

Executive Modes of Informing – An Empirical Study

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Abstract

This study involved an interpretive in-depth case study into the ‘process of informing’ as reported by the six executives at SA Ambulance Service. The researchers found that it is not the formal information produced by an organisations computer-based information system that plays the dominant role in the managerial task, but rather it is the informal information that emerges through communicative actions such as interaction and socialisation. These findings provide significant support for Preston’s (1986:1991) findings and have important implications for our understanding of MIS in the organisational context. The study highlights the importance of interaction, observation and socialisation in the overall process of informing

Keywords

Executive Information Needs, Modes of Informing, MIS, Communication, Interaction

INTRODUCTION

In essence MIS has become premised with the construction of the official order. However, in doing so MIS has ignored the true nature of managerial information which is interwoven with the social order in organisations. As such MIS had failed to understand the informing process of ‘real’ managers in the organisational context (Preston, 1986:1991, Boland, 1979: 1986: 1987, and Davis et al, 1992).

The initial subject of this research project was proposed by the SA Ambulance Service (SAAS), an independently-run, commercialised organisation that provides paramedic, advanced life support and patient transport to the South Australian community. That proposal involved a broad investigation into Information Management and recommendations for its applications to SAAS. SAAS was concerned with the direction both it and the larger body of government was taking towards the management of its information. In particular the orientation towards technology and the bureaucratic form.

Historically MIS is premised on the design and development of formal, bureaucratic, calculation-based information systems, and concentrates on the capture, processing and storage of explicit knowledge (knowledge which can be “written” down) through the development and use of primarily calculative systems.. The communicative needs of managers is secondary. Consequently, many academics and practitioners lack an understanding of the true nature of how managers use and acquire information in the organisational context.

The current emphasis in IS research and practice on the development and use of knowledge management systems raises yet again the question of how best we can utilise information systems to aid managers “inform” themselves. For SAAS, this question was quite significant as they did not wish to invest heavily in formal knowledge management systems until they had a clearer understanding of how best to develop these systems (if at all) to complement or improve on their existing organisational specific management practices.

As the problem domain was ill defined it was decided to undertake research through an interpretive case study, into the current information management practices at SAAS. To guide early data collection, analysis and literature research an initial research focus was developed based on an ethnographic study conducted by Preston (1986:1991).

Preston’s study emphasised the importance of interaction and observation as the dominant “mode of informing” employed by the managers in the organisation he studied. These results could have quite a significant impact on the design and use of any systems developed to “manage” information and knowledge within an organisation. A system which supports a manager’s preferred mode of informing might have a greater likelihood of success and continued use. Ten years on, whilst we see considerable change in the technology, techniques and methods used in IS development we still focus on data oriented systems rather than communicative action oriented systems. There was a need for more research to confirm whether the technology was aligned with managers information needs.

LITERATURE REVIEW

Background

Central to the concept of MIS is the role of the manager. The management literature argues that the manager performs environmental scans, monitors business activities, shares information and interacts with others (Mitzberg, 1972:1994, Preston, 1986 and Duffy & Assad, 1980). Mitzberg (1972) argued that the manager is an information processor and a central nerve centre in the business unit. However this view of the manager pictures managerial work as planning, organising, staffing, directing, co-ordinating, reporting and budgeting (Mitzberg, 1972). In 1994, Mitzberg argued that the manager is not just an information processor. He/she does not just manage by information. The manager is also a leader, motivator and plays an active role in completing the business units activities (Mitzberg, 1994).

The study of managerial information has also greatly influenced MIS. However rather than foundations in managerial behaviour, MIS has grown from predominantly functionalist disciplines such as operations research, mathematics, statistics, economics, computer science and cybernetics (Preston, 1991, McKenney, Mason & Copeland, 1997 and Duffy & Assad, 1980). As a result MIS has adopted a technological-imperative view and has pictured IT as a defining social element and created a functionalist, deterministic and rationalist view of humans, organisations and information (Boland, 1979:1986:1987, Preston, 1986:1991, and Lewis, 1991). These views have guided our beliefs to a point where MIS is premised with the design and development of formal, bureaucratic, computer-based information systems. As a result MIS has become premised with the construction of the official order and failed to understand the way ‘real’ managers in ‘real’ organisations become informed (Preston, 1991). In particular the importance of the communicative act to inform has not been fully incorporated into IS design.

