

Communication Mode Preferences for the Receipt of Management Information: Richness, Features or Situational Determinants

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Abstract:

This study focuses on managers' communication channel preferences for the receipt of varying degrees of equivocal management information. We draw on three communication theories (media richness theory, media features theory and situational determinants) to explain manager's preferences for face-to-face, telephone, email and written communication. Using a sample of 125 managers working in Australian manufacturing organisations, the findings suggest that all three theories contribute to our understanding of managers' communication channel choices. Implications for the studies findings are addressed.

Keywords: media richness, media features, management information, communication channel

Introduction

Information gathering and processing for decision making is considered by managers and management theorists to be fundamental to organizational activity. The communication channel that managers choose to access and process such information has been the focus of current debate across a number of disciplines. Fundamentally, the debate is fuelled by

alternative theoretical perspectives in explaining managers' channel choice. This study examines three different theoretical perspectives, media richness theory (Daft and Lengel, 1986), media features theory (El-Shinnawy and Markus, 1998) and situational determinants (Conrath, 1973; Jarvenpaa, Rao and Huber, 1988), and considers their contribution to understanding manager's choice of communication channel in the receipt of management information. This study is unique in a number of ways. First, most previous studies have focussed on situational vignettes that vary in the extent of equivocality; whereas this study focuses on specific management information, such as the market share, future changes to government economic policies or output rates. Second, previous studies focus on the choice of *transmission* mode, however, our study focuses on preferences for the *receipt* of management information. Third, we studied managers in the field and not employees. Finally, previous research has shown that when equivocality is high, its effects supersede other variables, such as individual differences (Trevino, Daft and Lengel, 1990). Thus, the management information selected for this study was at the higher end of the equivocality scale to reduce potential noise in the channel choice decision. The next section outlines the theory and hypotheses.

Theoretical underpinnings and hypotheses

An organisation has a variety of communication channels through which it can transmit and receive information. These communication channels include face-to-face discussions, telephone calls, email and written memos/letters/reports. Several interrelated theoretical perspectives have been developed to study the choice of organisational communication channels, including media and information richness (Daft and Lengel, 1984, 1986; Rice 1992), social influence (Fulk, 1993), media features (El-Shinnawy and Markus, 1998) media symbolism (Trevino et al, 1990), situational factors (Rice 1992), social presence (Rice, 1993), channel expansion (Carlson and Zmud, 1999), and communication genres (Yates, Orlikowski and Okamura, 1999). In this study we consider three theoretical perspectives, media richness theory, media features theory and situational determinants, and their contribution to understanding managers' communication channel preferences.

This study examines managers' choice for the receipt of specific management information. The selection of types of management information is typical of that received by managers working in manufacturing organisations and can be classified as (i) non financial information, (ii) external information, (iii) future information and (iv) integrative information (Chenhall and Morris, 1986). This management information categorisation has been used extensively in management accounting research (e.g., Chong, 1996). The next section outlines the three communication theories adopted in the study and the related hypotheses.

Media Richness Theory

Media richness theory posits that the content of a communicated message influences the choice of communication channel

(Daft and Lengel, 1984; 1986; Webster and Trevino, 1995). The communicated message content for our study refers to the receipt of management information. The characteristics of management information (non financial, external, future and integrative) varies in degree of equivocality. Equivocality refers to the existence of multiple and conflicting interpretations about an organizational situation (Daft and Lengal, 1984). According to media richness theory, communication channels vary in their ability to process equivocal and ambiguous information. Communication channels can be placed on a continuum where face-to-face contact is considered the richest channel, followed by telephone, email and written documents. Channels higher in richness are preferred when processing equivocal information because such channels possess a number of unique characteristics that promote a shared understanding. For example, face to face communication, the richest channel, provides multiple cues (e.g., facial expression, tone, natural language and immediate feedback). On the other hand, shared understanding already exists for unequivocal management information and, therefore, lean communication channels (such as written reports) are adequate in conveying the information. Finally, media richness theory prescribes a matching between the communication channel and the equivocality of the message content (i.e. management information) to enhance organizational outcomes, such as performance (Daft et al, 1987).

H1: The higher the management information equivocality the more likely managers would prefer to receive that information via richer communication channels.

H2: Performance will be higher for managers who receive equivocal information via richer communication channels.

