
A Multidisciplinary Framework for Theory Building

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ABSTRACT

IN 1986, THE AUTHORS PROPOSED a taxonomy of theory for library and information studies research. The purpose of this paper is to propose a revised model for theory building, called Circuits of Theory, that includes both the taxonomy and the critical contextual modules researchers consider in their work. These modules surround the taxonomy and encompass the concepts of individual as well as social knowledge, both discovered and undiscovered. This work has been done not to replace the original taxonomy, but—as the title implies—to revise it in light of a broader vision.

INTRODUCTION

More than fifteen years ago, the authors (Grover & Glazier, 1986), proposed a taxonomy of theory intended to outline the relationships between multiple levels of phenomena, theory, and paradigmatic perspectives. The taxonomy initially was based on data drawn from an ethnographic study of city managers (Grover & Glazier, 1984), an extensive study of qualitative methods and methodologies (Grover & Glazier, 1985), and a review of the library and information science and social science literature. The purpose of the taxonomy was defined as “. . . a framework for generating and testing theory in library and information science” (Grover & Glazier, 1985, p. 253). It served as a means of highlighting the hierarchical relationships among the concepts of research, theory, paradigms, and phenomena.

This taxonomy (see Figure 1) came at a time when the discipline of library and information science was in the throes of self-definition and on

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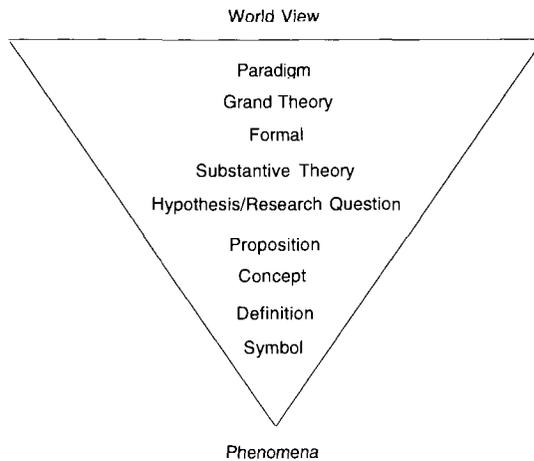


Figure 1. Taxonomy of Theory.

the threshold of broader recognition among the social sciences. Much of the interest generated centered on the deterministic relationship between theory and research. The taxonomy was represented in graphic form intended to stimulate conversation about the roles and the nature of theory in the social sciences. Since that time, there has been an ongoing conversation about the relationships among experience, theory, research, and practice in the discipline of library and information science.

This paper is the result of continued thinking on this topic. In this paper, we propose a broader framework for research that includes both the primary deterministic concepts embodied in the earlier taxonomy and recognition of the wide range of subjective factors that influence thinking and creativity. Construction of such a framework leads to an approach to theory building and research that more accurately mirrors the role of disciplines, the influence of social factors on the construction of personal and social knowledge, and the research process. In other words, the framework presented here reflects today's postmodern approach to research.

It is the task of this paper to explore new ways of thinking that better reflect the social and psychological contexts of research, research design, and theory building in which the earlier taxonomy is embedded. This is accomplished by developing a framework, called "Circuits of Theory" (see Figure 2), that hosts the taxonomy and broadens the emphasis of the role of the accompanying context to mirror more closely the world of experience.

It is important to keep in mind that the content of the taxonomy has not been changed. Over time it has continued to accurately reflect the deterministic relationships between the perception of phenomena, the design of research, the analysis of data, and the process of theorizing. In

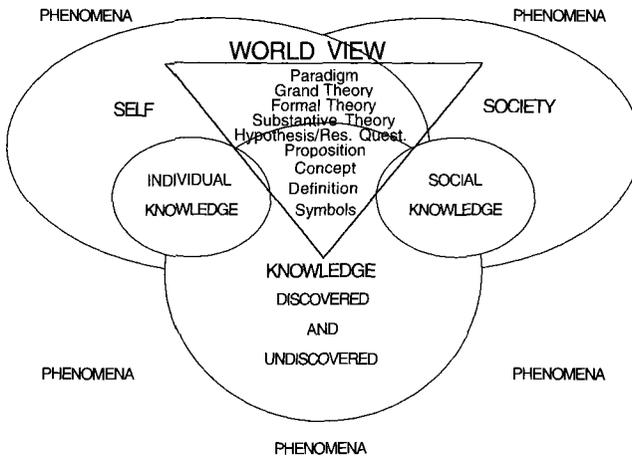


Figure 2. Circuits of Theory.

