E-MAIL USE AND USEFULNESS: THE EFFECT OF MEDIA RICHNESS AND SOCIAL INFLUENCES

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ABSTRACT

According to the perspectives of social constructivist, communication technology is not objective but a joint product of technological features and social interaction. This study is therefore tried to determine whether media richness perception, medium expertise factors and social influence factors do influence e-mail use and assessment behavior. The population of the study consisted of academic and non-academic staffs in one public university in Malaysia. This study used survey method (self-administered questionnaire) to collect data. The results showed that (1) the relationship between media (e-mail) richness perception and e-mail use and usefulness perception was significant, (2) keyboard skills was significant antecedent to media (e-mail) richness perception, and (3) social influences from co-workers and supervisors contributed significantly towards e-mail use and usefulness assessments of their peers. As a conclusion, it is crucial to consider both technological features and social interaction in planning, implementing and maintaining the use of communication technology in organization.

Key words: media richness; social influence model of technology use; e-mail use; and e-mail usefulness perception

INTRODUCTION

Efficient organizational communication is crucial in ensuring the accomplishment of individual as well as group related objectives. (Dennis et al., 1998). As for managers they spend most of their day engaged in communication, where communication occupies about 70 to 90

percent of their time every day (Mintzberg, 1973; Eccles & Nohria, 1979, Panko, 1992). With nowadays latest advancement of communication technologies, we expect to see higher percentages if the same study were conducted today. Thus, research related to the understanding of communication media choice and exploring optimal ways of communication in organization has sparked the interest of researchers.

The growth of global organizations has promoted new forms of computer-mediated communication (CMC) and traditional communication such as face-to-face meetings are no longer the sole communication medium in organization to facilitate collaborative work. Baltes *et al.*, (2002) asserted that CMC communication, such as e-mail and video conferencing are more convenient, less expensive, and being integrated into multi-media environment and digital networks. In addressing the effectiveness of CMC tools in facilitating organizational communication, we turn our attention to the concept of media richness. There are conflicting ideas by researchers on the effectiveness of CMC especially in related to media richness. The Media Richness theory in particular described CMC as lean and unsuitable for equivocal problem solving while other researchers reported CMC as producing superior and more effective decision than face-to-face (Valacich *et al.*, 2002).

High-rich media are seen as good and effective to be used in organizations. Media richness is described here as a communications medium by its ability to reproduce the information sent over it. It is quite a popular issue among communication researchers and many tried to define the "richness" concept according to certain criteria. To name few are Media Richness theory (Daft & Lengel, 1984), Social Influence (SI) model of technology use (Fulk *et al.*, 1990), Media Synchronicity theory (Dennis et al., 1998) and Media Naturalness theory (Kock, 2005).

This study focuses on two approaches of media richness, that are the objective approach of media richness as suggested by Media Richness theory, and the social approach of media richness as suggested by the SI model. Media Richness theory says that the criteria for ranking a medium's ability to carry information can be based on the ability of the media to, relay immediate feedback, provide feedback cues such as body language, allow the message to be created or altered specifically for an intended recipient, and transmit the feelings or emotions of the communicators. (Daft and Lengel, 1984). The SI model (Fulk *et al*, 1990) on the other hand measures richness as perceived characteristics that vary across individuals. Media properties such as richness are posited to be subjective – influenced to some degree by attitudes, statements, and behaviors of others in the workplace. According to this model, richness perceptions are a function of (a) social influence, and (b) individual differences in medium expertise.

Electronic mail (e-mail) was selected as a CMC medium to be studied due to its broader acceptance and general use in this technology era. Since this is a very popular medium in this borderless world, it is therefore very important to determine where along the richness continuum of richness this new medium lies.

The objective of this research therefore is to yield an empirical assessment of co-workers' and supervisors' influence on media assessments and use behavior in non-Western setting.

OBJECTIVE MEDIA RICHNESS PERCEPTION

Consequences of objective media richness are the focus of the first enquiry of this study on electronic mail assessments and usage. This enquiry addresses the question whether objective media richness perceptions influence media attitudes and behavior for the e-mail medium.

Lengel (1983) proposed that the richness of a medium is based on its ability to process rich information. Daft & Lengel (1984) then proposed Media Richness Theory (MRT), which hypothesizes on the information carrying capacity of media. This capacity is increased by the extent to which the medium meets four criteria as follows (Daft & Lengel 1984):

• Feedback capability, that is the ability of the medium facilitate instantaneous feedback (synchronicity) and clarification of issues during engagements.

• Multiple cues/communication channels utilized, that is the range of cues, (including body language, voice inflection, physical representations) facilitated by the medium.

