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ABSTRACT

This study proposes a behavioral complexity theory for media selection in global virtual teams. This theory captures multiple contingencies into one holistic approach. Unlike existing linear and mechanistic theories of media selection, this heuristic theory moves away from the universal models that were previously proposed. The behavioral complexity theory assumes ambiguity, complexity, and a nonlinear, organic, and holistic process. This theory emphasizes the role of media repertoire, the ability of individuals to differentiate situations according to multiple contingencies, and their flexibility to effectively use multiple media in any particular situation. This theory is examined in a context of exploratory case study of global virtual teams' media selection in one of the leading fortune 500 corporations.

Keywords

Media selection, global virtual teams, behavioral complexity theory

INTRODUCTION

Media selection theories focus on the choice of communication channels - given the choice, which media would one choose to accomplish a certain task? Past studies found that the perception of media selection and task technology fit differ in various cultural contexts (Rice, D'Ambra and More, 1998; Shachaf, 2005), yet traditional theories of media selection treat culture either as a contextual variable or another social variable. This effect of culture is in particular instrumental in the context of global virtual teams (GVT), which are heterogeneous and internationally dispersed teams that rely mainly on information and communication technology (ICT) to conduct their shared tasks. These teams face greater challenges than other traditional, collocated, and homogenous teams, some of which are shared with other heterogeneous, distributed, or technology mediated teams. Traditional media choice theories have been developed before the advent of the Internet and the extensive use of ICT in the workplace. These theories do not capture the complexity that GVTs and modern organizations are facing. This study of interviews with 41 members of GVTs in a leading Fortune 500 corporation emphasized this effect of culture on media choice. Their media selection for intercultural communication is complex. This kind of choices does not entirely correspond with traditional approaches of media selection theories, which explain the choices by either rational or social models. The following quotes challenge the existing rational decision-making and could not easily be elucidated by social models of media choice, especially in the context of GVTs. While the quotes do not contradict traditional media choice theories, each of the theories only provide partial explanation for the complexity of media choices; none of these rational and social models provide a holistic explanation of media choice. In order to bridge this gap this study proposes a behavioral complexity theory for media selection in GVTs, which provides a holistic explanation to media choices. The quotes below focus on challenges of cultural diversity that have been mediated by the use of media channels. These channels were intentionally selected.

> (1) So, I think if you go from a western kind of culture to some of these other ones that are different … your communication style, and the medium you use would change…[1] (2, 7/24/02, U.S.)

> (2) I use different [media] depending upon the situation. For example, when I'm working with Japan… I resort to e-mail quite often... (4, 7/29/02, U.S.)

> (3) With people who don't speak very good English . . . if I can, I prefer to use the written word, because you can be more concise, and it gives the person the ability to read it and understand it. (23, 9/23/02, U.S.)

Quotes 1, 2, and 3 suggest that the leanest communication channel, e-mail, was selected for extremely complex communication incidents (intercultural communication) unlike the perceived best fit according to media richness theory—face-to-face for complex and ambiguous tasks. Further, because these team members did not share the same social background and had to cope with multiple discontinuities, social models (Schmitz and Fulk, 1991; Short, Williams and Christie, 1976) were not useful, as is, for this particular situation. These interviewees do not describe their choices as a

universal way for GVT contexts, but rather as their individual resolutions for particular situations. At times they had no idea what the social norms are in their team-mates' (remote) site and (different) cultures. They made assumptions about the situation and learned from their own best and worst experiences.

Furthermore, unlike most media choice theories that approach media channels as distinct channel units (e.g., face-to-face, phone, e-mail), Quote 4 describes how multiple communication channels (e.g., e-meeting and teleconference) are used at the same time; channels complement each other in order to overcome intercultural communication challenges. Using one of available media channels increases intercultural miscommunication, but combining channels balances these limitations and improves intercultural mediated communication.