The traditional view of information systems in the MIS literature, is that they process data into some form (information) which is valuable or useful for decision-making (Stair & Reynolds, 1998, Curtis, 1989, Silver & Silver, 1989, and Taylor & Farrell, 1995). Thus information is considered useful if it helps management choose a better solution (Lewis, 1991, Boland, 1987, and Weber, 1997). In essence Boland (1986:1987) claimed that MIS has an imagery of information as structured data, as a source of power, as intelligence and as perfectible. Whilst this is a pragmatic view for the technocrats, this definition does not give the concept of information substance. This image of information undermines the possibility of taking the social environment seriously and denies the fundamental process of dialogue, interaction and socialisation (Boland, 1987) to create and share information.

Sense-making

A more useful understanding of information is provided by Weick (1979). He argued that organisational actors make sense of the world in order to develop a shared interpretation that can serve organisational action. Weick (1979) claimed that organisational participants go through a process of *ecological change*, *enactment*, *selection* and *retention* (Choo, 1996). *Ecological change* involves monitoring the environment for changes and determining the significance of these changes. *Enactment* involves breaking the environment down into manageable parts and deciding which parts of the environment to enact. Through enactment the actor can identify raw data that will subsequently be turned into meaning and action. During *Selection* the organisational actor applies various plausible relationships to the raw data in an attempt to reduce its equivocality. Finally the *retention* process retains this for future use (Choo, 1996).

According to the sense-making view there is no objective reality, rather organisational reality is seen to be socially constructed by its participating individuals (Preston, 1991 and Choo, 1996). Organisational actors are not rational processors of information. They impose their own meaning and experience, and use the ascribed meaning as a basis for understanding and action (Choo, 1996, Preston, 1991, Boland, 1979 and Daft & Lengel, 1986).

Nonaka & Takeuchi (1995) support this view of information when talking about knowledge creation. They argue that organisations seek out information to create knowledge. So knowledge is created through the synergistic relationship between tacit and explicit knowledge. *Tacit knowledge* is the internalised knowledge that is hard to formalise, whereas *explicit knowledge* is the formal knowledge that is easy to transmit between individuals and groups (Choo, 1996). With this view organisations go through a process of acquiring knowledge through shared experience, converting tacit knowledge into explicit knowledge, bringing together explicit knowledge from many sources and converting explicit knowledge back into tacit knowledge (Choo, 1996), i.e. knowledge is created by a communicative act.

The ‘official order’ vs the ‘social order’

The formal information that is produced by the old view of information tends to produce information that is historical, factual and standardised, rather than the timely, dynamic and trigger information that ‘real’ managers need (Preston, 1986:1991, Mitzberg, 1972 and Bartlett & Ghoshal, 1995). Preston (1986:1991) proposed the question, ‘*if managers do not just use the official documented system, what information do they use*’.

Thus the emergent focus in Preston’s (1986:1991) study became the process by which managers inform themselves and others. He described this process as ‘getting the full story’, ‘getting gened

up' or 'finding out what the hell is going on', and defined this as the '*process of informing*'. Preston (1986:1991) argued that the 'process of informing' was more holistic than often presented by mainstream MIS literature. The 'process of informing' is process orientated rather than structured, it encompasses the 'social order' and the 'official order', and is dynamic rather than static. Preston (1991) found that the factory managers employed a number of mechanisms to inform themselves and one another. He termed these as '*modes of informing*' and defined them in order of importance as 'interactions', 'observations', 'personal records', 'meetings' and the 'CBIS' (Preston, 1991). Preston (1986) found that managers made arrangements to inform each other through interaction and meetings, and arrangements to inform themselves through observation, personal records and the CBIS. Rather than operating as single, stand alone, structured systems these 'modes of informing' provided managers with multiple and sometimes contradictory points of view (Preston, 1986). He called for MIS to better recognise this in their design.