Media Features Theory

An alternative to media richness theory is media features theory. This theory posits that the communication channel choice will be influenced by the functionality and useability of the selected communication channel (El-Shinnaway and Markus, 1998). Functionality refers to the specific way that a communication channel supports users to accomplish their work tasks; while usability refers to the extent to which the channel allows a message to be transferred in a clear and readable format (Swanson, 1987; Larcker and Lessig, 1980).

An important usability argument applied to the written form of communication, particularly email, is that managerial work often involves the use of numerical data – for example, financial and non financial indicators such as sales targets, stock turnover, prices, depreciation rates, machine efficiency, and so on. There is often a need to repeat the numerical information via a personal communication channel (face/phone) to reduce ambiguity, thereby lowering its efficiency. Worse still, serious misunderstandings may occur in the transmission of numerical information via a personal communication channel. Thus, written communication is a preferred mode, or at least as a supplement to the personal mode, when communicating numerical information.

Another feature of email, not hitherto identified in the management information literature, is the potential for managers to use email to provide an audit trail. In managerial work, particularly in the current climate of concern over corporate governance issues, it is often desirable to provide evidence of managerial information transmitted and received. Thus, the functionality of email can be extended to include a work audit process.

Recent research indicates that the telephone, as a mode of transmitting and receiving management information, has been superseded by the use of email because of the superior functionality and useability features of email (e.g., El-Shinnawy and Markus, 1997; 1998; Sullivan 1995). For example, email allows recipients to scan their messages to ascertain what is important, provides for the composing and editing of messages before they are sent and, provides permanent and ongoing recording of messages by the documentation, printing, filing, referencing, forwarding and annotating of messages. An additional feature of email is the efficient performance of managerial work due to the reduction in interruptions caused by both face-to-face meetings and telephone conversations (Markus, 1994).

H3: Given the nature of managerial work and the current climate of concern for corporate governance, a written form of communication (either written or email) is likely to be the most preferred channel, regardless of information equivocality.

H4: Email will be the most preferred written communication channel, regardless of information equivocality.

H5: Telephone will be the least preferred communication channel, regardless of information equivocality.

Situational Determinants

Two situational determinants included in this study are geographical distance between communication partners and task uncertainty. Within the relevant literature, both factors have been identified as variables associated with communication channel choice (Webster and Trevino, 1995; Trevino et al, 1987; Trevino et al, 2000; Daft and Lengel 1986). With respect to geographical distance, Jarvenpaa et al, 1988) found that the distance between communication partners is positively associated with email use. Accordingly, we argue that the closer the geographical distance between managers who transmit and receive management information, the more likely email will be used in information exchange. With respect to task uncertainty, Kettinger and Grover (1997) argue that tasks vary in complexity and ambiguity, and channels of information processing should match the task characteristics. (Although we categorize this variable as a situational determinant [consistent with contingency theory], it has also an aspect of media richness theory.) Thus, when tasks are analysable, leaner media such as formalised written documents are used; when tasks are equivocal, richer media such as face-to face communication is more likely to be used because a shared understanding is required and feedback is immediate.

H6: The greater the physical distance between managers, the less likely face-to-face communication will be preferred and the more likely email will be preferred across all levels of information equivocality.

H7: In situations of high task uncertainty managers prefer to receive information via richer communication channels.

Research Methodology

Sample and procedures

A sample of 588 managerial/supervisory personnel from 94 Australian organizations was obtained from a population of 166,916 company decision makers and 40,361 business organisations included in the *The Business Who's Who of Australia* (2003) database during the first two weeks of July 2003. The criteria for inclusion in the sample selection were as follows: (1) the employers of the participants were designated as manufacturing organisations; (2) the manufacturing organisations must have at least 500 employees; (3) the participants were required to have supervisory or managerial responsibilities and (4) the participants were involved in any functional area within the organisation. Each participant was sent a questionnaire together with a covering letter explaining the purpose of the study and assuring confidentiality. A reply-paid envelope was included for the return of the completed questionnaire. A prize competition entry form and a separate reply-paid envelope for the prize competition entry form were also included in an attempt to increase the response rate. Of the 588 distributed questionnaires, 129 were returned, representing a response rate of 22%. The final sample consisted of 125 responses since 4 questionnaires were incomplete.

