

Instrumental Use of Information in the Design of the Chilean Secondary Education Reform

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The purpose of this study was to investigate the extent to which different types of information were instrumentally used for the formulation of policy problems and the delineation of policy solutions stated by the policymakers in charge of the Chilean secondary education reform carried out between 1995 and 2000. This is an unusual setting where the administrators responsible for the design and implementation of the reform policy had strong backgrounds in social research. This type of setting has not been explored substantively by other researchers. The data analyzed in the study were 63 pieces of information used as evidence for 53 policy claims in appropriate documents as well as feedback from participating policymakers. The study showed a high degree of instrumental use of information both for identifying problems of secondary education in Chile, as well as policies to address them. Almost every policy claim identified in the reform documents analyzed was based directly on some type of evidence. Approximately 85% of the evidence used to support claims was research based. The research implied that use of information in policymaking can be increased by planning long-term processes of policy development with a stable policymaking team, including policymakers in production of research and other information needed, strengthening national research capacity in education, and to consult a wide variety of information.

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DEDICATION

This work is dedicated to my family,
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1. INTRODUCTION

The aim of this study is to describe the direct or instrumental use of policy-relevant information in the policymaking process of the Chilean secondary education reform carried out between 1995 and 2000. This is a very peculiar setting because of the strong background in social research of the policymakers who were in charge of the design and implementation of the reform policy. The result of this study provides a better understanding of the type of relationship between information and policymaking that occurs when researchers who are involved extensively with planning and carrying out underlying research also play the role of policymakers who both identify relevant problems and devise appropriate solutions.

1.1. BACKGROUND OF THE PROBLEM

When the first democratic government came into power in Chile in 1990, after seventeen years of a military regime, the education sector was seen as a strategic policy area. Public authorities understood the importance that education had for economic development and social equity, and launched an array of reforms in order to overcome the lack of quality and equity in the primary and secondary level of the education system. A team of experts with a relatively extensive background in research was appointed to design and manage these reforms. They had strong political support from the two democratic governments that ruled Chile in the 1990s¹, to design and undertake a reform project that would cover the three levels of the education system (primary, secondary, and tertiary). The name of this initiative was *Programa de Mejoramiento de*

¹ Patricio Aylwin, 1990-1994 and Eduardo Frei (1994-2000), both from the same political coalition.

*la Calidad y Equidad de la Educación*² (MECE). The Primary education reform was called MECE-Básica (1992-1997), the reform of the secondary level was MECE-Media (1995-2000), and the tertiary education reform was called MECE-Sup (1999-to date). Even though final decisions related to education reform are made by the country's political authorities (e.g. ministries, parliament, and the president), these experts shaped to an important degree the policies implemented to improve Chilean educational system.

In the field of information utilization in policymaking processes, this strong involvement of researchers in the Chilean educational reforms is an exceptional case. Very few, if any, empirical studies have addressed this issue considering the policymakers as experts in the researcher community. There are studies (including Caplan, Morrison, & Stambaugh, 1975; and Pierce, Lovrich, Tsurutani, & Abe, 1987) where the technical level of policy makers is analyzed as a factor of information utilization, but nothing is said about their previous experience as researchers or knowledge producers. In fact, numerous studies explain the disconnection between relevant information and decision making using, directly or indirectly, the 'two communities' theory (Caplan, 1979). Others focus their attention on factors not related to policymakers' professional characteristic [e.g., position in an organization (Oh, 1996), intelligibility of information (Cousins & Leithwood, 1986), adjustability of information to personal beliefs (Caplan, 1991), and types of information produced by research (Reimers & McGinn, 1997)]. Either because there have been very few cases of policymaking construction by decision makers with important previous experience as researchers, or scholars of the information utilization field have not seen this factor as relevant to be explored, no empirical studies have been carried out to investigate the type of relationship that occurs when knowledge producers play the role of information users to delineate social policies.

² Quality and Equity Improvement Program.

There are two aspects of the Chilean secondary education reform that show the consequences of the researchers' involvement in educational policymaking on the way policies were formulated. First, they gave an important role to social science research as the basis for the new educational policies. It was a regular activity for them to produce and gather relevant information to formulate educational reforms. This was especially the case of the secondary education reform. Only a partial diagnosis of this level was available at the beginning of the 1990s. Because of this, in order to design the *Programa de Mejoramiento de la Calidad y Equidad de la Educación Media*³ (MECE-Media), several activities that were planned by the policy makers to provide relevant information on secondary education were carried out. These activities included:

- Fifteen studies were undertaken by academic institutions, research centers, or individual consultants between 1992 and 1994. These studies included themes directly related to the reform content and they produced the following types of information: empirical information about the educational level of the country, analytical categories that allow for a meaningful interpretation of this reality, and policy proposals that could be drawn from them;
- A National Conversation was carried out among 30,000 secondary education stakeholders (mainly teachers, students, and parents) in 1993 to assess their perceptions of the relevant secondary education issues as well as to register their opinion about possible solutions. A document summarizing the findings and recommendations of this national survey was published and widely disseminated in Chile.

³ Secondary Education Quality and Equity Improvement Program

- An international workshop of experts in comparative secondary education was carried out in Santiago in November of 1992. The objective of this workshop was to discuss problems and solutions related to secondary education that policymakers around the world have dealt with.
- A study tour for representatives from the Ministry of Education, the teachers union, in-service training institutions and the private sector as well as the World Bank, was undertaken in South Korea, Malaysia and Singapore during mid-1992 to observe their secondary education systems.
- Finally, a pilot program to test four project interventions was carried out in 124 high-risk secondary schools in 1994.

The implementation of these activities is a demonstration of the importance that the team in charge of the reform assigned to research and other systematic data collection and analysis as a basis for effective education reform.

The second aspect is related to the type of information use that can be expected to be observed in the MECE-Media program design. There are two types of information use in the related literature that have contributed enormously to understanding how this phenomenon occurs: “instrumental” and “conceptual”. The stakes in the instrumental use definition, Weiss (1981) says, “are small and user’s interests relatively unaffected” (p.23). Conceptual use, on the other hand, is defined as gradual shifts in terms of policy makers’ awareness and reorientation of their basic perspectives, and does not involve immediate and direct application of conclusions to decisions. Conceptual use is also commonly identified as having more long-term effects as information from a variety of sources affects a policy-makers’ conception of a program or policy setting.