> (4) We…do…an e-Meetings…share part of my desktop with someone else… this is typically what we set up when we talk with the [Japanese] guys… As we talk [teleconference] about issues, we'll type in the result or whatever, the resolution…As we come to a resolution, I'll start typing there, and I'm hoping that that will help them verify the result, and that we're communicating effectively so they can see me typing the result on their screen…Anything visual to sort of help guide the conversation or provide an outline that they can read, it helps them, it helps us all. (12, 8/30/02, U.S.)

Other descriptions made by GVT members have been predicted in part by traditional theories, such as media richness theory (Daft and Lengel, 1986; Daft, Lengel and Trevino, 1987; Lengel and Daft, 1988), task technology fit (Hollingshead, McGrath and O'Connor, 1993), social influence theory (Schmitz and Fulk, 1991), and social presence theory (Short et al., 1976; Sproull and Keisler, 1986). These traditional media selection theories approach this process in an artificial and linear way that is characterized by a simple and predictable cause and effect relationship and any choice (best fit) is the universal choice for a particular situation. Yet, not a single theory had the power to provide a holistic explanation of the whole range of descriptions provided by the interviewees. Unlike traditional approaches, GVT interviewees described a heuristic and nonlinear approach to media selection processes that assumes ambiguity and complexity. The proposed Behavioral Complexity Theory (BCT) of media selection emphasizes the role of media channel repertoire, the ability of individuals to differentiate situations according to multiple contingencies, and their flexibility to use multiple channels at any particular situations. Channel repertoire is the range of media channels that can be used by GVT members to communicate with each other. BCT provides a more accurate description of media choice process in the context of GVT.

Following the description of the method, an outline of the theory of media selection (BCT) is proposed, along with its assumptions and main components. Data will be used to support the arguments and emphasize the main components of the BCT.

METHOD

Assuming that media selection by GVT members is fundamental to complete their tasks—because these teams rely mostly (and in some teams solely) on ICT to conduct their shared tasks—this paper focuses attention on the media choice process as perceived and described by these team members. Data were collected as part of a larger exploratory study that aimed at understanding the impact of cultural diversity and ICT on GVT effectiveness (Fichman-Shachaf, 2003). Using a case study approach, this paper aims to explain the media selection process by GVT members. The purpose of a case study is to "make observations about the explanatory power of different theoretical arguments that, through replication, can be argued to generalize." (Markus, 1994, p. 126)

The source of data was individual interviews with GVT members in a Fortune 500 corporation in the computer industry. The bulk of the data came from GVT members who worked in that leading multinational corporation. The multinational corporation's top management was based in the U.S., but a number of divisions were located around the globe. The corporation has employees in Asia, Europe, North and South America, and Australia. Theoretical sampling of participants for this study used the snowball sampling method. The sample size was finalized during data collection (Glaser and Strauss, 1997), with data collection ending as theoretical saturation was attained. In total, this study included 41 participants, forming a group that included individuals from nine countries of residency (France, Germany, Israel, Italy, Japan, Netherlands, Switzerland, U.K., U.S.), with numbers per country ranging from one to fifteen participants. The data resulted from nine months of data collection from June 2002 until February 2003 and was originated from 41 interviews—16 face-to-face and 25 via telephone. The interview protocol was developed with open-ended questions due to this study's exploratory approach (Miles and Huberman, 1994). While face-to-face interviews were conducted to gain rich data, telephone interviews were used when face-to-face interviews were not possible and when access to interviewees was difficult or impossible due to geographical or time constraints (Berg, 2001). This approach enabled the study to reach a sample population that was distributed in geographically dispersed locations.

The interviewees communicated with each other using multiple technologies in addition to face-to-face meetings. The media channels were mainly employed through corporate-wide use of Lotus groupware. Lotus groupware provides support for e-mail, Sametime (chat and e-Meeting), team room (shared electronic workspace), and other applications. Participants of this study reported on their use of e-mail, chat, e-Meeting (a web-based meeting using whiteboard, group chat, audio, video, and screen sharing), teleconference, and team room.

