In other words, how could both HHS and the respondent's downstream organization institutionally preserve the lessons taught by social science? How could they both continue to promote the best practices discovered by such research? Interpersonal interactions, then, from the perspective of these downstream groups, have at their root important technical and operational aims.

From the standpoint of both HHS managers and downstream organizations, interpersonal contact tends to be highly structured. Discussions take place over the phone, in person, during formal conference presentations, and in other arenas. Considered in its totality, this structured contact is more or less limited to one type of communication strategy among research peers: addressing issues of effectiveness in terms of methodology. Most important, the currency of these interactions is primarily of a technical rather than social nature, which once again emphasizes the relative importance of shielding the methodological integrity of the projects as they go forward.

Effective Dissemination Techniques

In addition to interpersonal contacts, the socio-organizational perspective maintains that a strong, usable dissemination strategy is critical to the promotion of knowledge utilization. For HHS research managers, however, effective dissemination has been a long-standing struggle. As one respondent put it, significant money, time, and energy often go into producing the research, leaving dissemination as “a little bit of an afterthought.” However, most respondents indicated that office dissemination efforts have improved considerably, especially with the rise of the Internet. Dissemination activities at HHS research offices ranged from the regular publication and distribution of printed reports, to the posting of such texts online, to speaking at research conferences, to participating in legislative briefings. For example, during the congressional debate leading up to the 1996 passage of PRWORA, agency researchers testified about the advantages of welfare recipients’ immediate immersion in the labor force and the effects of such an approach on their children.

Also important, however, to HHS managers—beyond actually building social networks with consumers through useful dissemination strategies—was that dissemination strategies protect the integrity of the research. For example, many HHS managers expressed the notion that although creating “easy to digest” formulations of their work is important, the technical, more academic version of the research must also be preserved. In other words, as one respondent reported:

We look at whether we need a report at all, you know, if there’s some other product that’s meaningful. We [might] have shorter summaries on the Web site and not have the long report [posted there]. [We’ve] tried to facilitate communications among states as we go; we try to give them opportunities to share their materials. We’ve done a lot of shorter kinds of things. And sometimes we still do sort of the classic report, you know . . . the classic, academic peer-reviewed publication that’s very dense, very long, you know. If you give people other access to [your research], you want that, you always want the credible, technical document somewhere.

This respondent acknowledged that sometimes the traditional academic report, although it most thoroughly describes research design and outcomes, may not be the most suitable vehicle for getting results across to all types of consumer organizations. It could provide, however, the necessary background to other research products.

Most HHS analysts also cautioned against a more “freewheeling” dissemination strategy that could be confused with advocacy and thus damage the credibility of the originating organization. One respondent described this danger quite directly:

I think sometimes there is a reluctance from our part to be too much of an advocate because we want to present ourselves as objective. So if you go out and you say, “You see, [that] policy was right all along” or “we should be going in this direction.” . . . For a place like ours, you can only go so far and then you are damaging your own credibility. . . . So, I think that one has to be careful about that, and in fact, we also want our contractors to tone down the findings because they tend to get on the soapbox, and one has to really be careful about that because we really pride ourselves on our objectivity. It allows us to continue doing research; we’re not biased, or try not to appear biased.

To preserve this independence, HHS managers look to others to take up the results of their work and disseminate them more broadly. For example, an HHS-backed study on the Vermont Welfare Restructuring Project Reform—an initiative that explored the impact

of work incentives and time limits on welfare recipients' employment prospects during the mid-1990s—came at the right time prior to the federal welfare reform law in 1996. It enjoyed considerable promotion from the state in the forms of a press release and featured status on the state welfare agency's Web site. In this case, as in many others, HHS analysts were more comfortable playing a behind-the-scenes role.

How do downstream organizations view the importance of dissemination in terms of promoting knowledge utilization? These consumers confirm HHS researchers' assertion that dissemination efforts have improved over the last several years with the development of agency Web sites and online databases. Most rank Internet availability as a favorable characteristic of the research. Indeed, continuing to support HHS's movement into the electronic age, these downstream respondents pointed out that not only are reports and their various sections (such as the more concise executive summaries) available on the Web, but listservs and e-mail "updates" also allow them to stay up-to-date on current research activities. Moreover, these downstream respondents valued Internet accessibility from reliable, technically sound sources such as HHS-sponsored Web sites as more important than attending professional conferences, which have a more socially oriented component to them.

These consumers also valued being consulted about the form and nature of dissemination activities. However, their own level of expertise in the field allows them to understand and assimilate sophisticated research results. In other words, they need little "translation" from HHS. Instead, as the following director of a nonprofit organization declared, these downstream consumers view themselves as the "translators" for others:

The research that is most useful, of course, is research that is on point and addresses issues that we are concerned with. So in terms of research that is done in those areas, having access to it in a very digestible form [is helpful] so that it is something that we can ensure our members are aware of and help them figure out how best to use it.

