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# Examining the Scope of Channel Expansion: A Test of Channel Expansion Theory with New and Traditional Communication Media

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# Examining the Scope of Channel Expansion: A Test of Channel Expansion Theory with New and Traditional Communication Media

By Scott C. D'Urso and Stephen A. Rains

*This article draws on channel expansion theory to explore the selection and use of communication media by organizational members. Channel expansion theory scholars posit that media richness perceptions are dependent on experiences with communication partners, the message topic, and the communication media utilized. This study tests channel expansion theory in the context of new and traditional communication media. Respondents (*N *= 269) completed questionnaires regarding their use and perceptions of face-to-face, telephone, e-mail, or instant-messaging interactions. Results indicate that experience with channel, topic, partner, and social influence are all significant predictors of richness perceptions, when controlling for age and media characteristics. Findings also suggest that the richness of a medium is not fixed and may be shaped by interpersonal factors, including one's relevant experiences.*

The selection and use of communication media by organizational members has been of long-standing interest to scholars as a means to improve organizational effectiveness (Dahle, 1954). Theories and models have been developed offering explanations that are rational (Daft & Lengel, 1984, 1986; Dobos, 1992), social (Fulk, Schmitz, & Steinfield, 1990; Rice, 1993a), and mindless (Timmerman, 2002) regarding organizational members' reasons for and outcomes associated with selecting a communication channel (e.g., e-mail, telephone) in a situation. Many of these theories are founded on the assumption that an organizational member's perception of communication channels is a key factor motivating channel use. Perceptions of the channel's richness (Daft & Lengel, 1986), ability to satisfy needs (Dobos, 1992), potential to function as a symbol of the organization's culture (Sitkin, Sutcliffe, & Barrios-Choplin, 1992), and appropriateness (Rice, 1993a) have all been explored as predictors of channel use behavior. As such, we see a key need for understanding those factors that influence organizational members' perceptions of communication channels in order to develop theories that effectively explain their use and the broader implications of such use for organizational communication.

Despite their importance, relatively few studies have evaluated factors shaping organizational members' perceptions of communication media. One exception is Carlson and Zmud's (1999) work on channel expansion theory, which was constructed to reconcile inconsistent findings in research on media richness theory (Daft & Lengel, 1984, 1986). Channel

expansion theory focuses on how individuals develop perceptions of a medium's richness or capacity to facilitate shared meaning. Carlson and Zmud contend that richness perceptions are fluid and contingent on one's relevant experiences— such as using the channel, with the communication topic, and with one's communication partner. As one's experience increases, so should perceptions of a medium's richness.

Although Carlson and Zmud (1999) found support for channel expansion theory, their research exclusively examined perceptions of e-mail's richness. Traditional channels, such as face-to-face communication1 and the telephone, and newer technologies, such as instant messaging (IM), have not been studied from a channel expansion framework.2 Yet we argue that key differences in new and traditional communication media exist and that these differences may make some experiential factors more or less relevant. Face-to-face interaction and the telephone are central channels for communication in organizations, and members are socialized into using these media well before entering the workforce. Comparatively, e-mail and IM are relatively new, and norms for their use are less well established (Fallows, 2002; Shiu & Lenhart, 2004). Therefore, we believe that experience with these newer channels, with one's communication partner, and the communication topic may be more important in shaping richness perceptions of newer media than more established channels such as the telephone and face-to-face communication.

The purpose of our study was to test channel expansion theory across new and traditional media. In addition to inquiring into e-mail, we examined the telephone, IM, and face-to-face communication from a channel expansion framework. Relatively speaking, these four channels are widely used by organizational members but vary in the degree to which they have been formally integrated into contemporary organizations. Our findings from this study will further scholarship on media selection and use in organizations by offering a test of channel expansion theory beyond Carlson and Zmud's initial study (1999) and examining the utility of the theory to explain perceptions of newer and traditional media. As such, the results will inform research on channel expansion and media richness theories, as well as the larger body of channel selection scholarship. In the following section, we review both media richness theory and channel expansion theory to develop our hypotheses and our research question.