• Language variety, that is the ability of the medium facilitate engagements involving both numbers and natural language.

• Personal focus/source, that is the ability of the medium to convey the personal feelings and emotions of communicating parties.

As media richness concept is explained as the ability of a medium to carry information (Trevino, Lengel et al. 1987), it is further discussed as having two components of a medium's ability to carry information namely the data carrying capacity and the symbol carrying capacity (Sitkin *et al*, 1992). Data carrying capacity refers to the medium's ability to transmit information while symbol carrying capacity refers to the medium's ability to carry information about the information or about the individuals who are communicating.

A richer medium can be seen as equally useful for vague tasks as well as clear ones. Media richness does not constrain a medium's usefulness only to complex and difficult communication tasks. Good medium should be usable for many types of communication situations. Markus and Robey (1988) however showed that individuals do not always make the most efficient and effective media choice using criteria of objective efficiency. The more types of communication situations for

which a medium is usable (the richer it is perceived to be in terms of speed, number of channels, types of language, and personalness), the more useful it may be seen and the more it may be used, regardless of objective efficiency.

The theory was criticized by many researchers as social pressures (Markus, 1994), cultural and social background (Ngwenyama and Lee (1997), and human evolution (Kock, 2005) were said to have greater influence in media choice compared to media richness. There is some evidence that e-mail was perceived by its users to be a richer communication medium than its objective characteristics would indicate (Markus, 1990). Also, as Media Richness model has treated media richness as an invariant objective features, it was developed without consideration of new media and that many social factors that can influence media selection, communication processes, and outcomes.

MEDIUM EXPERTISE AND RICHNESS PERCEPTION

The SI model (Fulk *et al*, 1990) proposes that perceived media characteristics (richness perceptions) are a function of social influence and individual differences in medium expertise (Johansen, 1988; Schmitz, 1988). Medium expertise is seen to be an important precondition for use of new media, rather than a social influence factor itself. Individual with little experience or skills will have difficulty making judgments of its richness and may be inhibited from using the medium even in a supportive social environment. Three individual differences that said as relevant to electronic mail use are (a) length of time using electronic communication, (b) experience with computing, and (c) keyboard skills. Skill and experience should facilitate electronic mail assessments and use in the sense of increasing individual mastery of medium techniques. Although Schmitz (1988) found that electronic mail use varied inversely with computing experience, usage was positively related to electronic mail experience and keyboard skills.

This research proposed the indirect relationship because the SI model posits only indirect effects through media richness. It is unclear whether the obtained relationship were due to direct effects of expertise on use or whether the effects were indirect via (unmeasured) media assessments, as proposed by the SI model. Greater media experience and keyboard skills may have enhanced the perceived richness of electronic mail by increasing familiarity and by facilitating more varied language. This seems particularly likely if poor keyboard skills inhibit both message length and complexity.

SOCIAL INFLUENCE: DETERMINANT TO RICHNESS PERCEPTIONS AND MEDIA USE

Social influence is said as a process that involves complex cognitive processing of multiple direct and indirect information cues embedded in the individual's social world. Bem (1972) proposed that cognitive processes are both subjective and retrospective, and they are very much influenced by information provided by others. Social contexts provide individuals with norms and expectations that constrain the rationalization and justification of activities (Salancik & Pfeffer, 1978).

Social information about communication media can stem from the media behavior of others through processes of behavior modeling or vicarious learning (Bandura 1986); from other's opinion or assessments of communication media or communication task requirements and from interpretations of events (Salancik & Pfeffer, 1978); from norms of behavior or rationality; and from cognitive assessments about co-workers by each individual. It is no doubt that the effects of different kinds of social influence may differ. This research does not take all different kinds of social influence into account but focuses only on the effects of supervisors' and co-workers' media use and attitudes upon the electronic media patterns of their peers.

The logical starting point to search for manifestations of social influence effects is through the effect among close communication partners. Social influence is most likely to occur where communication is most pervasive, although a critical interaction with a key individual may entail substantial social influence within an organization. The locus of social influence in the hypotheses that follow in this study is using Rogers and Kincaid (1981) "ego" network. The ego network includes the focal individual and each of the individual's most frequent communication partners.

Co-workers media behavior provides one indication of the value of electronic media to organizational associates. Their use of electronic mail should have positive relationship with the media usage patterns of focal individuals. This usage by co-workers facilitates use via behavior modeling processes posed by Bandura (1986) and influence positive assessments of this medium through processes specified by Salancik and Pfeffer (1978). Schmitz (1987) found that electronic mail usage by subordinates was predicted by their supervisor's use of the medium. Steinfield and Fulk (1989) reported that the proportion of co-workers who used e-mail predicted electronic mail usage. Rice, *et al.* (1990) found similar patterns of adoption of e-mail by closely connected co-workers.