It is highly likely to find an important degree of instrumental influence of the information produced in the preparation activities, as well as from other sources of information, on the formulation of the MECE-Media program. This expectation is based on the need that policymakers showed in searching specific and relevant information to address the reform project, which is characteristic of rational procedures that seek to provide stronger foundations to make better decisions (Thomas & Grindle, 1990). If the predominance of instrumental use of information is verified in the MECE-Media design process, this program would be a very rare case of this kind of policymaking, to which the conceptual use of information is more recurrent and highly significant. This uncommon use of information might be explained by the special professional profile of the policymakers in charge of the reform, or to the fact that such activities were part of the plans for developing policy. The likely high instrumental use of information does not mean that there was a low conceptual use of information, nor that the issues addressed were relatively unimportant. Conceptual use was not addressed in this study.

Thus, the policy-making and information utilization processes carried out in Chile to design the MECE-Media program was a unique opportunity to explore the characteristics of a policy-relevant information utilization process, where policymakers also belong to the research community, and where much information was produced to directly structure and inform policy problems and policy decisions. Considering these unusual characteristics, the aim of this study was to explore the nature and extent to which this pre-planned research-based and other information was used in a direct or instrumental way to structure the policy problems and to delineate policy solutions in secondary education.

This type of setting has not been explored substantively in the related literature. Hence, this study was designed to contribute to understanding the type of use that policymakers with

strong backgrounds in social sciences make of research-based information in an education policymaking process.

1.1.1. Summary of the MECE-Media Program

One of the proposal documents (The World Bank, 1995) of the MECE-Media program stated that the main issues affecting the Chilean secondary education system were:

- Low external efficiency manifested by the educational system's failure to respond to the demands of individuals and to provide the higher-order thinking and problem-solving skills required by tertiary education institutions and the labor market.
- Low internal efficiency reflected in high repetition and dropout rates, resulting in waste of financial and physical resources.
- Unacceptably low levels of quality indicated by low student cognitive achievement.
- High inequality expressed by the social distribution of educational opportunities and results.
- Weak institutional capacity to induce a modernization reform process (The World Bank, 1995, p.7).

To address these problems the following objectives were stated:

- (a) To improve the internal and external efficiency, quality, and equity of the educational services provided by municipal and private subsidized secondary schools; and
- (b) To strengthen the managerial capacity in the Chile's secondary education sector (The World Bank, 1995, p.21).

MECE-Media would improve external efficiency by:

- Establishing a Curriculum Planning and Evaluation Unit (CPEU) to reformulate the subject-based curriculum, for both the scientific-humanistic (S-H) and technical-vocational (T-VOC) secondary schools, to enhance the teaching and learning of higher-order thinking and problem-solving skills.
- Developing evaluation capacity to monitor the consistency between the recommended (official) and the learned curriculum;
- Establishing alternative curricular activities for socially and educationally at-risk secondary students; and
- Providing incentives to strengthen the linkages between targeted T-VOC secondary schools and the private sector in curriculum development, skill certification, in-service teacher training, and the use of physical facilities.

MECE-Media would improve quality, equity, and internal efficiency by:

- Providing in-service teacher training to change the predominantly one-dimensional teaching format based mainly on rote learning and dictation to more interactive methods.
- Establishing a fund to promote the design and implementation of school-based educational development projects (PDEs); and
- Providing educational resources (textbooks, school libraries, teaching materials, computers, and infrastructure) in a targeted manner.

MECE-Media would strengthen sectoral managerial capacity by:

- Building upon existing institutional strengthening activities financed by the Bank-assisted Primary Education Loan within the current administrative structure of the Ministry of Education (MINEDUC) and the municipalities;
- Strengthening the managerial and leadership capacity of principals and the heads of school-curricular subject areas; and
- Establishing and maintaining a technical support network consisting of universities, professional institutes, local and international experts, the private sector, and NGOs which would provide technical assistance to participating secondary schools in training, development of learning materials and curricular needs (The World Bank, 1995, p.21).

As it can be appreciated from above, the secondary education reform was a systemic intervention, where numerous factors related to infrastructure, teaching materials, teaching-learning processes, and school management were addressed by the reform components. The program was designed and executed by a general coordination team (4 policymakers, three of them with a strong background in social research, and the fourth member with background in management). They were responsible for the general design of the program and for its conduct. Also, there were different sub-teams in charge of each program component and sub-component that were responsible for the detailed plan of the components, along with the overall coordinator team, and for their execution. A brief profile of the coordinator team members follows:

Policymaker A: Head of the MECE Program (92-97). Sociologist, Ph.D. in sociology. He was author and coauthor of some of the few studies done on secondary education in Chile during the 1980s.

Policymaker B: Coordinator of the MECE-Media program. Sociologist, Graduate studies in Education. Head of a research team on higher and secondary education in an academic

institution in the 1980s. She was in charge of the reform plan for secondary education for the government program in 1990.

Policymaker C: Vice-coordinator of MECE-Media. Professional degree in Psychology. Experience on applied research on education and mental health. In charge of the MECE preschool education program (design and execution) in 1990.

Policymaker E⁴: Coordination team member. Professional degree in Engineering. In charge of management aspects during the design of the MECE-Media program.

It is necessary to make clear that the preparation stage of the MECE-Media program was a component of the MECE-Básica program, carried out between 1992 and 1997. Therefore, the team in charge of the secondary education reform had the experience of how to deal with problems of quality and equity in the primary level. This experience might have contributed enormously to design a more effective information gathering process to plan the secondary education reform.

Since 16% of its total cost (\$207 million) was financed with a loan from the World Bank, the design of the MECE-Media program had to be agreed between this institution and the Chilean government. The remainder was financed by the Chilean state (Cox, 1999)

1.2. PROBLEM STATEMENT AND PURPOSE OF THE STUDY

Information utilization studies have rarely, if ever, addressed the information use behavior of researchers in policymaking roles. Considering the very unusual profile of policymakers that formulated the Chilean Secondary Education Reform, and the amount of policy-relevant information collected and produced in order to support the design process of the secondary education reform, the MECE-Media program offers a unique opportunity to investigate how

⁴ Policy Maker D is the World Bank's officer identified in Chapter III.

policymakers with a strong background in social science research used policy-relevant information during the design process of this educational reform. The purpose of this study was to investigate the extent to which different types of information were directly used for the formulation of policy problems and the delineation of policy solutions included in the reform by the policymakers in charge of the program.