Following Miles and Huberman (1994), the continuous process of data analysis was intertwined with additional data collection. Conceptualization and theory generation occur through a process of continuous data collection and data analysis (Glaser and Strauss, 1997). The coding and interpretation made on early transcriptions were used during later interviews for data collection. An inductive approach was used for interpretation to enable the formation of grounded theory (Berg, 2001; Glaser and Strauss, 1997). Categories were developed from the data. Then, concepts from the data were sorted according to the categories; an examination of the sorted data identified patterns and relationships. Data analysis and coding began once the first interview was transcribed and lasted until after the final interview was transcribed.

BEHAVIORAL COMLEXITY THEORY

A new theory of media selection is proposed: the behavioral complexity theory (BCT). This study argues that BCT better explains the process of GVT members' media selection. This theory is composed of two elements: (1) repertoire of channels and (2) flexibility of individuals. According to the BCT, media selection is a process of eliminating channels from the repertoire of media channels. Multiple contingencies affect this process of excluding channels; the process is reiterative until chosen channels are utilized. Instrumental to this process is individuals' flexibility to make complex selections (of one media channel, a range of channels, or at times, a combination of channels simultaneously) and to use channels in complex ways. The two constructs of the behavioral complexity theory of media selection are influenced by and similar to the two constructs discussed in the application of behavioral complexity theory to explain leadership behavior (Hooijberg, Hunt and Dodge, 1997; Boal and Hooijberg, 2001). An outline the BCT assumptions is first provided, then the role of channel repertoire along with the multiple contingencies that are involved in the process is outlined, and the flexibility of individuals to use channels in complex ways is finally described.

BCT assumes that media choice:

1. is context dependent; context involves the socio-cultural and technological environments.

2. is not merely a linear and rational process, but a reiterative process.

Media Channel Repertoire

Media selection occurs within a repertoire of channels, which includes the range of channels adopted and used by team members for communication and information sharing. The adoption of these channels is affected by technology usefulness and ease of use, (Adams, Nelson and Warshaw, 1992; Bagozzi, Davis and Warshaw, 1992). It is also influenced by the organizational context and technological infrastructure. For example, most organizations today offer the option to communicate face-to-face, via phone, snail mail, memos, e-mail, and some organizations support additional communication channels such as chat, team rooms, videoconferencing, and alike. Several contingencies limit this range of channels:

1. Team geographical dispersion and multiple time zones.

2. Social proximity and cultural diversity.

3. Task at hand.

4. Individual preferences to use or avoid media channels.

5. Cultural preferences and technological penetration rates.

6. Accessibility of team members to use a particular media channel in a specific situation.

7. The initial channel that was used by a team member.

Despite the fact that these contingencies have been, in parts, identified before (Markus, 1994; Rice et al., 1998), each of them will be discussed. In doing so, quotes from the data will illustrate each contingency and will demonstrate how each contingency contributes to the "exclusion" process of limiting channel repertoire.

1 - Team geographical dispersion and multiple time zones.

First, communicating across different time zones limits the range of channels. When communicating across different time zones, asynchronous channels, such as e-mail, are used (Quote 5). When members are geographically dispersed, a limited range of channels are used in the process of selection, excluding, for example, face-to-face meetings. When time zone differences are wider, the range diminishes and synchronous channels are excluded during portions of the working day. For example, when a team member in the US wishes to communicate with a Japanese teammate, synchronous channels are almost always excluded from the repertoire of channels due to the thirteen hours difference between the two time zones as shown in the quote below:

> (5) Recognize that there's a [time zone] problem there and do what you can to overcome it. So with Japan I use a lot more e-mail because it works well over the time zone differences. A lot more e-mail there. (4, 7/29/02, U.S.)

Since European and American team members can communicate partially during their working hours (America's morning and Europe's afternoon), the repertoire of channels is limited to asynchronous channels most of the day, and the channel repertoire include synchronic channels during several hours of each working day.

2 - Social proximity and cultural diversity.