its previous form, the taxonomy was, for the most part, considered alone—with only limited attention paid to the primary contextual variables that affect the predisposition of those involved in the research. Evidence of predisposition is available in the form of observable individual and societal behaviors and their relationships to both existing and undiscovered knowledge as well as to the phenomena in which this evidence is embedded. This combined approach of determinism and subjectivism yields a framework that is inclusive of multiple approaches to data collection and analysis and embraces opposing world views. The intention is to encourage inclusive and creative thinking about research and theory building.

REVIEW OF THE EARLIER TAXONOMY

Theories may be described as generalizations that seek to explain relationships among phenomena. This concept remains consistent with the authors' earlier work on the topic (Grover & Glazier, 1986) as that work was based on the work of both Odi (1982)¹ and Mullins (1973)². It is argued here that "theory" is a multiple-level component of the research process, comprising a range of generalizations that move beyond a descriptive level to a more explanatory level. In addition, Glaser & Strauss (1967) proposed that the role of theory is (1) to enable explanation and some degree of prediction of behavior; (2) to help both researchers and practitioners understand and have some control over as many situations as possible; (3) to provide a perspective of behavior; and (4) to guide research.

The earlier taxonomy (see Figure 1) was intended to help readers gain a conceptual understanding of the nature of research as a process within a theoretical context. While it may have appeared to be hierarchical and lin-

ear in nature, this was not the intent of the authors. What may be considered hierarchical was, in fact, an artifact of the taxonomy's dialectical character, embodied in the multiple processes that move the researcher from sense data to theory.

Throughout this paper, the term dialectical is employed to describe the interactive relations that exist between elements of the taxonomy. It is understood as a non-linear process. In the taxonomy, the dialectical process begins with an existing substantive theory. This existing theory can be thought of as the thesis. The newly discovered information, then, becomes the antithesis. As the antithesis, the newly discovered information is applied to the existing theory as the synthesis. Finally, the synthesis becomes a new theory. The theory level on the taxonomy is contingent upon the degree to which a theory can be generalized. Hence, the resulting synthesis or new theory may or may not be generalized to the formal level.

Phenomena, Symbols, and Definitions

These processes begin with an exploration of the relationships among phenomena, defined as "Events experienced in the empirical world" (Grover & Glazier, 1986, p. 230). Next is the process of assigning symbols, either iconic or digital, to phenomena. Symbols are defined as "Digital or iconic representations of phenomena, usually words or pictures" (Grover & Glazier, 1986, p. 231). The accompanying process of assigning symbols to represent phenomena also includes defining those symbols in a meaningful form for analysis or communication. This process of assigning meaning is referred to as "definition" and is described as "A precise, generally agreed upon, description of phenomena using symbols" (Grover & Glazier, 1986, p. 231).

Concepts, Propositions, and Hypotheses or Research Questions

Conceptualization marks a change in the process from working with phenomena in their natural contexts to working with data that have been bound by symbols and definitions and often removed from their natural context. Concepts can then be defined as "Symbols or combinations of symbols (words or phrases) which describe speculated relationships among phenomena" (Grover & Glazier, 1986, p. 232).

Following conceptualization is the assembly of propositions. A proposition is "A logically and syntactically consistent statement of a concept which can be stated as a hypothesis for testing" (Grover & Glazier, 1986, p. 232). The hypothesis is a reconfiguration of a proposition in the form of an assertion and is formally defined as "A proposition which has been stated for purposes of verification, i.e., professional level theory" (Grover & Glazier, 1986, p. 233). Research questions are propositions reconfigured into a question to be answered in the research process.

Theories

Substantive theory. The first theory level, substantive theory, is defined as "A set of propositions which furnish an explanation for an applied area of inquiry" (Grover & Glazier, 1986, p. 233).