1.2.1. Research questions

What kinds of information had an instrumental or direct use in the two major steps (formulation of policy problems and delineation of policy solutions) of policy development?

What kinds of information were most useful for the two major steps of policy development?

To what extent was there instrumental use of information to formulate the policy problems and delineate the policy solutions stated in the MECE-Media program?

To what extent was the instrumental type of use verified in the MECE-Media program typical of models or theories of use?

1.2.2. Method

These questions were answered by analyzing the reform documents that delineated the problems and associated solutions to become Chilean policy, and requesting policy makers to identify other information used instrumentally and rate information found in the study. These procedures were used in order to identify all the pieces of information that were utilized to directly support the claims about policy-related problems or policies designed to solve them that are included in the official documents of the reform. When the policy documents did not offer the evidence for each claim, policymakers who were in charge of writing these documents were asked to provide

them. In this way, much of the explicit knowledge that allowed them to delineate the reform program was identified and its utility could be determined. These sources of information instrumentally used were then classified and analyzed according to their source and characteristics (e.g. MECE studies, Other Studies, and Study Tour) in order to answer the research questions. This analysis showed the types of information that were used most and the importance or utility of the information produced by the preparation activities as it was applied to design the MECE-Media program.

1.2.3. Definition of Terms

Instrumental Information use refers to the type of use where policy makers cite and can document the specific way in which policy-relevant information was used to ground a policy claim (adapted from Rich, 1977).

Knowledge or policy claim is the conclusion of a policy argument based on some evidence⁵. For this study two types of knowledge claims were distinguished:

- (a) Knowledge claim about policy problems, which is a conclusion about the situation of a policy area that needs to be solved.
- (b) Knowledge claim about policy solutions, which is a conclusion about what is necessary to do in order to best address a policy problem.

⁵ This definition of knowledge claim is adapted from Dunn (1994).

2. REVIEW OF RELATED LITERATURE

This review of literature provides theoretical elements, methods, and empirical findings that have been developed and systematized in order to get a better understanding of how, why, and to what extent decision makers use information to base their decisions, especially in the contexts of policymaking processes. This review provides a research framework to undertake a study on information utilization in the Chilean secondary education reform.

The chapter is divided into four sections. In the first section, a review of the definitions and distinctions of information, knowledge, and information use are provided. The next section presents a review of the factors that have been used to explain the relationship between information and decision making. The third section is a review of the several methods that have been used to investigate the use of information in decision-making processes. Finally, the last section of this chapter provides several theoretical models that have been developed to explain and describe how policymaking takes place, and focuses on the nature and extent of information use by policy makers.

2.1. DEFINING KEY CONCEPTS

2.1.1. Information

In the field on information utilization, the concept of ‘information’ has often been defined without making a clear distinction between this term and the concept of ‘knowledge’. In fact, both terms have been used interchangeable by some scholars in the social sciences area (Oh, 1996). Even the Longman Dictionary (Procter, 1981) defines information as “knowledge in the

form of facts.” Thus, all information is knowledge, or a type of knowledge. This is what Holsapple (1995) states in contending that information is descriptive knowledge. However, there are some distinctions between these two concepts that some authors have identified.

For Zaltman (1983), information refers to the meaning of a particular set of data. For instance, the meaning of a set of scores about student learning based on achievement tests might be that students are doing better in language than in math. “If this information (meaning) is believed, it is knowledge.” Then, Zaltman concludes that “knowledge is very much a social and psychological construction of reality” (p.290), generally based on systematic data, associated theories or models, and necessary assumptions of the theories.

Machlup (1980) contends that to clarify the differences between information and knowledge, we might make a semantic distinction between “mental acts and states, on the one hand, and the contents to which these acts or states apply, on the other.” Regarding the former distinction, “there is a clear and significant difference between information and knowledge. Information is the *activity* or *process* of informing and getting informed; knowledge is the state of knowing. The act or process of informing may create (produce) a state of knowing” (p.56). In relation to the latter semantic distinction, “by getting informed about something, the recipient may reach a state of *knowing* the contents of the information” (p.57), such as indicated above with theories or models and associated assumptions.

For Davenport and Prusak (1998), more than a process or activity, information is a message that has an impact on the receiver’s judgment and behavior. According to these authors, the word “inform” originally meant “to give shape to” and information is meant to shape the person who gets it, to make some difference in his outlook or insight. “Strictly speaking, then, it follows that the receiver, not the sender, decides whether the message he gets is really

information –that is, it truly informs him” (p.3). Therefore, information is intended to change the way the receiver perceives something, to have an impact on his judgment or behavior. It must “inform”; it is data that makes a difference. Unlike data, information has a meaning for its receiver. Accordingly, Knott (1981) understands information as “data arrayed to make a difference as to whether a decision is made and what shape it takes. Information... is what changes us” (p.110). In relation to information and action, Kochen (1975) argues that there are two ways in which information prepares decision makers for appropriate actions: (1) by removing uncertainty about the matter they are addressing; and (2) when it becomes knowledge in being interpreted, processed according to the decision makers’ point of view or perspectives.

In the context of policymaking, Oh (1996) asserts that information is what policy makers require to address a policy problem or program. Information for policymaking might come from systematic and/or scientific investigation about a policy problem, or from other types of sources (e.g. media, political conversations, etc.), that may have little empirical support. In this case, information is meant to change the way policy makers perceive policy problems, and it provides them judgment criteria or conceptual maps to decide how to deal with those problems. For instance, the five preparation activities mentioned earlier, in relation to the Chilean reform, were intended to provide relevant information to determine the main variables that affected the education quality and equity of this level of the system, and to get judgment criteria design and implement efficient policies.

From the policy analysis field, Dunn (2003) distinguishes five types of policy-relevant information or policy-informational components that inform different stages of a policymaking process. These are information about: policy problem, policy performance, expected policy

outcomes, preferred policies, and observed policy outcomes. Dunn (2003) defines them as follows (pp.4-5):

A policy problem is an unrealized value or opportunity for improvement which, however identified, may be attained through public action. Knowledge about what problem to solve requires information about a problem's antecedent conditions (for example school dropouts as an antecedent condition of unemployment), as well as information about values to a problem's solution (e.g., safe schools or a living wage) whose achievement may lead to the problem's solution...