## Review of Literature

### Media Richness and Channel Expansion

Media richness theory (Daft & Lengel, 1984, 1986) has emerged as one of the most widely studied and cited frameworks in the body of research on organizational media use. The

theory was designed to improve organizational information flow by prescribing channel selection procedures for managers to make the most effective use of communication media. Objective characteristics of communication channels were identified and synthesized into a global measure of media richness, which is based on the notion of information richness (Daft & Lengel, 1984) and is essentially a channel's "capacity to facilitate shared meaning" (Trevino, Daft, & Lengel, 1990, p. 75). The richness of a communication channel is determined by its ability to offer rapid feedback, multiple cues, natural language, and personal focus.

In the theory's original formulation, communication channels were placed on a richness continuum (Daft & Lengel, 1984, 1986). Face-to-face communication was identified as the richest channel, and the telephone was considered the second-richest channel. On the other end of the continuum, computer reports (e.g., spreadsheets) and memos were considered to be the least rich, or leanest, channels. Central to the theory is the prescription that managers should match the level of uncertainty and equivocality in a message/situation with the richness of a channel. Richer channels, such as face-to-face interaction and the telephone, should be used to convey ambiguous messages, whereas lean channels, such as a memo, should be used to communicate unequivocal messages. Matching the level of uncertainty and ambiguity in a message to the richness of a channel is posited to allow for efficient and effective interactions.

To date, scholars have found support for the richness rankings, although findings with regard to new media have been somewhat mixed. Although face-to-face communication and the telephone are consistently rated the richest channels and although computer reports are consistently rated as the leanest medium, ratings of e-mail's richness vary across studies (see Rice, 1992). E-mail ranges from being one of the leanest channels to being the third-richest channel, just behind the telephone. These varied findings for e-mail suggest that richness may not be solely an objective feature of communication channels (Fulk et al., 1990; Kahai & Cooper, 2003; Kock, 2005; Schmitz & Fulk, 1991). Tests of the central prescription of media richness theory (i.e., matching the level of ambiguity of a message with the richness of a medium) have been decidedly mixed (Dennis, Kinney, & Hung, 1999; El-Shinnawy & Markus, 1997, 1998; Russ, Daft, & Lengel, 1990). Rice, D'Ambra, and More (1998), for example, found some support for the main tenets of media richness in evaluating the selection of 11 communication channels. Yet potential problems were noted when applying the theory to newer media (e-mail and voice mail). Individuals with experience with newer media were more likely to choose them for a variety of situations when compared to those who lacked experience. In summing up their findings, Rice et al. posited that "individual dispositions, situational and symbolic constraints,

and localized social influence" (p. 20) are factors that may be more important than richness in explaining media use.

In an attempt to reconcile previous media richness research, Carlson and Zmud (1999) proposed channel expansion theory. The central premise of the theory holds that an individual's relevant experiences are central factors that influence perceptions of a channel's richness. Experience is important because it allows communicators to "develop associated knowledge bases that may be used to more effectively both encode and decode rich messages on a channel" (p. 155). The notion that experience may be associated with perceptions of a medium is consistent with research on relational development in computer-mediated communication (Walther, 1992; Walther & Burgoon, 1992; Walther, Slovacek, & Tidwell, 2001). Walther and colleagues have shown that frequent communication and extended periods of communication allow computer-mediated communication partners to reach equivalent— or, in some cases, even greater—levels of relational development than those delivered by traditional face-to-face interactions (Tidwell & Walther, 2002). Through gaining relevant experiences, individuals are able to effectively encode and decode computer-mediated messages. In an organizational context, this experience allows people to focus on the task at hand rather than learn to use a new media or get to know a communication partner.

Carlson and Zmud (1999) identified four knowledge-building experiences that influence one's perception of a channel's richness. The researchers posited that one's experience with using a channel will increase one's understanding of how to use a channel skillfully and, thus, one's perceptions of its richness. Similarly, one's experience with the topic of discussion, the organizational context, and one's communication partners should lead one to become savvier at encoding and decoding those cues that lead to richer use and greater apparent richness of the media. For example, two people who are familiar with a communication topic may use jargon that has a great deal of meaning to each other; this use of natural language, facilitated by their familiarity with the topic, makes e-mail appear to be a rich medium. Carlson and Zmud posit that increases in these four types of experience should lead people to be able to articulate and recognize those indicators that signal rapid feedback, multiple cues, natural language, and personal focus. As such, these key types of experience should be positively associated with perceptions of a channel's richness.