RESEARCH FOCUS AND RESEARCH QUESTIONS

The aim of this study is to build on the work conducted by Preston (1986:1991). Whilst Preston's (1986:1991) study made a significant contribution to MIS research its findings are based on the study of a single research context at a point in time. Thus there is a need for further research into the 'process of informing' as experienced in other research contexts. Preston's (1986:1991) findings also focused on the nature of managerial problems (Preston, 1991) and the construction of the social networks (Preston, 1986). The research context of this study differs from the research context used by Preston (1986:1991) in a number of ways. Preston studied middle line operational managers in a large manufacturing organisation in the United States during the late 1980s. This is a study of Strategic Executives in a medical service organisation in Australia in the late 1990s.

Employing over 600 paid staff, and 1300 volunteers based throughout regional South Australia, SAAS is geographically dispersed with 18 metropolitan and 86 country stations. Since 1992, SAAS has moved from a militaristic-style management structure towards an empowered, team-based structure. There are three broad types of formal information systems within SAAS: data systems (transaction and resource allocation systems), management reporting systems (finance, ambulance cover, operational and relationship indicators) and corporate information repositories (the LAN, the intranet and the "Whole of Government" records management system). (Colebatch, 1999).

Research Design

The methodological approach used was an interpretive, in-depth case study. In recent years interpretivist research has emerged in information systems with key contributions from Boland (1979, 1985), Checkland (1981), Zuboff (1988) and Orlikowski (1991, 1992) (Cited in Walsham, 1995b). Walsham (1993, pp 4-5) stated that interpretive methods of research in Information Systems are '*aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by its context.*' The interpretivist approach allows researchers to understand information systems in their organisational context and gain deep insight into information systems phenomena (Preston, 1991, Klein & Myers, 1999 and Walsham, 1993:1995a).

In interpretive research the data collection and analysis process is interactively linked (Miles & Huberman, 1984). The process for analysing and collecting data in the study was based on the Grounded Theory process introduced by Strauss and Glaser (1967) and discussed by Hughes and Howcroft (1999). Hughes and Howcroft (1999) argue that grounded theory is not just a method for generating theory but also a reliable means of qualitative data analysis and a useful template for novice researchers during the sense-making process as it can provide a systematic process for identifying patterns in the vast quantities of data generated through an interpretive in-depth case. (Hughes and Howcroft, 1999, Garcia & Quek, 1997).

The participants in this study were the six executives at SAAA and were all white anglo saxon males with varying ages, education and experience. Semi-structured interviews were used to gather data with observation being used as complementary evidence. Whilst the use of grounded theory processes provided structure and rigour to the analysis process, the interpretation made by the researcher was confirmed through participant validation which allowed participants to identify any divergence between the researcher's "interpretation" and the participant's perceptions of reality.

This combination of GT techniques, and participant validation allowed for the development of theory (i.e. locally derived models) from empirical data.

Research process

The first round of data collection involved approximately four weeks of participant interviews and observation.. The interviews allowed the researcher to gain deep insight and a broad understanding of the informing process as experienced by the executives (Fontana & Frey, 1998 & Neuman, 1997), develop an understanding of the research setting; and to establish a rapport with the executives.

Informant interviews were used to obtain insight into the organisation's social and cultural environment and to provide a source of complementary evidence. Informants were selected for their knowledge of the organisation's culture; because they were representative of the different functions; or had a close working relationship with the executives in this study.

The researcher's role as a participant in the organisation can be characterised as an 'observer as a participant' and as an 'acceptable incompetent' (Neuman, 1997). The researcher was a university researcher who was undertaking both a research study and producing a consulting report on behalf of SAAS over a seven month period. The researcher worked as an observer at both an ambulance station and the communications and dispatch centre, attended internal meetings and casually observed the executives' behaviour in their natural work environment. Observation was conducted to provide complementary evidence as it draws the researcher to the phenomenological complexity of the world, where connections, correlations, and causes can be witnessed and documented as they unfold (Alder & Alder, 1998). *Observation also allowed the researcher to seek out contradictions in the interview data.*

The transcribed interviews and observational data were then analysed using grounded theory techniques. A constant comparative analysis (Glaser, 1992 and Strauss & Corbin, 1994) was undertaken and through this iterative process a series of substantive and theoretical categories emerged from the data. All the raw data was then coded against the emergent themes to seek out any irregularities – axial coding (Glaser, 1992, Strauss, 1987, Strauss & Glaser, 1967, Hughes & Howcroft, 1999). From this emerged a series of sub-categories termed the 'modes of informing'.