An expected policy outcome is a probable consequence of a policy designed to solve a problem. Information about the circumstances that gave rise to a problem is essential for producing information about expected policy outcomes. Such information is often insufficient, however, because the past does not repeat itself completely, and the values that shape future behavior change over time. For this reason, analysts must be concerned with expected policy outcomes that are not "given" by the existing situation. To produce such information requires creativity, insight, and the use of tacit knowledge.

A preferred policy is a potential solution to a problem. To select a preferred policy, it is necessary to have information about expected policy outcomes. Information about which policy to select also depends on judgments about the value or utility of expected outcomes.

An observed policy outcome is a past or present consequence of implementing a preferred policy. It is sometimes unclear whether an outcome is actually an effect of a policy, so that some effects are not policy outcomes, per se. The consequences of action cannot be fully stated or known in advance, and many consequences are unanticipated. In dealing with such questions, information about the consequences of action is produced *ex ante* as well as *ex post*.

Policy performance is the degree to which an observed policy outcome contributes to the attainment of values, goals, or objectives. In reality, policy problems are seldom “solved”; they are most often resolved, reformulated, or even “unsolved”. To know whether a problem has been solved, resolved, or unsolved not only requires information about observed policy outcomes; it is also essential to know whether these outcomes contribute to the attainment of the values, goals, or objectives that originally gave rise to a problem. Information about policy performance provides a basis for forecasting expected policy outcomes.

Dunn (2003) asserts that these five types of policy-relevant information are interdependent; the information created at any point of the policymaking process depends on the information produced on the previous stage. For instance, information about policy performance depends on the transformation of prior information about observed policy outcomes. “The reason for this dependence is that any assessment of how well a policy achieves its objectives assumes that we already have reliable information about outcomes of that policy. The other types of policy-relevant information are dependent in the same way.” (p.6)

2.1.2. Types of Knowledge

Numerous types of knowledge have been identified by scholars of the information/knowledge utilization field. Some of these types of knowledge are more inclined to influence actions than others. Following are several typologies that can clarify the role of knowledge in policymaking processes.

Caplan, Morrison, and Stambaugh (1975), based on a study in which they interviewed 204 upper-level officials in ten major departments of the executive branch of the United States government to see how they used social science information to inform policy formation and program planning, distinguish between “soft” knowledge (non-research based, qualitative, and couched in lay language) and “hard” knowledge (research based, usually quantitative, and couched in scientific language). They found that hard knowledge yields little impact on policy formulation, and even though the use of soft knowledge is very difficult to assess “there is widespread use of soft knowledge and its impact on policy, although often indirect, may be great or even greater than the impact of hard knowledge” (p.47).

Lindblom and Cohen (1979) distinguish between “ordinary knowledge” and knowledge acquired by professional social inquiry (PSI) in relation to social problem solving. By ordinary knowledge they mean “knowledge that does not owe its origin, testing, degree of verification, truth status, or currency to distinctive PSI professional techniques but rather to common sense, causal empiricism, or thoughtful speculation and analysis. It is highly fallible, but we shall call it knowledge even if it is false...For social problem solving, we suggest, people will always depend heavily on ordinary knowledge” (p.12). Similarly, Louis (1981) distinguishes between *research-based* knowledge, which is generated exclusively through scientific inquiry, and *craft*

knowledge, which is knowledge that is generated based on the experience of individuals who are engaged in practice.

Another major distinction between types of knowledge is identified by Machlup (1980). This author distinguishes knowing *that* from knowing *how*: “I know *that* means that I confidently believe that something is so and not otherwise; I know *how* means that I am capable of doing something” (p.31). Examples of knowing *that* are: we know that diphtheria is a highly infectious disease (empirical knowledge); and we know that the square root of 64 is 8 (formal knowledge). Examples of linguistic, historical, and other types of knowing *that* are also provided by Machlup. In the case of knowing *how*, Machlup (1980) distinguishes four types of this kind of knowledge: 1) descriptive (e.g. we may know how something looks); 2) historical (e.g., we may know how something has happened); 3) theoretical (e.g., we may know how something (an antecedent, a cause) is generally or universally connected with something else (a subsequent, an effect); and 4) procedural (e.g., we may know how to perform a certain task)” (p.32). Machlup asserts that even though commonly, the words “practice” and “practical” have been used in connection with knowing *how*, knowing *that* may be no less important for practical application than knowing *how*.

Holsapple (1995) makes a similar classification of knowledge to that previously done by Machlup. He distinguishes three major types of knowledge: descriptive, procedural, and reasoning.

- a) *Descriptive knowledge*: knowledge about the state of some world (descriptions of past, present, and future, and hypothetical situations). It is commonly referred to as data or information... As a knower comes into possession of more or better descriptive knowledge, the knower is said to be more informed.

- b) *Procedural knowledge*: knowledge about how to do something. It is concerned with a step-by-step procedure for accomplishing some task... As a knower comes into possession of more or better procedural knowledge, the knower is said to be more skilled. Examples of procedural knowledge are: the steps used to compute an economic order quantity, and the strategy that a negotiator follows in a bargaining session.
- c) *Reasoning knowledge*. It specifies what conclusion can be drawn when a certain situation exists. Whereas procedural knowledge is “know how” and descriptive knowledge is “know what”, reasoning knowledge is “know why”. By putting together pieces of reasoning knowledge (i.e., via inference), we can reach logical conclusions and justify them by citing our reasons... as a knower comes to possess more or better reasoning knowledge, the knower is said to be more of an expert. (p.16)

Holsapple (1995) argues that “when descriptive knowledge does exist, procedural knowledge may be used to analyze it in search of decision need or opportunity. In addition, reasoning knowledge may govern the use of procedural and descriptive knowledge during recognition efforts” (p.17).

Another knowledge typology is offered by Hudson (1999), who identifies six types of knowledge in a study on the process of decision making in child protection: theoretical, empirical, personal, professional, procedural, and practice wisdom. The study compares novice social workers with expert practitioners, particularly focusing on the types of knowledge that novices and experts draw on when making the decision of whether or not to remove a child from home.