Social proximity in this context is defined by organizational vertical and horizontal differences, country of origin and country of residency differences, shared history, level of familiarity, and shared native language. Social proximity influences the preferred formality and synchronicity of the channel. For example, when members share high social proximity (close to each other) a wider range of channels can be used. Synchronous and informal channels (e.g., chat) are excluded from the repertoire and the range of channels is smaller when low social proximity among members is involved. Similarly, when vertical or horizontal organizational differences are significant, employees who are lower ranked or dispersed are more likely to initiate (upward) communication via formal and asynchronous channels. In a similar way, communication among pairs who do not share history and are unfamiliar with each other lead to selecting channels that are perceived to be widely adopted and used, such as e-mail and telephone. Consequently, social proximity limits the range of channels for members. Quotes 1, 2, 3, and 4 above also illustrate how language and culture limit channel. Quote 6, below is particularly important for illustrating that the initiator's perceived social proximity, among people in the communication incident, limits the range of channels.

> (6) The level of familiarity we have will have some effect. Most of the time if it is someone we never talked to, or it is the first time, or we are distant from each other, in a different hierarchical level, in other words he is a top executive or alike, or due to any other reason that creates distance, then I would rather use e-mail since it is more formal; the language is more formal…If it is someone closer to me, closer might be that we have been talking a lot, or we are at the same league, or that we share physical proximity, or due to any other reason that makes me feel that this person is closer to me, I could easily use the chat. [2] (16, 9/10/02, Israel)

3 - Task at hand.

The task at hand is another contingency that affects channel selection. The range of channels for complex tasks is more limited and a wider range of channels can be used for routine tasks. Quote 7 extracts how the task at hand affects the selection.

> (7) …for instance if I have a quick question I would send them a chat. If that question would then have a complicated answer, I would pick up the phone. (2, 7/24/02, U.S.)

4 - Individual preferences to use or avoid media channels.

In addition, the preferences of each individual influence the media choice. Individual preferences limit the range of chnnels that can be used for communication. For example, a participant referred to a case "with people who don't read their e-mail, you don't send them an e-mail." (31, 10/21/03, U.S.) Another interviewee said "...depending upon the individual, you'll come to a choice. I don't tend to treat groups as being all identical; I treat them as individuals, really, so different people

different things suit. I can name names in the building where I know they actually prefer to use Sametime over face-to-face… it's more to do with individual circumstances." (4, 7/29/02, U.S.)

5 - Cultural preference and technology penetration rates

Cultural preference and technology penetration rates affect the channel that one selects to communicate with someone in another country. Quote 8 provides an example of perceived differences in the use of technology by an American team member towards Europeans.

> (8) Most of western Europe…much more pervasive with cell phone technology than we are…. saying, "Here's my cell phone number, call me anytime." And they're very conducive to taking that call and transacting business, etc. But most American audiences are not as—even if they may have cell phones—are not as comfortable...oddly enough, if you ask them to check e-mail at a certain time, they're not going to do that, whereas we're quite comfortable doing that, but they're quite comfortable taking a cell call...I also think it may be somewhat cultural. (7, 7/30/02, U.S.)

6 - Accessibility of team members to use a particular media channel in a specific situation.

Quote 9 illustrates that accessibility of someone to respond (or not) in a particular moment determines channel choice. The interviewee reported on an effort to use several channels after the first attempts to use a channel were not successful. This process suggests that rather than a universal fit of one channel for one task, "best fit" of media is of multiple channels (a repertoire of channels) for one task. Moreover, media selection process involves several iterations of selecting appropriate channel; each attempt begins when the receiver is not accessible to use a selected channel from the range of channels. This process involves several channels in the repertoire until the message is transferred. A default channel (e-mail or voice mail) is used on occasions when the cost of effort (in terms of time) to use a channel accessible for both is too high for the particular task.

> (9) … if I call, and there's no response on the phone, I'll check the network to see if they're on Sametime. If they're there, I'll try that. If I don't get anything there, then I'll look to see if they have a cell phone. (11, 8/30/02, U.S.)