Individuals with close work associates who are high users of e-mail also should be more likely to consider e-mail more useful. Co-workers who model e-mail use facilitate the acquisition of positive evaluative beliefs (attitude) by their peers. Eventhough individuals may form negative

assessments of behavior modeled by co-workers, social processes elaborated by Bandura (1986) and Salancik and Pfeffer (1978) suggest that positive assessments are more likely.

Salancik and Pfeffer (1978) suggested that attitudes of individuals are influenced by the specific social context. This context guides assessments of what attitudes are appropriate. Similar argument by Erickson (1988) mentioned that common, but unspecified processes of social comparison are facilitated by increased frequency of interaction and that interaction favors the convergence of attitudes among those persons in close contact with each other. This suggests that media attitudes should converge in social network, and shared normative beliefs should be created Co-workers attitudes toward the usefulness of electronic mail thus may influence the attitudes of their close associates. Svenning (1982) found that attitudes toward video conferencing converged among close co-workers. Steinfield *et al.* (1988) found that an individual's perception of the social presence of e-mail was predicted by that individual impression of how co-workers and supervisors perceived the social presence of e-mail.

The perceived information richness of e-mail is likely to be influenced by social interaction that facilitates shared evaluations of media usefulness. Media that are evaluated as useful should be seen to have the characteristics considered by Daft *et al.* (1987) to reflect richness. The next inquiry proposes that social information regarding media usefulness deriving from close co-workers influences the individual's perception of media richness.

METHODOLOGY

The population of the study consisted of academic and non-academic staffs in the government university that mainly conducted educational activities. Out of 11 faculties and two institutes, six of them were randomly selected. All academic and non-academic staffs from these faculties with intranet e-mail account were included to participate in this research.

The Computer Centre provided the researcher with 353 names of individual e-mail users from the five faculties. Unfortunately, of the total 353 qualified respondents, 54 staffs were not available due to sabbatical leave and study leave. Questionnaires were distributed to all the 299 (85%) available respondents but only 218 (62%) of the returned questionnaires were usable. The other 81 returned questionnaires were not answered at all or answered incompletely.

The above-mentioned 218 respondents also have the chance to be respondents, and at the same time supervisors and close communication partners, \depend on whether their colleagues had nominated them to be included or not. However, this would not affect the independence characteristics of each type of respondents (individual, organizational colleagues, supervisor) since

'organizational colleagues' package comprised of five different close communication partners, and an immediate supervisor suggested by each respondent. This package is called 'ego network'.

The ego network of each individual was created based on Burt's (1984) recommendation that call for between three and eight close communication partners (alters) to produce reliable relational information. In this research, respondents were asked to name their five close communication partners and an immediate supervisor using all media in their faculties/institutes. These alters then answered the same questionnaire

In line with the review of literature, it has been identified that individuals' use and assessment of electronic mail in a university as the dependent variable of this study was effected by three groups of dependent variable namely objective richness perception, social influence, and medium expertise. In this study, objective media richness, social influence and medium expertise were hypothesized to have positive correlation with individual's electronic mail use and assessment. The independent variables were electronic mail richness perception, co-workers use of electronic mail, co-workers assessment of electronic mail, supervisors' use of electronic mail, supervisors' assessment of electronic mail, electronic mail experience, computer experience and keyboard skills.

This study used the survey method to collect data. A structured questionnaire was chosen as the research instrument, and the individual self-administered questionnaire was employed as a technique to solicit responses from the respondents. The questionnaire consisted mainly of close-ended questions because they made it easier for the subjects of the study to respond. The questionnaire consisted of two sections were sent and collected personally by enumerators to all respondents. It is important to stress here that the enumerators didn't conducted interview with the respondents.

Descriptive and inferential statistics were used to analyze the data using the Special Package for Social Science (SPSS) programme. The statistical techniques used included the frequency, mean, standard deviation, Pearson's Correlation, and Simple and Multiple Regression Analysis. The level of significance used for testing hypotheses and for tests of significance was determined at 0.05.

RESULT AND DISCUSSION

Respondents' Characteristics

The demographic characteristics of respondents indicated that 26.6% of the respondents were from the Faculty of Veterinary Medicine and Animal Science, 22.5% from the Faculty of Educational Studies, 18.4% from the Faculty of Food Science and Biotechnology, 16.9% from the Faculty of Forestry, and 6.9% from the Institute for Distance and Learning.