(refer Diagram 1). These modes of informing were presented to the executives for participant validation to ensure they intuitively reflected participant reality. (Neuman, 1997). A second round of data collection was undertaken, all the data merged and the iterative coding and validation process repeated.

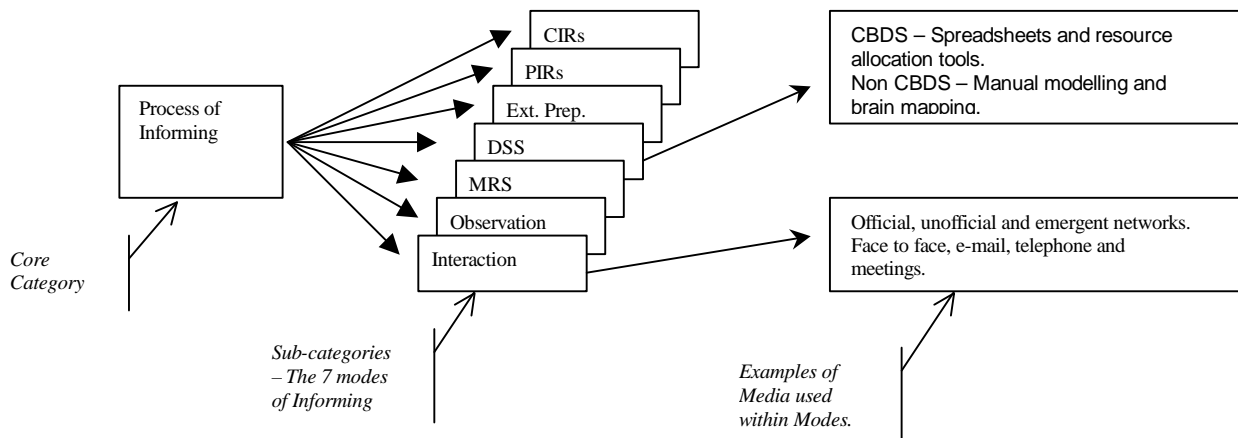


Diagram 1: Core and SubCategories

Finally, the findings were compared and contrasted against relevant literature to see how this interpretation related to other studies..

RESULTS

The core category that emerged in this study is referred to as the 'process of informing'. Although the 'process of informing' was the main research focus, the researcher attempted to allow the core category to emerge, rather than forcing a preconceived category onto the data. The process of informing as discussed by Preston (1986) became a useful way of understanding the broad spectrum of mechanisms used by the executives to become informed and was referred to by the executives variously as 'keeping on top with what is happening', 'making sure they know what the hell is going on' and 'keeping their finger on the pulse'.

This informing process contributed to the collection of knowledge, understanding, facts, information and wisdom that formed the executives' overall understanding of their environment. In contrast to the traditional view in MIS literature, the process of informing was not limited to the decision-making context, nor was decision-making an explicitly rational act. Rather it was related to sense-making, learning and socialisation processes. Executives were not guided by a formal decision-making process, rather it was understanding and meaning that guided their actions. Understanding was not formed through the processing of formal data and information. Rather it was predominantly formed through interactions and observation. Indeed, whilst seven sub-categories (or modes of informing) were identified in this study, interaction and observation were emphasised by the executives as the most important of these.

Preston (1991) found that the 'modes of informing' used by the managers in his study included interactions, observations, personal records, meetings and the computer-based production system. In another study, McKinnon and Bruns (1993) found that informing mechanisms included interaction, internally generated reports, personal spreadsheets, observation and personal or supervised collection of externally generated environment or economic information. In contrast,

this study found that the informing mechanisms used by the executives at SAAS are similar, but somewhat different to the managers in Preston's (1991) and McKinnon and Brun's (1993) studies. The executives at SAAS used seven '*modes of informing*' which were characterised as '*interaction*', '*observation*', '*management reporting systems*', '*decision support systems*', '*externally prepared general information*', '*personal information repositories*' and '*corporate information repositories*'.

In the following, the words of the managers that typify these sub-categories are presented (aliases are used). Some comment is added. Each of these informing mechanisms provided the executives with contrasting and complementary perspectives on a particular business issue or phenomena.

James: 'You need to form a picture rather than just one interpretation of it. Whether that be by reports or talking to someone. I have all the indicators to say objectively whether we meet our response times but that is only half the picture. You need to get other people's interpretation of the issue.'

