
Managers' Use of Information: A Grounded Theory Approach

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There is considerable interest in the role of information in organisations and in its potential for enhancing organisational performance and furthering organisational goals. The following examples of findings from a recent study published by Reuters illustrate the recognition of the importance of information to organisations:

"nearly one in four UK companies says that information is its most important asset";

"two out of five companies believe their corporate reputation, cash reserves and buildings and facilities are less valuable than their information";

"more than two out of five companies believe that "companies have not awakened to the true value of information";

"forty per cent of companies said it would take them over a month to recover from the loss of information";

"twenty-five per cent of companies are prevented from capitalising information because they find its value too difficult to quantify".

(*Enterprise Information*, 1995, 3-4).

These findings suggest that information is recognised increasingly by organisations and their managers as a key resource in business activities. The level of investment in information resources, information technology and information services and systems by business organisations is one measure of the importance of information. The restructuring of organisations to facilitate collaboration and information exchange across departments and levels is another measure of the recognition of the role of information in organisations. The widespread acceptance of the ideal of the learning organisation in which people are competent in and reflective about their performance is a further measure still of the importance placed on information in organisations. Information has the potential to make a very significant impact on organisations. For example information can contribute to increased productivity, the development of new products and services, the expansion of market share, positive responses to the external environment and the growth of a productive culture within an organisation.

But what is information? Is the information in "information technology" the same as the information in "library and information services" or in "information management" or in "the latest information"? Is it the same as "corporate

intelligence" or "data" or "knowledge"? Not surprisingly, there are many definitions of the term "information" and an anecdote will serve to highlight some of the different understandings of what information is. An information manager recently spoke at a meeting about an engineer colleague in the same organisation who claims that he doesn't use information yet he is known to be a keen reader of technical reports. The information manager was puzzled by what appeared to be a contradiction between what the engineer said he did and what the information manager thought he did with information. The engineer and the information manager appear to have different views on information and what it is and presumably on how it can be used and what it can do. This incident is a reminder that people experience the world and understand aspects of it in different ways. The engineer's experience and understanding of information was different in this instance to that of the information manager whose role in the organisation is to provide information services, including a current awareness service based on technical reports.

The full potential of information as an organisational resource seems not yet to have been fully realised. Evidence lies in the downsizing or closure of library and information services in some organisation with no corresponding outsourcing of those services. It lies also in the underutilisation of information technologies such as management information systems in some organisations. Recognising that other organisations are expanding their library and information services and increasingly applying information technology in providing information to their employees, it is apparent that some organisations are more aware than others of the importance of information as the fourth resource, ranking equally with people, money and physical resources. Some organisations are also more aware than others of the need to manage information "independently of its medium or technology" and are able to integrate information into business processes (Best 1996, 157).

The work of managers in organisations is information-intensive. It is crucial that managers' use of information in the context of their work roles is clearly understood so that the value of information can be fully appreciated by managers and their organisations. The research project which is the focus of this paper sought to explore managers' understanding of information and to describe and explain their actual use of information. The research was guided by two questions:

- what are managers' conceptions of information?
- how do managers use information?

There have been numerous studies conducted of the information sources, channels and media managers use and prefer. For example, studies of managers have reported extensive use of people as information sources and a strong

preference for the exchange of oral information. (Mintzberg 1975; Kotter 1982; McCall and Kaplan 1990). There have been fewer studies of managers' actual use of information and the findings are tentative. Taylor (1991) suggests eight classes of information use based on empirical evidence: enlightenment, problem understanding, instrumental, factual, confirmational, projective, motivational and personal or political use. Reviewing the findings of research utilisation studies, Browne (1993) suggests the following five kinds of use: instrumental, conceptual, tactical, symbolic and political.

There are even fewer studies of what it is that managers understand by the term "information" and yet there are suggestions that people's conceptions of a phenomenon such as information shape the meanings that they make of it and their behaviour towards it (Marton 1981). Taylor (1991) has called for further clarification of people's perceptions of information and more studies of people's explanations of their actual information use. The present study seeks to fill a gap in the empirical literature by exploring two aspects of managers' information behaviour: their conceptions of information and their use of information. This exploration would seem to be a useful starting point for the development of information services and systems for managers.