Carlson and Zmud (1999) noted that because richness perceptions are socially constructed, they are subject to social influence. One's bosses, coworkers, and subordinates may all influence one's perceptions of richness (Fulk et al., 1990). Previous research has demonstrated the impact of social influence on perceptions of channel appropriateness and

richness (Fulk, Schmitz, & Ryu, 1995; Schmitz & Fulk, 1991). However, other studies have indicated that additional variables—once controlled for—and over-time changes diminish the importance of social influence (Kraut, Rice, Cool, & Fish, 1998; Rice, Grant, Schmitz, & Torobin, 1990).

Carlson and Zmud (1999) conducted two studies that found some support for channel expansion theory. In their first study, of 362 university employees, richness perceptions were positively correlated with one's experience in using e-mail and one's experience with a communication partner. The findings from their second, longitudinal study, of 63 business students, provided additional evidence for the relationship between richness perceptions and experience with e-mail and a communication partner. Those who gained experience over the three measurement periods viewed e-mail as being significantly richer, whereas those who did not gain experience viewed e-mail as being slightly less rich over the three periods. The findings in regard to social influence were inconsistent across the two studies. Social influence was not related to richness perceptions in the cross-sectional study but was a significant predictor of perceived richness in later stages of the longitudinal study. Carlson and Zmud resolved this disparity by acknowledging the differences in research designs between the studies. In the longitudinal study, social groups evolved over time allowing for more homogeneous perceptions of social influence.

Beyond Carlson and Zmud's (1999) original test of channel expansion theory, Carlson and George (2004) provide some additional support for portions of the theory. As a part of their study of deception in computer-mediated communication, they assessed the relationship between media familiarity— which they measured with Carson and Zmud's index of channel experience— and perceived richness across 11 different media, ranging from a facsimile to videoconferencing. They found that media familiarity predicted richness perceptions across all the media examined. Although their results provide support for the relationship between channel experience and richness perceptions, additional types of experience were not considered in the study, nor was social influence.

## Hypotheses and Research Question

Additional tests of channel expansion theory are necessary to determine whether the theory is applicable to other media that are frequently used by organizational members, such as face-to-face communication and the telephone, and newer technologies, such as IM. If channel expansion theory offers a robust explanation of richness perceptions, then we expect that an individual's relevant experiences will be positively related to perceptions of richness for all four

previously listed channels. Through experience, individuals should develop the requisite knowledge bases to effectively encode and decode cues that make the channels appear rich. Furthermore, experiential factors should explain unique variance in richness perceptions beyond established predictors such as social influence. Previous research suggests that social influence should be associated with richness perceptions; accordingly, if channel expansion theory effectively explains richness perceptions, the various types of experience should be positively associated with richness perceptions when controlling for social influence. Additionally, given that we are testing channel expansion theory across four media, we find it necessary to control for richness perceptions attributed to structural differences in the media (e.g., the fact that e-mail is asynchronous and the other media are synchronous). Following the central prediction of channel expansion theory, we posited that when the variance explained by perceived social influence and the structural differences in the media are accounted for, one's experience with a channel, communication partner, and communication topic should be positively associated with richness perceptions.[3] To test this notion, we propose the following hypothesis:

> *Hypothesis 1:* When controlling for the effects of perceived social influence and structural differences in the media, (a) channel experience, (b) experience with one's communication partner, and (c) experience with the communication topic are positively related to perceptions of richness of the four communication channels.

