

CHANGING ENVIRONMENTS OF PUBLIC ADMINISTRATION AND THE KNOWLEDGE MANAGEMENT IN GOVERNMENTS

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<Abstract>

This paper reviews some necessary basic concepts underlying knowledge process and examine major issues in the underlying processes in which knowledge is created, disseminated, and utilized in the government. Also, this paper seeks to explore management strategy for improving knowledge utilization.

행정환경의 변화와 정부의 지식관리

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<요약>

본 연구는 지식과정에 대한 기초개념과 정부의 지식 생산, 배포, 활용과 관련된 중요이슈를 검토하고, 지식활용을 향상시키기 위한 관리전략을 고찰하였다.

1. Introduction

Over the years, government organizations have confronted funding deficits, increased productivity requirements, and demands for improved quality. They also have to cope

with increased citizen influence and continuous and accelerated technological change. The application of information technology can provide the efficiency, quality, and flexibility of government services through better information management.

Computers are used to produce so much information that access to information is no longer the primary concern in governments. However, the problem is to leverage the value of information in order to achieve better performance, developing targeted knowledge resources more quickly, and delivering them in such a way that they result in more effective government action. Information does not produce value unless it can enable an effective knowledge in action. The key to a successful transformation from information management to knowledge management lies in our ability to alter the current common sense of how and why we provide services and their worth.

Investigations of the knowledge functions of government lead us to basic questions of epistemology whose implications provide a better understanding of the knowledge processes. As Lasswell(1971) put it, policy research is primarily concerned with the intelligence function, "the gathering, processing, and dissemination of information to participants in decision making process." Knowledge process is a complex process which involved many components:

Knowledge management is like medicine or engineering in emphasizing the practical. Nonetheless, all three fields rely heavily on theories that are not immediately practical. Engineers learn about physics not for rules about building rockets but because physics gives them concepts they need to understand and solve problems in their work. Similar observations hold in other practice-driven fields. They draw much basic theory from other disciplines, but use this knowledge and their own problem-solving experiences to develop specialty theories specifically adapted to the practical demands of their work. It would be serious mistake to suggest that medicine or engineering could do without such basic theories. It is just as serious a mistake to overlook the importance of theory in knowledge management.

There has been an exponential increase in the allocation of resources in governments for the production and use of knowledge in public policy making and knowledge management. One of the goals of knowledge management is to make knowledge more visible. This corresponds to an important distinction between tacit knowledge and explicit knowledge. Nonaka and Takeuchi(1995) see the primary task of knowledge management as that of making tacit knowledge more explicit. They view organizational knowledge creation as an interaction between tacit and explicit knowledge. This process, which they call knowledge conversion, is a social, communal process.

This trend seems to be supported and encouraged even further by a call to expand government capabilities. Even with the empirical expansion of the knowledge and information industry, however, there is doubt and frustration by researchers and practitioners that the knowledge is being used. This issue of knowledge use is the focus of this paper.

Before beginning the investigation of the knowledge use problem, it is important to

surface many of the issues surrounding the problem. Therefore, this paper reviews some necessary basic concepts underlying knowledge process and examine major issues in the underlying processes in which knowledge is created, disseminated, and utilized in the government. Also, this paper seeks to explore management strategy for improving knowledge utilization.

2. The Concept of Knowledge

What is knowledge? Is it data in the database? Is it information in the documents? Knowledge is neither data nor information. The definition of knowledge is like the definition given for effectiveness by Cameron and Whitten(1983:20): “as a construct, is similar to an unmapped terrain, where the responsibility lies with the investigators to chart it”. Knowledge has been given many interpretations in the philosophy and history of science.

Popper(1972)'s approach to the philosophy of science helps us to adopt the idea that science can never produce definitive statements on the way things are and encourages us to view the claims of science in a more modest and tentative way than is often the case. According to him, science has evolved as a way of knowing that searches for knowledge that is certain and reliable by suspending belief in certainty. He describes the scientific community's selection of theories not as a process by which a given theory is justified by the evidence but as one by which a theory survives because its competitors are less fit.

Following Popper, Campbell(1974) conceives of truth as nothing more than a pragmatically justified fit between theory and data. He suggests quasi-experimentation(1975) to enhance the explanatory power of social theories. However, that notion was challenged by Cronbach(1980) and Dunn(1982). Cronbach argues that real causal forces exist in systematic configurations rather than as simple univariate cause and effect relations. quasi-experimentation cannot solve the issue of the multivariate complexity required for complete causal understanding.