LOCATING THE RESEARCH IN THE NATURALISTIC PARADIGM

The project is derived from conceptual frameworks in information science, more specifically the field of information behaviour. The key concepts explored in the project are "information" and "information use". Although the research is informed in part by the literature of management its central concerns are those of information science as a social science. There is then the immediate choice of locating the research in either a naturalistic or positivistic paradigm of inquiry. The choice is shaped by a number of fundamental ideas and beliefs about the nature of reality, the relationship of the knower to the known, the possibilities of generalisation and causal linkages, and the role of values in inquiry (Lincoln and Guba 1985, 37). These ideas and beliefs are in turn shaped by the phenomena being investigated in the research.

The naturalistic and positivistic inquiry paradigms are reflected in the writings of information science writers. In a landmark review of the study of information needs and uses, Dervin and Nilan (1986) called for an alternative paradigm in the study of information behaviour. They argued that the so-called traditional or positive inquiry paradigm in information science had assumed an objective view of information which led to a supplier-oriented framework to the analysis of information and people's use of it. As a consequence, studies of the information needs of users have been limited in their findings and have not led to widespread discernible changes in information services. In proposing an alternative or naturalistic inquiry paradigm, Dervin and Nilan argued for a

definition of information as a subjective, user-constructed phenomenon. In this paradigm, users of information are regarded as active in their information seeking and their behaviour is seen as processual.

Other researchers prior to Dervin and Nilan's review also recognised the limitations of research based on an objective view of information. For example, Mick, Lindsey and Callahan (1982) presented an argument for what they termed "useable user studies" but in their own research of managers' information use they were not able to develop a research design consistent with what they saw as the limitations of user studies. Wilson (1981) conceptualised information needs and use as part of an individual's social and work role in his model of information behaviour and argued for an approach which attended to the context of people's information needs and use.

There are a number of models of information use which are consistent with the view of information as a user construct and which situate information in a context. Taylor (1986, 34–35) developed a model of information use environments which he defined as: "the set of those elements (a) that affect the flow of information messages into, within, and out of any definable entity or group of clients; and (b) that determine the criteria by which the value of information messages will be judged in these contexts". Katzer and Fletcher (1992) extended Taylor's model by focussing on the information environment of managers and the contexts in which they function. They are concerned with "how the activities and roles are related to the person's understanding of his or her current problematic situations and the person's information behaviours" (Katzer and Fletcher 1992, 33).

The subjective view of information and the contextualised study of information use which have informed the research project under discussion locate the study in the naturalistic paradigm. In Lincoln and Guba's (1985, 47–58) terms this location is justified because:

- realities are multiple, constructed and holistic. This is evident in the view of information adopted and in the contextualisation of managers' information use. The study is concerned with the conceptions of information which managers have and how managers use information in their work.
- knower and known are interactive and inseparable. There is an interaction among managers, information and their information use and the boundaries of each are not clear.
- only time- and context-bound working hypotheses are possible. The research aims to develop propositions grounded in managers' ideas about information and their use of it in a number of problematic situations which they have experienced.
- entities are in a state of mutual simultaneous shaping so that it is impossible to distinguish causes from effects. The models from Wilson (1981), Taylor

- (1986) and Katzer and Fletcher (1992) on which the research is based are not causal but they are explanatory.
- inquiry is value bound. As far as possible the approach to the study and its design have enhanced the congruence of the problem, paradigm, substantive theory and context.

