

UNIVERSITÀ DEGLI STUDI DI TRIESTE

XVI CICLO DEL
DOTTORATO DI RICERCA IN PSICOLOGIA

E-mail as a Speed-facilitating Communication Device: Some Motivational and Cognitive Considerations

DOTTORANDO

MASSIMO BERTACCO

COORDINATORE DEL COLLEGIO DEI DOCENTI

CHIAR.MO PROF. CARLO SEMENZA UNIVERSITÀ DI TRIESTE

FIRMA: _____


RELATORE

CHIAR.MO PROF. ROBERT A. WICKLUND UNIVERSITÀ DI TRIESTE

E-mail as a Speed-facilitating Communication Device:

Some Motivational and Cognitive Considerations

By

Massimo Bertacco

Degree, University of Trieste, 2000

Thesis directed by Professor Robert Arnold Wicklund

A doctoral thesis submitted to the

Faculty of Psychology of the

University of Trieste

Department of Psychology

2004

Acknowledgements

I would first like to thank Dr. Antonella Deponte and Dr. Federica Gomboso for helping me in different moments of my research. I am also grateful to Angels Colome for her comments on this dissertation draft and for encouraging me in the last two years.

I am indebted to my supervisor Prof. Robert A. Wicklund whose stimulating suggestions and guides enabled me to broaden up my theoretical view of Social Psychology. I also want to express my gratitude to Prof. William Swann from the University of Texas at Austin who provided me with new notions and perspectives during my PhD.

Finally, I wish to extend my thanks to all those people (students, professionals, and researchers) who participated in the studies of this thesis.

CONTENTS

I. Introduction	6
Speed and communication feedback	10
Speed orientation analysis	11
II. The empirical approach	15
The media-choice problem	16
The stream of human motivation	18
About perspective taking in communication	20
Experiment I	24
Experiment II	36
Experiment III: extending external validity	50
Study IV: a survey on e-mail in-boxes	60
III. The motivational side of the issue	76
Toward an attention model of human interactions	77
The motivation in speed-oriented communication	78
Experiment V: on Zeigarnik's track	80
IV. Written communications and behavioral plans	95
Study VI: What do people know?	98
Communication channels and expectancy	108
Is it a matter of interpersonal perception?	109
Experiment VII	110
V. Conclusion	122
General considerations	131
Limitations and future directions	131

Beyond Speed Communication Analysis	133
BIBLIOGRAPHY	135
APPENDIX	
A. QUESTIONNAIRES AND SCALES	145
B. MATERIAL	159

- I -

Introduction

From a social psychological perspective, one of the most critical and fascinating topics involving the new communication media concerns the spreading of Internet use and its influence on personality and social interaction. Most discussions regard the effect of communication mediated by computer (CMC) on personal well being and, more generally, on functioning in society (e.g., Cantelmi, Del Miglio, Talli, & D'Andrea, 2000; Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998). In a sense, CMC represents a range of new communicative settings that blur the deep-rooted boundaries among the interpersonal communicative forms. CMC and other modern communicative devices have enabled individuals to communicate and relate to one another regardless of the *spatial* and *temporal* constraints with which humans have always lived. However, most of the social psychological debate on the CMC has focused on the physical facets of the issue (i.e., the lack of multidimensional feedback) and has missed the temporal dimension. Many authors have stressed that CMC has a narrower bandwidth and less information richness than does face-to-face communication (see Daft & Lengel, 1984; Kiesler, Siegal, & McGuire, 1984), but none

has considered CMC communication speediness as deserving particular theoretical attention.

It is not surprising that most of the theoretical viewpoints on human communication have considered face-to-face interaction as the hallmark by which to compare all the other communicative forms (e.g., Kiesler & Sproull, 1992). Indeed, face-to-face communication is generally assumed to be the best heuristic key for disentangling and framing all other communicative modalities. Thus, as far as a new communication media spreads on the society, the socio-psychological debate will keep on comparing those new interactive modes with the face-to-face standard. A hypothetical continuum can be thought of, in which the poles are represented by two opposite theoretical stances for explaining how these new communication media affect both the individuals and the society.

(1) On the one hand, there are authors who consider the new interactive devices (e.g., cell-phones, Fax, and e-mail) to be noxious in regard to many social psychological dimensions, in that all interactive settings other than face-to-face are said to be raw surrogates for making and sustaining personal relationships or for having good interpersonal experiences (e.g., Locke, 1998; Wicklund & Vandekerckhove, 2000). For example, these authors see CMC

relationships as shallow, impersonal, and even promoting hostility (see Parks & Floyd, 1996). This perspective often considers *cyberspace* as just a deceptive environment that disengages people from the reality of the physical world (e.g., Berry, 1993; Heim, 1992; Stoll, 1995).

(2) On the other hand, there are those authors who argue that the new communicative devices or settings allow individuals to broaden their range of modes for getting in touch to one another. By this perspective, most of the socio-psychological processes related to the personal and social identity are still conceived as working into these new interactive settings. The only differences between the face-to-face and these alternative settings would be that the latter require more time to make good relationships possible (Parks & Floyd, 1996). Therefore, given the proper time, the interactive quality would remain the same across all the different communicative settings (e.g., Pool, 1993; Rheingold, 1993).

Aligned with the former stance, there is the *reduced-cues perspective* (Parks & Floyd, 1996). Two examples are social presence theory (Rice, 1987; Short, Williams & Christie, 1976) and social context cues theory (Sproull & Kiesler, 1991). Their common idea is that communicative settings other than face-to-face, but especially CMC,

reduce contextual, visual, and acoustical cues. Communication thus becomes impersonal and poor. In general, reduced-cues theories maintain that, in the short run, the face-to-face communicative setting should breed greater awareness and sensitivity among individuals because it consents the use of a multiplicity of dimensional feedback (e.g. visual and acoustical). Moreover, in the long run, both physical proximity and frequent interactions (i.e., face-to-face) are necessary conditions for preserving an optimal relational development.

Against the reduced-cues standpoint, there are many surveys indicating that relational development may be at least as strong, if not stronger, on the CMC (e.g., McKenna & Bargh, 2000; Parks & Floyd, 1996). For instance, McKenna and Bargh (2000) have argued that reciprocal liking and attraction increase when people first meet on the Internet rather than face-to-face. However, it is worth noting that most of the individuals whose relationships began on CMC, sooner or later made use of additional communicative channels (e.g., face-to-face and telephone). The explanation of this phenomenon was that by adding extra communicative settings, people tried to overcome the CMC physical limitations (Parks & Floyd, 1996). This interpretation, though, converges toward those theories

that have stressed the link between the importance of the multidimensional feedback and an optimal development of human relationships.

All in all, research abounds in data for and against communication mediated by modern devices. In general, the research results have underlined the relevance of multidimensional cues in communicating. However, there is an important feature of CMC that has not been addressed in the literature until now, i.e., its speed. This aspect represents the theoretical core of the present work.

Speed and Communication Feedback

A striking point of Internet communication devices is their property of allowing people fast and distant interactions in a medium poor in personal dimensionality. The *speediness* is generally considered as the chief valuable feature of modern communication devices. On the contrary, authors such as Locke (1998) stress the negative aspects of modern communication modes, claiming that they are channels without any personal dimensionality that do not permit a full physical interaction between persons. As a consequence, modern communicative channels present a lack of opportunity to express, and to receive feedback over those personal features - typically non-verbal - that are salient only when the communication has more

dimensionality, as in using one's own voice and gesticulation.

Within the same context, using Lewin's (1926) motivational point of view, Wicklund and Vandekerckhove (2000) have analyzed some of the short-term and longer-term changes in interaction forms that result from speed communication. The present thesis has made use of this recent theoretical frame to deal with the issue raised by Locke and the reduced-cues perspective, and to address Wicklund and Vandekerckhove's (2000) thesis empirically.

Speed Orientation Analysis

Wicklund and Vandekerckhove have paid close attention to the phenomenon of speed oriented communication, which is defined as due to a motivational state caused by (a) the feeling of being under pressure to pursue explicit goals coupled with (b) the availability of a speed-facilitating device. The theoretical starting point is what they have called the *original interaction form*, which is akin to human interactive sequences closely related, in their unfolding, to animals' rituals. These kinds of interactions go beyond the simple exchange of information, and often their purposes do not imply attaining any explicit goal. Furthermore, such an interaction, typically face-to-face, requires delay and patience in order to be carried out by

the actors. Physical presence together with sufficient time allow actors to act and react with each other in this manner. When actual presence is not possible, a relationship is continued through fantasizing and memory.

Such original forms should play an important role in human socialization, as in the development of skill repertoires, the internalization of standards and values, and in relationships (e.g., friendships and courtships). For instance, making and maintaining an acquaintance is a social process characterized by gradualness, where a certain amount of time - thus waiting or delaying - should be necessary for a corresponding self-disclosure (Jourard, 1971; Reis & Shaver, 1988). This is especially true at the beginning of the relationship or after a long period without being in contact. These are moments that require not hurrying the interaction. Wicklund and Vandekerckhove (2000) have pointed out that, under psychological pressure, these delays are also potential sources of frustration that people react to by means of behavioral shortcuts. Whenever shortcuts or easier routes are available, as with speed communicative devices, a shift from the original interaction form would occur. Then the goal moves from the intrinsically satisfying experience of a more extended interaction (Csikszentmihalyi, 1993) to a more concrete

information exchange. Indeed, interacting people would tend to reduce the communication to a "data-information" exchange where cost/benefit calculations take place. In other words, it is as if speed-facilitating devices turned the communication forms typical of *communal relationships*, which have a high degree of relational intimacy, into the communication forms typical of *exchange relationships*, which have a low degree of relational intimacy (Clark & Mills, 1993).

When speed-inducing forces (communicative urgency) come to bear on such settings (the availability of a speed-facilitating device), three phenomena arise: (a) *egocentrism*, that is, less capacity to take the partner's perspective, (b) *the categorization of the other*, or an over-simplification of the other into static categories (e.g., personality traits), (c) *concretization* of the other, and the fading of interpersonal fantasies (e.g., thinking about, remembering, or anticipating the other) (Wicklund & Vandekerckhove, 2000).

The speed orientation hypothesis implies that speed-facilitating devices orient people toward reaching concrete and univocal goals easily, skipping over possible delays. As a consequence, many emotional and interpersonal aspects associated with the original interaction, which require

elapsed time to emerge, will be diminished in the resulting communication. Allowing people to avoid every sort of spatial barrier and time delay, these communicative means will provoke a breaking down of important social aspects by orienting people to speed.

The Wicklund and Vandekerckhove's thesis (2000) resembles the reduced-cues perspectives outlined earlier. Further, their motivational analysis has put, for the first time, the velocity of the modern communicative devices into the CMC theoretical debate.

- II -

The Empirical Approach

The Wicklund and Vandekerckhove theoretical perspective (2000) has considered velocity as an important dimension in human communication. By a strict Lewinian stance, its predictions might be conceived as generated by the combined action of two factors, one personal (i.e., individuals goal-oriented) and the other situational (i.e., the availability of a speed-facilitating communicative device). Only under this conjunction would people tend to (a) prefer the use of the speed-facilitating devices rather than other communicative forms and, consequently, (b) manifest three psychological effects, i.e., the categorization of the addressee, the fading of processes associated with the relationship (especially fantasizing about the other), and the egocentrism. Moreover, this communicative modality (c) causes the interaction to be more abbreviated than the original interaction form.

In the author's opinion, there are three general issues to consider before addressing Wicklund and Vandekerckhove's (2000) theoretical perspective empirically: (1) media-choice, (2) motivation, and (3) perspective taking. All these points are taken into account in the following.

The Media Choice Problem

One of the aspects that have slowed down the experimental research on human mediated communication is that the different communicative modes also entail complex social factors (e.g., social norms and individuals' attitude). This intricate situation has favored that the previous investigations disregarded those basic psychological processes (e.g., attention and memory) associated with the communicative behavior through different channels. On the contrary, literature abounds in studies set up to address practical issues about media in organization forms and effective communication in teamwork (e.g., D'Ambra, Rice, & O'Connor, 1998; Treviño, Webster, & Stein, 2000).

In general, the theoretical kernel of these surveys has mainly dealt with the problem of *media choice*, i.e., all those rational as well as social factors leading individuals to choose one communicative mode rather than another in a particular communication incident (Treviño, Webster, & Stein, 2000; Webster & Treviño, 1995). By this research perspective, all communicative medias imply social situations that involve a multiplicity of factors hardly reducible to the mere intrinsic/physical features of each device. However, almost all media choice literature has

been developed in organizational psychology (e.g., job communications) rather than in a broader social-relational context (e.g., friendship communications).

Both the individuals' attitude and the societal norms toward different communicative medias may account for the resultant media choice and communicative behaviors. However, those attitudes might be more strongly affected and shaped by the communicative constraints of those devices. For instance, if a communicative mode enables communicative speed, social norms will call for corresponding speed communicative behaviors even though speed is not appropriate in the circumstance. In other words, the social norms and individuals' attitudes on the use of a communication device are not only affected by the suitability of a device to carry out a distinct communication task (see D'Ambra, Rice, & O'Connor, 1998).

In general, any communication device is supposed to be used for, and associated with distinct communication purposes. The e-mail, though, is a media that has partially substituted other forms of social contact (i.e., face-to-face, telephone, and postal letter) simply because of its communicative speed and easy social access (Kraut, Mukhopadhyay, Szczypula, Kiesler, & Scherlis, 1999; Odom Gunn & Gunn, 2001). For instance, there are data supporting

the notion that one of the factors making a person to choose e-mail rather than other communicative settings is its contextual availability (D'Ambra, Rice, & O'Connor, 1998). So, it is very sensible to state that, independently of the social appropriateness of this communicative mode to carry out a given kind of communication (e.g., to get in touch with a friend after a long time since the last contact), the wider the e-mail availability in the society, the more likely it substitutes other forms of social contact. As a result, individuals in certain organizations (e.g., university or business) may choose to communicate by e-mail even in the case of communicative tasks for which postal letter was previously preferred.

The Stream of Human Motivation

The speed communication analysis (Wicklund & Vandekerckhove, 2000) might lead one to think that all speed-facilitating communicative devices are mainly channels serving to amplify a phenomenon already studied in the helping behavior literature, e.g., the effect of haste on the empathic attitude. For instance, in one famous experiment, Darley and Batson (1973) found that students in a hurry were more likely to pass by an injured person who needed help. The striking thing is that those students were all attending to the Princeton Theological Seminary and

were told to rush to deliver a speech on the parable of the Good Samaritan. In general, there is evidence supporting the idea that people strongly goal-oriented, like being in a hurry, as well as under physical and/or psychological threat, suffer from a state of mental closure or perspective taking deficit (Pantaleo & Wicklund, 2001; Wicklund & Steins, 1996). Therefore, any individual undergoing an activity under time pressure, whatever the communicative setting, is likely to suffer from a state of mental closure similar to the psychological effects expected by speed communication analysis. This is the reason why, in order to address the Wicklund and Vandekerckhove' hypothesis (2000) empirically, the author decided to begin with focusing his attention on the communicative device by itself, without manipulating the communicative haste variable. In line with Birch, Atkinson, and Bongort (1974), one could say that there is simply an ongoing stream of behavior (e.g., communicating) and the task of the psychologist is to find out what modulates that stream (e.g., the interactive frame). Thus, the way different interactive or communicative settings work (e.g., their communicative constraints) can somehow make for a correspondent changing in the motivational, as well as behavioral stream.

The empirical approach of the present thesis assumed the Wicklund and Vandekerckhove's idea of speed-communication (2000) as being a psychological state promoted, above all, by the mere use of certain communicative devices rather than a personal force (i.e., being goal-oriented in itself). Thus, the primary experimental effort consisted in manipulating just the communicative setting and considering all the other possible psychological and behavioral occurrences as caused by this treatment.