Definitions of each types of knowledge follow (Hudson, 1999, p. 149):

- 1) *Theoretical knowledge*: A set of concepts, schemes or frames of reference that present an organized view of a phenomenon and enable the professional to explain, describe, predict, or control the world around him/her.
- 2) *Empirical knowledge*: Knowledge derived from research involving the systematic gathering and interpretation of data in order to document and describe experiences, explain events, predict future states, or evaluate outcomes.
- 3) *Personal knowledge*: An inherent spontaneous process where the social worker is necessarily committing him or herself to action outside of immediate consciousness, or involves action based on a personalized notion of common sense. Such knowledge includes intuition, cultural knowledge and common sense.
- 4) *Professional knowledge*: The accumulated information or understanding derived from theory, research, practice or experience considered to contribute to the profession's understanding of its work and serving as a guide to its practice.
- 5) *Procedural knowledge*: Knowledge about the organizational, legislative, and policy context within which social work operates.
- 6) *Practice wisdom*: Knowledge gained from the conduct of social work practice which is formed through the process of working with a number of cases involving the same problem, or gained through work with different problems which possess dimensions of understanding that are transferable to the problem at hand.

All of these types of knowledge might, in different degrees, influence decision makers' behavior, some through conceptualization of relevant policy problems, like theoretical and empirical knowledge, and others by providing certain procedures or guides to deal with policy or social problems, like professional and practice wisdom knowledge.

Machlup (1980) makes another classification of knowledge based on the “subjective meaning of the known to the knower”. Their meanings are subjective because what can be intellectual knowledge for a knower may be practical knowledge for another knower. (p.108)

1) Practical knowledge: useful in the knower’s work, his decisions and actions; can be subdivided, according to his activities, into

- a) Professional knowledge
- b) Business knowledge
- c) Workman’s knowledge
- d) Political knowledge
- e) Household knowledge
- f) Other practical knowledge

2) Intellectual knowledge: satisfying his intellectual curiosity, regarded as part of liberal education, humanistic and scientific learning, general culture, etc.

3) Small-talk and pastime knowledge: satisfying the nonintellectual curiosity or his desire for light entertainment and emotional stimulation....

4) Spiritual knowledge: related to his religious knowledge of God and of the ways to the salvation of the soul.

5) Unwanted knowledge: outside his interests, usually accidental acquired, aimlessly retained.

Machlup does not clarify the relationship among these five types of knowledge. For instance, there is no explanation about whether or not the practical knowledge, which can potentially impact on policymaking, owns its origin to one, some, or none of the other four types. His explanation about how this type of knowledge is acquired (by consumption, current production cost, or investment) does not consider an influence of, for instance, spiritual knowledge.

By contrast, Kennedy (1983), who also distinguishes a kind of knowledge that is used at work (working knowledge), identifies a wider group of factors that conforms a decision maker's *working knowledge*. She contends that, "it includes the entire array of beliefs, assumptions, interests, and experiences that influences the behavior of individuals at work. It also includes social science knowledge (pp.193-194).

Determining the nature and extent (degree) of information/knowledge utilization largely depends on the conceptualization of use (Rich, 1997). According to this author (1977), for purposes of conceptualization and measurement, researchers/analysts have tended to adopt a deterministic view of how information (especially research-based information) is disseminated and used. This bias pervades most of the literature on this issue (Rich, 1977), which has been very pragmatic in orientation.

This pragmatism, for some reason, has rarely produced studies making crucial distinctions in their research designs. "Even those studies that delineate the type of information being investigated (though not employing an information typology) lack precision in specifying levels and types of use and decision-making contexts" (Oh, 1996, p.79). Some authors, such as Caplan, (1979), Dunn (1983), and Weis (1981, 1991) have attempted to establish some distinctions and conceptual definitions in order to address more appropriately the study of research utilization. A description and discussion of these authors' distinctions is presented in the next section.

In summary, the terms information and knowledge denote some semantic differences whose identification can be useful to design appropriate methods and procedures to observe and measure information/knowledge utilization in decision-making processes. Information has been defined as a message or an array of data that have a meaning for the receiver. Knowledge, on the

other hand, as the “content of mental states”—using the Machlup’s definition—on which decision makers base their decisions. There are some types of knowledge that might have a more direct influence on actions, such as *procedural knowledge* (Holsapple, 1995), *professional knowledge* (Hudson, 1999), and *practical knowledge* (Machlup, 1980). There is another group of types of knowledge that also might have a direct, and in some cases, stronger influence than the previous group on acts or decisions, but they own their origin to unsystematic, spontaneous, or informal procedures. The types *ordinary*, *craft* and *working* knowledge, defined by Lindblom (1979), Louis (1981), and Kennedy (1983) respectively, are in this group. The other types of knowledge above mentioned, such as intellectual and spiritual knowledge, might also influence those that potentially are closer to affect decisions.

2.1.3. Information Use

2.1.3.1. Instrumental and Conceptual Use

The distinction between instrumental and conceptual use of information was perhaps the first attempt in trying to explore the different ways in which information is likely to be used by decision makers. Caplan and colleagues (1975) and Rich (1977) carried out in 1975 different studies on information utilization by federal policy makers in which they found important to differentiate between “instrumental” and “conceptual” utilization.

The instrumental mode deals with a specific decision or action that can be clearly designated, whereas the conceptual mode refers to some change in awareness, thinking, or understanding and it is hard to designate. Caplan (1979) argues that conceptual can be described as “generally goes unrecognized or at best is referred to obliquely in empirical research on utilization (p. 464). Regarding instrumental use, this author implies that it is verified when policy

formulation is guided by “concrete, point-by-point reliance on empirically grounded information alone” (p.464). According to Caplan (1979) instrumental use is associated with “the day-to-day policy issues of limited significance” (p.462) and conceptual use with meta-level problems of high significance.

Rich (1977) differentiated clearly these two concepts in a study on information use by federal bureaucrats, in which in-depth interviews were conducted to determine uses of data generated by the Continuous National Survey (CNS). “Instrumental use refers to those cases where respondents cited and could document ... the specific way in which the CNS information was being used for decision-making or problem-solving purposes. Conceptual use refers to influencing a policymaker’s thinking about an issue without putting information to any specific, documentable use” (p.200).

The stakes in the instrumental use definition, Weiss (1981) says, “are small and user’s interests relatively unaffected” (p.23). Conceptual use, on the other hand, is defined as gradual shifts in terms of policy makers’ awareness and reorientation of their basic perspectives, and does not involve immediate and direct application of conclusions to decisions.

Weiss (1980) has argued that immediate instrumental or direct use of information that derives from systematic research and analysis does not often occur in the types of settings she has studied. “Only occasionally does it supply an “answer” that policy actors employ to solve a policy problem” (p.381). In a survey of officials in federal, state, and local mental health agencies, she reported that instances where specific social science research could be linked to specific decisions were rare.