7 - The initial channel that was used by a team member.

Quote 10 suggests that the use of the initial channel is yet another contingency that affect the choice of channel to respond. Thus, the process of media selection in initial communication is slightly different than that of providing feedback and replying to a message. Often times team members are using the initial channel to respond to the sender, even though it became clear that it is very ineffective approach to accomplish a task. Since many of the communication incidents involve several exchanged messages, most of the messages are transferred back and forth by the initial channel. That is, the initiator of the communication incident selects a channel and the following messages are conducted with the same channel, even when it is not the best (or even good) fit with the task. Alternatives are not evaluated until it is clearly evident that it is ineffective, and the particular ineffective channel is, then, excluded from the repertoire of channels to be used.

> (10) I even had [employees] who would…send e-mail, just e-mail after e-mail after e-mail on something that was very complex, arguing with each other, and they would actually sit next to each other in the office, and they wouldn't go talk to each other… (31, 10/21/02, U.S.)

In addition, the media selection process involves feedback that reflects the learning process of GVT members. They learn, for example, who prefer or avoid certain media channels (contingency 4) and what indicates the need to switch away from the initial channel (contingency 10). In specific situations GVT members incorporate feedback about team members accessibility into the iterative selection process.

Most of these contingencies have been identified in the literature (Markus, 1994; Rice et al., 1998), yet previous theories assume that these contingencies help select one best channel. This paper suggests, based on the data, that these contingencies are instead limiting factors; they affect the exclusion of channels from being used in a particular situation. In other words, in other theories, like the media richness theory, the approach to the contingencies have been positive (or best fit) whereas in the proposed new theory, BCT, it is a reflection of an opposite process (unfit), reducing, excluding, and eliminating channels from the repertoire.

Individual's flexibility

The second component of the new theory that is proposed, BCT, involves individuals' flexibility to use multiple channels in a particular situation. Hooijberg et al. (1997) and Boal and Hooijberg (2001) discussed the application of behavioral complexity theory to explain leadership behaviors. Similarly, this paper proposes that media selection process involves an adjustment process according to the limitations that are made by the specific contingencies. Effective channel selection involves the individuals' ability to differentiate situations by multiple contingencies, and to select and effectively use channels for a particular situation. The complex and dynamic social context of GVT members forces individuals to be flexible in their media selection. Their flexibility enables them to adapt their behaviors according to multiple contingencies; these affect their complex choices of communication channel.

An individual's flexibility is instrumental in adapting to the dynamic environment. These adjustments result occasionally in complex media choices. One example of this complexity is illustrated by the case that team members choose lean media for a complex task—heterogonous teams choose channels that are inconsistent with task technology fit. Although GVT members are aware of task technology fit—for certain tasks it is more effective to use a particular communication channel—they were able not only to fit a channel that is not the best fit, but also to report on their choices as "best fit."(Quotes 1-3) Specifically, the complex best fit involves reports on e-mail, a lean channel, as the preferred "best fit" to almost any intercultural communication incident, which is a complex task (Shachaf, 2005). The choice of lean medium to complex task have been identified by Lee (1994) and Negwenyama and Lee (1997) claiming that email is a rich medium for communication. Further, in face-to-face meetings the richest channel, according to Daft and Lengel (1986) and Sproull and Keisler (1986), is used for team communication; yet Shachaf (2005) reported on more (intercultural) miscommunication that occurred at these meetings than when communicating via e-mail. For example, the interviewee in Quote 11 describes difficulties understanding team-mates during face-to-face meetings compared with understanding them via e-mail.