About Perspective-Taking in Communication

In communication, the fundamental role of knowing what others know is axiomatic (e.g., Bakhtin, 1981; Clark, 1985; Mead, 1934). Messages are formulated to be understood by a specific audience, and in order to be comprehensible they must take into account what that audience does and does not know. As Brown (1965) observed, effective communication requires that the point of view of an auditor be imagined realistically. For instance, the face-to-face conversations are ideally much more than sequences of utterances produced turn by turn. They are highly coordinated activities in which the current speaker tries to make sure he or she is being attended to, heard, and understood by the other participants, and they in turn try to let the speaker know

when s/he has succeeded. There are further instances of conversations occurring in communicative modes others than the face-to-face for which the same concept of coordination is fitting. Clark and Schaffer (1989) referred to the notion of *common ground* for describing the process serving to the purpose of adjusting the conversation on what the participants presuppose about their partners' knowledge.

Consider a field experiment by Kinsbury (1968), who asked randomly selected pedestrians on a Boston street for directions to a department store several blocks away. He asked one-third of his subjects, "Can you tell me how to get to Jordan-Marsh?" in a vaguely local dialect. He asked another third the same question in the same dialect but prefaced it with the statement "I'm from out of town." He asked the remaining third the unprefaced question but did so employing a dialect spoken in his native rural Missouri - one seldom heard in downtown Boston. Kingsbury covertly recorded his subjects' responses and later transcribed them. Not surprisingly, when the request for directions was prefaced by the statement "I'm from out of town" or in the Missouri dialect, the directions were longer and more detailed. These results imply that subjects assign another person to a social category on the basis of his accent, infer what a typical member of the category was likely to

know, and formulate a message that would be interpretable in light of such knowledge. So, in the ideal case, interacting people actively attempt to ground the conversation on their shared knowledge.

In regard to what might be termed "static communication", i.e., noninteractive situations in which messages are written and others (e.g., the addressees) cannot respond, there are studies that give support to the general notion that speakers take others' knowledge and perspectives into account when they formulate the messages (Krauss & Fussell, 1991). By contrast, speakers in the face-to-face interactive contexts may feel less need to consider the addressees' knowledge *in detail* prior to message formulation because they know that the listener can ask questions to clarify meanings where necessary. To sum up, when immediate feedback is unavailable, the role of prior suppositions (i.e., the common ground) might be more important.

By this theoretical perspective, e-mail communication presents some peculiarities. (1) Indeed, it is a communication mode that enables individuals to communicate fast but non-synchronously so that any potential feedback is delayed in time. (2) E-mail stands for a static communication (i.e., non-synchronous) similar to the postal

letter but potentially faster in the delivery of the other's feedback. However, there is no guarantee that the sender will receive rapid feedback. Given this uncertainty, one should expect that the e-mail communication was more similar in content and length to the postal letter rather than to face-to-face, at least when the communicative purpose is the same. For instance, if the sender had to get in touch with a distant friend after a long period without any contact, both the e-mail and the postal letter alternative messages should be similar in length and richness of content. A long and rich message would serve to ground all the future communicative exchanges on a solid basis.

However, Wicklund and Vandekerckhove (2000) consider the e-mail as a speed-facilitating device that leads people to an abbreviation of their communication and, doing so, to a decrement in the perspective-taking. In other words, individuals who write an e-mail message would tend (a) to disregard the shared knowledge with the recipient (i.e., the common ground), and (b) to manifest more conciseness with respect to the postal letter even when the communicative purpose was alike.

Given this prediction of discrepancy between e-mail and postal letter, we decided to compare both communicative

modalities as the first step for addressing the Wicklund and Vandekerckhove's thesis (2000) experimentally.

Experiment I

In order to investigate the Wicklund and Vandekerckhove's thesis (2000), e-mail, handwritten postal letters, and computer typed letters were compared. E-mail communication is said to be the first way people usually approach the Internet (Kraut et al., 1998). Furthermore, e-mail is considered the main Internet tool for maintaining relationships with friends or family members geographically distant (Kraut, Mukhopadhyay, Szczypula, Kiesler, & Scherlis, 1999; Odom Gunn & Gunn, 2001), an activity that, until recently, was pursued by traditional handwritten letters. The latter, of course, are not speed-facilitating devices.

With this background, we set out to compare e-mail with the standard letter. However, this simple manipulation confounds the *velocity of arrival* and the use of the *personal computer vs. the pen and paper*. Thus, to separate these two factors, we added a computer-typed letter condition in which the letter was to be sent by regular mail.

Most important, the speed communication analysis (Wicklund & Vandekerckhove, 2000) differs from the reduced-

cues perspectives, in that only the former would predict diversities between e-mail and postal letter. Actually, both these communicative modes lack of multidimensional feedback. However, the former theoretical stance predicts that, given similar communicative goals, people communicating by e-mail tend to end their messages sooner than people communicating by postal letter with a corresponding decrease of the common grounding process (Clark & Schaffer, 1989).

Hypotheses

Length

We expect shorter messages in the e-mail than in the traditional handwritten and computer typed letter communications. We will also look at the possible effect of familiarity with e-mail on length.

Contents

Speed-orientation influences the contents of the communication: It promotes messages centered essentially on information-exchange, and containing fewer references to non-informational aspects. Hence, a simplification toward concreteness is expected in e-mail messages. In this case we will concentrate on interpersonal fantasies (i.e., friendship memories) as non-informational aspects that

might serve for grounding the communication (Clark & Schaffer, 1989).

Method

Participants

Sixty-six students from the University of Trieste volunteered to participate. The data from three participants were discarded because they did not finish the experimental task. Therefore, analyses were conducted on the data of 63 participants. The mean age was 24.4 years (ranging from 20 to 34, $SD = 2.61$ years). Twenty-six of them were men and 37 were women.

Procedure

Participants were recruited individually at the Faculty of Psychology (University of Trieste) for a study on friendship. They were tested in a room with a desk, a chair and a computer. They were randomly assigned to one of three conditions: E-mail ($n = 21$), Handwritten Letter ($n = 22$), and Computer Typed Letter ($n = 20$).

A role-taking approach was used in which written instructions invited the participants to contact a friend of the same sex, after a long period without being in touch with that friend. It was specified that there were neither time restrictions for the task nor length limits for the message. Therefore, participants were free to write down

whatever they wanted to and for as long as they wished. Instructions were purposely vague, in that they did not require recalling a distinct actual friend. Neither was it explained what would happen with the message afterwards.

From here on, instructions diverged depending on the conditions. In the E-mail condition, the instructions asked the participant to write to the friend using the e-mail program already open in the computer, on the desk. A fictitious address (*myfriend@servername*) was on the sender box. At the end of the task, the participant was asked to click the "send" button.

In the Handwritten Letter condition, the instructions asked the participant to use paper and pen, which had been left on the desk together with a blank envelope and a stamp. At the end of the task, the participant was asked to put the letter in the envelope even though there was not address on it.

The instructions in the Computer Typed condition asked the participant to use word-processing, already open on the computer screen. On the desk there were also a blank envelope and a stamp. Similarly to the Handwritten Letter condition, the participant was asked to print the letter and to put it in the envelope.

After the experimental task was performed, all participants were requested to fill in a short questionnaire regarding their weekly *communicative habits*. Using a 6-point scale with endpoints at 1 (Never) and 6 (More than 6 hours), participants indicated how much time they usually spent (a) surfing on the Internet, (b) using e-mail services, and (c) using computer functions other than the Internet. They also had to indicate (d) the number of letters they usually wrote, i.e. using regular mail, always using a 6-point scale with 1 (More than one per week) and 6 (Never) as extreme values. The score of this item has been reversed to simplify the presentation of the results.

Content Analysis of the Text

To test the hypothesis that the extent of interpersonal fantasies would differ among conditions, we analyzed the category (a) friendship memories (e.g., "I remember when we fished together last year") in the text. Further, since it was suspected that differences regarding other aspects of the text could also appear, other categories were developed that respected the unfolding sequences of an ordinary written message, i.e. categories that grasped the ritual-like facets of a written informal communication.

We used the five following categories: (b) Introduction (e.g., "Hi! How are you?"), (c) resuming the relationship (e.g., "It's a long time that I don't hear from you"), (d) intentions to continue the relationship (e.g., "I will call you as soon as possible"), (e) offering and asking for personal information (e.g., "I got a brand new car" or "What about your job?"), and (f) closing formulations (e.g., "See you soon"). However, we had no clear hypotheses regarding all these categories.

Finally, the category (g) Presence or absence of an explicit reference to the recipient (e.g., "Hello Marco" against "Hello XXX") was used. This was accomplished for checking whether the way the communicative situations were operationalized affected the manner in which participants recalled the recipient.

The author together with a colleague acted as independent judges to assess the presence or absence of each category in every message.

Results

Questionnaire

Analyses of the respondents' familiarity with communicative devices (i.e., communicative habits questionnaire) were performed by means of a one-way analysis of variance (ANOVA), using condition as the

independent variable with three levels (E-mail, Handwritten Letter, and Computer Typed Letter).

There were no differences among conditions in communicative habits (all $ps > .30$) therefore the conditions were comparable (table 1).

Table 1

Means and Standard Deviations of Communicative Habits (conditions combined) together with the one-way ANOVA results (between conditions) in Experiment I

Communication Habits	Scores		F	p
	M	SD		
Surfing on the Internet	3.26	1.52	.22	.79
Using e-mail services	2.49	1.10	.30	.74
Using (just) the computer	3.63	1.77	.88	.41
Writing traditional letters	3.69	1.76	1.07	.34

$df = (2, 60)$

Length

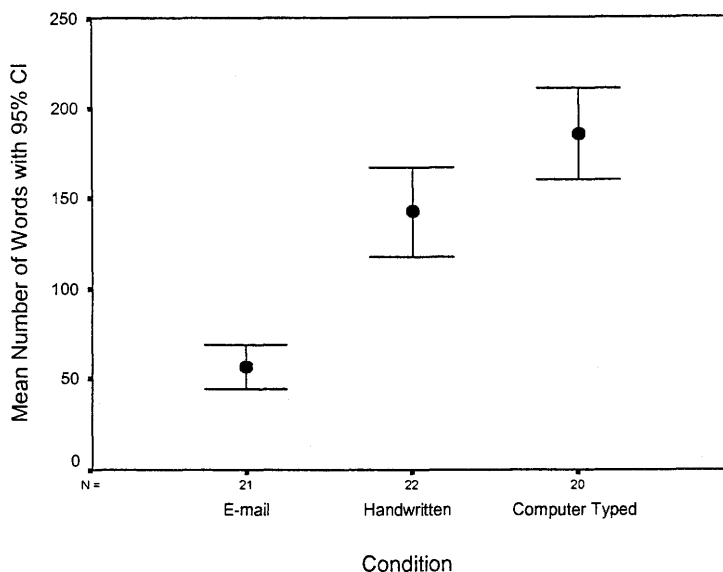
Our first hypothesis was that participants in the E-mail condition would produce shorter messages than participants in the Handwritten Letter and Computer Typed Letter conditions. In this context we also considered the effect of e-mail habituation.

In order to check the role of habituation to e-mail, we used the median split (*median* = 2) of the participants' corresponding score on the questionnaire to divide them into two groups (low and high level of e-mail habituation). The length of each message was calculated by counting all words. A 2 X 3 ANOVA was run with habituation level (High vs. Low) and condition as independent variables, and number of words as dependent variable. Differences on Communicative Condition were tested by means of the Least Significant Differences (LSD) *post hoc* method.

The results show a main effect for communicative condition on the length of messages, ($F [2, 57] = 37.61, p < .001$) but there was not a habituation effect ($F < 1$). The average number of words was 142.63 ($SD = 56.13$) in the Handwritten Letter condition, 56.66 ($SD = 26.07$) in the E-mail condition and 185.60 ($SD = 53.83$) in the Computer Typed Letter condition (see Figure 1). All post-hoc comparisons among conditions were significant ($ps < .01$).

Figure 1 also shows that messages in the Computer Typed Letter condition were longer than in the Handwritten Letter condition ($p < .01$).

Figure 1. Means and standard errors for message length as a function of condition (Experiment I).



Contents

On the basis of the second hypothesis, it was expected that e-mails would have less presence of friendship-related memories but not of information-exchange category. As for the content analysis, an inter-judge agreement rate of 89% was obtained. Each category was counted as present or absent within a particular message and the results were analyzed by chi-square test. In case of disagreement, judges alternated, using the score given by Judge 1 or Judge 2.

In support of the hypothesis, there was an effect of condition for category a (memories about the friendship), $\chi^2(2, N = 63) = 17.19, p < .001$ (see Table 2).

There was also a difference for the frequency of category g (explicit recipient), $\chi^2 (2, N = 63) = 18.20, p < .001$.

Table 2

Frequencies of the Content Categories in Experiment I

Categories	Condition			χ^2
	E-mail (n = 21)	Handwritten (n = 22)	Computer (n = 20)	
a. Friendship memories	4	13	16	17.19***
b. Introduction	19	20	20	nc
c. Resuming	17	21	18	nc
d. Intentions	19	20	20	nc
e. Information	13	17	18	nc
f. Closing formulation	19	19	19	nc
g. Real recipient	6	16	17	18.20***

Note. nc means not calculated since there was at least one cell with an expected value of less than 5.

***p < .001

Only 6 participants in the E-mail condition mentioned a real friend, compared to 16 and 17 in the Handwritten Letter and Computer Typed Letter conditions, respectively. The other participants referred to a generic, unspecified friend.

Regarding the remaining categories, a ceiling effect occurred due to the frequent use that participants made of them in their messages. Hence, no analyses were calculated.

Discussion

Our hypotheses stated that communicating by e-mail, compared to communicating by letter, should result in shorter messages poorer of interpersonal fantasies (i.e., abbreviated messages). In particular, the presence of shared memories about the friendship was taken into account as an index of the interpersonal fantasies, and thought that it would be affected by the speed orientation. This notion was confirmed here. At the same time, there was a ceiling effect for the measure of information-exchange (in all the conditions). The fact that the differences were obtained between e-mail and the other two conditions instead of between the two computer conditions and the paper one, agrees with the idea that e-mail, and not the computer by itself, is a medium affecting the speed-orientation.

As for habituation, in the sense of prior frequency of use of e-mail, it did not affect the length of the messages. This means that the differences observed here cannot be easily attributed to participants' differential familiarity with e-mail. Rather, the data support an

interpretation based in a momentary speed orientation in the e-mail condition. This was exactly our theoretical starting point.

There are two further interesting outcomes to be considered here. First, messages in the Computer Typed Letter condition were longer than messages in the Handwritten Letter condition. One possible reason for this effect is that the participants - undergraduate students - might be more used to typing in computer than to handwriting. That is, writing by hand may require more effort than typing (see Clark & Brennan, 1991).

Second, in the E-mail condition content analysis showed fewer references to a real friend as the message recipient. Maybe this result can be explained by the ready-made friend's address of the E-mail condition. To some extent, this point could also account for the other obtained effects since it could be that the e-mail participants were writing to a non-real friend. Next experiment will address this issue directly.

Experiment II

The results of the first experiment substantially confirmed our initial model, but further research had to be conducted for several reasons. First, since Experiment I was the first of this sort, a replication was desired. Second, we wanted to verify whether the shortage of friendship memories found in the e-mails of the previous experiment was due to a deficit in the memory recalling rather than to other reasons. In case of a memory deficit, we would expect to find a momentary decrement in the capability of e-mail participants for evoking reminiscences about the friendship. Moreover, that incapability should be restricted only to friendship memories but not to categorizing features of the relationship since Wicklund and Vandekerckhove's (2000) analysis states that under speed orientation, people will tend to categorize or oversimplify the communication partner into static categories, such as personality ones. Therefore, if participants are asked to mention recipient's personality traits, no difference among conditions is expected in this respect.

Since the experimental procedures of Experiment I might have influenced the manner in which participants retrieved or represented their respective recipients, participants

were asked for the recipient to be clearly expressed in advance.

Finally, because the speed-orientation thesis considers speed-facilitating devices as tools working against waiting or delaying, there might be a difference in time perception between e-mail and traditional letter conditions. That is, if participants in the e-mail condition were more speed-oriented, the accompanying impatience should result in their perceiving the writing interval to be longer (c.f., Hawkins & Meyer, 1965).