On the other hand, in a study of social science use by medium-level decision makers in Austria, Knorr (1977) reported prevalence of instrumental use of contracted social science research in the preparatory-decision stage.

2.1.3.2. Dunn's Three Dimensions to Conceptualize Information Utilization

Dunn (1983) claims that the variability of competing conceptions and linguistic usages of knowledge use makes “it difficult or impossible to compare, contrast, and evaluate essential variations in concepts, methods, and measures” (p.121). For this reason, he offers three different dimensions that underline competing conceptions of knowledge use (pp.121-122):

- 1) *Composition*. This dimension distinguishes between individual and collective uses of knowledge. The concept of “decision-driven” use implies that knowledge use is a process of individual decision making. By contrast, the concept of knowledge use as “enlightenment” suggests that use is a collective process.
- 2) *Expected effects*. This dimension contrasts conceptual and behavioral effects of using knowledge. This distinction captures contrasts between “conceptual” and “instrumental” use, where the former refers to changes in the ways that users think about problems and the latter denotes directly observable changes in behavior.
- 3) *Scope*. This dimension contrasts process of use in terms of their generality and specificity. The concept of “ideas in good currency” (Schon, 1979), is general in scope, while the concept of using recommendations of a program evaluation instrumentally is specific.

According to Dunn, these three dimensions permit us to classify concepts found in many of the most important studies in the field. In other words, most of the studies might be classified under the categories of individual or collective (composition), conceptual or behavioral (effects), and general or specific (scope).

2.1.3.3. Weiss' Conceptualization of Information Use

According to Weiss (1981), there are several questions that need to be answered in order to get a clearer understanding about what information utilization means within a decision-making process. These topics are (pp: 24-25):

- 1) *What is used...* recommendation from one study or several studies, some part of the data, generalizations derived from a series of related studies, social science concepts used in the studies, etc.
- 2) *How direct is the derivation from the study.* Does “use” require that people read the original report, a summary written by the authors of the report, a description by some else *about* the report? Etc.
- 3) *By whom it is used.*
- 4) *By how many people it is used.* Is there some minimal penetration of the decision-making group that must be achieved?
- 5) *How immediate is the use.* Does use have to take place shortly after the study was done?
- 6) Most important of all, *how much effect is required.* To account as a “use” must every one of the evaluation recommendations be adopted?

Whether or not Weiss was guided by these questions to find out different definitions of information use, she (1991) comes up with seven meanings or models associated with the

concept of “use”: a) the Knowledge-Driven model, b) the Problem-Solving model, c) the Tactical model, d) the Enlightenment model, e) the Intellectual or Research-Oriented model, f) the Interactive model, and g) the political model. A brief description of each model follows:

- The Knowledge-Driven model implies that research evidence by itself is sufficient to change or promote policy decisions, which is hardly the case of social science research. According to Weiss (1991), “social science knowledge is not apt to be so compelling or authoritative as to drive inevitably toward implementation” (p.174).
- The Problem-Solving model is the most common concept of research utilization, which involves the direct application of the results of a specific social science study to a pending decision. As Weiss (1991) states, “the expectation is that research provides empirical evidence and conclusions that help to solve a policy problem” (p.174).
- In the Tactical model research is used for a tactical proposal, either to support or avoid a decision. This model views social science research as “used for purposes that have little relation to the substance of the research. It is not the content of the findings that is invoked but the sheer fact that research is being done” (p.178). For instance, “a government may use research as a tactic for delaying action: ‘We are waiting until the research is completed...’” (p.178).
- In the Enlightenment model the concepts and theoretical perspectives from social science research influence and permeate the policy-making process.
- In the Intellectual or Research-Oriented model research, along with other intellectual endeavors (philosophy, journalism, history, etc.) raises the quality of public debate about specific public policy issues. Under this model research and policy influence each other. For instance, policy makers interested in a social issue can allocate especial funds to

investigate it, rising so researchers interest on that issue. Similarly, researchers can help policymakers to reconceptualize that issue once it was studied. “Meanwhile, both policy and research colloquies may respond, consciously or unconsciously, to concerns sweeping through intellectual and popular thought (‘citizen participation’, ‘local control’, spiraling inflation, individual privacy). In this view, research is one part of the interconnected intellectual enterprise” (Weiss, 1991, pp.180-181).

- The Interactive model, in which decision makers seek information not only from social scientist but also from a variety of sources. The use of research “is only part of a complicated process that also uses experience, political insight, pressure, social technologies, and judgment...It describes a familiar process by which decision makers inform themselves of the range of knowledge and opinion in a policy area”. (p.177)
- The political model, in which the research is used only for justifying decisions made on the basis of other rationales.

According to Neilson (2001), the enlightenment model of research use “has gained considerable attention and agreement within the knowledge utilization literature”. The idea that the “accumulation of knowledge through the aggregation of findings that promotes a gradual shift in concepts and paradigms” is thought as being the most realistic way to understand how research-based information impacts on policy decisions.

All the definitions of information/knowledge use introduced above offer different methodological challenges to researchers interested in this field. While the instrumental or the problem-solving definitions of information use might be relatively easy to observe or verify during an investigation process, the conceptual or enlightenment use of information are difficult to observe and verify.

2.2. DIFFERENT METHODS AND PROCEDURES TO MEASURE INFORMATION UTILIZATION

Some authors (Dunn, 1983; Oh, 1996; Rich, 1997; Yin, 1982; among others) have made literature reviews in order to identify the different methods and procedures that scholars of the field have utilized to study information utilization in policymaking process. A summary of their findings follows.

- *Surveys or Questionnaires and Interview Schedules:* These are the most common methods to study research utilization (Oh, 1996). According to Dunn (1983), three kinds of procedures have been utilized: a) *Relatively structured procedures*, which “allow respondents little freedom in devising responses to questions”; b) *Semi-structured procedures*, which “allow respondents an intermediate degree of freedom in responding to the questions”; and c) *Relatively unstructured procedures*, which “allow respondents maximum freedom to respond to questions, while ensuring that the same procedures can be produced in diverse settings” (pp.125-127). Surveys and questionnaires generally utilize scales and indices designed to measure knowledge use. For instance, one of the indexes reported by Dunn (1986) that might be especially pertinent for studies on information utilization by policymakers is the Overall Policy Impact (OPI) Scale. This scale “is designed to assess the impact of research on organizational decision making. The OPI scale is composed of four subsets of scale items:

(1) Manifest impact: identifiable spinoffs in decision or policy measures from the research project at the following steps of policy formation:

[] initiating a policy

[] advising

[] co-deciding

preparing a policy

advising

co-deciding

executing a policy

advising

co-deciding

(2) Stage impact: Identifiable spinoffs in decisions or measures at the following stages of research:

formulating the problem

operationalizing the problem in terms of research procedures

sampling and collecting data

analyzing data

etc.