Interaction - Official, unofficial and emergent networks.

Peter: 'I find personal interaction to be very important. A call centre operator may not need that personal interaction, maybe they do. Maybe they need to know and feel the culture of the organisation to effectively communicate with clients... David who is the country director may say something different because distance has forced him to do most of his networking by fax, e-mail and telephone. I guess that part of it can work. I personally don't like it, but maybe that's because I am 50 years of age and have never been brought up with it.'

The importance of communication and interaction to the managerial task is widely acknowledged (McKinnon & Bruns, 1993, Preston, 1986:1991, Adam and Murphy, 1995, Mitzberg, 1972:1973:1994, Krietner & Kinicki, 1995, Carlson & Davis, 1999, Daft & Lengel, 1986) with Mitzberg (1973) reporting that managers spend approximately 75% of their time communicating. Preston (1991) claimed that interactions were an integral part of the informing process as they provide managers with an important source of meaning. The executives in this study regarded 'interaction' as the most important mechanism of informing. They maintained and constructed a group of contacts, which were defined as 'official', 'unofficial' and 'emergent' networks. In another study Adam & Murphy (1995) referred to these networks as institutional and emergent links. The executives at SAAS established and maintained these official, unofficial and emergent networks through '*e-mail*', '*face to face*', '*telephone*' and '*meetings*'.

'Official networks' both internal and external were those which existed as a result of the formal or official lines of authority and/or where the organisation had explicitly targeted and allocated responsibility to an executive for managing the relationship between the organisation and an external party.

John: 'I keep contact with the rest of the medical profession to keep my medical contacts up. I do that by working there, I do that by attending conferences, I do that by teaching courses '.

Consistent with Preston's (1986:1991) and Mitzberg's (1994) findings, interaction was not limited to the official lines of authority. Executives actively constructed and maintained a series of informal or 'unofficial networks'. Executives considered the internal, informal contacts important as they allowed them to keep up with the latest gossip in the organisation. They also considered the informal contacts external to the organisation as important for keeping abreast of current business practices and environmental trends. David for example would maintain an

informal virtual network with people from all around the world through Internet discussion groups and e-mail.

Often ignored by the MIS and management literature was what the executive's at SAAS described as 'emerging networks'. These emergent networks involved unexpected encounters with others and provided an important source of informing.

Michael: 'The other day I was sitting next to the head of the emergency services in Queensland. That's the kind of guy you want to get to know, and now I keep contact with him.'

Observation – watching, listening to radio communications, site visits, attending meetings

James: 'Observation is seeing, hearing and feeling. In this organisation for instance it may involve listening in on the two-way radio which you have in your vehicle. It is amazing what things that may come to you listening to that.'

Consistent with Preston (1986), the executives at SAAS expressed interest in seeing what is happening in the organisation for themselves through observation. Observation was considered intuitive and important to gaining understanding of their environment.

David: 'I take a lot from going to clinical meetings and visiting stations when the person who is responsible for that area is there as well... I look hard at that and see if people are uncomfortable, then I will make a mental note and follow that up and see whether what I saw was correct and if there is some assistance required'.

Management Reporting Systems (MRS) – CBIS and Non - CBIS

For the executives 'CBIS reporting' included financial reporting and ambulance cover reporting. Consistent with Preston (1986:1991), Mutch (1997) and Mitzberg (1994) the CBIS did not play a dominant role in the informing process. Executives felt that CBIS reporting lacked accuracy and timeliness, was too detailed, and essentially told them what they knew. For them the CBIS report was mostly a checking and a feedback mechanism.

John: 'To maintain the level of performance is more than simply monitoring performance and correcting, its being one step ahead of that. Its using the reports to make sure that things aren't getting out of control. But that should only be confirming what you have already done... They are just confirming that it has worked, and sometimes it confirms that it didn't work. But to rely on that alone you would be totally reactive to the business rather than pro actively taking it forward... The important thing is to make sure that the problem doesn't occur in the first place.'

'Non-CBIS reporting' included market research surveys, paramedic audits, staff attitudinal surveys, relationship surveys, discussion papers, executive distribution papers and operational indicators.