Popper(1959) proposes a methodology for the testing and assessment of scientific claims that may be subjected to falsification and refutation. Those methodological rules comprise a definition of empirical science. Under positivism, suspension of belief usually takes the form of hypothesis testing, in which rival hypotheses are subjected to systematic doubt. However, there are problems in adopting a logic of falsification, since in any research it is clear that all research strategies are framed by assumptions that shape the course of inquiry.

The second theory derived from history of science was presented by Lakatos(1970). In his sophisticated methodological falsificationism, he speaks of sequences of theories which are welded together into continuous “research programmes”. The programmes

offer the scientist guidance.

The third theory, that presented by Kuhn(1970), argues that the normal process of scientific advance is to solve the problems within the context of the paradigm, which is a picture of the state of the act as it is generally accepted by its practitioners. The substantive focus of scientific inquiry is thus determined by the structure of research paradigms.

Paul Feyerabend(1975) claimed that if any progress is discernable in science it is the result of scientists having broken every conceivable rule of rationality. He denies that there is an objective scientific method. He argues instead that all observations are impregnated with the theory or theories of observers. It is in all research endeavors(Mitroff, 1974: 19).

Just as a paradigm describes the assumptions that underlie various theories, the concept of frame of reference(Dunn et. al. 1983; Holzner and Marx, 1979; Weiss and Bucuvalas, 1980) describes assumptions that underlie decision making in the knowledge process. Frame of reference include the epistemological, methodological, scientific, and common sense assumptions that an individual or a group of individuals make about the conditions for gaining valid information and for utilizing it. Deciding what data are relevant to a judgment is often marked by prior expectations or theories, and as we observed, the common situation of biased sampling procedures.

There is, however, another fundamental distinction that needs to be examined, that among knowledge, information and data. Perceived stimuli(data) are mediated by our subjective frames of reference and organized into information. Information that has passed truth tests becomes knowledge. Campbell and Stanley (1963) propose truth tests by offering threats to the validity of knowledge.

Holzner (1968: 20) defines knowledge as the communicable mapping of some aspect of experienced reality by an observer in symbolic terms. This definition resembles the concept of information presented above. It is this definition, however, that seems to permeate at least implicitly in the field of knowledge management. Machlup(1980: 115) refers to knowledge in this same light. Knowledge need not be knowledge of certified events and tested theories. Knowledge can be the insights, understanding, and practical know-how.

Therefore, knowledge is no longer based on verified certainty or empirical correspondence. In other words, there is no justified true belief. However, knowledge should incorporate the action that produces value for something. Knowledge is related with the ability to do something. Data represents certain characteristics of objects or events in the real world. Data are literally given. Data can become information when it serves a meaningful purpose in a certain setting. Knowledge is understanding and ability to transform it into actions, which yields performance.

3. Types of Knowledge

Knowledge wears many faces. People mean very different things when they use the word, "knowledge". Knowledge can be viewed in many different ways from hard to soft, ordinary to technical and scientific, positive to negative and the categorization goes on and on.

Machlup(1980) says that knowledge can be classified based on the "meaning of the known to the knower". Knowledge about the state of some world is called descriptive knowledge. It includes description of past, present, future, and hypothetical situations. It is commonly referred to as data or information. A knower can acquire descriptive knowledge via observation and can produce it by transforming or assembling existing pieces of knowledge. Procedural knowledge is knowledge about how to do something and concerned with a step-by-step procedure for accomplishing some task. A third major type of knowledge is reasoning knowledge which is "know why". By putting together pieces of reasoning knowledge via inference, we can reach logical conclusions and justify them by citing our reasons.

To Caplan(1977: 188) knowledge can be hard (that is quantitative, research based and couched in scientific language) similar to Lindbloom and Cohen's technical or scientific knowledge(1979). Soft knowledge (Caplan, 1977) refers to knowledge that is common sense based, experiential, intuitive, and steeped in lay terms, similar to Lindbloom and Cohen's ordinary knowledge.

Knott and Wildavsky(1981: 111) refer to positive knowledge as that knowledge which has been demonstrated to have a causal relationship between the policy variable and the dependent variable; negative knowledge has been demonstrated to have no causal relationship.

Michael Polanyi(1966) describes a distinction between tacit knowledge and explicit knowledge. Tacit knowledge is personal, context-specific knowledge that resides in an individual as the form of experience, hunches and insights. Explicit knowledge, on the other hand, is more formal codified knowledge conveyed from one person to another in systematic ways through documents, images, and other deliberate communication processes.