(3) Certainty impact: Identifiable spinoffs in decisions or measures regarding:

perception of the problem

explanation of the causes of problem

assessment of severity of problem

dissolution of problem

(4) Latent impact: Identifiable spinoffs in decisions or measures related to:

postponing a decision

[] enhancing rank-and-file participation

[] increasing awareness of problem

[] enhancing policymakers' status

[] etc.

Overall policy impact scores are calculated by summing the totals of the four component subscales" (pp.382-387). Each subscale is ranked with different scores.

- *Content Analysis*. This procedure permits longitudinal and cross-sectional studies of patterns of knowledge production in the applied social sciences, exploratory analyses of factors associated with the adoption of innovations, planned change, and knowledge use, and investigations of the cognitive structures and strategic decisions of policymakers. Content analysis may be employed with various kinds of documents, including research reports, case materials, and other records of experience (Dunn, 1983, p.124).
- *Naturalistic Observation*. Naturalistic observations in field settings permit the development of concepts and hypothesis that are grounded in the subjectively meaningful experiences of persons studied...naturalistic observation is rarely employed in knowledge use studies (Dunn, 1983, p.123).
- *Participant Observation*. The observer becomes part of the group or situation, who can manipulate own behavior to create situations in which to test hypotheses. This procedure has been identified by Weiss (1981) as one of four major approaches to the study of knowledge use (see Table 2.1).
- *Social Framework Analysis*: This approach analyzes how "schools of thought " and "frames of reference" (eg., the Chicago School of Economics) are identified as particular ways of defining and analyzing problems...This form of analysis does not always take on

precise measurement; it relies heavily on reasoning and judgment. However, it is one empirical approach that is often used to bolster findings is citation analysis and network analysis to chart influence of ideas and individuals over time (Rich, 1997, pp.21).

- *Case Studies*: According to Yin and Gwaltney (1982), case studies may be considered investigations where the following conditions prevail:

- 1) No clear boundary exists between the phenomenon being studied and its contexts—a situation that typically extends the scope of inquiry and that produces more variables than data points—making statistical analysis virtually irrelevant
- 2) There are multiple sources of information, including data from individual respondents, on-site observations, and analysis of written documents and other artifacts.
- 3) To deal in part with the preceding two conditions, data collection is based on a protocol, however formal or informal, which guides the collection of evidence. In a sense, the field investigator is the “instrument,” being responsible for translating field information into the response categories required by the protocol.

The frequent use of case studies in knowledge utilization research stems mainly from the match between these conditions and the knowledge utilization process. Because the utilization process is a complex organizational and interpersonal process, the phenomenon is not easily separable from its context. (pp.35-36).

These authors contend that one limitation of case studies is that they are “no good tools for establishing the frequency or extensiveness of a particular phenomenon” (p.47). Accordingly, Rich (1997) claims that an “obvious disadvantage of case studies is that it is difficult to generalize on the basis of a single case.” (p.22)

- *Experimental Designs*: Experimental and quasi-experimental research designs offer the potential elimination of certain threats to validity and reliability, thereby increasing the logical certainty with which one can address the kinds of questions central to knowledge utilization as a field (Rich, p.22). According to Rich and Oh (1994), in the field of research utilization only preliminary attempts have been done to utilize experimental and quasi-experimental techniques in order isolate and assess influences on knowledge use. These authors describe, as an example of experimental research, a study intended to measure outcome of a research utilization program designed:

to disseminate current research findings and facilitate organizational modifications required for sound implementation in nursing departments of a sample of Michigan hospitals'. Under stratification by size hospitals within geographical and institutional clusters, hospitals were randomly assigned to 13 "treatment" and 15 comparison groups. Type of treatment was specified as to presence or absence of an innovation team (IT) (or of an "artificial" IT for the control situations) at the hospital. Variation in situation was controlled for through the use of the stratified random sampling employed. Levels of use were specified through five direct and five indirect measures of research utilization as a result of the IT training program intervention. In addition, observations were made at three times: prior to intervention, 1 year postintervention, and, in one-half of the treatment groups, 2 years postintervention. On average, the results of the direct measures indicated that the IT intervention was more effective than either non-IT or artificial IT groups, with gains decreasing over the next year (p.84).

This study does specify type of intervention to be utilized and type and degree of utilization over time.

- *Time-Series Analyses*. These kinds of analyses focus on differences in level of utilization over time. For instance, Larsen (1985) studied information utilization in 39 local mental health agencies over an eight-month period. At two points in time, four months and eight months following the moment when staff was exposed to relevant information for their job tasks, there were follow-up interviews to detect eventual utilization of this information.

In a study that describes and analyzes various types of qualitative research designs in studying knowledge utilization, Yin and Gwaltney (1982), found that the case study was the most common research strategy used in the studies examined. “Of the 32 investigations reviewed in the present report, 16 used case studies alone and another 9 used case studies in combination with surveys” (p.35). These authors also found that surveys are a common technique to collect evidence about knowledge utilization. Even though it can seem anomalous to use surveys to investigate a topic that has no clear “boundaries, no easily specifiable unit of analysis, no relationship to a singular unit of data collection, and a need for multiple data collection strategies” (p.27), the use of surveys contributed “to an understanding of the knowledge utilization process.”