Formal theory. The next level of theory is referred to as formal theory. Formal theory is defined as "A set of propositions which furnish an explanation for a formal or conceptual area of inquiry, that is, a discipline . . ." (Grover & Glazier, 1986, p. 234). Together formal and substantive theories are commonly referred to in the social sciences as "middle range" theory. Most research for professions begins with a problem followed by a study capable of generating substantive level theory. Another scenario is to borrow theory from the appropriate discipline, apply it to a professional problem, and recast the theory at the substantive level.

Generalizations at the "middle range" level are typically more "data connected" than grand theory or paradigms. That is to say, the broader theoretical concepts (i.e., grand theory or paradigms) are more methodologically and analytically distant from the data gathering processes and, in turn, the phenomena themselves. Given this "loosely coupled"³ relationship, there is a concern that the system will be prone to more ambiguity. Conversely, while these broader concepts initially appear to introduce some degree of systemic vagaries, they also have a propensity to interject into the system equally important directional and contextual qualities. From this perspective, these broader concepts also offer important insights into relationships among theory and phenomena.

Grand theory. The term "grand theory" is used here somewhat differently from the earlier taxonomy. Grand theory is defined as a set of theories or generalizations that transcend the borders of disciplines to explain relationships among phenomena.

Paradigm. A paradigm is ". . . described as a framework of basic assumptions with which perceptions are evaluated and relationships [and values] are delineated and applied to a discipline or profession" (Grover & Glazier, 1986, p. 234).

World view. Finally, the most influential of the theoretical categories is the world view. It is defined as "an individual's accepted knowledge, including values and assumptions, which provide a 'filter' for perception of all phenomena" (Grover & Glazier, 1986, p. 235). Each of the preceding categories facilitates an individual's ability to develop and define their world views. The category of "world view" introduces an individual's perspective in contrast to that of the other terms, which are understood from a social perspective. Thus, within the framework, both individual and social perspectives are addressed.

REEXAMINING THEORY

Since the publication of the original taxonomy, new global, contextual, sensitive ways of thinking about the world, perception, research, theory, and theory building have led to changes in vocabulary as well as perspective. Both the earlier taxonomy and the new Circuits of Theory continue to be "meta-theoretical" in nature. Meta-theorizing is defined as a ". . . systematic study of the underlying structure of sociological theory" (Ritzer, 1992, p. 511).

The general structure of library and information studies theory has increasingly been patterned after social science theory, in large part due to library and information studies' client-centered approach to public service. This is but one part of the increasing complexity of what might legitimately be referred to as the discipline of information studies. Configuration of information will continue to be specialized to meet the needs of specialized disciplines and individuals in the hard sciences, social science, business, and law. In order to meet these needs, the discipline of information studies must be familiar with the forms of research within these other disciplines.

Moving from perception, interpretation, and analysis to theory, one important difference between the early taxonomy and the new Circuits of Theory is that the original did not place enough emphasis on the differences between the individual and societal perspectives in relation to knowledge both existing and undiscovered. While both the early taxonomy and the new Circuits of Theory emphasize the role of the individual, the Circuits of Theory goes further by linking the individual, society, and both discovered and undiscovered knowledge in an articulated open system.

A CIRCUITS OF THEORY

This Circuits of Theory (see Figure 2) comprises three dialectically related modules and the taxonomy of theory within the existing social environment. Because of its generality, the social environment is not defined *per se*, but is represented in the Circuits of Theory by the concept of phenomena. All of these modules come together to compose our social system. They interact with one another in the research process, such that phenomena are isolated and analyzed within the context of the research environment. The modules themselves are as follows: (1) Self, (2) Society, and (3) Knowledge, both discovered and undiscovered.

While these three modules of the Circuits of Theory stand out visually, the operational nexus is the taxonomy of theory. The difference between the three modules of the Circuits of Theory as a group and the taxonomy is that the modules represent the contextual variables that surround and contribute to the utilization of the taxonomy. However, the taxonomy remains the nucleus around which the operational dynamics of the Circuits of Theory are concentrated. Following are descriptions of the operational dynamics of the taxonomy and each of the three modules.