Decision Support Systems (DSS)

DSS took the form of Computer-Based Decision Support (CBDS) and non-CBDS. 'CBDS' involved the use of spreadsheets and resource allocation tools to assist in modelling, forecasting and resource deployment. According to the executives however CBDS was not a significant informing mechanism as often prescribed by many MIS texts. CBDS tended to be limited to repetitive financial and operational problems. 'Non CBDS' took the form of traditional decision support techniques such as manual modelling and brain mapping.

John: 'I often draw diagrams for myself. I sometimes use the old fishbone thing where I do the for's and against... But I guess it would be wrong to say that we do it for every decision we make.'

Generally prepared external information

Externally prepared general information consisted of general information that had been prepared by an external body to the organisation, and was aimed at a more general audience. Media included media broadcasts and publications, reference and research journals, business magazines, government gazettes, personal reading, educational texts, conferences, and public presentations. McKinnon and Bruns (1993) termed this the 'personal or supervised collection of externally generated environment or economic information'. These mechanisms were not problem specific or SAAS specific, but provided an important source of ideas, learning, opinions and trend monitoring for the executives.

Personal Information Repositories (PIS)

Executives referred to personally constructed and maintained information repositories. These included both personal paper and personal electronic files. Personal records did not represent a significant source of informing, and were predominantly maintained as insurance against future investigation, or as a reference to a previous issue.

Michael: '90 % of the documents that I keep do not get used. I keep documents but I rarely refer back to them. I have a tendency to keep them for the sake of it.'

However in comparison to the official, corporate wide system executives discussed how they were more familiar with their own personal repositories, and hence still used them to store files they perceived as important or they frequently needed, rather than storing these files in the official, corporate wide system.

Corporate Information Repositories (CIR)

CIR included the 'corporate intranet', the 'LAN' and the 'government mandated records management system'. The executives regarded the CIR of somewhat limited importance, not user friendly and difficult to search for information. The primary justification for maintaining the CIR was to comply with government mandates that requires records to be kept for historical, accountability and legal purposes.

Paul: 'every so often we archive ambulance cover memberships. I don't think I would ever go back and get that information. But it is part of the governments requirement for freedom of information.'

John: 'it is not very friendly, it's not very good. Which is why we have so many people who keep their own personal systems'.

Discussion

The official system vs. the social system

These informing mechanisms can be divided into the official and social systems of informing. The social system is the component of the organisation where the systems of informing are socially constructed by the organisation's participants (Colebatch, 1999). It serves a fundamental

role in the overall informing process (Preston, 1986:1991) and should be facilitated and nurtured as a part of the organisation's overall information environment rather than formalised, as often prescribed in MIS literature.. In this study the social order consisted of informal interaction, observation, informal DSSs, externally prepared general information and personal information repositories.

The official system is the component of the organisation, which attempts to formally control and co-ordinate the flow of information (Colebatch, 1999). These systems are typically the focus of MIS, and are designed with the belief that command and control is the most efficient means to manage the organisation's information (Preston, 1986). For the executives at SAAS the official system consisted of formal interaction, management reporting systems, computer based decision support and corporate information repositories. Whilst the executives acknowledge there was a role for the formal, official systems in managing some aspects of the organisation's information, they considered the social system as the dominant and most important informing system.

James: 'Clearly if I wanted to sit down for the next twelve months and just sit here reading reports and making decisions then I could do that. But ultimately the systems would break down if I did that. The communication channels would break down and it would eventually get reflected in the performance reports. But it would be too late. I would be reacting rather than being proactive.'

Of particular interest in this study was the executives' attitudes towards technology. Technology was seen by the executives as a tool for automating routine/repetitive information related tasks, as a communications tool, as a personal productivity tool and as a form of portable office. Whilst the executives recognised some important applications of technology, they rejected the idea of a virtual organisation, as it removed the opportunity for interaction and socialisation.

John: 'I think information technology is an integral part of the process as pen and paper was in previous ages... But I don't think it is the answer to everything.'

Paul: 'We are trying to use technology for us rather than letting the technology drive us. There is a fine line between doing it because you can and doing because you should.'

Other Studies

This study provided significant support and extension to Preston's (1986:1991) ethnographic study. In particular this study found evidence of the 'process of informing' and use of informing mechanisms or 'modes of informing' in a different research context to Preston's (1986:1991) study; it refuted the rationalist and functionalist view of users and organisations; and it highlights the importance of interaction, observation and the social order in the informing.