Hypotheses

Message Length and Contents

As in Experiment I, it was expected messages to be longer in the Handwritten Letter and Computer Typed Letter conditions than in the E-mail condition. We also expected participants in the E-mail condition to write fewer memories about the friendship than participants in the other two conditions.

The Availability of Friendship Memories

It was hypothesized that speed oriented people would manifest a lessened promptness to recall memories about their shared experiences with the recipient (i.e., friendship memories) even after the communicative task was ended. Thus, it was expected that participants in the E-

mail condition would retrieve fewer friendship memories that participants in the other two conditions. This hypothesis was tested by means of a free recall procedure (c.f., Waldfogel, 1948).

Personality-traits propensity. Contrary to the previous point, speed-orientation analysis does not expect e-mail participants to be impaired in their capacity of evoking static categories such as personality traits. Hence, no differences between the 3 conditions were expected.

Time Perception

It was expected that participants in the E-mail condition would perceive more elapsed time in the experimental task than participants in the Handwritten Letter and Computer Typed Letter conditions.

Method

Participants

Sixty-nine students from the University of Trieste volunteered to participate. The mean age was 25.1 years (ranging from 20 to 32, $SD = 2.92$ years). Thirty of them were men and 39 were women.

Procedure

The procedure was similar to Experiment I. Participants were recruited individually at the Department

of Psychology for a study on friendship. They entered individually into a room with a desk, a chair, and a computer. As in Experiment I, they were assigned randomly to one of three conditions: E-mail ($n = 23$), Handwritten Letter ($n = 23$), and Computer Typed Letter ($n = 23$). The experimenter began by asking the participant to turn off his/her cell telephone, remove off his/her watch, and to read the instructions. Then the experimenter left the room and started a stopwatch.

The instructions were the same as in the previous experiment except for one aspect. This time instructions asked all participants to recall a distinct, real friend. This was accomplished by means of a short questionnaire about the friend. The questions were the following: (a) First name, (b) first letter of last name, (c) date of birth, (d) country of origin, (e) hair color, (f) height, (g) time passed since the last face-to-face meeting and last indirect contact, and (h) other general information as they wished to add.

Subsequently, the instructions requested the participant to write to the friend. A real Internet service of e-mail, a paper and pen, a word-processor, an envelope, and a stamp were used, depending on the condition. It must be noted that the Computer Typed Letter condition changed

with respect to Experiment I: The size of the writing frame for the word processor was equal to that of the E-mail condition. Participants were free to write as much and for as long as they wished.

At the end of the communication, the participant called the experimenter into the room. At this point the experimenter stopped the stopwatch (i.e., actual time measure), and asked the participant to estimate, in minutes, the time spent for carrying out the entire task (i.e., perceived time measure). Then friendship memories and personality-traits were measured all at once: a free recall procedure with a time limit variant was applied: more precisely, the participant was asked to fill in a sheet with as many memories as possible about the friendship or/and the friend's personality characteristics. The sheet contained 10 numbered spaces to be filled. The experimenter gave the following instructions to all participants (original in Italian):

Now you have two minutes to write on this sheet as many memories about your friendship as you can. These memories may be of two sorts, personality features of your friend, such as "he is intelligent", or events as well as experiences that you have shared with him/her,

such as "we went to the sea together last year". You must write just a short sentence for each of them.

The participant was given two minutes for this task. Finally, the experimenter debriefed the participant, explaining the true nature of the experiment.

Analyses

Length of the message. As in Experiment I, the number of words used by participants was computed for each message. A one-way ANOVA tested the differences between conditions using afterward LSD as *post hoc* method.

Content analysis. The categories used in Experiment I were also used here, with the exception of a (presence of real vs. virtual friend). This is because all participants in this experiment were asked to concentrate on a particular, actual friend. Again, the author and a colleague served as independent judges to assess the presence or absence of each category in every message. A whole agreement rate of 95% was obtained. Category frequencies were calculated exactly as in Experiment I.

Time perception discrepancy. Participants' estimate and actual time were rounded to the nearest minute. Afterward, both time measures and their differences were analyzed.

Free recall procedure. The amount of friendship memories and personality traits written in two minutes by each participant were computed. A one-way ANOVA was used to analyze the total number of written items altogether as well as friendship memories and personality traits separately.

Results

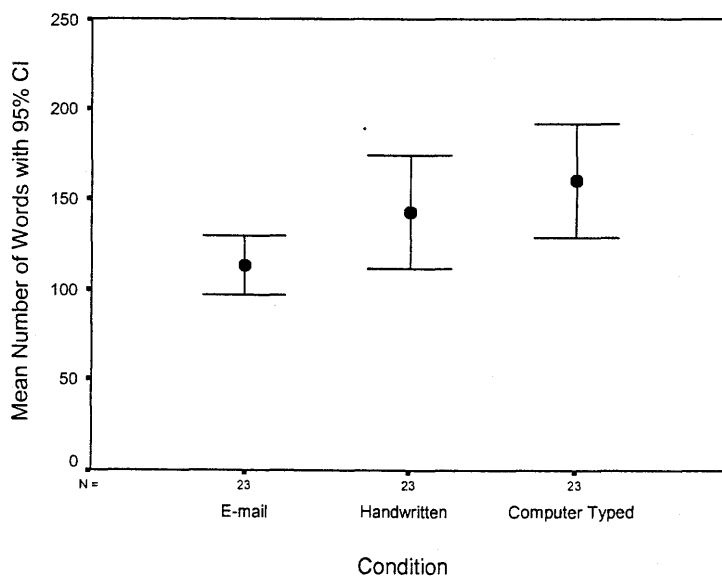
Last Direct and Indirect Contact Check

In order to control whether the participant use of one media rather than another might have caused the recalling of a *qualitative* different friend as the recipient, two one-way ANOVAs were run with, respectively, the time passed (expressed in months) since the last face-to-face meeting and the time passed since the last indirect contact with the recipient as dependent variables, and the communicative condition as independent variable. Results did not show any significant difference due to the communicative conditions concerning the kind of friendship participants recalled. In general, participants chose friends with the same amount of time passed since the last face-to-face meeting and the last indirect contact [$F(2, 64) = 1.3$ and $F < 1$, respectively].

Length

Our first hypothesis was for shorter messages in the E-mail condition than in the Handwritten Letter and Computer Typed conditions. Indeed, as shown in Figure 2, e-mail messages contained fewer words than handwritten and computer-typed letters. There was a main effect for condition [$F(2, 66) = 3.31, p < .05$], and post-hoc LSD comparisons evidenced a significant difference between E-mail ($M = 113.08, SD = 38.47$) and Computer Typed Letters conditions ($M = 160.56, SD = 72.73$), $p < .05$. The remaining two comparisons did not differ ($ps > .05$).

Figure 2. Means and standard errors for message length as a function of condition (Experiment II).



Content

Less presence of friendship memories was expected in the E-mail condition. Table 3 shows the frequencies of the content categories that participants used. The frequency analysis indicated that category a (friendship memories) was the only one with a marginal effect across the three conditions, $\chi^2 (2, N = 69) = 4.53, p = .10$.

Table 3

Frequencies of the Content Categories in Experiment II

Categories	Condition			χ^2
	E-mail (n = 23)	Handwritten (n = 23)	Computer (n = 23)	
a. Friendship memories	7	12	14	4.53*
b. Introduction	21	21	21	nc
c. Resuming	18	18	21	nc
d. Intentions	18	16	18	.62
e. Information	20	16	17	nc
f. Closing formulation	23	21	17	nc

Note. nc means not calculated since there was at least one cell with an expected value of less than 5.

*p = .1

Time Perception

Participants in the E-mail condition were expected to overestimate the amount of time in doing the task, because

of their low tolerance for delaying and waiting. Table 4 shows real time, perceived time, and their difference (rounded off) for each condition as well as the corresponding *F*s.

Table 4

Means for Time in Experiment II

Condition	Means of time in minutes				
	E-mail	Handwritten	Computer	<i>df</i>	<i>F</i>
Real time	12.04	12.30	16.26	(2,66)	3.30*
Perceived time	12.82	11.52	13.39	(2,66)	1.13
Accuracy	-0.78	0.78	2.87	(2,66)	3.72*

* $p < .05$

As shown in the table, accuracy, defined as the participants' precision in estimating actual time, differed across conditions. Post-hoc comparisons indicated a significant difference between Computer Typed Letter and E-mail conditions ($p < .01$). A one-way ANOVA also showed a significant difference across conditions in the real time spent by participants performing the communication task. Post-hoc comparisons were significant between Computer

Typed Letter and both Handwritten Letter ($p < .05$), and E-mail ($p < .05$) conditions.

Free Recall Procedure

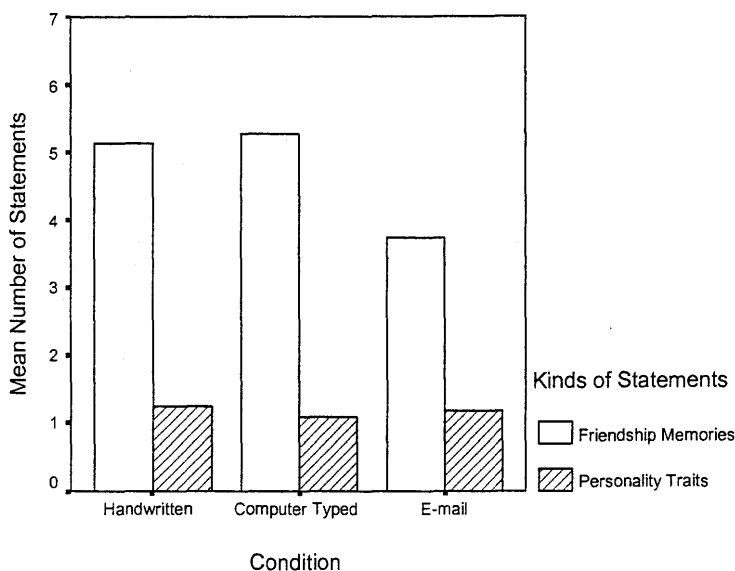
Our last hypothesis was that after the communication participants who had made use of e-mail should retrieve fewer friendship episodes from memory than participants in the postal letter conditions. At the same time, it was also expected that there would be no differences regarding static categories, such as the friend's personality traits.

Total statements. As regards the total number of statements reported by participants (i.e., friendship memories and personality-traits), a one-way ANOVA showed a difference among conditions [$F(2, 66) = 3.86, p < .05$]. Post-hoc comparisons indicated that participants in both the Handwritten Letter and the Computer Typed Letter conditions wrote significantly more statements than did participants in the E-mail condition ($ps < .05$).

Friendship memories. With regard to friendship memories (see Figure 3), there was a significant effect of condition [$F(2, 66) = 3.10, p < .05$]. Post-hoc comparisons showed that participants in the E-mail condition recalled fewer friendship memories ($M = 3.74, SD = 2.11$) than participants in either the Handwritten Letter ($M = 5.13, SD$

= 2.13) or Computer Typed Letter ($M = 5.26$, $SD = 2.52$) conditions ($ps < .05$).

Figure 3. Means for friendship memories recalled and personality traits mentioned as a function of condition (Experiment II).



Personality traits. As it is shown by figure 3, there was no effect of condition on the number of personality traits mentioned [$F < 1$].

Joint Analysis of Friendship Memories (Experiments 1 and 2)

When the chi-squares of the content analysis of friendship memories from experiments I and II were added, there was a substantial difference for the frequency of this content category across conditions, $\chi^2(4, N = 132) = 21.72$, $p < .001$.

Joint Analysis of Message Length (Experiments 1 and 2)

As can be seen in the bottom row of Table 5, when we

pooled the data from the two experiments, number of words was lower for the E-mail condition than for the other two conditions [$F(2, 126) = 25.48, p < .001$]. *Post-hoc* comparisons indicated that the E-mail condition was significantly different from both the Handwritten Letter and Computer Typed Letter ($ps < .001$). Moreover, the Handwritten Letter and Computer Typed conditions were significantly different from one another ($p < .05$).

Table 5

Mean message length for both experiments

Experiment	n	Condition		
		E-mail	Handwritten	Computer
I	(63)	56.66	142.63	185.60
II	(69)	117.45	141.63	158.73
Combined	(132)	89.08	142.13	171.23

The joint analysis also revealed a significant interaction between experiments and conditions [$F(2, 131) = 6.94, p < .01$]. The interaction indicates that the effect of abbreviated communication expected for the E-mail condition was stronger in Experiment I than in Experiment II.

Discussion

Experiment II differed from the first in that all participants had to evoke a real friend as the recipient for their message. The results, with this slightly modified procedure, were again congruent with our expectations.

First, a difference in length persisted across conditions, with e-mail being the shortest messages. Second, the frequency of the content category "friendship memories" still tended to diverge between the E-mail and the other two conditions. Third, and probably more important, in a free recall procedure immediately after the communication task, participants in the E-mail condition reported fewer reminiscences of the friendship, but a quantity of personality-traits similar to that of the other two conditions. These results suggest that participants in the E-mail condition were affected in their promptness to play-through their friendship memories but not in their capability of mentioning their friend's categorical aspects.

Finally, a joint analysis with experiment (First vs. Second) and communicative conditions as independent variables and number of words as dependent variable indicated a significant interaction. Since the only difference between the two experiments was that in

Experiment II we asked participants to make explicit the recipient before the communicative task begun, it is sensible being this change to account for the interaction.

Quasi-Experiment III:

Extending the External Validity

In order to check the external validity of the results of Experiments I and II, a third experiment was developed in which the communicative conditions were as natural as possible. Indeed, someone might argue that the previous results were brought about by the artificial procedures used in those experiments, i.e., the role-taking approach. Another possible interpretation of those experiments, especially for the reminiscences result, is that participants in the e-mail condition were forced to use a communicative setting that was inappropriate for accomplishing the experimental task (i.e., getting in touch with a friend after a long period since the last contact). By this perspective, the reduction of the friendship memories in both the message and the post-task measure was mainly due to the employment, in the e-mail condition, of a recipient with a weaker friendship-tie with the participant. Having participants in a more "natural" condition might permit to rule out this alternative interpretation.

This third study was based on a quasi-experimental procedure (Cook & Campbell, 1979), in that participants were not assigned to the conditions randomly. However, the hypotheses and measures of this study represented, almost completely, an extension of the two previous laboratory experiments. Moreover, it was an occasion for comparing the face-to-face situation with the e-mail and the postal letter modes of communication. Finally, although in the previous experiments a general decrement of perspective taking (i.e., common ground) in the e-mail users had already been indicated by the abbreviation of their messages, this experiment employed a more direct measure for the egocentrism.

Hypotheses

Length

As in Experiments I and II, it was expected messages to be longer in the Handwritten Letter condition than in the E-mail condition.

The Availability of Friendship Memories

As in Experiment II, it was hypothesized that only speed-oriented participants (i.e., e-mail writers) would manifest a decrement in recall of memories about their shared experiences with the recipient.

Egocentrism

The last hypothesis concerned the egocentrism of speed-oriented people: A diminished capacity to take the recipient's perspective was expected among the e-mail participants.

Method

Participants

Seventy-two students (36 women, 36 men) of the University of Trieste volunteered for the study. Their mean age was 24.6 ($SD = 2.58$) for men and 24.8 ($SD = 4.24$) for women. There were three non-random groups: (1) Students who were writing an e-mail to a friend at the University Internet points, (2) students who were talking with friends in a face-to-face, informal setting, and (3) students who were walking through the campus on their way, who were used in the postal letter condition.

Design and Procedure

The quasi-experiment had a basic between-subjects design with communication condition (E-mail, Face-to-face, and Postal Letter) as the quasi-independent variable and message length, friendship memories, and egocentrism as dependent measures.

Procedures. Since the procedures differed slightly between conditions, they are described separately as follows.