The Taxonomy

The earlier taxonomy remains intact as the centerpiece of the Circuits of Theory. It is the linkage that integrates the many aspects of the complexities associated with modeling social action. It is nested in an environment composed of individuals, society, knowledge, and "phenomena." Some aspect of a phenomenon stimulates an individual's perception. Perception, then, isolates and extracts those aspects of a phenomenon that served as the stimuli. Such an extraction is the first step in the processes of interpretation based on an individual's experience and perceptive skills. The aspect of phenomenon that is extracted is further screened and labeled through the use of symbols. These symbols are interpreted, defined, and organized into conceptual categories. These concepts then form propositions in preparation for verification in the form of analytical testing. The testing is carried out through empirical research.

In the taxonomy, empirical research begins with the formation of research questions to be answered about the concepts or hypotheses for testing the concepts within a narrow set of predetermined parameters. While the testing of the hypotheses is carried out based on the view of the researcher and remains intact until testing is completed, the results of the initial testing are frequently later verified through replication or additional testing. When research questions are employed, answers based on data drawn from phenomena are used to make sense of the problem that precipitated the research questions. Verification again is frequently employed but is mechanically somewhat different from that associated with the hypothesis.

Verification frequently occurs when research questions are altered according to the data being gathered and analyzed. Rather than a linear approach, this approach is cyclical. As new data come in, the researcher analyzes, interprets, and dialectically merges them with the existing information. This dialectical process of merging new with existing information continues to repeat itself in a cyclical pattern until an adequate explanation of the phenomenon is derived.

The final step is generalizing the findings. As noted above, the Circuits of Theory includes the taxonomy as a hierarchy of theory to guide the structuring of generalizations by researchers and theorists. The levels can be viewed as linear in nature or as inclusive, with each broader level including the levels below it. For an explanation of these levels of theory, see the descriptions provided above or the authors' earlier work (Grover & Glazier, 1986) on the topic.

The Self

The three modules of the Circuits of Theory constitute an inseparable series of closely interrelated segments of this complex system. The first of these is the intricate, enigmatic module of the self. The individual self includes the functions of perception, interpretation, conceptualization, and integration.

The individuality of the self is a key aspect to understanding the processes of research and theorizing. However, the self does not exist in isolation, but operates in the context of cultures and sub-cultures within society. This concept has been fundamental to the work of scholars representing the various paradigms, including American pragmatism, symbolic interactionism, and library and information studies (James, 1969; Mead, 1934; Cooley, 1922; Shera, 1970; Greer, 1987). The concept of the self as employed here relies on these traditions.

The nature of the self is to integrate individual knowledge into the broader arena of social knowledge through perception. Perception is the means of receiving stimuli from phenomena as they appear in the environment to sensation (through the use of the senses). It includes within its arsenal the analytical tool of introspection, the first part of the process that results in accepting incoming data consistent with an individual's belief and values systems. It is these incoming, initial data that, after being selected, collected, analyzed, and integrated with other data and information, will eventually yield new knowledge. As a result, they are the locus in the Circuits of Theory where the self, society, and knowledge intersect. They are also the initial step in the taxonomy where phenomena and the individual first meet.

All of this is included in the process of perception. It is also the initial point of interpretation in which data are converted into symbols that are then given meaning through definition and conceptualization. These are the first steps toward the process of the discovery that comprises research and analysis.

From within the self, perception is guided by our belief and values systems, which serve as the unconscious lens through which stimuli are filtered at the point of initial sensation. This is also where, as Boulding (1956) argues, the role of the self becomes that of a unifying element in which these filters shape consciousness and individual knowledge. As a result, the self, as the center of all of this activity, unites the conscious and unconscious into a unified whole that is able to construct individual and social knowledge.

Individual knowledge includes knowledge gained through socialization as members of key institutions, such as family, education, and church, which profoundly influence the formation of systems of individual and social experience, norms, values, and beliefs. These systems, including the development of principles, conventions, and a knowledge base, constitute an individual's world view.

Since research is a process that is largely an individual undertaking, influenced by individuals and their assumptions, values, and beliefs, the impact of self on the research process is undeniable and plays a prominent part in the new Circuits of Theory. As a result, understanding the role of the self and its relationship to individual, society, and social knowledge is critical.