The 218 respondents included 122 (56%) academic staffs and 96 (44%) non-academic staffs. 14 respondents held supervisory positions. Majorities of the respondents that is 48.6% were lecturers, 21% were in clerical positions, 11.5% were tutors, 10.6% were general workers and 8.3% were executives. This explains why majority of the respondents had Ph.D (29.4%) and Masters Degree (26.6%).

The totals of 55% of the respondents were male and 45% were female. As for ethnic groups, 88.5% were Malay, 8.3% were Chinese and 3.2% were Indian. For age groups, 12.4% of the respondents were at the age of 20 - 29, 33.9% at the age of 30 - 39, 40.8% at the age of 40 - 49 and 13% at the age of 50 – 62.

Media Richness

According to Media Richness model (Daft and Lengel, 1984), the criteria of medium richness are based on 1) giving and receiving timely feedback, 2) transmitting a variety of different signals beyond the spoken message (nonverbal cues), 3) tailoring messages to his or others personal circumstances, and 4) using rich and varied language.

The respondents' perceptions of richness for each medium on the richness continuum generally did not follow the predictions of Daft and Lengel (1984). The mean for e-mail richness (3.9) is higher than that reported by Schmitz and Fulk (1991) in a study that used the same measure for a large sample of research and development personnel from another company (M= 3.5, S.D = 0.9).

The rank order of media in terms of richness as found in this study also did not follow the prediction by the Media Richness model. The findings of this study ranked e-mail as the richest media perceived, followed by telephone, face-to-face, personal written text, formal written text and formal numeric text. E-mail and formal numeric text define the continuum endpoints. There were not very large differences between these endpoints (3.9 – 3.4) and all other media were clustered in the middle.

As for the influence of media richness perception on e-mail use and e-mail usefulness assessment, the bivariate correlation analyses showed that the coefficient correlation between individual's e-mail richness perception and his e-mail use is statistically significant (r=0.298). These dependent (e-mail use) and independent (e-mail richness) variables were then analyzed using the simple regression analysis. The R Square, or the coefficient of determination was 0.09, with an F value of 21 significant at 0.00 level. This implied that the regression model was able to provide nine percent of the variation in the e-mail use.

The relationship between individual's e-mail richness perception and e-mail usefulness perception was significant with coefficient correlation, r= 0.396. E-mail usefulness as dependent variable was regressed with e-mail richness as independent variable using the simple regression analysis. The R Square was 0.16, with an F value of 40.23 significant at 0.00 level.   Thus, 16 % of the variation of e-mail usefulness perception of its staffs explained by this independent variable.

Ranking different media choice does not imply that one is better than the other. Different media type has its own advantages and disadvantages and each is probably more appropriate than the others in different situations. In educational institutions such as university, the choice of media can be influenced by factors like technology availability, task appropriateness with the technology, time constraints, familiarity and budget. Similar research in online classes by Newberry (2011) ranked face-to-face as the richest medium followed by video conferencing, synchronous audio, text-based chat, e-mail and threaded discussion as the leanest media.

It is expected that the media richness perception is different from what found between studies done in the Western and Eastern countries. This fact is important for managers using new communication technologies especially in introducing, and maintaining the use of new technology in their organizations. To the extent that media attributes are socially negotiated, adept leaders have much greater leverage and more "degrees of freedom" when they introduce and exploit anticipated benefits of new communication technology.

Among the biggest concern in this study centers on limitation to generalize across studies of communication technologies because implementation features create uniqueness in situations that can make them non comparable. Even sites that use the same computer system will have different packages of features that may be customized for that sites as well as different histories, policies and so on.

Medium Expertise

The bivariate correlation analyses showed that only e-mail experience and keyboard skills have significant coefficient correlation with the dependent variable "e-mail richness. The independent variables were then regressed with the dependent variables using the standardized and stepwise regression analysis in order to see the degree of contribution of the independent variables in the dependent variable. All three variables could explained about eight percent (R Square = .08, F change = 6.24 significant at .00 level)) of the variation in the e-mail richness perception of its staffs. Out of all three independent variables, only "keyboard skill" contributed significantly towards the R square value (R square change = .06). Thus, keyboard skills could explain about six percent of the variation in the e-mail richness perception of its staffs.

The data show significant antecedents in the form of medium expertise and social influence factors. This suggests that the acceptance of media richness as a perceptual variable has the potential to increase the explanation and predictive power for media behavior in organizations.

As for this study, keyboard skill was significant antecedent to e-mail richness perceptions. This indirectly shows relationship between medium expertise and e-mail use and assessments (Schmitz & Fulk, 1991) due to the fact that richness perception determines e-mail use and assessments. However, the results also suggest that the portrayal of the role of media expertise in the social influence model is not enough. Theoretical and empirical work is needed to develop a more valid conceptualization of the role of these variables in media perception and behaviors.