Hypotheses 1a-1c were forwarded to replicate Carlson and Zmud's (1999) original findings as they relate to e-mail and to further test channel expansion across three other communication media. Although not addressed by Carlson and Zmud, it seems possible that the relationships among the types of experience, the perceived social influence, and the perceived richness may be dependent on whether the technology is newer or relatively older. Face-to-face communication and the telephone are well-established channels for communication among organizational members. As such, organizational members are likely to be fairly savvy at encoding and decoding cues related to richness, and the various experiential factors (as well as social influence) should be relatively unimportant; yet the norms and characteristics of new technologies, such as IM and to some extent, e-mail, are more likely to be in flux. IM, for example, has only recently been adopted and formally sanctioned for use in organizations (Herbsleb, Atkins, Boyer, Handel, & Finholt, 2002; Nardi, Whittaker, & Bradner, 2000; Quan-Haase, Cothrel, & Wellman, 2005; Shiu & Lenhart, 2004). According to a recent report,

approximately 1 billion IM messages are sent daily among 28 million organizational users (Best, 2005). The novelty of IM and e-mail and the commensurate uncertainty associated with their use (in comparison with traditional channels, such as the telephone and speaking face-to-face) may make one's experience with the channel, the communication topic, and one's partner (as well as social influence) more important in predicting richness perceptions. Because organizational members are still negotiating how and when these channels should be used, the various types of experience and the social influence of others should play a noteworthy role in predicting richness perceptions. To test this notion, we offer the following hypothesis:

> *Hypothesis 2:* Channel type will interact with the experiential factors and perceived social influence in predicting richness perceptions: (a) Channel experience, (b) experience with one's communication partner, (c) experience with the communication topic, and (d) perceived social influence will more strongly predict richness perceptions with newer communication technologies (e-mail and IM) than with traditional technologies (face-to-face interaction and telephone).

Finally, Carlson and Zmud (1999) examined media richness using a four-item composite measure. Since the time of their study, more comprehensive and reliable measures of richness have been developed (Ferry, Kydd, & Sawyer, 2001) that make it possible to more effectively assess the relationship between experiential factors and perceived social influence with each of the four components of media richness. Examining the relationship among the various types of experience, the perceived social influence, and the perceptions of a channel's ability to offer rapid feedback, multiple cues, natural language, and personal focus would inform media richness and channel explanation theories. Knowing how types of experience influence components of richness makes for the possibility of a finer-grained understanding of the relationship between these constructs. Thus, we ask the following research question:

> *Research question:* What relationships exist among the key types of experience, the perceived social influence, and the four components of richness (multiple channels, language variety, immediacy of feedback and personalness)?

## Method

### Recruitment Procedure and Respondents

Students in several communication courses at a Midwestern university were given course credit for soliciting respondents who were over the age of 18, employed at least part-time, and not employed by the university. Student recruiters contacted potential respondents to solicit their participation. Upon receiving their permission to do so, the student recruiters asked the potential respondents to indicate which of the four channels (i.e., e-mail, IM, face-to-face, telephone) they have access to on a regular basis at their respective organization. One of the researchers then sent a form-invitation e-mail to each potential respondent explaining the purpose of the study and providing a hyperlink to the Web-based questionnaire. The link in the e-mail assigned respondents to one of four questionnaires corresponding to the communication media examined in our study.

Respondents were assigned using a stratified sampling method to mitigate any biases that they may have had toward a particular channel and to assign them to a questionnaire about a channel to which they indicated having access. Most respondents were randomly assigned to a channel to which they had access. However, adjustments were made depending on the total number of respondents qualified to take each survey, with the goal of maintaining equal numbers of respondents for the four questionnaires. Each questionnaire asked respondents to think about a recent interaction at work using the communication channel addressed in the questionnaire and to complete measures of perceived social influence, media richness, and the three types of experience.

From the 339 survey invitations sent to potential respondents, 269 participants completed the questionnaire (69 for e-mail, 57 for IM, 71 for telephone, and 72 for face-to-face interaction), resulting in an 80% response rate.[4] A similar number of men (51.3%) and women (48.7%) completed the questionnaires. Respondents reported working in their current organizations for a mean of a little over 6 years ($SD$ = 7.80). The mean age for respondents was approximately 37 years ($SD$ = 12.99). A comparison of sample demographics between respondents to the four questionnaires yielded one significant difference in regard to age, $F(3, 265) = 4.34$, $p = .005$, $\eta 2 = .05$. The mean age of the respondents who were completing the questionnaire about IM ($M$ = 32.18, $SD$ = 11.70) was significantly lower than that for those who were completing the questionnaires regarding the telephone and face-to-face interaction. To account for this difference, respondent age was included as a control variable in conducting all analyses.