Also, knowledge claims, contestable claims that provide reasons and evidence for believing that a conclusion is plausibly true, can be classified into four types: 1) definitive (knowledge about the appropriate definition of some object, 2) designative (knowledge about observed regularities), 3) evaluative (knowledge about the value of an event or object), 4) advocative (knowledge about policy) (Dunn, 1981). However, the certainty of knowledge claims depends upon the subjective interpretation. By accepting this subjective interpretation, a great deal of ambiguity arises.

4. Problems of Knowledge Use

In the decision making process one critical component is information. Reputations for organizational intelligence are built on capabilities for securing, analyzing, and retrieving information in a timely and intelligent manner(Weilenmann, 1980). Various research such as information-processing interpretation of cognition, economic theories of information, and cybernetic perspectives on adaptation all build on the idea that the processing of information is a vital aspect of human behavior.

In public policy making, information is frequently inadequate, or simply not available, partially due to constraints of time and events. When the issue is that of portraying particular facts and describing particular state of affairs, there can be no question that decision makers always leave something out. The decision maker's information about his environment is much less than an approximation of the real environment(Simon, 1983; 342). They cannot describe the world completely. The task is too big in principle; the domain of relevant information is too large for descriptive completeness.

The concept of uncertainty in the decision making process has been defined in a variety of ways. Lawrence and Lorsch(1967; 27) state that uncertainty consists of three components; 1) the lack of clarity of information, 2) the long time span of definitive feedback, and 3) the general uncertainty of causal relationship. Decision makers tend to believe that events are related causally and thus try to infer the causal relationships underlying these events and the actions of other actors.

Because decision makers depend on a limited repertoire of responses, they often attempt to place a novel event or series of events into the context of their experiences(Scheidell, 1974). One context is that discussed by Allison(1969) in terms of standard operating procedures. Another is the decision maker's cognitive style(Blaylock and Rees, 1984). This evidence suggests multiple conceptualizations leading to conflicting definitions. The policy makers go through a process that involves observation, assessment, and abstraction from reality. Since different individuals involved perceive the same reality differently, the heterogeneity of values, images and perspectives can be brought to bear on decision making. This results in sharp definitional conflicts.

In light of the diversity of values and value structures, it is difficult, if not impossible, for the decider subsystem to reduce the varieties of contingencies. Uncontrollable contingencies may be seen as rival hypotheses, or threats to validity (Campbell and Stanley, 1967; Cook and Campbell, 1979), which challenge claims that a policy affects one or more policy outcomes. Although the range of rival hypotheses is never complete, it is possible to estimate the limit of this range. Campbell, Stanley, and Cook have catalogued a large number of rival hypotheses which are classified as statistical conclusion validity, internal validity, external validity, and construct validity. Also, policy argumentation and debate within specific policy contexts is an important

source of rival hypotheses(Dunn, 1993, 1998).

Decision making can be seen as a knowledge-intensive activity. A decision maker's productivity is seen as being highly dependent on what knowledge is available and what skills exist for processing that knowledge. Decision support systems are seen as knowledge representation and processing mechanism that augment human knowledge management capabilities in the course of decision making.

In their study, Weiss and Bucuvalas(1980) observed that in coping with the incoming flood of information, decision makers invoke three basic frames of reference. One is the relevance of the content of the study, another is the trustworthiness of the study(truth test), and the third is the direction that it provides(utility test). Hence, this subjective interpretation leads to an understanding of some problems of knowledge use.

The two communities theory(Caplan, 1976; Coleman, 1972; and others) attempts to explain the underutilization of social science knowledge in public policy making. Social scientists and policy makers, according to this theory, operate in two different worlds with different time horizons, different languages, and different ways of thinking. For Dunn(1980), this notion is just a metaphor similar to relations between natural science and the humanities. In his view, the problems of knowledge use are cultural, since "they depend on the subjective interpretation of meaning attached to knowledge by members of particular subcultures".

The cultural gap (for example, orientation, motivation, and inquiry styles) between the producer and user communities then has come to be viewed as a deterrent to the utilization of research-based knowledge. The researcher looks for common patterns that accept hypothetical generalizations, while public decision makers tend to see each situation as unique and seek answers to problems(Weiss, 1977).