Social Influence (Organizational Colleagues)

Bivariate correlation analyses showed that the relationship between co-workers' e-mail use (independent variable) and individual's e-mail use was significant with coefficient correlation r= 0.202. However, the relationship between supervisors' e-mail use (independent variables) and individual's e-mail use was not significant with coefficient correlation r= -0. 099.

Both independent variables were regressed with the dependent variable to see the degree of contribution of independent variables in the dependent variable. The two independent variables can jointly explain five percent of the variation of e-mail use of its staffs (R square = 0.051, F change = 5.8 significant at 0.00 level). However, only one independent variable (co-workers use) contributed significantly and explained about four percent of the variation of e-mail use of the staffs. (R square change = 0.041).

Correlation results showed that the relationship between co-workers e-mail use and individual's e-mail usefulness perception was significant with coefficient correlation, r= 0.158. However, the relationship between supervisors e-mail use and individual's e-mail usefulness perception was not significant at coefficient correlation, r=0.038.

The result from multiple regression analysis showed that both independent variables (coworkers use and supervisors use) can jointly explained only three percent of the variation of e-mail usefulness perception of its staffs (R square =0.026). However, the F value (2.8) was found not to be significant at probability value smaller than 0.05. Therefore, the explanatory power of this analysis is not significant.

Bivariate correlation result showed that the relationship between co-workers' e-mail usefulness perception (independent variable) and individual's e-mail usefulness perception was not significant with coefficient correlation, r= -0.084. However, the relationship between supervisors'

e-mail usefulness perception (independent variables) and individual's e-mail usefulness perception was significant with coefficient correlation, $r = 0.194$.

Both independent variables were regressed with the dependent variable to see the degree of contribution of independent variables in the dependent variable. The two independent variables can jointly explain four percent of the variation of e-mail use of its staffs (R square = 0.04, F change = 4.876 significant at 0.00 level. However, only one independent variable (supervisors usefulness) contributed significantly and explained about four percent of the variation of e-mail usefulness of its staffs. (R square change = 0.038).

Finally, this study was to determine whether co-workers and supervisors e-mail assessments effect the assessments of electronic mail richness of their peers. Bivariate correlation results showed that the relationship between co-workers usefulness perception and individual's richness perception was not significant with co-efficient correlation, $r = -0.009$. However, the result showed significant positive correlation $r = (0.190)$ between supervisors usefulness perception and individual's richness perception.

Multiple regression analysis results showed that both dependent variables can jointly explained about four percent of the variation in the richness perception of its staffs (R square = 0.036, F change = 4.019 significant at 0.00 level). However, stepwise method showed that only one independent variable contributed significantly and explained about four percent of the variation in the richness perception of its staffs (R square change = 0.038).

All medium expertise and social influence variables (seven variables) were regressed with the dependent variable e-mail use using standardized multiple regression analysis. The result showed that 35% of the variance in the e-mail use of its staffs was explained by this social influence variables (R square = 0.125, F change = 4.30 significant at 0.00 value).

This study was designed to empirically assess the validity of the premises that elements of communication technology are socially constructed. To the extent that such premises hold, data should demonstrate patterns of covariation among socially connected individuals in organizations. Eventhough the study design did not permit the assessment of the actual processes by which these social influence effects developed, they are consistent with social influence predictions of behavior modeling and vicarious learning, and also from the predictions of structuration theorizing.

It is admitted that the effects for social influences are modest. Clearly the researcher could not capture fully the rich extent of social interaction by using only survey methods. The researcher also used variables reported by one individual to predict the attitudes and behavior of another individual. Measurement errors in either or both sets of response should (and undoubtedly did) affected observed relationships. Although only limited social influences were captured by the

measurement strategy, the multiple regression results showed significant contribution of selected variables in media use.

CONCLUSIONS AND IMPLICATIONS

It is good idea to consider both the media richness and social influences factors in planning communication strategies to ensure that the technology chosen can contribute most effectively to the planned activity. Social influence model can aid in the selection of media technologies and the design of instructional environments that achieve the desired degree of personal interchange and relationship building. Ranking different media choices does not imply that one is better than the other. Each media type has its own advantages and disadvantages and each is probably more appropriate than the others in different situations. This educational institution the researcher studied has different usage norms, culture, the system design, context and other social factors and this explains why the ranking was different.

Since this study involves social factors, it is suggested for further study to use a strategy of methodological triangulation that used both qualitative and quantitative evidence. These strategies are expected to give richer data and facilitate the interpretation of results.

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