## Instrumentation

All measures were rated on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*).

*Media richness.* Media richness was assessed with Ferry and colleagues' (2001) index. This index comprises four subscales totaling 19 items that tap perceptions of a medium's potential to allow multiple channels, immediacy of feedback, language variety, and personalness. The multiple channels subdimension was assessed by items that focus on the extent to which respondents believe that it is possible to send and receive information through spoken word and written word, for example. The immediacy of feedback subdimension was assessed with items focusing on the extent to which respondents can know immediately what others think about their ideas and how long they believe that they have to wait to express their reactions to others. The language variety subdimension was examined by the extent to which respondents could use a large pool of symbols to communicate and by the extent to which it was possible to express their ideas through nonword sounds and utterances. Personalness was measured with items asking respondents to rate the extent to which a medium is warm, sociable, and sensitive, for example. A mean richness score was computed using the constituent items from each richness dimension. Greater scores on this variable indicate a larger amount of perceived richness.

*Perceived social influence.* Perceived social influence was measured with six items derived from Carlson and Zmud's (1999) study. Respondents rated the degree to which key others in their organization (coworkers, supervisors, subordinates) use the medium and perceive it to be useful. Greater scores on this measure indicate a larger amount of perceived social influence.

*Channel, topic, and partner experience*. Measures of experience were taken from Carlson and Zmud's (1999) study. Six items were used to assess respondents' perceived experience with the medium. For example, respondents were asked to rate their degrees of experience and competence with the medium, as well as their perceptions of the medium's ease of use. Ten items were used to assess perceived experience with one's communication partner. For instance, in addition to answering how close they were to their communication partners, respondents rated the degrees to which they knew their partners and were comfortable communicating emotional issues with them. Perceived experience with the message topic was measured with three items. Respondents rated the degrees to which they were experienced

with the topic and well versed in the concepts associated with the topic; conversely, they were asked if they did not feel knowledgeable about the topic. The final item was reverse scored. Greater scores on these variables indicate a larger amount of perceived experience.

## Results

### Confirmatory Factor Analyses

Confirmatory factor analyses were conducted for the measures in the study using Equations 6.1 (Bentler, 1995). The model chi-square test and factor loadings were used in assessing the measures, along with the comparative fit index and the standardized root mean square residual as alternate fit indices. The criteria established by Hu and Bentler (1999) were used to evaluate the alternate fit indices (comparative fit index ≥ .96; standardized root mean square residual ≤ .10).

The results of the confirmatory factor analyses indicated that the measures of experience with the channel, discussion topic, and partner, as well as the measure of perceived social influence, fit the data adequately and were thus retained. Two items were dropped from the measure of media richness: “I can easily send/receive information through written word” and “Typically, I feel that I should respond with feedback as soon as possible when input is solicited” were problematic. After removing these two items, the revised 17-item measure of media richness fit the data adequately. Table 1 presents means, standard deviations, reliability coefficients, and correlations for the key variables in our study.

### Testing Channel Expansion Theory

Hypotheses 1a-1c represent a global test of channel expansion theory across the four communication media. Carlson and Zmud (1999) forward that when controlling for the effects of social influence and structural differences among the four media, channel experience, experience with one’s partner, and experience with the topic predict richness perceptions. To test these hypotheses, the data were pooled across all four channels, and a hierarchical regression model was constructed. Because the data were pooled, three dummy-coded variables were constructed comparing face-to-face interaction (coded 0) and each of the other channels (coded 1). These dummy variables represent a test of differences in richness perceptions attributed to the enduring characteristics of the four communication media examined in our study—that is, structural differences in the media, such as e-mail’s being asynchronous and the other channels’ being largely synchronous. These three variables were entered into the first block of the model. Granted the differences in the ages of the respondents

completing the four versions of the questionnaire, age was included in the first block of the model as a control variable. Perceptions of social influence were entered into the second block, and the three measures of perceived experience were entered into the third block. Richness perceptions served as the outcome variable.