> (11) Once a group learned how to work via e-mail, they experience difficulties every time they meet face-to-face…via e-mail there is focus; they know to express exactly what they wish to say. With face-to-face, when one is free from this focus, then…the entire communication is out of balance, people say chunks of sentences…you are expecting people that you are communicating with to behave in a certain way, and the observed behavior does not fit the written style…people that express themselves very precisely in writing are very unorganized; they could be very unorganized when they talk… Anyway, in any face-to-face meeting, you spend about a half of a day experiencing communication difficulty, because people don't understand each other.[3] (32, 10/22/02, Israel)

In addition to this inconsistency of task technology fit, GVT members also used technology in a variety of complex ways. For example, Quote 4 shows that multiple channels are simultaneously used in a complicated situation. Complex situations, such as routine teleconference meetings among culturally diverse and geographically dispersed team members, predefined the combination of channels. The use of teleconference and e-Meeting during team meetings enabled team members to overcome predictable and intricate intercultural miscommunication incidents. In particular, GVT members were aware of the difficulties in understanding each other over the phone, due to the reduced cues, and increased miscommunication due to accents and pronunciations. It was recognized by these team members that the written language of non-native English speakers is better than their spoken language and that their ability to understand written text is also better than their ability to process the spoken language. For that reason, they combined these channels into a sophisticated use of communication channels. Thus, it is clear that individual team members are flexible in their media use for multiple tasks in a complex ways. This flexibility improves their ability to perform their shared tasks.

CONCLUSION

In an effort to provide a better understanding of media selection processes described by GVT members, this paper proposed a new behavioral complexity theory and discussed its assumptions and components, i.e., channel repertoire and flexibility. In an effort to emphasize the role of culture in media choices among culturally heterogeneous and dispersed teams, this paper suggested that behavioral complexity has more explanatory power over traditional theories, in that it captures the complexity involved in this process. An illustration of the proposed behavioral complexity theory is based on a case study of GVT in a multinational corporation.

Specifically this paper claims that media choice is a process of exclusion of media channels by limiting channel repertoire. This process is affected by seven contingencies: physical proximity, task at hand, social proximity, sender and receiver accessibility to use a channel, individual preferences about a channel, cultural preference and technology penetration rates, and the initial channel.

Further this paper claims that the flexibility of individuals to use multiple channels for a particular task, and to use combinations of channels at the same time, is a critical adjustment process. The findings suggest a more naturalistic way of media selection in GVT contexts. The contingencies suggested in the proposed BCT can be used to educate employees who work in GVT environments. Future research should focus on the channel exclusion process, on the utilization of multiple channels simultaneously, and on the nature of the channel repertoire. Furthermore, transferability of this theory to other setting, beyond the organization that is presented in this case study, is yet to be examined in future studies.

REFERENCES

1. Adams, D. A., Nelson, R. R. and Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication, *MIS Quarterly*, 16, 227-247

2. Bagozzi, R. P., Davis, F. D. and Warshaw, P. R. (1992) Development and test of a theory of technological learning and usage, *Human Relations*, 45, 7, 660-686

3. Boal, K.B. and Hooijberg, S. (2001) Strategic leadership research: Moving on, *Leadership Quarterly,* 11, 4, 515-549.

4. Daft, R.L. and Lengel, R.H. (1986) Organizational information requirements, media richness and structural design. *Management Science,* 32, 5, 554-572.

5. Daft, R.L. Lengel, R.H. and Trevino, L.K. (1987) Message equivocality, media selection, and manager performance: Implications for information systems, *MIS Quarterly,* 11, 3, 355-366.

6. Fichman-Shachaf, P. (2003) Global virtual teams: The impact of cultural diversity and information and communication technology on team effectiveness, Unpublished doctoral dissertation, University of North Carolina, Chapel Hill.

7. Glaser, B. and Strauss, A. (1997) The discovery of grounded theory: Strategies for qualitative research, Aldine, Chicago.

8. Hollingshead, A.B., McGrath J.E. and O'Connor, M. (1993) Group task performance and communication technology: A longitudinal study of computer-mediated versus face-to-face work groups, *Small Group Research,* 24, 3, 307-324.

9. Hooijberg, R., Hunt . J.G. and Dodge, G.E. (1997) Leadership complexity and development of the Leaderplex model, *Journal of Management,* 23, 3, 375-408.