(1) In regard to the E-mail condition ($n = 24$), the researcher approached only students who were typing an e-mail in the University campus. Once the researcher was sure that the current recipient was a student's friend, independently of gender, the student was invited to participate in an experiment on friendship communication. Then, the participant was asked to call the researcher before sending the finished message. At this point, the participant was required to count the number of words and then was introduced to an egocentrism measure (Hass, 1984). Finally, the participant had to complete the free recall task about friendship memories (in two minutes) before the debriefing occurred.

(2) The Face-to-face condition ($n = 24$) involved students who were talking to each other in groups of two or three. Here, each student was tested individually right after the agreement to participate in the research. To begin with, participants were introduced to the egocentrism measure, and then they had to do the free recall task by using one of the present friends as a reference.

(3) The Postal Letter condition ($n = 24$) was the most difficult to set up because people usually do not write letters outside their private houses. However, students walking through the campus were stopped and asked for participating in an experiment on friendship communication by writing a letter to a friend of theirs. The researcher argued that this could have been an occasion to get in touch with a friend and provided the students with all the necessary accessories for the task (i.e., an envelope, a stamp, a pen and paper). At the end of the message, participants had to count the number of words and then call the researcher. Immediately after, they had to conduct both the egocentrism and free recall tasks. In order to check the reliability of their intentions, all these participants were asked to indicate whether they would have sent the letter later or not. Yet, all messages have been computed for the statistic analysis, whether the participants intended to send them or not.

It is important to note that the researcher assured all the participants that message contents were not considered in this research since the very beginning.

Measures

Message length. In order to respect privacy and the natural setting of the communication, the researcher asked

the E-mail and the Postal Letter participants to count the number of words of their messages by themselves.

Egocentrism. With the purpose of measuring the level of egocentrism, the Hass's procedure of perspective taking (1984) was used. It consisted in drawing, one at a time, some asymmetric consonants and/or vowels on the forehead and then registering the letter orientation, distinguishing between self-oriented (egocentric) vs. other-oriented (non-egocentric). The letters E, L, G, and R were used to the purpose. Afterwards, every non-egocentric letter was given 1 point and their sum formed an index with endpoints at 0 (Egocentric) and 4 (non-egocentric).

Friendship memories. This measure was alike the one of Experiment II except for the personality traits. Indeed, the participants were just asked to write down, in two minutes, as much memories as possible about their shared experience with the friend.

Results

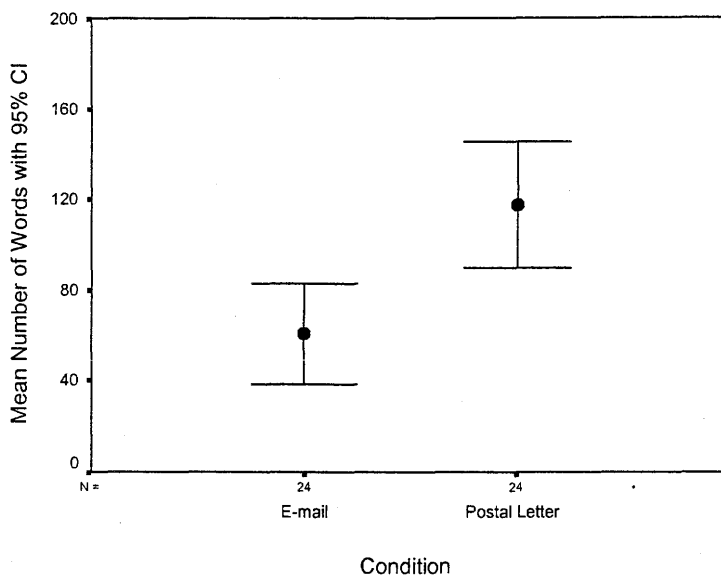
Postal Letter Check

The Postal Letter participants were asked about their intention to send the message later on. Eleven participants gave a positive response to the question (45.5 %) while 12 answered negatively (54.5 %).

Message Length

E-mails were expected being shorter than postal letters. As shown in figure 4, the one-way ANOVA revealed a significant difference between the E-mail ($M = 60.79$, $SD = 53.04$) and the Postal Letter ($M = 117.70$, $SD = 65.67$) conditions [$F(1, 46) = 10.91$, $p < .005$].

Figure 4. Means and standard errors for message length as a function of condition (Quasi-Experiment III).



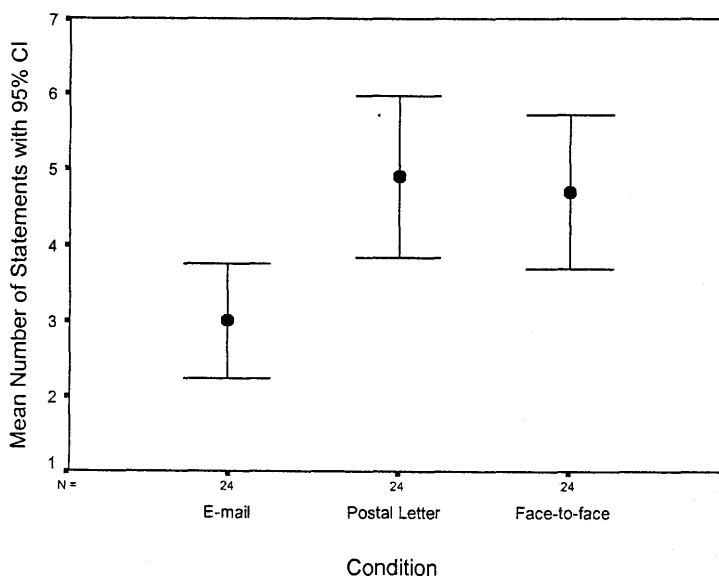
Egocentrism

On the basis of the speed-orientation analysis, we also expected that the e-mail participants would be more egocentric than both the postal letter and face-to-face participants. Contrary to our prediction, the one-way ANOVA showed no significant differences between conditions on the egocentrism index [$F < 1$].

Friendship Memories

In line with the Experiment II results, the e-mail participants were expected to retrieve fewer memories about the friendship. The one-way ANOVA was significant for communication condition [$F(2, 69) = 5.22, p < .005$] (Figure 5). Post-hoc comparisons showed that participants in the E-mail condition recalled fewer friendship memories ($M = 3.00, SD = 1.79$) than did participants in the Postal Letter ($M = 4.91, SD = 2.51$) and the Face-to-face ($M = 4.70, SD = 2.38$) conditions, $p < .005$, and $p < .05$, respectively.

Figure 5. Means and standard errors for friendship memories recalled as a function of condition (Quasi-Experiment III).



Discussion

This third study succeeded in extending the external validity of our previous two laboratory experiments. Indeed, both the message length and friendship memory hypotheses were supported by the present results. Nevertheless, the prediction that the e-mail participants (i.e., speed-oriented) would be more egocentric than the others was not confirmed here. One possible reason could be that the egocentrism index used in this study was not the proper one for measuring the perspective taking as it was conceptualized by Wicklund and Vandekerckhove's (2000) thesis. Drawing an "E" on one's forehead might be too insensitive for participants, i.e., it could grasp just a raw tendency toward egocentrism.

Even with the quasi-experimental limitations of this research (i.e., the presence of relevant potential interfering variables), the results are particularly meaningful in the light of study I and II. Indeed, the laboratory results have been confirmed in a more natural setting. Furthermore, and for the first time, we have been able to compare the Face-to-face condition with both the E-mail and the Postal Letter conditions. As anticipated by the speed communication analysis (Wicklund & Vandekerckhove, 2000), the face-to-face participants were

not negatively affected in their capability for retrieving friendship memories: the memory result of the Face-to-face condition was similar to that of the Postal Letter condition but differed from the E-mail condition. This result is particularly interesting because while e-mail holds some similarity to face-to-face regarding the interactive speediness, the postal letter mode falls short in this characteristic. Yet, it was found that the friendship facet of memory retrieval diverges only among the e-mail writers.

To conclude, the reduced-cues theoretical stance (Short, Williams, & Christie, 1976; Sproull & Kiesler, 1991) would have predicted a different pattern of results with the e-mail and postal letter participants as being equal in their retrieving performance and the face-to-face participants as showing the highest performance on that task. In contrast, the pattern of results supports the Wicklund and Vandekerckhove's (2000) analysis in this respect.

Study IV: A Survey on e-mail in-boxes

In order to get a more reliable picture of the way people make use of e-mail in friendship communication, a 4th study was developed. The main purpose was descriptive and consisted of gathering information on e-mails written in situations more natural than the laboratory.

Previous results in e-mail communication had showed that women usually write e-mails that are more filled with personal content (Boneva, Kraut, & Frohlich, 2001). Furthermore, before operationalizing Experiments I and II, it was suspected that the recipients' gender might affect the message length and content. It is for this reason that those participants were asked to get in contact with a friend of the same sex. Therefore, the present study aimed to describe communication aspects due to sex differences. Moreover, a second aim was to look at which could have been the average length, as well as the frequency of memories in an ordinary friendship message, independently of the communication goal.

Given that the *intimacy level* is an important variable in close relationships and corresponding communications (Clark, Fitness, & Brissette, 2001), the present research also attempted to shed light on the way this factor affects e-mail communication among friends. In

particular, this study attempted to understand the way intimacy is related with both message length and the presence of friendship memories. Clark and Mills (1993) have distinguished between *communal relationships* (such as friendship, romantic relationships and family relationships), in which members feel a special sense of responsibility for the other's welfare, and *exchange relationships*, in which a similar concern does not exist. Previous data supported the general notion that emotions are expressed more often in communal than in other relationships (Clark et al., 2001). Therefore, it is likely that communications are abbreviated and poorer in contents especially among friends perceiving a low intimacy.

The reduced-cues perspective (Short, Williams, & Christie, 1976; Sproull & Kiesler, 1991), as well as the speed communication analysis (Wicklund & Vandekerckhove, 2000) would predict a rich background of face-to-face interactions to be a better predictor of the quality of a friendship than other interaction forms. On the contrary, there are theoretical models (e.g., Walther, 1992; 1993) stating that the quality of a friendship is contact-form independent, i.e., it does not depend on which kind of interactive settings people use. If this position were right, the quality of an acquaintanceship would also depend

on either the relational longevity or the general amount of interactive contact. To distinguish between these two hypotheses, the present survey aimed to investigate the way intimacy level is related to different settings of interaction (i.e., contact forms) such as, face-to-face, e-mail, cell-phone, mail letter, telephone, sms, and chat-line.

Hypotheses

Intimacy Level and E-mail Message

Given the importance of relational intimacy in interpersonal communications, it was expected that the *intimacy level* between the recipient and the sender would be positively related to either the presence of friendship memories or the length of the e-mail.

The Contact Form Hypothesis

It was also hypothesized that the frequency of previous face-to-face contacts (i.e., the original interaction form) would be a better predictor, in the sense of explaining more variance, of the relational (friendship) intimacy than both other contact forms and the relational longevity.

Method

Participants

Ninety participants (56 women, and 34 men) volunteered to fill out a questionnaire. The mean age was 22.41 ($SD = 7.74$) for women and 28.14 ($SD = 8.46$) for men.

Procedure

Participants were contacted in a factory and other workplaces nearby Udine (17.8 % and 12 %, respectively), a research area at the University of Trento (12.2 %), and a professional school at Udine (58.0 %).

Participants were asked to answer a questionnaire consisting of two separate parts. In order to guarantee privacy, they were also asked to fill out the questionnaire at home and return it to the researcher some day later. (A) The first part concerned the actual participants of the study, i.e., the recipients. They had to answer to a slightly changed version of the Communication Habits questionnaire (see Experiment I). (B) The second part consisted in 16 questions referring to the last 5 e-mails stored in the participants' in-box. If there were fewer than 5 stored messages in their in-box, then participants had to consider all the e-mails on hand (from 1 to 4). Eventually, data on 323 e-mails and their respective senders (173 women, and 150 men) were collected. The

senders' mean age was 23.36 ($SD = 7.33$) for women and 27.72 ($SD = 7.99$) for men. Each participant supplied 3 ½ e-mails on the average.

E-mails in-box survey. For each of the e-mails, participants had to answer the following questions about the sender: (a) gender, (b) age, (c) relationship intimacy (from 1 = low intimacy to 6 = high intimacy), (d) friendship length expressed in months, (e) frequency of e-mail contacts in a month, (f) face-to-face contacts, (g) on-line chat contacts, (h) phone contacts, (i) cell-phone contacts, (l) sms contacts, (m) mail letter contacts. The participants had also to tick off whether the purpose of the message was (n) to give information, (o) to ask for information, or/and (p) aimless. To conclude, participants had to check out (q) whether the message contained 0, 1, or more than 1 friendship memory (an instance of friendship memory was given to this purpose), and (r) to count and report the number of words.

The item of relationship intimacy was Aron et al. (1992) "Inclusion of Other in the Self Scale" (IOS). The IOS is a single item pictorial measure that is designed to tap the degree to which each person feels connected to another acquaintance. The scale ranges from 1 (low intimacy) to 6 (high intimacy). Research by Aron et al.

(1992) indicates that the IOS has strong convergent validity with other measures of interpersonal closeness and intimacy.

In order to test both the intimacy level and the contact-form hypotheses, all the data concerning the e-mails (length and memories) and the recipient-sender relationship (contact forms and intimacy level) were averaged within each participant so that each recipient had only one set of values. This was done in order to analyze the data considering the participants of the survey and not their senders. It is worth noting that only 5 out of the 90 participants reported messages coming from the same sender.

Results

Descriptive Analyses

Communication habits. Participants' age (i.e., recipients) served for creating a categorical variable (i.e., younger group and older group) by means of a median-split (i.e., participants under or over 21.5 years). Table 6 shows the data about Communication Habits (from 1 = low, to 6 = high) for both participants' gender and age. For each single item an ANOVA 2 X 2 (gender X age group) was run.

Table 6

Means and Standard Deviations of Communication Habits by recipient's gender and age group (Study IV)

Communication	Men				Women			
	age < 21.5		age >= 21.5		age < 21.5		age >= 21.5	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Surfing	3.3	(1.2)	4.1	(1.4)	3.4	(1.3)	3.8	(1.1)
E-mail	1.8	(.7)	3.5	(1.2)	2.6	(1.3)	3.4	(1.1)
Chat line	1.1	(.3)	1.1	(.4)	1.6	(1.0)	1.1	(.3)
Postal letter	2.2	(.9)	2.1	(.9)	2.1	(.9)	2.3	(.8)
Face-to-face	3.8	(.1)	3.2	(1.5)	4.8	(1.0)	3.5	(1.3)

N = 90

As for gender, the ANOVA revealed that women reported communicating more often in *face-to-face* modality ($M = 4.39$, $SD = 1.34$) than men ($M = 3.44$, $SD = 1.41$) [$F(1, 86) = 4.10$, $p < .05$].

As regards age groups, younger participants reported spending less time than the older ones in both the e-mail ($M = 2.46$, $SD = 1.25$; $M = 3.48$, $SD = 1.19$, respectively) and surfing the Internet ($M = 3.40$, $SD = 1.28$; $M = 4.00$, $SD = 1.34$, respectively) [$F(1, 86) = 3.63$, $p < .1$, and $F(1, 86) = 26.65$, $p < .001$ respectively]. By contrast, younger

participants reported communicating face-to-face ($M = 4.66$, $SD = 1.14$) significantly more than the older ones ($M = 3.40$, $SD = 1.43$) [$F(1, 86) = 9.81$, $p < .01$].

No interactions were found between gender and age regarding the Communication Habits questionnaire.

Message length and friendship memories. Data show that e-mails were composed on the average of 121 words ($SD = 124$). Data also show that 148 out of 323 e-mails did not include any Friendship Memories (see table 7).