Measures

The *task uncertainty* (task interdependence) was measured using the scale developed by Dean and Snell (1991), which is based on the conceptual work of Thompson (1967). The Cronbach alpha reliability was .76. The Mahoney et al's (1963) eight-item instrument was used to measure *managerial performance*. The alpha reliability was .76. *Geographical distance* was measured by asking respondents to think about the five work colleagues who they consider to be most important in assisting them complete their work tasks. The respondents were asked to place up to five ticks, representing each person, in a selection eight boxes that represented the physical distance between the respondents work area and their colleagues. The boxes ranged from "0-20 metres" to "overseas". The *management information* characteristics selected for the study were derived from the work of Chenhall and Morris (1986). The information characteristics are: non-financial information (e.g., output rates, scrap levels), external information (e.g., economic conditions, technological developments), future information (e.g., future changes to government economic policies) and integrative information (e.g., information that relates to the impact of decisions on the department's performance). A panel of eight experts were asked to rate, on a seven-point Likert scale, the equivocality of nine pieces of management information (two items each for non financial, external and future related information and three items for integrated information). The panel consisted of four academics with a management or management information systems background and two senior managers not included in the final sample. The results of the

expert ratings are presented in Table 1. Consistent with theory, the experts rated non-financial information as the least equivocal, followed by external information, future information and, integrative information was rated the highest on equivocality.

Table 1: Management information equivocality ratings

Management information	Standardised score
Non-Financial	0.39
External	0.63
Future	0.75
Integrative	0.86

To test managers preferences for the receipt of the various categories of management information (as set out in Table 2 below), respondents were asked, using a five-point Likert scale, to rate the importance of receiving such information via four media channels: face-to-face, telephone, email and written.

Results

As stated above, the panel of experts rated the equivocality of management information in the following order (from least equivocal to most equivocal): non financial, external, future and integrated information. Media richness theory proposes that the higher the information equivocality, the more likely communication channels of higher information richness will be chosen. Referring to Table 2, managers for this sample indicated that face was the most preferred communication channel for receiving integrative information ($x = 7.75$), followed by future information ($x = 6.27$) while face was the least preferred channel for receiving external information ($x = 5.49$) and non financial information ($x = 5.63$). These results support H1 (and thus media richness theory) such that higher information equivocality requires a communication channel of higher information richness.

Media richness theory, however, is not fully supported if we examine the communication preferences within each category of information. For example, referring to integrated information (the highest in equivocality), face is the preferred channel (supporting media richness) while the next most preferred channel is written and the least preferred communication channel is telephone. These last two choices run counter to media richness theory because the telephone (according to media richness theory) is higher in information richness than the written communication mode and therefore telephone should be preferred over written modes of communication. These anomalies are considered in the “media features” related hypotheses (H3-H5).

Table 2: Communication mode preferences for receipt of management information

Management information communication modes	Means*
<i>Non financial information</i>	
Face	5.63
Telephone	4.99
Email	7.32

Written	7.49
<i>External information</i>	
Face	5.49
Telephone	4.80
Email	7.01
Written	7.03
<i>Future information</i>	
Face	6.27
Telephone	5.39
Email	7.57
Written	7.34
<i>Integrative information</i>	
Face	7.75
Telephone	5.63
Email	6.97
Written	7.10

* Theoretical range 2-10.

Table 3: Communication mode preferences for high and low managerial performance

Communication Mode	High performance (means)	Low performance (means)	Significance (t)
<i>Face</i>			
Non financial	5.93	5.22	1.67
External	5.67	5.25	1.06
Future	6.37	6.13	0.55
Integrative	8.10	7.29	2.38*
<i>Written</i>			
Non financial	8.10	6.66	4.33**
External	7.43	6.49	3.07**
Future	7.62	6.96	2.01*
Integrative	7.47	6.59	2.84**

* differences significant at the 0.01 level

** differences significant at the 0.001 level

To test H2, performance was split at the means to create high and low performance sub-samples. Only the extreme ends of the media richness continuum were used - face and written – to simplify the testing of H2. Referring to Table 3, in support of media richness theory, higher performance was reported where managers chose to use face for the receipt of information of the highest equivocality (integrative). That statistically significant differences in performance did not emerge with the use of face communication mode and the less equivocal information sources (non-financial, external, future) also supports media richness theory. In other words, managers' performance increases when there is a fit between the equivocality of the information and the degree of richness of the selected media.