The results of the regression model are reported in Table 2. The first block, containing the dummy-coded variables and age, explained 49% of the variance in richness perceptions. The addition of perceived social influence in the second block significantly increases the amount of explained variance in richness perceptions, $\Delta R^2 = .02$, $\Delta F\,(1, 259) = 12.99$, $p < .01$. In regard to the hypotheses, the change in explained variance by entering the third block, containing the three experience variables, is statistically significant, $\Delta R^2 = .06$, $\Delta F\,(3, 256) = 12.48$, $p < .01$. Additionally, when controlling for perceived social influence and the variables in the first block, experience with the channel, $\beta = .13$, $p < .01$, topic, $\beta = .14$, $p < .01$, and one's partner, $\beta = .13$, $p < .01$, are all significant predictors of richness perceptions. Thus, Hypotheses 1a, 1b, and 1c are supported.

## New Versus Traditional Media and Richness Perceptions

Hypotheses 2a-2d posited an interaction between technology type (new or traditional) and experiential factors on richness perceptions. In testing these hypotheses, data were again pooled across all four channels. A dummy-coded variable was first constructed, with new technologies (i.e., e-mail and IM) coded as 1 and traditional media (i.e., face-to-face interaction and telephone) coded as 0. The three experience variables and perceived social influence were mean-centered to facilitate interpretation of the results (Aiken & West, 1991). An interaction term was created for each of the three experiential variables and social influence by multiplying each mean-centered variable with the dummy-coded variable. The hierarchical regression model was specified as follows: Age was entered into the first block of the model as a control variable. Entered into the second block were the mean-centered experience variables, the mean-centered perceived social influence variable, and the dummy-coded variable representing the differences between new and traditional technologies. The interaction terms for the three experiential variables and perceived social influence were entered in the third block of the model.

None of the four interaction terms in the third block of the model is statistically significant. There are no differences between new and traditional technologies in regard to the relationship between richness perceptions and experience with the channel, $\beta = -.03$, $p = .71$, topic, $\beta = .04$, $p = .65$, one's partner, $\beta = -.05$, $p = .39$, and social influence, $\beta = .12$, $p = .09$. Hypotheses 2a-2d are not supported.

Beyond examining richness perceptions across the four channels, another goal was to explore how different types of experience achieve their affect on richness perceptions. Specifically, the research question asked about potential relationships between the different types of experience, perceived social influence, and the four components of richness. To answer this question, the hierarchical regression model used to test Hypotheses 1a-1c was reanalyzed, with each of the four components of media richness (multiple channels, language variety, immediacy of feedback, and personalness) serving as the outcome variable. Again, the pooled data set was used in conducting the analysis.

The results of the regression models, presented in Table 3, suggest two key trends. First, structural differences among the channels are most important in explaining the multiple channels subdimension of media richness. Structural differences, which are accounted for in the first block of the regression model, explain 62% of the variance in perceptions of multiple channels. Second, experiential factors are most important in explaining perceptions of the personalness subdimension of media richness. The inclusion of the block containing the three experiential factors explains an additional 13% of the variance in personalness perceptions, beyond the variance explained by the variables in the first two blocks. In comparison with the variance explained in the perceptions of multiple channels and personalness subdimensions, the structural and perceptual factors explain a relatively small amount of the total variance in the language variety and feedback subdimensions of media richness (≤ 20%).

## Discussion

The purpose of our study was to test channel expansion theory in the context of new and traditional communication media. In general, we found some support for it. However, none of the interactions between technology type and the experience factors on richness perceptions is significant. In the following section, we discuss the findings from and limitations of this study, along with directions for future work in this research area.