In a sense, many of these downstream research consumers possess professional skills similar to those of HHS analysts. They may see themselves as professionals capable of understanding some of the more esoteric aspects of social research and thus do not require further distillation to speak to the findings of a particular HHS-sponsored study. Here again, dissemination efforts geared toward making research products more accessible to practitioners may be moderately important, but the technical qualities of the research that protect its methodological integrity matter more as they also function to shelter the research from potential oppositional forces.

The Shield Model

In this study we aimed to isolate the influence of both engineering and socio-organizational factors on the transmission of research from HHS managers to downstream users with an interest in social programs. In contrast to the work of Landry, Lamari, and Amara (2003), who found support for the socio-organizational model over the engineering model in their study of one particular knowledge transmission system in Canada, we show that both frameworks of knowledge utilization are present in different degrees and that they intertwine in unique ways within the context of HHS. More specifically, we find that the qualities valued in both producer and consumer communities signal convergence around a novel third approach—the shield model—in which aspects of the original two models

reinforce a powerful professional norm of objectivity that shelters the knowledge generation and transmission process from external political pressures. The shield model thus provides a distinctive and integrative framework for understanding the relative importance of the engineering and socio-organizational factors in certain research environments.

In many ways, the shield model is informed by another classic description of the function of a social network in linking specialized knowledge to practice. In *Science in Action*, Latour (1987) asserts that a shared professional rhetoric is a precondition for the existence of such networks. In other words, commonly shared meanings among groups produce commonly shared interests. Once they are in place, these networks of relatively small groups of scientists with specialized skills can gain enormous influence over large domains of knowledge. They do so through concentrations of expert knowledge, nodes in the network, which are joined together by connections to other nodes to extend the influence of all generated research to the widest possible audiences.

While this theory is used to explain the influence of the natural sciences on technological innovation in society, the network concept is an apt representation of the mechanism informing the social science research ecology as well. Just as in the natural sciences, HHS researchers vigorously strive to have their work inform the operation of social programs. In the context of our study, the fibrous mesh linking social research and its publics is the shared practices, rhetorics, and interactions we attribute to both the engineering and socio-organizational models. Returning to the words of one of our interviewees as he described his work-related activities, we see how he views communication with his colleagues through the lens of this “network” context: “It’s an industry cluster, so to speak, and so being part of that and having all your tendrils out . . . that makes it work.” Indeed, shared appreciation and respect for professional research quality promote what Lindblom and Cohen (1979) call research “authoritativeness.” Ultimately, a general agreement about what qualities infuse the research practice with authoritativeness and a commitment to promote this view bind the network together.

Latour’s (1987) concept of a network thus helps us understand not only *what* makes information move from a community of experts into use by those involved in policy implementation (where the *what* is represented by operationalizing the engineering and socio-organizational perspectives: agreement in both groups about the importance of peer/merit review, experimental design, particular interpersonal contacts, and dissemination techniques). This concept also illuminates *why* the network operates as it does and how it is able to spread research knowledge across a wide domain. It is the *why* that we capture in the shield model. In Latour’s (1987) view, the network structure, binding communities of experts to knowledge domains and to the users of technology, permits scientists to exercise influence over ever-larger parts of society. Researchers propagate their influence by undertaking scientific practice and producing documentation to “escalate the proof race” (Latour 1987, 232). In this process, documentation becomes a means for confronting conflict and for marshaling allies.

Whereas Latour (1987) focuses on the importance of scientific documentation in building influence in society, our shield model suggests that the shared value placed on the professional methodologies employed in social research has mutual benefits for both research producers and consumers. More specifically, concentrating on the methodological aspects of research diverts discussion about the social value of undertaking a particular research project. For example, we learned from our interviews with research producers that discussions about the merits of particular topics of study do not happen in peer panels.

Table 1
Three Models of Knowledge Transmission

Framework	Defined Action	Catalyst	Output
Engineering or "science-push"	When the imperatives of technological advance are too great to ignore, new knowledge transmission occurs	Progress, technical virtuosity	High-quality scientific evidence
Socio-organizational	Positive oral and written communication between individuals and groups facilitates knowledge transmission	Social linkages, engagement	Social capital
Shield	Commonly valued norms about objective research shelter knowledge transmission	Impartiality, objectivity, and productive tension between technical and social goals	Continuity (for research and social programs)

Similarly, even the contact with the downstream communities for feedback is governed by a distinct methodological structure that limits attacks based on competing and value-laden programmatic ideas. Listening sessions at conferences are cataloged, questions are asked, and comments are collected to build, as Latour (1987) would argue, a stronger, more influential network that is systematically buttressed against external intervention.