Turning to the results for the written communication mode preference, higher performance was associated with higher use of written communication, regardless of the equivocality of the information. This result does not support media richness theory (and thus H2). It is interesting to note, however, that the least equivocal of information (nonfinancial) is associated with the highest preference for written and the most equivocal information is associated with the lowest preference for the written

communication mode. These results are supportive of media richness theory.

Based on the foregoing, media richness theory cannot fully explain the managers' choice of communication channel. As explained in the theory development section, media features theory offers an alternative approach to media choice based on the functionality and useability of the communication medium. Given the needs of managers and the specific features of communication channels it was argued that written forms of communication would be preferred over other forms of communication, regardless of information equivocality (H3). Referring back to Table 2, written forms of communication are preferred over all other forms of communication channels, except for integrative information, where face is preferred. This result therefore only provides partial support for the media features theory (and H3).

Hypothesis (H4), that email will be the most preferred communication channel regardless of information equivocality was not supported. Telephone was the least preferred communication channel, regardless of information equivocality, (H6), was supported.

Table 4: Communication mode preferences for small and large geographical distance

Communication Mode	Within 20m (means)	Outside the building (means)	Significance (t)
<i>Face</i>			
Non financial	5.62	5.89	-0.45
External	5.72	4.89	1.49
Future	6.41	5.53	1.40
Integrative	7.75	8.16	-0.84
<i>Email</i>			
Non financial	7.13	7.42	-0.54
External	7.04	7.05	-0.03
Future	7.45	7.63	-0.44
Integrative	6.81	7.26	-0.97

To test the situational determinant hypothesis (H6), the sample was split into two groups: managers whose main work colleagues worked within 20 metres of each other and managers whose main work colleagues worked outside the building. Referring to Table 4, there was a trend for managers to express a preference for greater use of email when their main colleagues were outside the building compared to within 20 metres, supporting the situational determinants theory. These relationships were not statistically significant, however. Turning to the face communication mode, this mode was relied on less when the main work colleagues were further away for only external and future information. Again, these relationships were not statistically significant.

Table 5: Communication mode preferences in high/low task uncertainty contexts

Communication Mode	High task uncertainty (means)	Low task uncertainty (means)	Significance (t)

<i>Face</i>			
Non financial	5.93	5.30	1.51
External	5.80	5.15	1.67
Future	6.54	5.98	1.27
Integrative	8.24	7.23	3.06**
<i>Written</i>			
Non financial	7.92	7.02	2.64**
External	7.25	6.80	1.43
Future	7.82	6.81	3.18**
Integrative	7.32	6.85	1.49

* differences significant at the 0.01 level

** differences significant at the 0.001 level

To test the differences in preferences for the receipt of management information between high and low task uncertainty contexts (H7), only the extreme ends of the media richness continuum will be used – face and written. Task uncertainty was split at the means to form two groups, one high and the other low on task uncertainty. Referring to the high task uncertainty means in Table 5 we can make the initial observation that the written communication mode is preferred over the face communication mode for all information types, apart from integrative. Managers prefer to receive integrative information via face in high task uncertainty contexts. If we examine the difference between the means for the face communication mode, the face mode is preferred in high task uncertainty contexts, regardless of information equivocality, and at the extreme level of information equivocality, that relationship is statistically significant. These results support H7. Turning to the preferences for the written mode of communication, the written form is preferred in high task uncertainty situations, this does not support H7. It appears that in situations of uncertainty more information is preferred and the mode becomes unimportant. This finding is consistent with Galbraith's (1973) information theories.

Discussion

This study focuses on managers' choice of communication channels using three different communication theories: media richness theory, media features theory and situational determinants. Our results indicate that an eclectic approach is preferred to understanding managers' decisions with respect to communication channel choice. The findings of this study provide partial support for media richness theory, media features theory and situational determinants. The results supported media richness theory in that higher levels of information equivocality require information of higher richness. Media richness theory has considered the telephone to be a higher richness than written communication because its ability to provide immediate feedback and oral cues however in all categories of management information, the telephone was the least preferred mode of communication. This result is not consistent with other studies (e.g. Daft et al, 1987; Trevino et al, 1987; Zmud et al, 1990) that found that telephone was rated higher in media richness than written communication. This inconsistent result may be due to a number of factors such as direction of the communication and the lack of documentation with telephone conversations. This study investigated the recipients of management information rather than the senders and it has been emphasized by media

richness researchers (e.g. Zmud et al., 1990) that the direction of communication can impact on perceptions of media richness.