Our findings from the test of Hypotheses 1a-1c show some support for channel expansion theory and offer support for the notion that the theory applies to a variety of communication media. After controlling for the structural differences among the channels, age, and perceived social influence, experience with the communication topic, with the channel, and with one's interaction partner are positively associated with richness perceptions. However, the three experiential factors account for only 6% of the variance in richness perceptions. Similarly, although perceived social influence is positively associated with richness, only 2% of the variance in richness perceptions is explained by this variable. In comparison, the first block in

the model, consisting of age and structural differences between the channels, accounts for 49% of the variance in richness perceptions. The small amount of variance explained by experiential factors could be attributed to the static cross-section research design utilized. Other research designs (experimental, longitudinal, etc.) may provide a clearer picture of the impact of experience. Despite the relatively small amount of explained variance, the findings offer evidence to suggest that the richness of a medium is not inherently fixed and that perceptions of richness may be shaped by interpersonal factors, such as one's relevant experiences. Clearly, the stable characteristics that distinguish communication channels (e.g., being asynchronous and text based) are critical in explaining richness; yet perceptual factors, such as one's experience and perceived social influence, are also important in shaping perceptions of a channel's richness.

Our findings are not consistent with previous research that suggests that experience with a medium may be more important with newer media (Rice et al., 1998). There are no differences in the relationship between experiential factors, perceived social influence, and richness perceptions between new and traditional media. One explanation for this outcome is that those technologies that we identified as being new may not necessarily be perceived as being new by organizational members. With the frequent development and diffusion of new technologies in organizations, e-mail and IM may be more established than we anticipated. As such, respondents may already be entrenched users of e-mail. Additionally, those respondents who completed the questionnaire about IM were younger than those who responded to the questionnaires regarding the other three channels. This group may have used IM throughout their adolescence as well as in college and may be familiar with the norms associated with its use. Further research may find differences in the relationship between experience and richness by examining a channel that the audience perceives to be novel.

In exploring how the different types of experience achieve their effect on richness, we examined the relationship between perceived social influence and the three types of experience on the four components of media richness. The results reveal several noteworthy patterns. The multiple cues component, which is reflected in a channel's ability to convey nonverbal cues such as eye contact and vocal tone, is best explained by structural differences among the channels (being asynchronous, text based, etc.). Differences among the four media account for 62% of the variance in perceptions of multiple channels. This finding is relatively straightforward given that the structural differences between the channels largely determine the possibility of conveying many of these cues. Text-based media such as e-mail and IM make it impossible to communicate the tone of one's voice, whereas this information is readily available face-to-face

and over the telephone. Additionally, the three experiential factors and perceived social influence explain 16% of the variance in personalness perceptions. Experience with the topic and one's communication partner are both positively associated with perceptions of the personalness of the medium. Personalness, which reflects "the degree to which a communication partner can feel the other's presence through the communication medium" (Ferry et al., 2001, p. 71), is perhaps the most subjective of the four characteristics of richness. Through developing a history with one's communication partner and knowledge of the topic, it may be possible for organizational members to pick up on subtle cues and tacit information and consequently perceive the medium to be personal.

The experiential factors, perceived social influence, and structural differences among the media are less effective at predicting perceptions of the language variety and immediacy of feedback subdimensions of richness. The structural differences among the media, as well as perceived social influence and experience with the medium, are all significant predictors of the language variety subdimension. The amount of variance explained by these factors, however, is fairly small compared to the previous two subdimensions. This outcome is somewhat surprising. At the least, we expected that language variety should be largely influenced by structural differences among the channels. The fact that some channels are text based (e.g., IM and e-mail) and asynchronous (e.g., e-mail) should influence one's ability to use nonword symbols or sounds. Although structural differences among the media do play a role in perceptions of language variety, they explain only 14% of the variance in this subdimension of richness. One explanation is that the language variety can be more effectively explained by factors tied to one's ability to articulate ideas. For example, one's knowledge of and confidence in one's ability to use emoticons and acronyms in IM may better explain the language variety subdimension of richness.

The predictors examined in this study do not effectively explain perceptions of the feedback subdimension of richness. Only the dummy-coded variable comparing face-to-face interaction and e-mail and experience with the channel significantly predict the immediacy of feedback subdimension. The finding in regard to the dummy-coded variable is relatively straightforward. E-mail is asynchronous and face-to-face contact is synchronous; as such, e-mail is inherently slower at providing feedback. The relationship between experience with the channel and perceptions of feedback immediacy is also relatively clear-cut. Experience with the medium should set expectations about how relatively immediate feedback is (or is not). As organizational members grow accustomed to a channel such as IM, their expectations regarding the timeliness of feedback should also develop.