Society

The second module, which includes both the social and social knowledge, must be understood in terms of how society relates to existing knowledge. Social groups create their own reality by the mutual acceptance of group norms, values, beliefs, and knowledge. Holzner & Marx (1979) define "social knowledge" as knowledge screened and accepted by social groups or by society at large. Thus, the social knowledge module is that in which researchers build on existing or create new knowledge through the generation of individual knowledge and its acceptance as a legitimate part of social knowledge. Individual knowledge is merely opinion without the legitimization provided by its acceptance as a part of social knowledge.

Accepting and legitimizing individual knowledge and ultimately social knowledge relies on acceptable data gathering techniques and processes, a necessary element in society's recognition of the reliability and validity of new knowledge. Disciplines and professions define the conventions for accepting or rejecting new knowledge. Hence, the legacy of the social knowledge module is less about existing knowledge and more about these conventions. Teaching these conventions and the idealism that there still exists the potential of undiscovered knowledge is an essential part of undergraduate and graduate education.

Library and information studies (LIS) education is dedicated to the study, understanding, and use of social knowledge as it relates to the social module of the Circuits of Theory. LIS doctoral education is directed toward developing new ways of studying, understanding, using, and extending research and knowledge in the field. It is also about linking individual knowledge through the process of social acceptance to social knowledge—the whole of social knowledge becomes the sum of its parts in the form of individual knowledge.

Knowledge

The third module is that of knowledge, both existing and undiscovered. While the previous two modules included accompanying and integral aspects, the knowledge module is a fully integrated module that comprises existing knowledge and its shadowy partner, undiscovered knowledge.

Existing knowledge is defined here as phenomena that have been captured and have undergone some degree of analysis. Conversely, undiscovered knowledge is unknown knowledge in the form of "uncaptured" phenomena that possess the potential of discoverability. The fulfillment of this potential of discovery is contingent on both existing and future mechanical and/or theoretical technology. The linkage between existing knowledge and undiscovered knowledge has to do with basic empiricism and epistemology. Empiricism is how individuals respond to external stimuli from phenomena. It is through empiricism that existing knowledge is generat-

ed and verified. Epistemology is the belief system that permits individuals to accept the actuality of the existence of undiscovered knowledge.

Individual knowledge includes aspects of social knowledge gained through an individual's educational experiences at various levels, from primary through higher education. People are socialized to believe in the predominance of social knowledge over individual knowledge through much of the formal educational experiences provided by society.

However, contrary to a social knowledge bias that tends to be learned through early education, there is also a considerable body of knowledge that is unique to an individual. This individual knowledge may conflict with social knowledge at times, especially when the acceptable knowledge of one group conflicts with that of another. For example, professional knowledge may conflict with political or religious knowledge. A professional school empowers students to practice a profession, but professional education may conflict with individuals' personal knowledge and values, which have often been the product of socialization through participation in other social groups and institutions, for example, church, education, politics, leisure time activities, etc. It becomes a question of which takes precedence—the individual, the group, or the institution.

APPLYING THE CIRCUITS OF THEORY TO THE RESEARCH PROCESS

Today, a considerable amount of research in LIS is based on action research with little attempt to apply theory. The structure that the new Circuits of Theory supplies will enable researchers to construct theories that help with generalizations beyond the conclusions drawn from empirical data. It is worth a reminder that when one reaches a conclusion one has already engaged in the generalization process by reflecting on data and discerning patterns. While the generalization process is similar in moving from data to conclusions and from conclusions to theory, use of the taxonomy enables a systematic approach.

For example, a researcher might identify a psychological (discipline level) theory that has implications for professional intervention in the information search process. The theory could be operationalized through application in data gathering associated with client interviews and observations. The data gathered would be compiled, analyzed, and compared to the psychological theory that might then be revised into a substantive level theory for use both at the reference desk and in professional education. Further study might reveal unanticipated nuances to the theory, which might result in refinements to the original theory relating to information gathering and the mind.