Regarding studies focused on the effects of social science research on policy decisions, Dunn (1986) argues that it is important to recognize that such decisions are made within organized collectives or systems. This is because, he states, many studies that investigate research utilization in policy decisions have been focused “on individuals or aggregates of individuals as units of analysis” (p.373). The problem with this methodological approach,

verified in some research, is that “aggregated individual responses may provide an inaccurate and misleading picture of the direct and indirect processes through which research is used” (p.372). For this reason, the identification and analysis done by Weiss (1981) of four different approaches that researchers in the evaluation/information utilization field have utilized are an important contribution to prevent “invalid inferences about collective properties based on the aggregation of non-relational data obtained from individuals” (Dunn, 1986, p.372). These approaches are (Weiss, 1981, pp.27-28):

- 1) Start with *studies* and follow the effects of the studies on subsequent decisions. This approach has been used to investigate the consequences of a single research study (e.g., Datta (1976), on the evaluation of Head Start; Boeckmann (1976), on the New Jersey negative income tax experiment; Weiss (1970), on the federal student loan program)...The basic assumption is that the investigator can ferret out the effects of the study on the people who make significant decisions.
- 2) Start with *people* who are prospective users of research and evaluation studies (e.g., Caplan, 1975)...The basic assumption is that people can remember the studies that influenced them and will be candid and accurate in their responses.
- 3) Start with an *issue* and examine the ways in which research and evaluation help to shape the resolution of the issue (e.g., Aaron, 1978)...An underlying assumption of [studies using this approach] is that the investigator can separate the studies that actually had an impact on decision makers from those that did not, and that he can reveal the special contribution that derived from research.
- 4) Start with an *organization* and investigate the impact of research and evaluation on the life history of the organization [e.g., Rowbottom et al. (1973); Brown and Jaques

(1965)]....An assumption is that investigation can track the rippling effects of research on organizational behavior.

For some reason Weiss does not include in this list of different approaches one that starts with a decision or set of decisions and follow the evidence or basis that they stem from. It seems that this approach has not been used before to investigate the impact of research-based information on policy decisions.

Weiss (1981) relates these four approaches with four different methods of studying information/evaluation, which are “largely determined by the locus of effect that is of primary concern.” As it is shown on Table 2.1, the *studies approach*, are more linked to case studies, people approach is more linked to surveys, issues approach is more linked to review of documents, and organization approach is more linked to participant observation (pp.28-29).

As Weiss (1981) argues, none of these approaches is sufficient to address questions about how to study research utilization in decision-making processes. The fifth approach I propose to include (start with decisions) might be explored using case studies (organizational records and interviews) or reviewing documents related to the program or project where the decisions were made.

In summary, several conceptualizations of information and information use have been introduced. Also, different methodological approaches and procedures to investigate information utilization in decision-making processes have been presented. Every study on information use in policymaking is done based on implicit or explicit definitions of information and use. The importance of conceptualizing these terms is that they will determine the methods and procedures to undertake a study in this field. Some types of information might be more expected to have an impact on certain stages of the policymaking process. For instance, it is expected that

sector analysis or sector assessment provides information to diagnosis an education policy problem. Another kind of research information is needed to analysis the conditions that explain the policy problem and to what extent those conditions can be changed. The formulation of a policy requires information about availability of the inputs required to implement it (Reimers, McGinn, & Wild, 1995). If researchers are interested in study the whole process of a policy decision, there are some methods that allow them to do that, like case studies and content analysis.

Table 2.1: Methodological Strategies According to Focus of Attention

<i>Focus of Attention</i>	<i>Methodological Strategy</i>
Studies	<i>Case studies</i> that trace the impact of the studies on decisions. While organizational records are usually reviewed, particular reliance is placed on interviews with informants.
People	<i>Surveys</i> . Interviews are conducted with a sample of potential users of research.
Issues	<i>Review of documents (...)</i> that mark the legislative and executive history of the issue. <i>Review of research studies</i> relevant to the issue. Documents that bear the impress of research findings (testimony, references) are important for attesting to linkages.
Organizations	<i>Participant-observation</i> . Since the researchers generally have long-term involvement with the organization, their notes, records, and recollections are primary sources.

2.3. VARIABLES THAT AFFECT INFORMATION UTILIZATION

Although precedents can be found in the use of social research in policymaking during the eighteenth and nineteenth Centuries⁶, it was just after World War II, with the promotion of social welfare by governments in the capitalist democracies, when the role of research-based information in policymaking processes began to be massively considered as relevant (Gagnon, 1990). Since then, public policy, as a governmental tool to raise the quality of life of citizens, acquired a technocratic aspect in trying to make rational decisions based on scientific research. However, the goal of informing public policy decisions with knowledge constructed by experts has been difficult to accomplish.

Several hypotheses have been developed to explain the under/non-utilization of research-based information in policymaking processes. One of the first ones in catching the attention of scholars of this area was the “two-communities” theory developed in part by Caplan (1979), who attributed the non-use of research to cultural and behavioral differences between researchers and policy makers. According to Caplan (1979), some authors who hold this theory argue that “social scientists and policy makers live in separate worlds with different and often conflicting values, different reward systems, and different languages” (p.459). This theory explains many cases of disconnection between research and decision making, but it does not explain those cases where individuals belong to each cultural group (Ginsburg & Gorostiaga, 2001), as it appears to be the case of the education reform in Chile.

Subsequent to Caplan’s theory, studies have revealed the complexity of policymaking construction by showing the variety of factors shaping a policymaking process, and the large

⁶ The work of John Howard with English prisoners contributed to the reform of the prison system in England in the eighteenth Century (Auriat, n.d). This author also asserts that the poverty survey and poverty map made by Charles Booth in London, which showed the social condition of every street in London in 1889, had a decisive impact on the security social system for the poor in England. Gagnon (1991) contends that in mid-Victorian Britain and Second Empire France health and sanitation knowledge was applied to the problem of urban planning reforms.

quantity of variables that determine the extent to which information is used in this process. According to some scholars of organizations (Lindblom and Woodhouse, 1993; March, 1994), the influence of research, either from direct or indirect/diffuse ways, rarely is a determining factor for decision making.

2.3.1. Factors that Influence Information Utilization in Policymaking

Numerous factors affecting information use in policymaking have been identified in the literature. They can be organized into six general categories:

- 1) Complexity of policy decisions
- 2) Policy makers characteristics
- 3) Information characteristics
- 4) Organization characteristics
- 5) Decision aspects
- 6) Use of Information Technology

2.3.1.1. Complexity of policy decisions

Several authors (Dunn, 2003; Weiss, 1990; Anderson and Biddle, 1991; and Haddad, 1994; among others) have highlighted the complexity of policymaking processes, especially those from the education sector. Complexity, which is determined primarily by political and technical factors, affects the likelihood of that information influencing a policymaking process.

According to Dunn (2003), complexity of a policy problem is defined by the “degree to which the problem is actually an interdependent system of problems” (p79). There are five elements associated with the degree of complexity of a policy decision: (1) Number of