10. Lee, A. S. (1994) Electronic mail as a medium for rich communication: An empirical investigation using hermeneutic interpretation, *MIS Quarterly,* 18, 2, 145-157.

11. Lengel, R.H. and Daft, R.L. (1988) The selection of communication media as an executive skill, *Academy of Management Executive,* 2, 3, 225-232.

12. Markus, L. (1994) Electronic mail as the medium for managerial choice, *Organization Science,* 5, 502-527.

13. Maznevski, L.M. and Chudoba, K.M. (2000) Bridging space over time: Global virtual team dynamics and effectiveness, *Organization Science,* 11, 5, 473-492.

14. Miles, M.B. and Huberman, M.A. (1994) *Qualitative analysis: An expanded sourcebook,* Sage, Tausand Oak, CA.

15. Ngwenyama O. and Lee, A. (1997) Communication richness in electronic mail: Critical social theory and the contextuality of meaning, *MIS Quarterly,* 21, 2, 145-167.

16. Rice, R.E., D'Ambra, J. and More, E. (1998) Cross-cultural comparison of organizational media evaluation and choice, *Journal of Communication,* 48, 3, 3-26.

17. Shachaf, P. (2005) Bridging cultural diversity through e-mail, *Journal of Global Information Technology Management,* 8, 2, 46-60.

18. Schmitz, J. and Fulk, J. (1991) Organizational colleagues, media richness, and electronic mail, *Communication Research,* 18, 4, 487-523.

19. Short, J. Williams, E. and Christie, B. (1976) *The social psychology of telecommunication,* John Wiley & Sons, NY.

20. Sproull, L. and Keisler, S. (1986) Reducing social context cues: Electronic mail in organizational communication, *Management Science,* 32, 11, 1492-1513.

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[1] The references for each direct quote consist of the identification number assigned to each participant, the date of the interview (month/date/year), and the participant's country of residence. Since native English speakers were more articulate in English, most of the quotations used in this study are from interviews with native speakers.

[2] The quotation was translated from Hebrew. For translation reliability check the Hebrew text, which is provided here:

אם זה מישהוא שעוד אף פעם לא דיברנו, או שזה פעם ראשונה, או שאנחנו מרוחקים, נגיד בדרגה מרוחקת זו מזו, כלומר זה מנהל מאוד בכיר או משהו כזה, או מכל סיבה שהיא שמיצרת מרחק אז אני אעדיף להתשתמש באימייל כי הוא יותר פורמלי, השפה בו יותר פורמלית...אם זה יהיה מישהו שהוא יותר קרוב אלי. קרוב זה יכול להיות או שאנחנו הרבה פעמים דיברנו או שאנחנו באותה ליגה. או שאנחנו קרובים פיזית. או איזשהוא משהו אחר שנותן לי תחושה שהבנאדם קרוב אלי יותר. יהיה לי יותר קל לעשות את זה בצ'אט.

[3]The quotation was translated from Hebrew. The Hebrew text is:

אחרי שקבוצת האנשים לומדת לעבוד באימייל, הם, יש איזשהו קושי מסוים כל פעם שהם נפגשים פייס טו פייס... באימייל יש פוקוס, יודעים לבטא בבירור מה שרוצים להגיד. בפייס טו פייס, כשאתה משוחרר מהפוקוס הזה, אז יוצאים .. כל התקשורת יוצא לגמרי מאיזון, אנשים אומרים חצי משפטים...יש לך איזושהי ציפיה של התנהגות מסוימת מהאנשים שאתה מתקשר, וההתנהגות החזותית היא לא תואמת את הסגנון בכתב...אנשים שמתבטאים בצורה מאוד מאוד מדויקת בכתב הם מאוד מפוזרים, יכולים להיות מאוד מפוזרים כשמדברים... בכל זאת בכל פגישה של פייס טו פייס יש כזה מין חצי יום, שהתקשורת היא קשה, כי אנשים לא מבינים אחד את השני.