The three modules of the Circuits of Theory identify contextual variables from which the meaning of new knowledge emerges as influenced by the self, society, and existing knowledge. The Circuits of Theory portrays

research as a complex dialectical process with numerous interactions between the modules of the Circuits of Theory.

Sample Study

City manager study (Grover & Glazier, 1984). Five city managers were studied to discover their information use patterns. The study generated a substantive theory usable by professionals, such as information specialists. It was found that each city manager operated similarly based on his/her past experiences (individual knowledge module), local context (society module), and individual reaction (self module), and on the knowledge known and unknown (discovered and undiscovered knowledge module).

CONCLUSION

Several common themes emerge throughout this paper as it relates to research, theory building, and the environment that envelops the research process. First, it is argued that research and theory building is surrounded by a complex of social and psychological contexts. Second, these contexts comprise three basic modules. Each module is malleable—is without clear-cut boundaries—and is linked to the others phenomenologically. The initial module, the self, represents each individual that undertakes the long journey associated with the research process. While this journey is thought of as deterministic and rational, it is also shaped by the subjective experiential categories that organize the very self from which this entire process emanates. This initial module is embedded in each of the remaining three modules.

The self is an inextricable part of the next module, society. While the concept of society provides a home in the form of the context for each of the other modules, it also has its own identity. Society and social knowledge are more than the sum of the individuals and individual knowledge that are a part of it. Society is the source of accumulation and legitimization of individual knowledge in the form of social knowledge. The third module, knowledge, discovered and undiscovered, is the linking module among the preceding two, the self and society. It is the repository of existing individual and social knowledge as well as potential knowledge based on what is already known and recognized as grand theory and paradigms. As a result, the responsibility of social legitimization resides here.

Finally, there is the taxonomy of theory. The taxonomy of theory is central to the entire Circuits of Theory. It is here that initial research and theory building takes place as well as the critical process of replication that prepares the way for paradigmatic changes. Since the categories of the taxonomy have been detailed earlier, that process will not be repeated here.

The taxonomy is placed within the context of the new Circuits of Theory as the central point around which the three key modules are arranged. Each module is analyzed above in terms of its functions and relationships

to the other modules individually and systemically. It is these complex, inter-linking, shifting relationships that are the focus of the new Circuits of Theory.

These relationships are not linear but cyclical in their pattern of interaction. They dialectically define and redefine one another based on the shifting nature of the system as a whole. The interactions of self, society, and knowledge, within the context of the research process, create a dynamic environment that encourages change and innovation. Resistance to change in the context of this Circuits of Theory and in general in a society that has historically been grounded on discovery, innovation, and change is systemically alienating and creates systematic aberrations in the form of contradictions, inequality, and exploitation.

The relationships spoken of above unify information studies research, analysis, theory building, and knowledge integration into a single whole. Relationships as understood here are based on dialectical interactions brought about when modules possessing subjective and objective qualities interact in a world of varied substances and experiences. A framework or system designed to favor a subjective approach to nature without considering the objective, or an objective approach that does not consider the subjective, lacks understanding, versatility, and vision. Hence, this framework or Circuits of Theory is not intended to favor one to the exclusion of the other; or, in this case particularly, the qualitative to the exclusion of the quantitative.

Further Research and Study

As the Circuits of Theory has been constructed, as many contingencies as possible have been anticipated. It is, of course, impossible to anticipate all the possible contingencies that might arise, let alone resolve them. However, here are some of the contingencies that emerged in the process of writing this paper and that need additional research. First, is the nature of the concept of phenomena. Second, is the nature of the concept of knowledge both in its discovered and undiscovered forms. Is it knowledge when we have yet to discover it and lack the technology to bring it to the surface? This question brings about a third contingency, the nature of the relationship between phenomena and knowledge, both discovered and undiscovered. These are just a few of the contingencies that have been obstacles in the preparation of this paper. The authors lay them at the feet of the research community in general.

NOTES

1. Odi described theory as "an internally connected and logically consistent proposition about relationship(s) between phenomena" (p. 313).
2. Mullins (1973) contended theories may be a single topic developed in parts by many persons or on many topics by one person.
3. This terminology is adapted from its original use by Weick (1976) as it related to the organizational literature, and is thus employed in a different sense than Weick intended.

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