In terms of management communication, these results have several important implications. The initial work on media richness and channel expansion theory sought to provide some method for management to prescribe media use in their organizations. The results of our study provide additional evidence that perceptions of media richness are socially constructed and related to one's experience with one's partner, the communication topic, the medium, and influential others in the organization. The importance of perceived experience with a medium in particular suggests that technology training may be useful for organizational members. Through fostering experience with a new technology such as IM, organizational members would be more likely to have similar levels of richness perceptions. Relative homogeneity in richness perceptions associated with a particular channel could be useful to help avoid misunderstanding or miscommunication stemming from using a channel that is too rich or lean for a given interaction. Additionally, managers promoting the adoption of a new communication technology in the organization would be well served to ensure that opinion leaders accept the technology, given the small but potentially important role played by individuals' perceptions of social influence in predicting richness perceptions. The results of our study suggest that influential persons in the workplace have some potential to shape other members' perceptions of various characteristics, such as richness, of a communication technology.

## Limitations and Directions for Future Research

The static cross-sectional design of our study is somewhat of a limitation, as noted earlier, and alternate research methods should be explored in future tests of channel expansion. Although an experiment would have provided a more rigorous test of channel expansion theory, it would have necessitated a sample comprising undergraduate or graduate students and would have thus mitigated the ecological validity of the study. A longitudinal study, although potentially providing a more realistic picture over time, could introduce extraneous variables that cloud the research results even further. Conducting a cross-sectional study made it feasible to recruit a sample of contemporary organizational members as respondents. Additionally, the measure of perceived social influence is based on participants' self-reports. Although this measure is used in Fulk and colleagues' (1990) initial research on the topic, it does not capture the objective influence of others with whom organizational members interact (Rice, 1993b; Rice & Aydin, 1991).

There are a number of areas for future research with regard to channel expansion theory. Further investigation is warranted into understanding the impact of channel expansion theory and richness perceptions on the outcomes of interactions. Does richness relate to

communication satisfaction, effectiveness of decision making, and so on? It would also be worthwhile to explore additional scope of conditions for channel expansion theory. For example, are the various types of experience relatively stable once they are gained? Can one's experience with a communication partner or medium atrophy? Following channel expansion theory, it stands to reason that if one type of experience deteriorates, so should perceptions of richness; yet is this the case? Finally, given that only 6% of the variance in richness perceptions across the four channels is explained by experiential factors, researchers would be well served by examining other perceptual factors that might predict perceptions of media richness.

## Conclusion

Our research effort provides additional support for Carlson and Zmud's (1999) channel expansion theory. Additionally, we point toward the continued need for additional studies, such as Timmerman and Madhavapeddi (in press), that attempt to understand the human element in the selection and use of contemporary communication technologies. As traditional media such as the telephone continue to evolve (e.g., iPhone, Blackberry, and Treo), we must strive to understand the underlying issues that drive individuals to use these technologies. As more and more communication technologies make their way into the contemporary organization, understanding the importance of user perceptions of experience with one's partner, medium, and topic will be critical in understanding the choices that individuals make when selecting a communication medium.

## Biographies

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## Notes

1. Although face-to-face communication is not technically a communication medium, it is typically studied as a channel in the body of research on media selection.

2. Carlson and George (2004) did assess media richness across additional channels and found similar results to those of Carlson and Zmud's (1999) research, although channel expansion theory was not being tested directly. Their study is discussed further in the review of literature.

3. Although experience with the organizational context is included in channel expansion theory, we did not examine it in this study. The organizational context was not related to richness perceptions (after adding social influence to the regression model) in the first of two studies reported by Carlson and Zmud (1999) and was thus not included in their second study.

4. Two steps were taken to ensure the validity of the sample. First, respondents were asked to include contact information at the end of the questionnaire, for verification purposes. All the respondents' participation was confirmed. Second, the survey tool made it possible to examine the time at which a respondent accessed the questionnaire, the time he or she completed it, and his or her Internet protocol address. Each of these features was reviewed to attempt to identify any suspicious questionnaires, and none was found.

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