The result that managers' performance increased when there is a match of media richness to the equivocality of information was consistent with media richness theory. This result was consistent with previous empirical research (e.g. Daft, Lengel and Trevino's; 1987) that found that high performing managers match communication media to the communication task, high performing managers matched equivocal information with a preference for face-to-face communication and unequivocal, routine tasks were matched with a preference for written communication. Contrary to media richness theory, high performing managers preferred to receive equivocal information by written communication, however within the management information categories media richness theory was supported, where the least equivocal management information (nonfinancial) was associated with the highest preference for written communication and the highest equivocal management information (integrative) was associated with the lowest preference for written communication. These mixed results may be due to high performing managers recognising the importance of documentation, which include the features of written communication that allow it to be read, reread, reflected upon, stored and retrieved, the receipt of numerical information such as nonfinancial, future and external information by written modes of communication due to its need for accuracy and corporate governance issues requiring an audit (or documentation) trail. Equivocal management information such as nonfinancial, future and external information may not require the immediate feedback as prescribed by media richness theory, however integrative management information may require the richness of face-to-face communication such as immediate feedback, multiple cues, natural language and personal presence as it is information that assists in coordination within sub-units or between sub-units within an organisation (Galbraith, 1973; Chenhall and Morris, 1986).

Turning to media features theory, telephone was the least preferred mode of communication for receiving all categories of management information. This supports the findings of previous research (Markus, 1994; El-Shinnawy and Markus, 1998) and provides evidence that richer, verbal communication may not handle equivocal information better than lean, written communication. The data for this survey was collected in July 2003 and the functionality and the usability of email have improved markedly over the past decade or so. When media richness theory was first developed in the mid 1980s and email was first included in the media richness continuum in 1987 by Daft et al., electronic mail was in its infancy. Due to its written nature, email was considered to be a lean communication medium, a learner form of communication than telephone. At the time, email was rudimentary and not particularly user-friendly. It could be argued that email may be developing its own form of "richness" in communicating equivocal information as it has become a commonplace communication mode within the work place, its technological features have become more diverse than just the provision of text and it has become easier to use. Markus (1994: 507) argued that "if the multiple addressability and the externally recorded and computer—

processable memory features of email were added to the concept of richness, email would clearly rival, and might even exceed traditional communication media like the telephone.” This study found that managers perceive email as being more appropriate to receive all categories of management information than the telephone.

When comparing high task uncertainty contexts with low task uncertainty contexts, there is higher preference for face-to-face communication in high uncertainty contexts which supports the situational theory (as well as media richness theory). However, in high task uncertainty contexts, the written communication mode is preferred for all categories of management information, except integrative information which is preferred to be received by face-to-face communication model. Preference for receiving nonfinancial, external and future information by written communication in high task uncertainty contexts does not support media richness theory, these results may be due to the recognition by managers of the importance of written documentation and that these categories of management information do not require the immediate feedback and cues provided by face-to-face communication. It appears that in high task uncertainty contexts that there is a higher preference for all categories of management information regardless of the mode of communication, this is consistent with Galbraith’s (1973) theory that the processing of additional information will reduce uncertainty.

There was a trend for managers whose main colleagues worked outside the building to express a preference for greater use of email when compared to managers whose main work colleagues were within 20 metres, supporting the situational determinants theory that as distance between colleagues increases the use of face-to-face communication mode decreases. This finding supports previous research (Webster and Trevino 1995, Trevino et al., 1987; Conrath, 1973), and suggests that managers make rational choice about how they prefer to receive management information when there is large distance between themselves and work colleagues, they base their preference on efficiency, it is more efficient to use email than face-to-face communication.

Conclusions

Despite inherent limitations inherent in survey research, this study provides further weight to the growing evidence that media selection cannot be explained exclusively by media richness theory. Media richness theory provides some insight into why managers select certain communication media for certain tasks, however media features theory is also important in media selection. The findings of this study has implications for managers transmitting management information such that integrative information should be transmitted by the face-to-face mode wherever possible and future, external and non-financial information should be transmitted by written forms of communication. Managers are selecting electronic mail, a lean medium, to receive equivocal information.

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