In summary, we extend traditional explanations of knowledge transmission with the shield model to suggest that a strong network of shared professional values shelters the research arena from political pressures. We make a comparison of the actions, catalysts for, and outputs from the three models at play in this analysis in table 1. The outputs of the original two models—well-documented, high-quality scientific evidence from the engineering model and, to a lesser extent, the social capital developed through socio-organizational practices—combine to support the powerful professional values of impartiality and objectivity that serve as the catalysts for the movement of knowledge. These values, commonly held by both groups within the research ecology we studied, shelter the knowledge production and dissemination process from external political pressures. Ultimately, this framework bears fruit for its adherents by providing a highly desired output in the form of continuity for long-standing research and social programs.

Beyond providing a more accurate framework within which to interpret our empirical findings, the shield model also meshes better with findings about knowledge and political institutions in other areas. The norm-based connections within the research ecology of social policy research indicate the presence of an epistemic community (Haas 1992), which uses these connections, grounded in intertwining technical and social commitments, to cross socio-organizational boundaries. In our research, although the engineering factors dominated the socio-organizational ones, their subtle blending was also crucial. Such a finding is very similar to those in the literature of social learning in environmental policy, where the technical criterion of credibility is entangled with the political criterion of legitimacy and the organizational criterion of salience to provide a framework for useful analysis (Cash et al. 2003). Although much more research is needed, we would expect to find similar dynamics at work across other governmental agencies, such as the Departments of

Education, Justice, and Labor, where strong cultures of expertise need to be transmitted to downstream intermediaries in sustaining their daily operational work.

CONCLUSIONS

In a period of time when society is saturated by social policy research, scholars have begun to map out the pathways by which research findings pass from producer to consumer. This is especially true when we consider knowledge that is managed under the auspices of a large federal agency, such as HHS, and that then moves to the type of relatively sophisticated consumer that we have described here—downstream organizations. The questions are numerous: How, exactly, does this communication process occur? Do elements of technical progress and virtuosity, embodied by the engineering perspective, or social linkages, as embodied by the socio-organizational perspective, matter more in promoting the transmission of research?

At HHS and within downstream organizations, we found convergence on the idea that, at least for social policy research, the technical merit of studies outweighs the importance of social interaction in contributing to utilization. Peer/merit review procedures and experimental designs provided research with characteristics of integrity that both groups tended to prize. This is not to say that interpersonal contacts and effective dissemination strategies did not matter—they did, but less so. In this study, however, two further nuances appear. In supporting the engineering model, respondents described valuing sound technical criteria not only for their accordance with norms of knowledge production but also for their ability to shelter institutional goals. In supporting the socio-organizational model, respondents valued interpersonal contacts and effective dissemination strategies not primarily for reasons of social cohesion but to protect the integrity of the research produced.

One possible explanation for these findings, which we have encapsulated in our shield model, may be the shared sense of professional destiny that both these particular producers and these particular consumers have with respect to the research process. They are not full-time lobbyists, pushing for the acceptance of new ideas that benefit specific populations, and they are not the final decision makers, such as elected officials, who must satisfy the needs of their own constituencies. In other words, because of their unique position in the chain of politics and policy, tinkering with the technical dimensions of a study may be one of their most significant creative avenues for action. As has been documented in other work on the politics of welfare reform during the 1980s and 1990s, this might also be an effective “survival” strategy for their profession, especially during periods of extreme partisanship (Gueron 2003).

This type of functionalist argument may go a long way toward explaining how research moves between these two communities of interest. However, the relative importance of this shield model might be specific in characterizing the interactions of these two groups. More specifically, the scope of our conversations with research consumers here was limited to organizations that mediate between the research world and real social problems. In other words, we focused on downstream organizations that administer, study, and provide advice on social programs at relatively high levels of sophistication. Moreover, the size of our downstream user sample is admittedly small and nonrandom. While we have examined the first link in the chain of knowledge utilization—from the producers of social research to the first tier of consumers—we acknowledge that there are clusters of

consumers that have yet to be consulted about the impact of this research on their lives. Here we are specifically referring to direct service providers on the ground, who might have very different views on the knowledge transmission process. Future research should therefore focus on mapping out the distinct knowledge transmission processes that depend on the particular internal and external characteristics of the exact dyads involved.