Table 7

Number of Messages and words by Friendship Memories and Senders' Gender (Study IV)

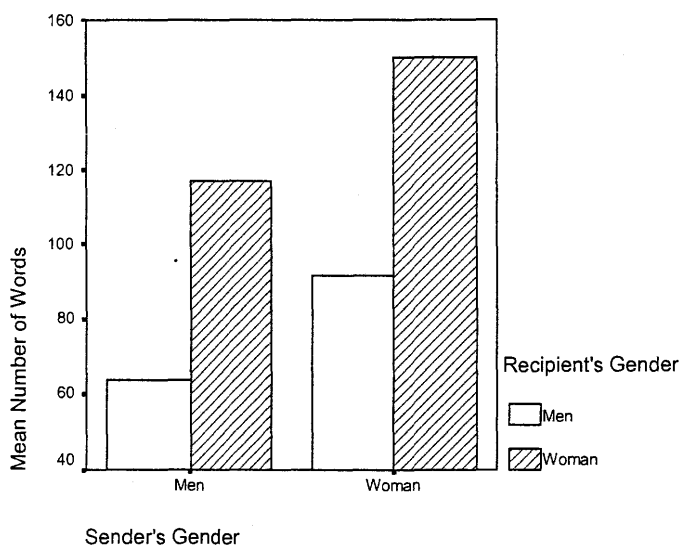
Memories	Men		Women		Total	%
	E-mails	Mean Words	E-mails	Mean Words		
None	80	92.76	68	111.41	148	45.8
= One	32	66.68	43	117.04	75	23.2
> One	38	108.73	62	162.16	100	31.0
Total/mean	150	91.24	173	131.00	323	100.0

Gender differences. Independent of the recipient's gender, female senders typed more words ($M = 131.00$, $SD = 137.00$) and recalled more friendship memories ($M = .96$, $SD = .86$) than men ($M = 91.24$, $SD = 104.40$; $M = .72$, $SD = .84$). As can be seen in Figure 6, men wrote fewer words

when the recipient was a man ($M = 63.79$, $SD = 60.82$) than a woman ($M = 117.27$, $SD = 128.28$). Likewise, women wrote fewer words when the recipient was a man ($M = 91.84$, $SD = 94.10$) than a woman ($M = 150.24$, $SD = 150.87$).

As regards friendship memories, data paralleled the previous ones. While men writing to women made use of more Friendship Memories ($M = .85$, $SD = .91$) than men writing to men ($M = .57$, $SD = .74$), women writing to women used more Friendship Memories ($M = 1.06$, $SD = .86$) than women writing to men ($M = .75$, $SD = .85$).¹

Figure 6. Number of words as a function of the sender and recipient's genders (study IV).



Friendship Intimacy and Contact Forms

First, it was hypothesized that friendship intimacy

¹ The analysis of these results was limited to descriptive statistics because the data from the senders were not independent of the participants, since the 90 recipients provided us with 323 messages and their corresponding senders.

would be positively related to the message length and the presence of memories. Second, it was also expected that face-to-face, when compared with both other contact forms and friendship longevity, would be the best predictor for the friendship intimacy. Table 8 shows the whole range of pertinent correlations.

Table 8.

Correlations among Friendship, Message, and Contact Forms (Study IV)

	Friendship		Message	
	Length	Intimacy	Length	Memories
Friendship				
Length	1	-	-	-
Intimacy	ns	1	-	-
Message				
Length	ns	.28**	1	-
Memories	ns	.20**	ns	.1
Contact Forms				
Face-to-face	ns	.34***	.28***	.35***
Cellphone	ns	.24**	ns	.20*
Telephone	ns	.20*	ns	ns
Sms	ns	.26**	ns	.28***
E-mail	ns	.27***	ns	.19*
Chat-line	ns	ns	ns	ns
Postal Letter	ns	ns	ns	ns

* $p < .1$, ** $p < .05$, *** $p < .01$ ($N = 90$)

In line with the first hypothesis, Friendship Intimacy was positively correlated with the Message Length and the amount of Friendship Memories, i.e., the stronger the relational intimacy perceived by the recipient, the longer and with more memories the e-mails.

Regarding the second hypothesis, almost all the contact forms were significantly related to the Friendship Intimacy (see Table 8), i.e., the more the monthly contact, the more the intimacy perceived by the recipient. Consistent with the hypothesis, relational longevity was not related to Friendship Intimacy.

To test the idea of face-to-face frequency of contact being the best predictor for friendship intimacy, a regression was run to determine the effect of any contact form on the relational intimacy. First, all the contact forms were entered (i.e., Telephone, Cellphone, Sms, E-mail, Postal letter, and Face-to-face) for predicting Friendship Intimacy. The result of this analysis showed a significant regression model indicating that, in general, contact factors explain 18.7 % of the intimacy variance [R^2 change $F(7, 82) = 2.68, p < .05$]. Among all the contact forms, only the e-mail ($\beta = .23$) and face-to-face ($\beta = .26$) frequency of contacts had significant effect on the

intimacy level perceived by the recipient [$t = 2.00$, $p < .05$, and $t = 1.95$, $p < .06$, respectively].

Discussion

The first part of this study was descriptive and consisted in gathering information about participants' communication habits and gender-related differences in e-mail communication. Furthermore, age differences were also taken into account. The data indicated an age-related difference in the communication habits so that younger participants reported spending less time in the Internet for surfing and typing/reading e-mails, but more time in the face-to-face interactions. There are, of course, many factors that could account for this difference. For instance, having a job and a family-like lifestyle could make for a reduction of external and informal social activities in older people. Second, women generally indicated to have more face-to-face interactions than men. Consistent with the Boneva et al.'s study (2001), e-mail data showed that women usually type messages that are longer and with more memories than men.²

² In light of Boneva et al. (2001) and our 4th survey results, two one-way ANOVAs were run for testing the presence of this gender-related effect on e-mail communication in Experiments I and II. As regards the first experiment, the ANOVA did not support the effect ($F < 1$) whereas the second experiment provided only marginal support for the gender effect [$F(1, 67) = 2.71$, $p = .10$].

Moreover, when both sender and recipient genders were taken into account, data about message length and friendship memories answered to the gender concern of Experiments I and II: Male and female senders communicated differently depending on the recipient's gender. More precisely, (a) women typed longer e-mails when the recipient had the same sex while (b) men typed longer e-mails when the recipient was a woman.

As for the relation between the presence of friendship memories and message length, participants reported that the e-mails written by male senders without memories ($N = 80$) were longer ($M = 92.76$) than those with one memory ($N = 32$, $M = 66.68$). Hence, this pattern of data seems to indicate that, at least for male senders, there was not a direct relationship between length and number of memories.

The first hypothesis stated that relational intimacy would be related positively to the quality of the message (Clark et al., 2001). As expected, the data supported this idea. Put in the broadest perspective of the present thesis, this result enables to single out another psychological variable that is negatively associated with abbreviated communications, i.e., the relational intimacy between communicators.

The second hypothesis maintained that the frequency of previous face-to-face contacts explain more variance of the friendship intimacy than both other contact forms and the relational longevity. In this case, the pattern of results is a bit more complicated.

(A) On the one hand, in line with the hypothesis, the friendship longevity did not correlate with the intimacy variable. This result partially contrasts with the information-processing perspective (Walther, 1992; 1993), which states that people in poor communicative settings may simply take longer to reduce their uncertainty about one another so to improve their relational quality. In other words, present data evidence that longer acquaintances did not imply a perception of stronger intimacy.

(B) On the other hand, the data lend support to this notion: The more the contacts between two friends on a monthly basis, the higher the intimacy perceived by the recipient. This result seems to agree with the idea of relational quality as contact-form independent because relational intimacy was positively related to all contact forms. However, when it has been sought to see which one of the communication settings was important in explaining friendship intimacy, a relational contact-form dependent result emerged so that data from the regression analysis

indicated that e-mail frequency of contact ($\beta = .23$) was about as important as face-to-face ($\beta = .26$). Notice though, that it might be that this result was due to the nature of the survey since all data referred to friendships that were partially kept by means of the e-mail. Interesting, no correlation was found for postal letter and chat-line communicative settings. This is, likely, because most participants reported to not make use of these communicative modes.

The present research aimed to collect as many natural e-mails as possible without invading the individuals' privacy. However, there was an important shortcoming that might have happened and could not be ruled out. Actually, it would be possible that participants deleted their e-mails from the in-box very soon but left the ones important or significant to them. In this case, most of the e-mails that participants provided for the survey could not be viewed as representing the communication behavior we intended to investigate.

This could also explain why the e-mails collected in this survey were, on the average, longer than those of the

Experiment I, II, and III.³

To conclude, despite its limitations, this study on e-mail communications allowed us to show the effect of two further aspects regarding abbreviated communication: Gender and relational intimacy. To sum up, therefore, there seems to be at least four factors promoting abbreviated communications: 1) high level of behavioral haste, 2) the availability of speed-facilitating devices, 3) low level of relational intimacy among communicators, and 4) communicators' gender (i.e., men are more likely to abbreviate their communications than women, especially among themselves).

³ In order to compare the length of the e-mails throughout the four studies, a one-way ANOVA was run with Study Number as an independent variable with 4 levels (i.e., study I, II, III, and IV) and number of words as dependent measure. Results indicated that the number of words varied significantly depending on the study [$F(3, 154) = 5.31, p < .005$]. The Least Squared Means post hoc comparisons showed significant differences among studies I and II ($p < .01$), I and IV ($p < .01$), II and III ($p < .01$), and, finally, III and IV ($p < .01$).

- III -

The Motivational Side of the Issue

Motivation is defined as the psychological factor that sustains behavior (e.g., Lazarus, 1991; Lewin, 1926; Ryan & Deci, 2000; Weiner, 1975) and relies on both *inner-produced* and *outer-produced* stimuli-feedback (Elliot, 1954). What should vary across different activities is the priority given to these inner or outer motivational origins in a certain situation (Lewin, 1943; Ryan & Deci, 2000).

For instance, an everyday face-to-face conversation is rather different from writing a letter to a friend. The former activity can be considered as a "co-constructed" act since a person is strongly affected by what is going on into the actual context. The participants' motivation to interact can be modified by the way that reciprocal communication stimuli-feedback occurs. For instance, consider a person (A) who is interacting with another (B) who feels very hungry or hurried (i.e., strongly goal-oriented). Such a person (A) will soon face the closure of the interaction, because that partner (B) will strive to shorten the interaction feedback (e.g., disregarding the partner's stimulation) in order to go to eat or go on about his or her business.

Conversely, in writing a postal letter, a person is alone, searching for useful thoughts (i.e., self-produced stimulation) to make meaningful expressions. Indeed, in such letters, the motivational side of communicative behavior-regulation is more a "private" fact because nobody is "out there" to monitor and reawake the writer's involvement or shifts of attention, or, in other words, to collaborate in the mutual behavioral stimulation and regulation. In writing a letter, the communication length and content richness is completely up to the writer's psychological state at that moment and the corresponding self-produced stimulation.

Toward an Attention Model of Human Interactions

Along this line of reasoning, it is sensible that the way attentive processes work differs depending on the expected flow of interactive stimulation since it could be either inner or outer-produced. In a face-to-face interaction a great amount of the actors' attention must be directed to the external context for the occurring *sensory stimulation*, while in writing a postal letter only a minor amount of attention - the amount necessary to check the occurring outcomes on the page or monitor - should be externally directed.

The Motivation in Speed-Oriented Communication

Wicklund and Vandekerckhove (2000) hypothesized that speed-communication devices could become a way for substituting communicative goals that people use to pursue by means of the face-to-face communication. These authors referred to Lewin (1951) in order to clarify what they mean as "substitution", claiming that for one activity to be a substitute of another, it must share either similar motivational roots or behavioral forms (Mahler, in Lewin, 1951).

If two similar communication means, such as e-mail and postal letter, were compared within the Wicklund and Vandekerckhove (2000) theoretical framework, only e-mail should be a suitable modality for substituting face-to-face communications because only it allows reaching the recipient quickly. Even though e-mail has been considered equal to postal letters regarding its conversational constraints (Clark & Brennan, 1991), the e-mail property of an immediate message delivery could engender in its users a perception of similarity with the face-to-face communicative setting.

Given this "speediness similarity" between the face-to-face and e-mail modalities, it might be that people communicating through e-mail tended to shift their

attentive resources outward, to the environment, and to decrease their *self-stimulation activities*, exactly as they would do for catching the potential sensorial stimulation in ordinary face-to-face situations. As a result, people might be inclined to transform the communication accordingly to a face-to-face situation with a corresponding search of external support (i.e., multidimensional stimulation). In other words, people communicating by e-mail would automatically look for outer-produced stimulation to sustain their communication behavior.

Wicklund and Vandekerckhove (2000) pointed out that the similarity of speediness existing between face-to-face and certain communication devices, such as e-mail, would end when the message is occurring because of the lack of external multidimensional stimulation-feedback. In general, e-mail does not permit full-dimensional feedback (e.g., optical, tactile, and kinesthetic), an aspect that is integral in face-to-face communication (Daft & Lengel, 1984; Kiesler, Siegal, & McGuire, 1984; Locke, 1998; Wicklund & Vandekerckhove, 2000). Hence, this multidimensional feedback should play an important role in triggering, sustaining, and regulating the actors' motivation and communication behaviors throughout the

informal face-to-face interaction and further similar interactive situations.

To sum up, people involved in e-mail communications would perceive an on-line interaction similar to face-to-face because of the speediness (Wicklund & Vandekerckhove, 2000) that, in turn, would orient their attentive resources to implicitly expect for external multidimensional stimulation-feedback. This, though, would be missing and as a consequence, a motivational drawback might occur because of a reduced self-produced stimulation.

Experiment V: On Zeigarnik's Track

The purposes of this work were (A) to test the motivational shortcoming expected in the e-mail communicators (see the preceding analysis), and (B) to investigate whether different motivational patterns would affect the attentive orienting. Hence, it was expected that individuals who wrote e-mails would have a lower amount of motivation and would be more sensitive to the external stimulation than individuals who wrote a postal letter. This sensitiveness to external stimulation was understood as an indicator of the outward vs. inward attention.

Method

Zeigarnik (1927) found that people who were interrupted during a memory task tended to have a better performance

than people who were not interrupted during the same task. Lewin (1926) provided the basis of Zeigarnik's experimental results with a motivational perspective: When an unexpected interruption occurs during a task or an activity, the motivational tension is greater than for non-interrupted tasks/activities because the individuals' motivational system of tensions is full-engaged in pursuing the task-related goal. Lewin (1951) intended this motivational system of tensions as the "driving factor" that both enables and sustains the behavioral and mental activities. Thus, a high level of motivational tension would engender a high level of "muscular motion" and/or cognitive processing. Lewin (1951) explained the Zeigarnik's effect as an increase in the amount of mental activity (i.e., memorization) due to the differences in the motivational system of tensions of interrupted and non-interrupted people.

The Zeigarnik's method was used here to test the hypothesis that e-mail communicators suffer from a motivational decrement and are more sensitive to the external stimulation than postal letter communicators. This was accomplished by interrupting both e-mail and postal letter communicators. Then, the memorization of the

interrupted activity and the sensitiveness to outer-produced stimulation were measured.

Furthermore, in light of experiments I and II, the present experiment also took into account the salience of the message recipient (fixed vs. free) as a potential independent variable affecting both communicators' motivation and sensitiveness to outer-produced stimulation.

Participants

Sixty-one students (34 women, and 27 men) of the University of Trieste participated in this experiment for either course credits or as volunteers. The data from one participant were discarded because of a misunderstanding of the instructions. Therefore, analyses were conducted on data from 60 participants. The mean age was 24.9 ($SD = 3.35$) for men and 24.0 ($SD = 3.00$) for women.

Materials

Experimental room. There was a large desk with a computer placed on the left side and a bottle of water located on the opposite corner. A clone-monitor was placed outside the experimental room. It was connected with the computer installed in the laboratory so as to show the same output of the one inside.

External stimuli. To be able to generalize across different types of stimuli, two kinds of external stimuli were used: A complex set and an ordinary one.

Complex stimuli consisted of four colored sheets identically printed in both sides, with a number from 2 to 5 written in the middle. Each of them contained geometrical figures: The red one was page number 2 and had three white circles forming a triangle; the yellow sheet was page 3 and presented three triangles forming a column, the green one was number 4 with nine small circles grouped three by three depending on the colors (respectively white, red and yellow). Finally, the blue one was number 5, and it had two circles both colored one-half in red and the other half in yellow.