Love(1985) identified four factors that have an effect on the level of utilization of research findings. These are related to the characteristics of the knowledge and knowledge process, transfer process, characteristics of users, and the situation and context of use. Among the characteristics of the knowledge and knowledge production process that are associated with high levels of utilization, Fullan(1981) points out relevancy, clarity, comprehensiveness, well articulatedness, vitality, and action orienting.

High utilization factors related to the transfer process are personal interaction(Dunn, 1980). And regarding the characteristics of users Dunn(1980) found higher utilization in private organizations with formal profit incentives than in public organizations which do not value research as a basis for problem solving. Factors related to the situation and context of use are the participants involved, the purpose of utilization, the commitment of the potential and the time table(Larsen, 1980)

Knowledge creation, dissemination, and utilization are themselves not separable processes. While it is conceptually convenient to treat these as separable processes or activity subsystem, it is misleading in the sense that knowledge can be created during dissemination and utilization processes and vice versa. This is one reason why it is so

difficult to measure knowledge use.

5. Types of Knowledge Use

There is no general classification of knowledge use because of investigators' favored conceptualization of knowledge use. Also, this creates a methodological debate(Caplan, 1977; Rich, 1977; Knorr, 1977). Traditionally, knowledge use has been viewed as a discrete process of appropriating new ideas for purposes of recommending and/or implementing specific courses of action. This traditional conception of knowledge use, which emphasizes directly observable consequences of acting upon knowledge, has led many researchers to inquire whether specific knowledge is overtly used.

Some important distinctions are instrumental, conceptual, and symbolic use. Instrumental use involves acting on research results in specific, direct ways; symbolic use involves using research results to legitimate and sustain predetermined positions. Conceptual use of knowledge means that the knowledge influences the decision maker's thinking about an issue without putting the information to any specific documentable use.

Although Larson(1975) argues symbolic use as a prevalent mode, most investigators (Caplan, 1977; Caplan, et, al., 1975; Rich, 1977; Patton, et, al., 1977) feel that conceptual utilization is most often used in dealing with policy problems. Caplan(1977) indicates, decision makers appear more likely to make decisions based on soft knowledge considerations of the social impact of a particular policy rather than hard knowledge.

6. Models of knowledge Transfer and Utilization

The problem that confronts researchers in answering the questions of transfer and utilization is by what means can a bridge be constructed between the knowledge producer, or researchers, and the users of that knowledge, mainly policy makers. One of the strongly advocated ways to increase research usage is to establish a linking mechanism in the form of an agent(Rich, 1977; MacRae, 1976) or institutions(Greenberger, 1976).

The assumption of the linkage approach is that there is a communication gap between knowledge producers and users. The logic of the linkage approach may have appeal, however, there is no strong evidence to support its success. Weiss(1979) notes that the middleman approach has not been very successful. Rather, practitioners trained in social science research could serve the role of change agent(Rothman, 1974)

Another aspect of establishing linkages is to establish a network which is similar to the "epistemic communities" described by Holzner and Marx(1980) and affinity group(Allee, 1997). A communication network can have a more or less systematic exchange of

interaction among its actors. Convergence is achieved through a high degree of interaction. The underlying theory states that the more people have in common, the more commonality can reinforce. Convergent systems tend to become "homophilous" through organizational norms, sanctions, and selection procedures. The major problem with this process is that there seems to be a negative relationship between degree of convergence of a communication network and its openness to innovation(Rogers and Kincaid, 1981). And as Ganz(1980) indicates, those linkages among components in knowledge use are far more complex than have been realized.

The engineering model suggests that applied social science involved using the insights of basic social science theory, together with rigorous methods to tackle the problems. In this model, the task of basic researchers is to develop and test a logico-deductive system of hypotheses and propositions. This model is linear one because a problem exists; information or understanding is lacking either to generate a solution to the problem or to select among alternative solutions; research provide the missing knowledge; and solution is reached. However, this model fails to address the false analogy between social and natural science(Dunn, 1980).

The enlightenment model(Caplan, 1976; Knorr, 1977; Janowitz, 1972) assumes the importance of social context, and focuses on developing various types of knowledge that can be utilized by policy makers. Weiss(1977) suggested that social science knowledge may be used to help conceptualize problems differently rather than as direct input into specific decisions. However, the enlightenment model gives little attention to the problem of utilizing the findings of research because public officials are likely to adopt an engineering approach in which a problem is specified, and this model neglects the dynamics of influence receptivity diad.