One of the most telling metaphors to describe naturalistic inquiry is used by Blumer (1977, 38) who refers to the "lifting of the veils" that cover the area of study. He states that the veils "are lifted by getting close to the area and by digging deep into it through careful study". The modes of inquiry which Blumer argues are appropriate to the empirical social world are exploration and inspection or depiction and analysis. "Artful design" is another term used to depict the essence of naturalistic research and a research design that is "emergent rather than fixed prior to initiating the study" (Sandelowski, Davis and Harris 1989, 77). Marshall and Rossman (1989) outline the advantages of naturalistic inquiry in a less poetic manner by suggesting that the strength of this paradigm lies in its emphasis on the context, setting and the participants' frames of reference.

Of course, naturalistic inquiry is not unknown in information science. Dick (1993, 57) indicates that the naturalistic tradition in library and information science is an old one going back to the work of Butler in the 1930's and claims that it has been overshadowed by an "uncritical allegiance to positivism". He suggests that its revitalisation stems from a growing awareness of its benefits, particularly in the areas of information retrieval and the interactions between information users and information systems. Mellon (1990) argues that naturalistic inquiry is appropriate to library and information science because the information profession is concerned with bringing information to people. Professionals need to know why and how people think and act as they do if they are to respond effectively to the information needs of those who use library and information services. It is only in the last decade or two that there has been a noticeable trend towards naturalistic inquiry in information science but it has not yet had a noticeable impact on studies of information use in organisations.

ESTABLISHING THE TRUSTWORTHINESS OF THE RESEARCH

The choice of the naturalistic paradigm as the conceptual framework for the research imposes certain requirements for a study's design and methodology. Guba and Lincoln (1988, 103–106) have identified a set of four conditions essential for a naturalistic inquiry. It is these conditions which underpin the criteria for trustworthiness. They are a logical extension of the axioms of the naturalistic paradigm and need to be described briefly before the techniques for achieving trustworthiness in the study of managers and information are outlined.

The first condition is that the study is carried out in a natural setting so that the phenomenon can be contextualised by that setting. Although not an ethnographic study of managers or organisations, the organisational setting is important to the research. Interviews with the managers were carried out in their workplaces. The first interview focussed on three problematic situations which the managers chose to describe and the managers' views on information; the second on the managers' use of information in those problematic situations and again, their views on information. The organisational setting of the managers allowed the researcher to see and be in the environment in which the managers worked. It was a setting that the researcher needed to appreciate and understand.

The second condition is that the researcher is the primary data gathering instrument and one which is appropriate for the emerging research design of naturalistic inquiry. Guba and Lincoln (1988, 105) assert that the researcher enters the context of the research as a learner and is therefore not in a position to use highly focussed instruments. The human is sufficiently adaptable and capable of developing a focus once the salient features of situations have emerged. In the study the researcher was the primary data gathering instrument and became more focussed on the developing theory as the study proceeded.

The third condition relates to the methods which are used in the research. These are the methods which rely on human senses. Generally they are qualitative rather than quantitative although it should be recognised that naturalistic inquiry does not preclude the use of quantitative methods per se. Methods used to gather data in the present study were interviews with managers, document analysis and transient observations of the managers' settings as well as analysis of the literature of information science. These are appropriate methods for the investigation of multiple realities and are adaptable to the mutually shaping influences and value patterns that might arise in the research. For example, the interviews were loosely structured and allowed for the elaboration of responses where necessary. Verbal responses were required in the main although participants were asked to draw what they understood information to be as well as to suggest a metaphor or phrase.

The fourth and final condition is the use of the researcher's tacit knowledge which is particularly valuable in the early stages of a research project. The researcher's personal experience as a teacher and researcher in information science and as a manager was one source of tacit knowledge. Another source was a period devoted to developing "theoretical sensitivity" through reading the literature in information science and management as well as documentation on the organisations in which the managers worked. The data were coded and analysed immediately after each interview and this process shaped the further development of the researcher's tacit knowledge.