Ordinary stimuli consisted of seven small common objects: a pen, a pencil, a CD-ROM, a floppy disk, a bunch of keys, a tube of glue and a highlighter.

Design

The experimental design was a 2 by 2 between subjects with Communication Device (E-mail vs. Postal Letter) and Recipient Salience (Free vs. Fixed) as independent variables, and both the Interruption Point and number of External Stimuli recalled as dependent variables.

Procedure. Participants were tested individually and randomly assigned to one of four possible conditions. The experimenter introduced the participants into the laboratory and let them sit on the desk chair. The experimenter went out after telling them to read and follow accurately all the guidelines included in three instruction and procedural pages, and starting a stopwatch.

The first sheet thanked the participants for the collaboration and assured them that the data collected would remain confidential. In the second sheet, every participant was asked to think about a friend of the same sex with whom they had not contacted for some time. Then, only participants in the condition with the fixed recipient had to answer to the following questions about that friend: First name, the first letter of the last name, birthday, country of origin, the color of eyes and hair, height, and for how long they had not seen/heard each other. A few spaces for free observations were also included.

The third sheet asked all participants to imagine getting in touch with the friend just recalled by means of an e-mail program (e-mail condition), or typing a letter with a computer word program (postal letter condition), both already available in the computer monitor. Hence, both Communicative Device levels were manipulated through the

computer: Depending on the condition, the Italian yahoo mailbox or a blank page of a word program were used. In order to keep the size of the communication space constant across all conditions, the blank word page was reduced to fit the dimension of the e-mail page. Furthermore, to increase the plausibility of the situation, an envelope with a stamp was placed close to the keyboard in the Postal Letter condition.

While participants were doing the experimental task, the experimenter was standing in another room equipped with the clone monitor. This room did not have an independent exit door and thus, whoever wanted to exit from that room had to pass through the laboratory.

At the beginning of the fourth line of the participant's communication, the experimenter entered into the laboratory pretending to get some materials to a colleague. The material consisted of a box, several written sheets, and all the external stimuli. Before entering into the laboratory, the experimenter switched off the stopwatch in order to control the interruption time among conditions. On his way through the exit door, the experimenter "accidentally" knocked against the bottle of water placed above the desk. While he was trying to grab the bottle he made all objects and sheets fall into the corner of the

room. At this point he stopped the participant with the following words (original in Italian), "I'm sorry but you have to pause the experiment here because I have disturbed you. Please help me to pick up all materials on the ground, because I'm in a hurry".

The experimenter collected all the written sheets, whereas the participant picked up all the rest (i.e., the objects and the colored sheets). While the participant was doing this assignment, the experimenter asked her or him to control whether the colored sheets were still ordered by their central number. Doing this, the experimenter constrained the participant to watch all the figures. Later, the researcher put all objects, colored and written sheets in the near box, and asked the participant to sit down on a chair looking to the wall. When the participant was sat down, the experimenter said, "I'm very sorry for what's happened but I did all on purpose to accomplish the experiment. I figure out that you might feel surprised but all things will be clearer at the end of the experiment. Please, now you must watch the wall till I tell you to stop".

After that, the experimenter saved the computer communication in a record file and erased all from the monitor (this procedure took about 30 seconds). At this

moment, he told to the participant, "Ok! Now you must rewrite everything using the same words, punctuation marks and the sequence you used before. When you will arrive at the interruption, whatever it was, you have to mark it with an asterisk and then to continue your communication as nothing had happened. No more interruptions will occur. Call me at the end". Last, the experimenter went out the room. When the participant called the experimenter in, the recall of external stimuli was measured. Finally, the participant was informed about the real purpose of the experiment and debriefed.

Measures

Asterisk displacement. A dichotomic variable was created that consisted in whether participants placed correctly or incorrectly the asterisk. For example, if the last written word before the interruption had been "look", the correct answer would have been placing the asterisk immediately after that word ("look *").

Common stimuli. The experimenter questioned the participant as follows: "Do you remember when I interrupted you? You picked up many little objects. Could you please tell me as many of them as you remember?" This measure could have a range from 0 (no ordinary objects recalled) to 7 (all ordinary objects recalled). When the participant

ended recalling the objects, the experimenter repeated all the mentioned objects and went through the last measure.

Complex stimuli. This measure consisted of all features of colored sheets that the participant could recall. The following list of questions was prepared in advance (original in Italian):

"Now think only about the colored sheets you picked up. Tell me as many things as you can about them. (a) Could you tell me their colors and correspondent numbers? (b) Which figures do you remember on them? (c) Could you tell me in which sheet and arrangement figures were plotted? (d) Do you remember the color of those figures? (e) Do you remember any further detail?"

Finally, the experimenter repeated all features remembered in order to be sure that participants did not have anything else to add. Each feature correctly recalled counted 1 point for an overall range from 0 (no features recalled) to 22 (all features recalled).

Results

Interruption

It was hypothesized that participants in the E-mail conditions would be less accurate in remembering the interruption point due to their lower motivation in the communication than participants in the Postal Letter

condition. Furthermore, the last up to the interruption point and the credibility of the accident were checked.

Interruption check. The ANOVA did not show significant differences in the minutes spent by participants up to the interruption point in the E-mail ($M = 4.66$, $SD = 2.50$) and Postal Letter ($M = 5.00$, $SD = 2.30$) conditions [$F(1, 58) < 1$]. This means that all participants were stopped approximately at the same moment during the task.

Moreover, participants were asked about the credibility of the interruption accident fabricated by the author. All the participants but one (98%) believed the accident to be true and without any experimental purpose.

Interruption point. A frequency analysis of the Asterisk Displacement (Correct vs. Incorrect) was computed considering the two independent variables (Communicative Device and Recipient Saliency). The overall analysis indicated a significant difference in the frequency of the asterisk precision across the 2 X 2 conditions, $\chi^2(1) = 7.83$, $p < .05$ (Table 9).

Furthermore, the asterisk displacement was compared across the Communicative Device conditions revealing that participants in the Postal Letter condition placed the asterisk in the right place significantly more times (15)

than participants in the E-mail condition did (6), $\chi^2 (1) = 5.93, p < .025$.

Table 9

Analysis of frequencies for asterisk precision across conditions (Experiment V)

Communicative Devices	Asterisk Displacement					
	Recipient Fixed			Recipient Free		
	<i>n</i>	Correct	Incorrect	<i>n</i>	Correct	Incorrect
Postal Letter	15	9	6	15	6	9
E-mail	15	2	13	15	4	11
Total	30	11	19	30	10	20

Note. The values represent frequency of correct and incorrect asterisk displacement through all conditions.

By contrast, there was no significant difference when the Recipient Salience was taken into account, $\chi^2 (1) < 1$.

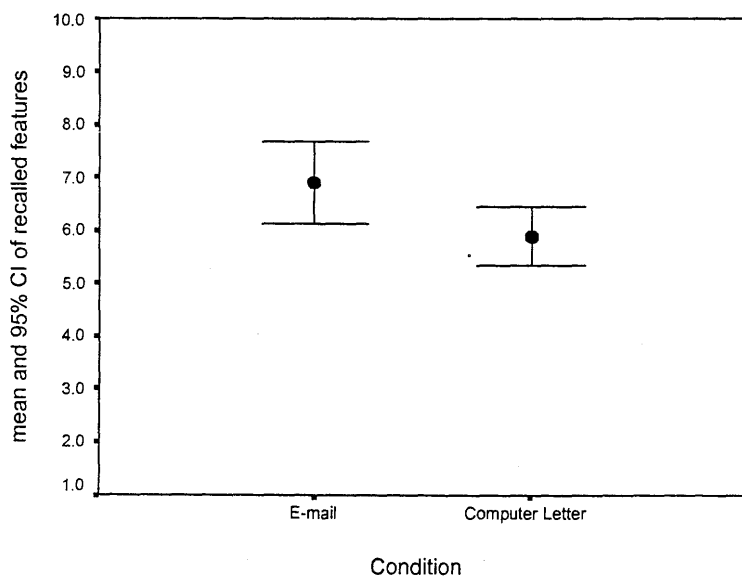
External Stimuli Memorization

The hypothesis was that the participants' attention in the E-mail condition would be more outward oriented and this would result in more memorization of both ordinary and complex external stimuli. Both these measures were analyzed by means of a 2 (E-mail vs. Postal Letter) by 2 (Free vs. Fixed recipient) ANOVA.

There were not significant differences between the recalling of common stimuli in the 4 conditions [$F(3, 56) < 1$]. The mean of recalled ordinary objects was 3.36 ($SD = .16$).

The ANOVA for complex stimuli showed significant differences across conditions [$F(3, 56) = 2.78, p < .05$]. Subsequent analysis showed a main effect for Communicative Device [$F(1, 56) = 4.72, p < .05$] (see figure 7), but not for Recipient Salience [$F(1, 56) < 1$].

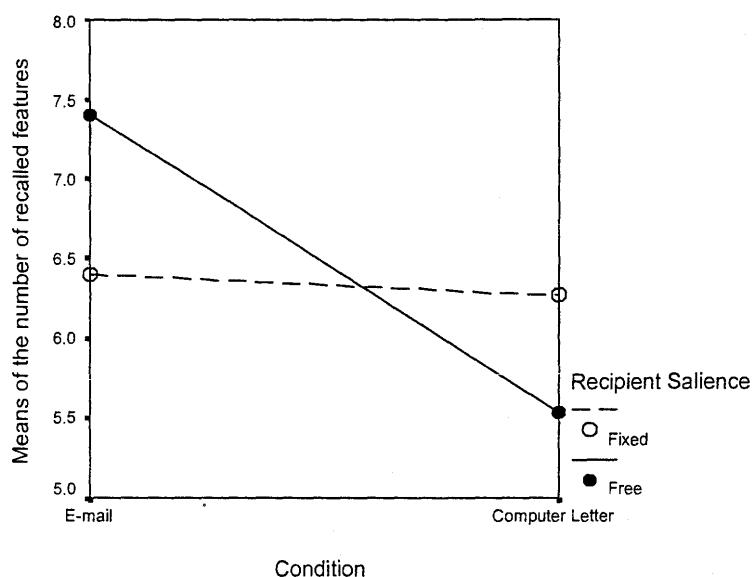
Figure 7. Communicative Device main effect on complex objects features correctly recalled (Experiment V).



As shown in figure 8, there was an almost significant interaction [$F(1, 56) = 3.54, p < .10$] indicating that when the Recipient Salience was free, participants in the

E-mail condition tended to retrieve more features of complex stimuli ($M = 7.40$, $SD = 2.41$) than participants in the Postal Letter condition ($M = 5.53$, $SD = 1.40$). In contrast, there were no significant differences between the two communicative devices when the recipient was fixed.

Figure 8. Interaction plot between Communication Devices and Recipient Salience with mean recalled features of complex stimuli as dependent variable (Experiment V).



Discussion

The results sustained the experimental hypotheses in that participants in the E-mail condition remembered fewer times the interruption point and were more sensitive to the outer-produced stimulation (i.e., to the external complex stimuli) than participants in the Postal Letter condition.

Generally speaking, people who type letters to a friend focus more their attention in the communication task than people who type e-mails.

The present data must be interpreted in light of the outlined interactive analysis so that the higher the number of external stimuli retrieved by a participant, the more the sensitiveness to the external stimulation-feedback. Moreover, the results are against the interpretation based on a general cognitive drawback due to the speed orientation state. Actually, if the e-mail participants had suffered from a general cognitive drawback, their performance in the retrieval of the external stimuli would not have been better than that of the postal letter participants.

There was no difference in memory retrieval for the simplest incidental stimuli. On the basis of the motivational perspective on interrupted activities given by Lewin (1951), the interruption might have had a global positive influence for memory in both the e-mail and the postal letter participants since both the activities were interrupted. Hence, differences between conditions resulted only for the subtlest variables of the exact interruption point and the memory of complex incidental stimuli.

The interaction between the Recipient Salience and the Communication Device on complex stimuli memory showed that when participants were constrained to focus themselves on the recipient, differences in external sensitiveness due to communicative conditions tended to fade. Maybe, constraining participants to focus on a distinct recipient before typing the message might be helpful in counteracting the speed communication state.

In conclusion, results of the present study were consistent with the abovementioned interaction model. Given its speed-facilitating property, the e-mail mode of communication engendered a motivational and cognitive pattern akin to the face-to-face one: Attentive resources tended to be outward-oriented for catching sensorial stimulation, which, though, was missing. It is as if speed-facilitating devices gave people the impression of "the give-and-take of the original interaction, *which* is guided, *as well as partially motivated* [my italics] by mutually-given cues. These are the glance, the stare, the tone of voice, and the scarcely describable tactile components" (Wicklund & Vandekerckhove, 2000: 193).

- IV -

Written Communication and Behavioral Plans:

An Integrative Perspective

Are people aware of potential differences between the e-mail and postal letter communicative styles? In other words, if the body of a message is given to individuals, would they recognize by which device it has been written? In a sense, this is an important question to respond to because it concerns whether or not the e-mail speed-communication effects are transparent to people. Indeed, it might be that the people knowledge on the functioning of a communicative means affected their communicative behavior in that modality. More specifically, this knowledge might serve as *social norms* guiding specific communicative behaviors.

Social norms consist in shared beliefs referring to what are the fitting behaviors that people are supposed to undertake in specific circumstances. Similarly, Schank and Abelson (1977) referred to the concept of *script* for describing the appropriate, as well as predictable sequence of events for a distinct context. With this notion, they attempted to portray the way in which social norms are organized into human mind so that individuals can interpret and behave as expected by the society. In their classical

example, the "Restaurant Script", these authors considered how the restaurant concept activates a specific set of typical expectancies (e.g., to have a dinner) and behavioral plans (e.g., to order a drink, to pay the bill). A script is a psychological structure made up of slots and requirements about what can fill those slots (e.g., the slot "ordering" can be filled in with "choosing the dishes" or "calling the waiter") and serves as a frame for coordinating behavioral plans related to specific sets of sub-goals.

In the following part of the thesis, there is an attempt to integrate the speed communication analysis (Wicklund & Vandekerckhove, 2000) with both the behavioral planning (Miller, Galanter, & Pribram, 1960) and the script theories (Schank & Abelson, 1977). Actually, the task "getting in touch with a long-lost friend by a written message" could be considered as an *instrumental script* serving as cognitive structure by which to address a specific set of *behavioral plans* for achieving the communicative task. Indeed, the content analysis of Experiments I and II showed that the e-mail and postal letter messages were very similar, except for the frequency of friendship memories, so that a common structure of 6

behavioral plans (Miller et al., 1960) could be singled out as follows:

1. Introduction (e.g., Dear friend)
2. Resuming the relation (e.g., Sorry for not having written to you sooner)
3. Updating the relation with new information (e.g., I got married, I bought a new car)
4. Friendship memories (e.g., Do you remember when we fished together last year)
5. Future intentions (e.g., I would like to see you)
6. Closing formulations (e.g., Write me back, bye)

Notwithstanding the strong similarity between the e-mail and postal letter messages, Experiments I and II showed that e-mails were more abbreviated and less filled with friendship memories than postal letters, as if the communication modality affected the actualization of the communicative script. This might be due to a difference in social norms associated with both communication modalities. Thus, it might be that social norms related to the e-mail and postal letter communicative channels set up some differences in the script *preconditions* (see Schank & Abelson, 1977) and the resulting behavioral coordination of, in our case, "getting in touch with a friend by a written message". Given that social norms are generally

transparent to people, this hypothesis requires that people are aware of differences in carrying out the same communicative task through different modalities.

Study VI: What do people know?

This research aimed to investigate (a) whether people can recognize if a message is an e-mail or postal letter, and, in the affirmative case, (b) which clues people rely on to recognize the origin of a message. Further, (c) since people had written within these two communicative settings differently (see Experiments I, II, and III), it was interesting to ask the current participants about their corresponding communication feelings and behaviors.

Hypotheses

The Origin of the Message.

It was hypothesized that individuals would be able to recognize whether a message was an e-mail or a postal letter because of a difference in the social norms associated with these two communicative channels.