REFERENCES

- Bozeman, Barry. 2000. Technology transfer and public policy: A review of research and theory. *Research Policy* 29 (4/5): 627–55.
- Britten, Gerald. 2004. Office of the Assistant Secretary for Planning and Evaluation: A brief history. <http://aspe.hhs.gov/aspehistory.shtml> (accessed 20 August 2004).
- Caplan, Nathan. 1979. The two communities theory and knowledge utilization. *American Behavioral Scientist* 22 (3): 459–70.
- Cash, David W., William C. Clark, Frank Alcock, Nancy M. Dickson, Noelle Eckley, David H. Guston, Jill Jäger, and Ronald B. Mitchell. 2003. Knowledge systems for sustainable development. *Proceedings of the National Academy of Science* 100 (14): 8086–91.
- Dunn, William. 1983. Measuring knowledge use. *Knowledge: Creation, Diffusion, Utilization* 5 (1): 120–33.
- Featherman, David. L., and Maris A. Vinovskis. 2001. Growth and use of social and behavioral science in the federal government since World War II. In *Social science and policy-making: A search for relevance in the twentieth century*, ed. D. L. Featherman and M. A. Vinovskis, 40–82. Ann Arbor: University of Michigan Press.
- Frenk, Julio. 1992. Balancing relevance and excellence: Organizational responses to link research with decision making. *Social Science and Medicine* 35 (11): 1397–404.
- Gueron, Judith M. 2003. Presidential address—Fostering research excellence and impacting policy and practice: The welfare reform story. *Journal of Policy Analysis and Management* 22 (2): 163–74.
- Haas, Peter M. 1992. Knowledge, power, and international policy coordination. *International Organization* 46 (1): 1–35.
- Hall, Gene, Susan Loucks, William Rutherford, and Beulah Newlove. 1975. Level of use of the innovation: A framework for analyzing innovation adoption. *Journal of Teacher Education* 26 (1): 52–56.
- Huberman, Michael. 1987. *Steps toward an integrated model of research utilization*. Bern, Switzerland: Peter Lang SA.
- . 1995. Research utilization: The state of the art. *Knowledge and Policy* 7 (4): 13–33.
- Intersociety Working Group. 2004. *AAAS report XXIX: Research and development FY 2005*. Washington, DC: American Association for the Advancement of Science.
- Johnson, Knowlton W. 1980. Stimulating evaluation use by integrating academia and practice. *Knowledge: Creation, Diffusion, Utilization* 2 (2): 237–62.
- Kingsley, Gordon, Barry Bozeman, and Karen Coker. 1996. Technology transfer and absorption: An 'R&D value-mapping' approach to evaluation. *Research Policy* 25 (6): 967–95.
- Knott, Jack, and Aaron Wildavsky. 1980. If dissemination is the solution, what is the problem? *Knowledge: Creation, Diffusion, Utilization* 1 (4): 537–72.
- Landry, Rejean, Nabil Amara, and Mokhtar Lamari. 2001. Utilization of social science research knowledge in Canada. *Research Policy* 30 (2): 333–49.
- Landry, Rejean, Mokhtar Lamari, and Nabil Amara. 2003. The extent and determinants of the utilization of university research in government agencies. *Public Administration Review* 63 (2): 192–205.
- Latour, Bruno. 1987. *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Lavis, John, Suzanne Ross, and Jeremiah Hurley. 2002. Examining the role of health services research in public policymaking. *Milbank Quarterly* 80 (1): 125–54.

- Lawlor, Edward. F. 1979. Income security. In *Studies in the management of social R&D: Selected policy areas*, ed. L. E. Lynn, Jr., 11–59. Washington, DC: National Academy of Sciences.
- Lindblom, Charles E., and David K. Cohen. 1979. *Usable knowledge*. New Haven, CT: Yale University Press.
- Lyall, Catherine, Ann Bruce, John Firm, Marion Firm, and Joyce Tait. 2004. Assessing end-use relevance of public sector research organisations. *Research Policy* 33 (1): 73–87.
- Nagel, Stuart. 1990. Research utilization in public policy making. *Policy Studies Review* 10 (1): 195–201.
- Oh, Cheol, and Robert Rich. 1996. Explaining use of information in public policymaking. *Knowledge and Policy* 9 (1): 3–35.
- Rich, Robert. 2001. *Social science information and public policymaking*. Somerset, NJ: Transaction Press.
- Seashore Louis, Karen. 1992. Comparative perspectives on dissemination and knowledge use policies. *Knowledge: Creation, Diffusion, Utilization* 13 (3): 287–304.
- Shonkoff, Jack. 2000. Science, policy and practice: Three cultures in search of a shared mission. *Child Development* 71 (1): 181–87.
- Smith, Bruce L. R. 1990. *American science policy since World War II*. Washington, DC: Brookings Institution.
- Smith, Midge F. 2001. Evaluation: Preview of the future #2. *American Journal of Evaluation* 22 (3): 281–300.
- Snow, Charles P. 1964. *The two cultures and a second look: An expanded version of the two cultures and the scientific revolution*. 2d ed. Cambridge, UK: Cambridge University Press.
- Weiss, Carol H. 1992. *Organizations for policy analysis: Helping government think*. Newbury Park, CA: Sage.
- Weiss, Carol H., and Michael J. Bucuvalas. 1980. *Social science research and decision-making*. New York: Columbia University Press.