As a consequence of these four essential conditions the inquiry involves "four continuously interacting elements: sampling, data analysis, theory devel-

opment, and design development" (Guba and Lincoln 1988, 106). It is these four elements of the emerging research design which enable the discovery of grounded theory (Glaser and Strauss 1967). It was not the intention of the project to test a priori hypotheses but to develop theories on information and information use which are grounded in the data provided by the managers participating in the project. Conceptual categories and their properties were generated and propositions developed in the process of simultaneously collecting, coding and analysing data. Questions of what data to collect and how much to collect were determined by the emerging theory. It was therefore not possible to estimate in advance the number of managers from whom data was collected, although an estimate of twenty was made. This in turn allowed for the analysis of sixty problematic situations in which information was used.

Lincoln and Guba (1985, 290-293) argue that trustworthiness is an issue in all research and that the criteria for determining trustworthiness are different in each research paradigm. The criteria are related to the "truth value" of the findings, their applicability, their consistency and their neutrality. In naturalistic inquiry, the criteria consist of the credibility of the findings and their transferability to other contexts, the dependability of the findings and their confirmability. In positivistic inquiry, the criteria consist of internal validity, external validity, reliability and objectivity. Each of these criteria are consistent with the axioms of positivistic inquiry, for example, a single, tangible reality and a linear causality. They are not therefore appropriate for determining the trustworthiness of naturalistic inquiry.

The design and methodology of the study were selected to enhance the trustworthiness of the findings. Certain characteristics of them relate to each of the criteria identified by Lincoln and Guba.

Credibility. Characteristics which enhance the faithfulness of the findings and their interpretation to the data and to the constructions made by managers were triangulation, an external check on the inquiry process, negative case analysis and member checks. (Lincoln and Guba 1985, 301-314) Triangulation is advocated by Denzin (1989) as the basis of rigour in the social sciences. The study incorporated triangulation in a number of ways. Firstly there were a number of data sources (managers, documents and data analysis produced by the researcher) and methods used to collect data (two interviews with each manager, analysis of documents provided by managers, records of transient observations, "expert views" on information and information use found in the literature of information science).

The external check on the inquiry process took the form of discussions at different stages of the research with a colleague experienced in grounded theory development and knowledgeable about information use in organisations as well as information science theory. Negative case analysis contributed to the development of categories, properties and propositions and drew on the analysis of

the information science literature. Member checking involved the managers in checking summaries of interviews supported by extracts from interview transcripts.

Transferability. The task for the researcher is to provide sufficient detail for others to make judgements about the transferability of the findings to their own situations and context. The researcher must provide thick description to enable others to make sound judgements. For this reason each interview was transcribed completely. Extensive use of quotes and examples will be used in published reports of the study.

Dependability. This criterion refers to the fairness of the findings and it closely linked to the criterion of credibility. The challenge for the researcher is to establish that the findings are a fair representation and is based on the processes used by the researcher to develop the findings. The researcher documented the decision-making processes used in developing categories, properties and propositions.

Confirmability. Whereas dependability refers to the research process, closely paralleled by reliability in positivistic inquiry, confirmability refers to the researcher's product and its accuracy. The approach of Strauss and Corbin (1990) was used not only as a way to approach data coding and analysis but also as the basis of an audit trail established by the researcher.

Although not related to any one specific criteria the keeping of a journal was another activity used for maintaining trustworthiness. Because the primary data gathering instrument was the researcher herself, the journal or diary was used to record information about the researcher's learning process as the study unfolded. It allowed the researcher to speculate on aspects of the research that would not have been otherwise recorded and served as a reminder that the researcher's task was to allow the managers to speak for themselves but to do so in such a way that was credible also for other scholars and information professionals. In this sense, the researcher acted as a go-between with a Janus-style view of managers' information use and those who wish to use the outcomes of the project.

These characteristics will not of themselves compel others to accept the findings of the study. What they will do is to persuade others to accept the trustworthiness of the inquiry. As Lincoln and Guba (1989, 329) state: "we wish to call attention to the fact that the naturalistic criteria of trustworthiness are open-ended; they can never be satisfied to such an extent that the trustworthiness of the inquiry could be labelled as unassailable".