The problem solving model suggests that policy makers can search the preexisting research for assistance in formulating and considering problems. The major responsibility of policy researchers is the identification and analysis of the appropriate means to achieve the agreed upon goal. This model assumes the following sequence of events: 1)definition of pending decision, 2)identification of missing knowledge, 3)acquisition of social science research, 4) interpretation of the research for the decision context, 5)policy choices(Weiss, 1979: 427). One assumption in this model is that there is a consensus on goals. Policy makers and researchers tend to agree on what the desired end state should be. The main contribution of social science research, therefore, is to help identify and select appropriate means to reach goals. However, this model can discourage researchers when events do not occur through the sequential stage.

Unlike linear models of knowledge utilization, interactive models propose a set of reciprocal relations between policy makers and researchers. Both researchers and policy makers communicate and pool their efforts and knowledge in an attempt to tackle a particular problem(Weiss, 1977: 14). In this model, the use of research is only part of a complicated process that also uses experience, political insight, pressure, social technologies, and judgment. It has applicability not only to face-to-face settings but

also to the multiple ways in which intelligence gathered through intermediaries and brought to bear. The notion that more and better contact may result in improved understanding and greater utilization may be plausible.

Technology protocols that enable one computer to link to another have granted us the capability to self-organize around knowledge and communities of practice. Internet comprise and exciting experiment in self-organization of knowledge on a global scale. The computer-supported collaborative work(CSCW) community has been addressing issues of shared development of knowledge for many years. Document Management, On-line Access, E-mail Connectivity, and Expert Systems are becoming 'musts' for a knowledge based organization(Allee, 1997).

7. Management Strategy of Knowledge Utilization

To improve a model of knowledge utilization, one must transcend those presented and incorporate the subjective aspect of knowledge into the process of knowledge use and knowledge creation. It is critical that the two communities of producers and users be linked. Knowledge use is an ill-structured problem as evidenced by the definitions of knowledge and knowledge use that have been presented.

Experiential and research-based knowledge seem to be inseparably linked in public policy making. Both serve useful purposes in decision making and increase the plausibility of knowledge claim under investigation if integrated. The integration and utilization of research-based and experiential knowledge require the communication of a body of knowledge. However, there are many barriers to the knowledge transfer or utilization process.

To couple existing knowledge and the production of new knowledge to policy maker needs require collaborative arrangements which must be congruent with the nature of the utilization problem and the existing system of inquiry used to acquire and process information. Effective linking mechanisms depend upon the nature of the policy problem and context in which utilization is embedded.

Holzner(1979) calls attention to the need for understanding the multiple frame of reference of those actors involved in public policy making. These differences in attitudes, frames of references, and orientation are an important component of the problems and difficulties that policy makers and researchers have in interacting with each other. Both communities often look at the same data about a same phenomenon, but ask different questions, arrive at different answers, and have entirely different set of priorities in proposing solutions.

In effect, the frames of reference of policy makers contain their experientially grounded theories-in-use(Zaltman, 1977). Also, cognitive styles of policy makers affect the way one acquires knowledge relevant to specific policy problems(Scarpino, Dunn

and Mitroff, 1983). The degree of receptivity for a particular type of knowledge is the result of the influence of knowledge on society. Those diverse assumptions in society are organized in frames of reference. Reality tests(Holzner and Marx, 1979: 103-11) are, in this respect, key components of a frame of reference because they validate knowledge and the process of inquiry according to shared, social, and cultural experiences.

Dunn(1980), for example, provided the five contingency models(product contingent, inquiry contingent, problem contingent, structure contingent, and process contingent) which identified the key factors determining the utilization of research information in public policy making, as one explanatory model. The lack of support for the problem contingent and inquiry contingent hypotheses provide some promise for the conflicting world view version of the two community theory.

8. Conclusion.

Knowledge management is the broad process of creating, locating, organizing, transferring and utilizing the information and expertise within an organization. Acquiring and creating knowledge does little good for the organization unless it is disseminated to and utilized by the users. If we view knowledge as a creative phenomenon, culture, leadership, behaviors, and norms as well as supporting technologies and communication flows play major roles in order to build a right organizational environment for active knowledge creating, sharing, and utilizing,

Also, acknowledging the differences among those actors involved in public policy making is the first step toward generating more useful research. Then, knowledge creators need to adapt their research with the theories in use of the members of the different communities. A forum in which communication with policymakers can be undertaken is necessary.

The policy analysts' role in providing information to the user to determine whether and how a specific knowledge can be used as a decision aid should be emphasized. Information technologies are critical in creating, disseminating and utilizing rigorous, computer-supportable knowledge for organizational knowledge resources.

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