The 'modes of informing' used by the executives at SAAS were somewhat different from those described by Preston (1991). In contrast to Preston's (1986:1991) study, this study considered meetings a medium of interaction, rather than a separate informing mechanism; found significant use of information technology as a communications and filing tool; found the use of corporate information repositories, externally prepared general information and decision support systems; and grouped CBIS under a broader theme of management reporting systems to include non-CBIS reporting. However, these differences may be explained by advances in the general use of technology, the use of strategic rather than operational managers, by differences between the research settings and differences in the research design.

Preston (1986:1991) found that the process of informing was largely influenced by the manager's overall definition of the problem, and non-problematic situations were primarily related to the sense-making process. This study found that the non-problematic situations were not just related to the sense-making process, but also executives' need to keep on top of future strategies, and the executives' need to manage social relations with others.

Implications for MIS Research and Practice

The findings in this study are specific to this research context and research project. Hence they are not generalisable in the traditional sense. However, the findings can be considered generally useful to the wider business and academic community.

One of the significant findings in this study was that of confirming that the concept of 'informing' introduced by Preston (1986:1991) provides a useful frame of reference for understanding the information behaviour of the executives at SAAS. The process of informing takes a more holistic view of how managers obtain information and inform others. This view allows the researcher to identify the broad spectrum of informing mechanisms, and to compare and contrast the various informing mechanisms as they are experienced by the managers. The concept also provides a useful focus for researchers who seek to understand the relationship between the socially constructed order and the officially controlled order. For practitioners the concept of informing provides a useful perspective to understand the nature of particular sub systems within the bigger picture of informing.

This study also supports Preston (1986:1991) Boland (1985:1986) and Walsham (1993) in emphasising the importance of interaction and the social order in the process of informing. In particular it provides some support for Boland's (1979:1985:1986:1997) philosophical work based on the symbolic interactionism view. With this view technology is not a strategic object, it is an artefact whose use is influenced by a complex web of social, cultural and political forces. Information is not an object or a resource, it is the expression of meaning. Data does not produce some objective reality, it presents a point of view that may or may not have meaning. Information processing and formal decision premises do not guide action, it is understanding that guides action, and it is through interaction that understanding is realised. Finally with this view an information system is not a formal collection of tangible components and structured processes. Rather it becomes a complex interpretive system, with a socially constructed boundary that may or may not convey meaning about a particular aspect of organisational life.

This study also questions the view that command and control is the most efficient means for managing the organisation's information, and highlights the role of the organisational context, as a central element in framing the organisations overall social, political and behavioural environment in which the informing process occurs. With this view, rather than formally modelling the organisation's information environment and developing formal, command and control based mechanisms for managing the organisation's information, organisations such as SAAS should seek to facilitate and nurture its overall social, cultural, behavioural and political environment to encourage the types of social interaction and communication it desires. We do not propose that SAAS and other similar organisations should abolish formal systems, and information systems departments. However, this study does question the extent to which formal systems can effectively convey meaning about a full range of complex and dynamic business phenomena. It suggests that SAAS and other organisations should seek to design and integrate its

formal systems around the organisation's overall social, cultural, behavioural, political and structural environment, in which the informing process occurs.

CONCLUSION

An analysis of the MIS literature suggests that the technological-imperative has hindered MIS in understanding the true nature of information behaviour as experienced by 'real' managers in the organisational context. Qualitative studies such as Preston's and this study provide a useful perspective for researchers who seek to understand the broad spectrum of mechanisms used by managers to become informed about events in the organisation, and its environment

The core category that emerged in this research project is referred to as the 'process of informing'. The 'process of informing' contributed to the overall collection of knowledge, understanding, facts, information and wisdom that formed the executives' overall understanding of the environment and guided their action. The seven mechanisms or 'modes of informing' used by the executives collectively formed the organisation's formally controlled official systems, and socially constructed, social systems.

The similarity between the findings in this study and other studies (particularly Preston's) indicate that it is not the formal information produced by an organisations computer-based information system that plays the dominant role in the managerial task, but rather it is the informal information that emerges through interaction and socialisation, the social system. These findings have important implications for our understanding of MIS in the organisational context.

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