Communication Feelings and Behaviors.

It was also anticipated that individuals would indicate feeling and behaving differently with each communication device (e-mail vs. postal letter).

Method

Participants

One hundred fifty-seven students (73 men, and 84 women) from the University of Trieste volunteered to take part in the survey. The mean age was 26.34 ($SD = 4.64$) for men and 24.10 ($SD = 2.45$) for women.

Procedure

The survey consisted in a booklet handed out individually to students at the University campus of Trieste. The booklet had three different parts: (A) The Communication Habits questionnaire (see Studies I and IV), (B) the body of 1 among 8 possible messages without any device e-mail or postal letter specification, and (C) two further questionnaires, one for the e-mail and the other for the postal letter, concerning the way the participant usually deal with these devices.

The message. After being introduced to the study and filling out the Communication Habits questionnaire, participants were asked to read a message and then indicate to which degree it was an e-mail or a postal letter⁴ (from 1 = "Doubtless an e-mail" to 7 = "Doubtless a postal letter"). The last answer represents the Device Source

⁴ Half of the booklet had the position of the words "E-mail" and "Postal Letter" reversed in the instructions so that this aspect was balanced.

Opinion measure. In order to avoid that the participants' answers were based on the peculiarity of one single message, 8 different messages were used (4 e-mails and 4 postal letters). These messages were selected from Experiments I and II so as to represent a wide range of possible e-mails and postal letters. Of course, any personal reference (e.g., names, and addresses) was faked for the privacy of Experiment I and II participants.

Then, participants had to point out the extent to which (From 1 = "Strongly rely" to 7 = "Not rely at all") they relied on each of 3 different features (i.e., punctuation marks, content, and length) to make their choice. Moreover, there was a little space in which they could freely indicate further stylistic features useful to them for discriminating the device source.

Communicative device questionnaires. Finally, two questionnaires were presented, one for the e-mail and the other for the postal letter. In order to avoid any primacy effect, the order of presentation was balanced between participants. Each questionnaire consisted of 9 questions, which were the same in both the e-mail and the postal letter questionnaires except on, of course, the communication device to which they referred. The answers

were on a scale ranging from 1 (absolutely true) to 7 (absolutely false).

The questions were as follows: "When I am writing an e-mail/postal letter to a friend: (1) I often think I will receive feedback very soon; (2) Generally, I am concise and communicate just the necessary; (3) My e-mails/postal letters rarely are long; (4) When I write long emails/postal letters, it is because (a) there is something very important I want to say, (b) I have a bad experience to tell, (c) I have a good experience to tell, (d) I must write to a person after a long time since last contact; (5) Generally, it is very boring to write a(n) e-mail/postal letter; (6) I think e-mails/postal letters are a useful way for communicating; (7) Preferably, I communicate with devices other than e-mails/postal letters; (8) Generally, I put a lot of attention in the way I write; (9) Generally, writing an e-mail/postal letter to a friend is similar to talking to him/her face-to-face."

It is worth noting that some of the participants refused to fill out one or both of these questionnaires because they did not use to communicate through the e-mail and/or postal letter. Nevertheless, all of them accomplished the discrimination task.

Results

Preliminary Analysis

Table 10 shows the data and the one-way ANOVA of the Communication Habits Questionnaire by gender.

Table 10

Means, Standard Deviations, and one-way ANOVA results of Communicative Habits (1 = low frequent; 6 = high frequent) by sex (Study VI)

Communication	Men (N = 76)		Women (N = 80)		df	F
	M	SD	M	SD		
Surfing	4.1	(1.4)	3.3	(1.4)	(1, 155)	14.55**
E-mail	2.6	(1.0)	2.6	(1.1)	(1, 155)	.09
Computer	3.4	(1.7)	3.3	(1.5)	(1, 155)	.07
Postal letter	2.0	(1.4)	2.6	(1.2)	(1, 155)	10.23*
Face-to-face	4.1	(1.1)	4.0	(1.1)	(1, 155)	1.17

*p < .005, **p < .001

As table 10 shows, male participants indicated to spend more time in surfing the Internet than female participants, whereas female participants indicated to write more postal letters than male participants.

The Origin of the Message: The Discrimination Task

On the basis of the social norms and script perspectives (Miller & al., 1960; Schank & Abelson, 1977),

it was hypothesized that participants can recognize whether a message is an e-mail or a postal letter. The judgments on source device were analyzed by dividing the data in two groups depending on the type of message participants had to analyze (i.e., e-mail or postal letter). A one-way ANOVA was applied with Message Group as independent variable with two levels (E-mail and Postal Letter), and Source Device Judgment as dependent variable. In line with the prediction, participants tended to recognize whether a message was an e-mails correctly [$F(1, 154) = 40.57, p < .001$]. However, while E-mail Group was quite sure about the correct origin of the message ($M = 2.1, SD = 1.7$), Postal Letter Group seemed to be more doubtful about the correct origin of the message ($M = 4.2, SD = 2.3$).

Features used for recognizing the source. Table 11 shows the features of the message stimuli together with the participants' opinion (from 1 = Doubtless an E-mail to 7 = Doubtless a Postal Letter) about the device source.

These data suggest that Postal Letters were not that easy to recognize. Indeed, while participants correctly agreed about the Postal Letter number 2, they were absolutely unsure in the Postal Letter 3 as well as 4, and completely wrong in the Postal Letter 1. On the contrary,

the participants had fewer troubles for discriminating all the e-mails but the number 1.

Table 11

Participants' opinions about the device origin by type of message and the corresponding features (Study VI)

Type of Message	Words	Memories	Message Opinion		
			<i>n</i>	<i>M</i>	<i>SD</i>
E-mail 1	180	1	18	3.0	1.8
E-mail 2	85	0	20	2.0	1.5
E-mail 3	68	0	20	1.9	1.9
E-mail 4	147	0	20	1.7	1.2
Postal Letter 1	102	1	14	2.9	1.9
Postal Letter 2	256	2	24	6.0	1.6
Postal Letter 3	80	0	20	3.5	2.0
Postal Letter 4	141	0	20	3.7	2.2

In order to see in which manner both correct and incorrect participants relied on the three features written immediately after the decision task (i.e., punctuation marks, content, and length), two groups were created by considering as Correct group those E-mail and Postal Letter participants who scored below 3 and over 5, respectively, in the Source Device Judgment. By using this pooling criterion, 58 out of 79 e-mail participants were correct,

whereas only 32 out of 78 postal letter participants were right. All the others participants formed the *Incorrect* group.

Table 12

Participants' mean score and standard deviation by Groups and Features (1 = Strongly rely, 7 = Not rely at all) in Study VI

	Groups				
	Correct (n = 90)		Incorrect (n = 67)		t
	M	SD	M	SD	
Punctuation Marks	2.84	2.32	4.22	2.12	-3.62**
Content	2.28	1.96	3.50	2.01	-3.68**
Length	2.33	2.11	3.16	2.22	-2.35*

* $p < .05$, ** $p < .001$

The data indicated that correct participants relied more than incorrect participants on the three listed features. Twenty-nine participants also indicated further aspects that they used to make up their minds on the recognition task. However, only 11 of them were right in the source judgment: They suggested extra features concerning essentially the content depth (more in the postal letter) and the quickness (more in the e-mail).

The Questionnaires

It was expected that participants would have borne in mind different criteria for which are the proper behaviors and feelings for writing an e-mail with respect to a postal letter. In order to test this hypothesis, we considered only participants who used the two communicative settings, and hence, had scored themselves higher than "never" in both the e-mail and postal letter items of the Communication Habit Questionnaire.⁵ A within-subject ANOVA was run to compare the same questions across the e-mail and postal letter questionnaires (1 = Absolutely true, 7 = Absolutely false). Results indicated that, in general, participants used to (a) wait for a more rapid feedback in e-mail communication [e-mail: $M = 2.56$, $SD = 1.51$; postal letter: $M = 3.80$, $SD = 1.83$; $F(1, 83) = 24.21$, $p < .001$], (b) be more succinct in writing an e-mail message [e-mail: $M = 3.28$, $SD = 1.82$; postal letter: $M = 5.05$, $SD = 1.78$; $F(1, 83) = 60.48$, $p < .001$], (c) write e-mails shorter than postal letters [e-mail: $M = 3.41$, $SD = 1.89$; postal letter: $M = 5.23$, $SD = 1.81$; $F(1, 83) = 67.11$, $p < .001$], (d) prefer e-mail especially when there is something important

⁵ We also checked up the possible influence of participants' communication experience on the recognition task. Interestingly, none of the assessed communication habits was significantly related to the correct and incorrect answers.

to communicate [e-mail: $M = 2.11$, $SD = 1.60$; postal letter: $M = 2.57$, $SD = 1.76$; $F(1, 83) = 4.42$, $p < .05$], (e) prefer postal letter to get in touch with a friend after long time [e-mail: $M = 2.71$, $SD = 2.06$; postal letter: $M = 2.17$, $SD = 1.64$; $F(1, 83) = 5.39$, $p < .05$], (f) believe that the e-mail is more useful than postal letter as communication means [e-mail: $M = 1.53$, $SD = .82$; postal letter: $M = 2.89$, $SD = 1.41$; $F(1, 83) = 61.35$, $p < .001$], and (g) be more careful in writing a postal letter [e-mail: $M = 2.97$, $SD = 1.81$; postal letter: $M = 2.23$, $SD = 1.41$; $F(1, 83) = 18.24$, $p < .001$].

Discussion

The present results support the starting predictions in that (1) people could discriminate an e-mail from a postal letter and (2) reported behaving and feeling differently in accordance with these communication means. The former point is especially true when the postal letter is very long and rich in content, as the letter 2 was. The features analysis also indicated that punctuation marks, length, and content are all useful clues to discriminate between an e-mail and a postal letter. In accordance with the final questionnaires, participants knew that the e-mails tend to be less accurate, shorter, and poorer in content than the postal letters. Therefore the data support

the hypothesis of a difference in social norms associated with the e-mail and postal letter communications. This could also be translated into the existence of differences in the actualization of a distinct communicative task due to the interplay between social norms and the script associated with the communication task.

Communication Channels and Expectancy:

A Matter of Script Preconditions

Hitherto, the speed communication analysis (Wicklund & Vandekerckhove, 2000) allowed us to grasp some specific as well as generic evidence in favor of the existence of two slightly different sets of psychological patterns, one for the e-mail and the other for the postal letter. Table 13 summarizes the empirical evidence supporting this view.

Table 13

Motivational, Cognitive, and Behavioral Differences between E-mail and Postal Letter Communicators

Channels	Communicator			Message	
	Motivation	Attention	Memory retrieving	Length	F. Memories
E-mail	Lower	Outward	Weaker	Shorter	Less likely
Postal Letter	Higher	Inward	Stronger	Longer	More likely

Furthermore, study VI pointed out that individuals know some of the differences occurring between the e-mail and postal letter, such as the feedback rapidity, the content depth, and the message length.

Based on Schank and Abelson's theory (1977), this general knowledge might affect the script preconditions as well as the corresponding behavioral planning. In general, plans and scripts are said to work with different modalities: Plans are mostly affected by *bottom-up processes* (i.e., they are context-dependent) while scripts provide the contextual behavior with the proper expectancies so to result in a *top-down mechanism*.

Before claiming that differences in the e-mail and postal letter messages depend on the social norms associated with each communication channel, it must be proved that priming a script in a communication channel instead of another changes the individuals' expectancy (i.e., one of the top-down processes) and, in turn, their behavior.

Is it a Matter of Interpersonal Perception?

The 5th experiment argued that people who communicate by e-mail are likely to have a low motivational state because the sensorial stimulation expected for the "speed interaction" is missing. Even though this hypothesis is not

opposed to the script conceptualization, a question to be addressed in the next section is whether, as it might be singled out from experiment V, activating a speed-communication state changes the sender's perception of the recipient. For instance, one could argue that the e-mail makes the sender feel closer to the recipient, and/or perceive more feedback availability from his/her.

Experiment VII

On the basis of the Wicklund and Vandekerckhove's speed communication analysis (2000) and the Script theory (Schank & Abelson, 1977), it was reasoned that the simple anticipation of the use of speed-facilitating devices, like e-mail, might engender a motivational decrement in the user. In other words, communicative settings are thought to work already at the script level so to affect the individuals' expectancy.

In order to operationalize this idea, the *anticipated interaction* method (c.f., Miller, Norman, & Wright, 1978; Devine, Sedikides, & Fuhrman, 1989) was used. Although this method was set out in theoretical backgrounds different from the study of communication channels (e.g., the need for effective control and the social information processing), it might represent a useful way for priming a

communicative script through distinct communication channels in a controlled situation.

Hypotheses

A matter of Contextual Perception

Participants who expected an e-mail or a face-to-face interaction were predicted to perceive the recipient as closer and more available than participants who expected an interaction by postal letter.

Priming the Communication Channels

Making salient the e-mail channel of communication (i.e., by having participants who anticipate an e-mail interaction) was expected to decrease the participants' memorization activity with respect to the postal letter and the face-to-face channels of communication.

Method

Participants

Seventy students of the University of Trieste participated in this experiment either for course credits or as volunteers. Since a deception procedure was applied, only participants who believed the cover story all through the experiment were considered for the data analysis. Finally, we obtained useful data on 60 participants (29 men and 31 women). The mean age was 24.68 years ($SD = 3.24$) for men and 23.74 years ($SD = 3.40$) for women.

Materials

Communication setting. All participants entered in the same room with a desk, two chairs, and a laptop. In the Postal Letter condition, participants were also given an envelope with a stamp, a couple of sheets, and a pen.

Introducing the bogus confederate. A bogus confederate was introduced by means of a laptop. In order to avoid any gender effect, a female confederate was introduced to women participants and a male confederate to men participants. The confederate's introduction consisted of 18 PowerPoint slides, which time transition were prearranged except the ones showing the instructions. The instructions were the same for all participants.

The slides' content, timing, and order were as follows: (1) the student was thanked for participating to an experiment entitled "To meet new people" and was asked to press the space bar to continue. Then, (2) the confederate's photo appeared with his (i.e., Marco Carraro) or her full name (i.e., Monica Marcato) on the top; this slide lasted 7 seconds. (3) Participants were subsequently informed about the following slides (i.e., life episodes or personality traits, depending on the presentation) and asked to press a button when ready; here instructions could tell them about the presentation of 7, positives-

personality traits or 7 *life episodes*. These two aspects were balanced through the conditions so that half of the participants viewed *personality traits* first and *life episodes* afterwards, whereas the other half saw them in the reverse order. (4) The *personality traits* consisted of 7 slides, one for each attribute (i.e., kind, intelligent, extroverted, open mind, studious, wise, and spontaneous); each one of these slides lasted 4 seconds. (5) The *life episodes* consisted of 7 slides, each one telling about an experience in about 4 lines, or two brief sentences. The episodes were arranged from the oldest to the most recent; these slides lasted 9 seconds each. (6) In the last slide, the participant was told to count aloud from 1 to 10 before calling the experimenter.

Design and Procedure

The independent variable was the Expected Communication Channel (ECC) condition, it had 3 levels (E-mail, Postal Letter, and Face-to-face). The number of confederate's features correctly recalled and two measures of interpersonal perception were the dependent variables.

Procedure. Participants were recruited individually at the Department of Psychology for a study on communication. They were randomly assigned to one of three possible conditions: E-mail ($n = 23$), Postal Letter ($n = 25$), and

Face-to-face ($n = 22$). To begin with, the study was said to investigate the psychological processes underlying the interaction between strangers (i.e., the cover story). Participants were made believe that they had to get in touch with a colleague of us by - depending on the EEC conditions - e-mail, postal letter, or face-to-face. It is worth noting that all participants were informed that they could give up the experiment at any time if they felt uncomfortable. Yet, all participants accomplished the experimental task.