MEETING THE REQUIREMENTS OF ETHICAL RESEARCH PRACTICE

There are a number of ethical issues surrounding the study of managers' conceptions of information and their use of it. Most of these issues are inherent in naturalistic inquiry and arise from the caveat that participation in a study

should bring no harm to participants nor to researchers. There are four major issues which needed to be addressed in the study: voluntary participation, informed consent of the participants, the privacy of the participants and confidentiality of the information they provide, and the responsibilities of the researcher. The methods used to address each issue in the study are outlined.

Voluntary participation. In naturalistic inquiry, participation should be voluntary and the research design sufficiently robust to minimise the impact of self-selection by participants. Written communication with the managers stressed the voluntary nature of participation in the project. The managers were reminded of their right to withdraw from the project without explanation on several occasions, at the commencement of each interview and in the discussions of the researcher's analysis of each interview.

Informed consent of the participants. People participating in naturalistic inquiry do so in a way that makes it imperative that their consent to participate is as fully informed as possible. The managers who agreed to participate in the study were provided with information about the project when contact was first made with them and an overview of the project was given at each of the two interviews. The information was provided in both written and oral forms by the researcher. Because the research process was continually unfolding, the managers' consent needed to be confirmed throughout the project and not only at its commencement. The consent form signed by the managers allowed for confirmation of the agreement to participate (or not, as the case may be) on two occasions and it was made clear to the managers that they could withdraw from the project at any time without explanation.

Privacy and confidentiality. Trust and good faith shown by participants in naturalistic inquiry must be reciprocated. The researcher must not knowingly disseminate information that places a manager at risk. Information provided by the managers will be acknowledged but in such a way that the privacy of the managers is protected, their identity and that of their organisations is not revealed and the confidentiality of the information they provided is maintained. The names of the managers who participated in the project and their organisations were coded. The list of names and codes is known only to the researcher and is stored separately from the data. Codes will be used in the reporting of the research in any papers and presentations. Initials of participants and their organisations were used in transcripts and on documents and records of transient observations. The transcriber was required to sign a privacy and confidentiality agreement with the researcher. All data is housed in secure storage until the study is completed and then transferred to further secure storage for the period that it needs to be kept. The data is organised and indexed so that it can be retrieved and made accessible to those who provided it. Each manager is able to access only the information that he or she provided. However, the legal status of the information might mean that it must be made available to a third party, although this is very unlikely to be the case in this project.

The responsibilities of the researcher. In naturalistic inquiry, the relationship between participant and researcher is more likely to be one of equals or peers than is the case in the more usual investigator-subject relationship of positivistic inquiry. The nature of the relationship is reflected in the expectation that participants will review the accuracy of the information that they provide and the constructions that the researcher has placed on that information. The researcher provided opportunities for each manager to check the accuracy of factual statements in summaries based on information which he or she provided. Although the researcher considered seriously all requests to alter any statement of fact she alone is responsible for the interpretations she places on that information which was verified by the managers. This principle guided decisions made by the researcher in regard to requests from managers to alter the interpretation of the information they had provided. If for no reason other than out of respect for the participants, the researcher needs to be thoroughly prepared for "lifting the veils". The researcher prepared herself for her role by developing her theoretical knowledge of both the conceptual framework of the study and of naturalistic inquiry, identifying her values and beliefs in relation to the efficacy of naturalistic inquiry, reflecting on her career as a researcher working in the area of naturalistic inquiry, more particularly process consultancy, for the past ten years, enhancing her intellectual skills of evaluation and synthesis and mastering interviewing techniques.

CONCLUSION

Naturalistic inquiry in information science offers many advantages to researchers and to information professionals. It enables researchers to explore concepts and contexts in ways which promise new insights and offer possibilities for fresh application in further research and information practice. Naturalistic inquiry also carries with it particular responsibilities for researchers in relation to participants as well as the research process. The study reported in this paper is but one way of responding to Taylor's (1986) call for the clarification of perceptions of information and explanations of actual information use. In exploring managers' conceptions of information and their use of information in their work, the study can contribute to both information theory and information practice. Whether it does or not is as much a test of the researcher's expertise as it is of those who find it useful.

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