After the participants agreed to continue, the priming of the communicative settings took place. First, a sheet of paper with the unfamiliar person (i.e., the bogus confederate) full name and addresses (both postal and e-mail) was provided to them. Next, they were asked to enter the communication channel pertinent to their condition by using the information available on that sheet of paper. This served to the purpose of priming the communicative setting and hence changed by conditions: (a) In the E-mail condition, participants had to access their Internet e-mail service, then go to the "new message" option, and type the bogus e-mail address that we had supplied; (b) in the Postal Letter condition, they had to write the bogus confederate's postal address on the envelope as well as

their own on the top-right of a white sheet; (c) in the Face-to-face condition, the experimenter said to the participants that the confederate was working in another office, and pretended to go out for informing the confederate to get ready for the experimental interaction. In the conditions a, and b, participants were informed that they would receive some feedback in a week, and that, although responding was up to them, it was important for the experiment success.

Immediately after, two short scales were given to the participants. The first was a slightly modified version of the Aron et al.'s IOS (1992) where the task was to assess the feeling about the confederate's proximity. The second scale, i.e. Partner Availability Perception (PAP), consisted in 6 items thought to tap the degree to which the participant perceived the confederate nearness and promptness to give feedback (from 1 = very near to 7 = very far). Two examples were "I think s/he will give me some feedback just after receiving my message", and "I think it will be hard to communicate with that person". The scale was internally consistent, $\alpha = .77$. Both these scales together represented an attempt to grasp the participants' perception about the expected confederate, by means of a non-linguistic and a linguistic measure respectively.

Indeed, the results of the IOS modified version were positively correlated with those of the Partner Perception Scale, $r(60) = .49, p < .001$.

Then, each participant was shown the introduction of the expected interactive partner at the laptop. Men viewed the introduction of the male confederate, and women the introduction of the female confederate. In the meanwhile, the experimenter was waiting outside the laboratory. Afterwards, participants were asked to fill in a questionnaire in which they had to recall the confederate's personality traits and 24 features of the life episodes in that order. Each feature correctly recalled corresponded to 1 point so that the score could range from 1 to 24.

Finally, the participants were informed about the true nature of the study and asked whether they believed or not to the cover story. A deep debriefing occurred after that.

Results

Manipulation Check

Ten out of 70 participants did not believe to our cover story. These students maintained that, notwithstanding the credibility of the cover story, they were used to be skeptical about experiments in psychology. Indeed, almost all of these students were 26 years old, i.e., at the last year of the Italian University degree in

psychology. Regarding the participants who believed the cover story, all of them were very surprised for the unfolding so the debriefing was long-lasting (35 minutes on the average) in order to be sure that each participant left the experimental room with positive feelings.

First Hypothesis: Perceiving the Expected Partner

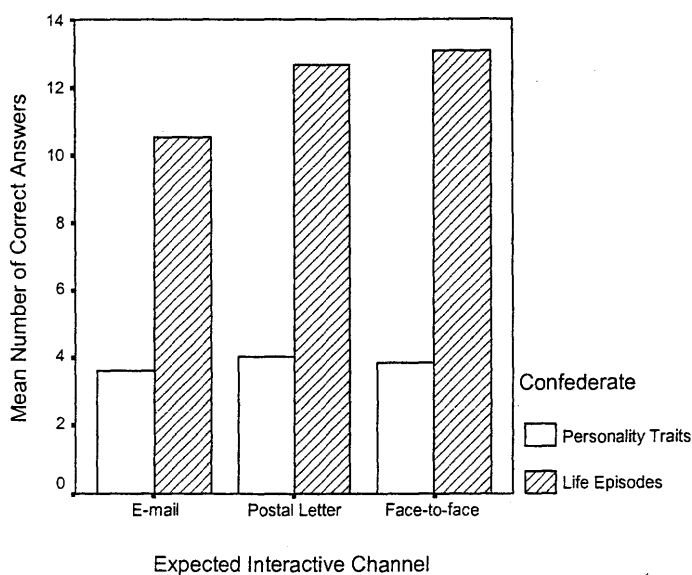
The first prediction was that those participants expecting either an e-mail or a face-to-face interaction would perceive the interactive partner as closer and more available than participants expecting a postal letter interaction. In order to test this prediction, two one-way ANOVAs were run with ECC as independent variable and IOS or PAP as dependent variables. Results did not support the experimental hypothesis since neither IOS nor PAP differed among conditions [$F < 1$, and $F(2, 57) = 1.43$, $p = .24$, respectively].

Second Hypothesis: The Effect of Expectation on Memorizing

It was predicted that participants in the E-mail condition would have suffered from a motivational decrement, which, in turn, would have ended up in a worse memorization of the confederate's introduction. Two one-way ANOVAs were used with EEC as independent variable and either Personality Traits or Life Episodes as dependent measures. As it can be seen in figure 9, there was a

significant effect of EEC on the number of correct answers in the case of the confederate's Life Episodes [$F(2, 57) = 4.16, p < .025$] but not for the Personality Traits [$F < 1$].

Figure 9. Mean number of correct answers as a function of the expected communication channel and the confederate's type of introduction (Experiment VII).



More precisely, participants who anticipated the interaction through e-mail had fewer correct responses about confederate's Life Episodes than participants who anticipate both a face-to-face interaction and a postal letter interaction, $p < .025$ and $p < .05$, respectively.

Discussion

Contrary to our first prediction, participants who were expecting an e-mail interaction did not perceive the partner as being closer and/or more available than participants in the Postal Letter condition. This outcome seems to be against the idea outlined in the Experiment V, in that, people who wrote an e-mail were not shifting the attention outward because of the interpersonal perception of recipient availability (external stimulation). However, it might be that both the measures of interpersonal perception (verbal and non verbal) did not represent a good operationalization of that variable. For instance, the participants might have had some difficulty in distinguishing the relational dimension (e.g., "this is a completely new person to me and hence I cannot feel anything for him/her") from the feedback availability dimension (e.g., "It seems to me that this person is very available for interacting"). This interpretation seems to be sensible since both interpersonal perception measures did not differ across all the communicative conditions. However, if the measure had tapped on the recipient availability, face-to-face should have shown the highest perception of feedback availability. Alternatively, it might be that communicative speed made people be sensitive for

external "multidimensional feedback", which, in turn, oriented their attention outward without a corresponding change in the interpersonal perception. Finally, it cannot be discarded that the experimental procedures used for priming the communicative channels were not strong enough to modify the participants' perception.

As predicted, participants in the E-mail condition were affected by the communicative device by which they had to anticipate the interaction. In fact, they recalled fewer features of the confederate's Life Episodes than the other participants did. This result supports the hypothesis of a script-effect due to the social norms associated with the speed-facilitating modality. Therefore, the simple activation of the script "getting in touch with a new person" results to be affected by the communicative channels under use without any change in the interpersonal perception.

Moreover, results indicated that the recalling deficit was limited to the Life Episodes measure. This finding, as well as those of Experiments I and II are consistent with the notion that e-mail communications engender a diminished "activation" of the Episodic Memory (Tulving, 1989, 1991).

In conclusion, notwithstanding that Experiment II controlled for the recipient salience (fixed vs. free), it

might be possible that the e-mail modality activated in the sender a recipient with a weaker relational tie than the one activated by the postal letter. Yet, the present experiment found that the e-mail expectancy effect was true even for an unknown recipient, i.e., someone with whom participants had not social ties.

(V)

Conclusion

The present work aimed at verifying whether the e-mail is a communicative device provoking both motivational and cognitive changes in line with Wicklund and Vandekerckhove (2000) standpoint on human communication. This theoretical analysis considers that speed communicative devices orient people toward a psychological state of speed because the devices are easy behavioural shortcuts for people's urgency to communicate. As a consequence, these communicative channels (especially those with low multidimensional feedback) would engender a speed-oriented psychological state in their users, which, in turn, would cause communication to be abbreviated. This state of speed is defined in terms of a general reduction of those cognitive activities related to both the "mental representation" of the relationship and the taking of the communicative partners' perspective.

Although Wicklund and Vandekerckhove's analysis (2000) would expect people to be maximally speed-oriented by the interplay between (a) the feeling of being under pressure, and (b) the availability of a speed-facilitating device, the present work focused only on the second point, which concerned the communicative setting. Thus, the empirical

issue became whether a communication channel (i.e., e-mail, postal letter, and face-to-face) might alter, by itself, the motivational and cognitive streams of an individual (Atkinson & Birch, 1970). There is already ample evidence that people under psychological pressure, (for instance when being in a hurry), show a lack of perspective taking of the others' standpoint (e.g., Darley & Batson, 1973; Wicklund & Steins, 1996). The present work intended to find out further factors that can account for abbreviating an interpersonal communication.

By comparing e-mails and postal letters, the present work must be considered as the first step in addressing part of the speed-communication analysis empirically. Actually, this comparison is interesting for such a psychological investigation because of two reasons: (1) E-mail is a communication format that shares properties with postal letter in that both of them allow written and asynchronous interactions. But, contrary to the postal letter, (2) e-mail is a speed facilitating communicative device.

Therefore, the comparison between e-mail and postal letter also allowed disentangling between the reduced-cues perspective and the speed communication analysis. On the basis of the reduced-cues perspective, as far as the

communicative goals were the same (e.g., to get in touch with a friend) e-mail messages should be as poor in content as the postal letter messages, because both lack of multidimensional feedback. On the contrary, the results of Experiments I, II, and III were consistent with the speed communication explanation: As expected by this perspective, the e-mail messages were, on the average, shorter and poorer in content (i.e., fewer friendship memories) than postal letter messages.

In a comparative study looking at e-mail vs. face-to-face in negotiation, Morris, Nadler, Kurtzberg, and Thompson (2002) found that e-mail negotiators disclosed only one third as much about non-negotiation issues as when the communication was face-to-face. That result and ours may be interpreted as e-mail communication inhibiting disclosure. This view, though, does not seem to fit well with research findings (e.g., Bargh, McKenna, & Fitzsimons, 2002; Joinson, 2001) that have documented greater self-disclosure among new acquaintances through the CMC video conferencing system than in face-to-face communication, owing to anonymity and reduced public self-awareness. However, this incongruence might be due to both the kind of relationships and the media investigated in Experiments I, II and III. For instance, unlike Joinson's studies (2002),

those participants had to communicate with an *already known person* by simulating an *e-mail communication*.

Moreover, study II showed that students in the e-mail condition retrieved fewer memories related to the recipient than students in the postal letter condition: They mentioned fewer memories of shared experiences than postal letter users reported but the same quantity of recipient's personality traits. Related to this result, Klein, Loftus, and Kihlstrom (1996) found experimental data suggesting two different memory systems involved in personality traits and episodic memories: One kind of memories should be processed by the semantic memory, while the latter would be kept in episodic memory (Tulving, 1989; 1991). This outcome is compatible with the possibility that speed-facilitating devices change people's activation of episodic memory. Study III confirmed this interpretation in that participants communicating by e-mail retrieved fewer friendship memories than both face-to-face and postal letter communicators. Furthermore, Experiment VII gave support to the notion of an expectancy effect for explaining the episodic memory "weakness": Participants in the e-mail condition were more inaccurate than others only in the episodic part of the memory measure used in that experiment.

Even though an abbreviated communication may indicate a loss of perspective taking (i.e., a shortage in grounding the interaction), Experiment III failed to show an egocentric reaction in the e-mail communicative setting. Perhaps the egocentric's measure of this quasi-experiment was not sensitive enough. Alternatively, the deficit of perspective taking described by Wicklund and Vandekerckhove (2000) could be limited to the interpersonal communication at a given time (i.e., just for the communicator's partner) rather than being a broader psychological shortfall.

The 4th survey was primarily descriptive and, notwithstanding some methodological limitations, it provided insightful indications about further factors provoking "speed communications". First, it was very likely that the length and depth of communicative exchanges depended on communicator gender so that, on the average, men tended to have e-mail communications more succinct than women, especially when they communicated with other men. Second, relational intimacy was another important factor related to speed communication: The higher the relational intimacy, the longer and deeper the messages. Finally, when the contact modalities kept among people were taken into account, the regression analysis indicated that both e-mail and face-to-face frequency of contacts were related to

intimacy. This result was partially contrary to the experimental hypothesis. However, this result could be due to the nature of the survey, which investigated friendship intercourses held by e-mail.

Experiment V was carried out to seek empirical support for a new interactive model accounting for the results of Experiments I, II, and III. This model arose from Wicklund and Vandekerckhove's motivational analysis (2000) and maintains that, because of a similarity with the face-to-face modality, people using a speed-facilitating device automatically set their attention resources outward. Consequently, they end up being as sensitive to outer-produced stimulation as communicators in the face-to-face modality. People communicating by e-mail, therefore, would be more likely to suffer from a shortfall in attentive resources to be spent in their memory processes, which, in turn, are assumed to require inward attention. Findings support this model: Participants in the e-mail modality remembered better the external stimuli and recalled less frequently the interruption point (i.e., what they were thinking about before the interruption of the message) than the postal letter participants.

Interestingly, this interactive model allows further predictions that were not possible beforehand: Given a high

speed-communication device, this model predicts longer and deeper communications when extra on-line dimensional stimulation/feedback is delivered. It would be expected, for instance, that adding visual cues to a chat-line would mean an increase in both the motivational level and the communicative quality. This is because outward attention would profit from external feedback/stimulation to sustain behavior. However, in light of the 4th survey, it is sensible to expect different results depending on (a) the communicators' gender and (b) their intimacy level.⁶

As for the 6th study, a theoretical link between the speed-communication analysis (Wicklund & Vandekerckhove, 2000) and the script theory (Schank & Abelson, 1977) was attempted by assessing the degree to which people know to communicate differently by e-mail and postal letter. Scripts contain distinct set of behavioural plans for which people must have some awareness. Therefore, in order to

⁶ In one experiment, Pennebaker and Agosti (2002) assigned 17 couples of students to a condition of chat-line interaction. Experimental couples had to interact for about 30 minutes (15 min. with and 15 min. without a cam; the order of cam presence was balanced). Even though there were few couples, a paired-samples T test with presence/absence of cam as within subject variable and number of words as dependent variable revealed that couples in the cam condition tended to exchange more number of words ($M = 971$, $SD = 242$) than in the without-cam condition ($M = 882$, $SD = 178$) [$t(16) = 1.64$, $p = 1.2$]. It is worth noting that students had seen each other before they formed the experimental couple. In contrast, it is likely that communicators who have never seen each other before having a chat-line conversation follow the Joinson's prediction (2001).

link Wicklund and Vandekerckhove's (2000) analysis to Schank and Abelson's (1977) perspective, it was necessary to ascertain whether (1) a common structure exists throughout the messages (independently of distinct modalities), and (2) people have difference in social norms leading their communications through the e-mail and postal letter modalities. Regarding the first point, Experiment I and II content analyses were in favor of a common structure laying beneath both the e-mail and postal letter messages so that the presence of the script "to get in touch with a friend after a period without contact" was very likely. Furthermore, experiment VI showed that people know to behave differently according to the communicative modalities of e-mail or postal letter: They know to be more succinct in the e-mail modality. Experiment VI, therefore, provides evidence for the existence of different social norms leading communication through different modalities.

As a consequence, Experiment VII aimed to test the hypothesis of a communicative setting effect on the script "to get in touch with a new person". Consistent with the theoretical prediction, results indicated that only participants who had to anticipate an e-mail interaction suffered from a reduction in the retrieval of memories from the expected partner's presentation (life episodes) with

respect to participants in the face-to-face and postal letter conditions.

The following is a schema summarizing the findings of this thesis.

- (1) The e-mail interactive constraints (i.e., asynchronous but fast) bring to life social norms consistent with a speed communication modality.
- (2) These social norms seem to alter the execution of the communicative behavioural plans already at the script level, i.e., interactive settings affect similar set of communicative goals: Attentive resources tend to be directed to the external context and away from the episodic memory processes.
- (3) As a consequence, people tend to abbreviate their e-mail messages and to close their communication sooner than in other modalities.
- (4) The latter statement is especially true for men communicating to other men and among acquaintances already well established. Further, a high degree of intimacy among communicators seems to prevent this "speed-oriented state".

General Considerations

One could argue that people do not consider e-mail as appropriate for friendship communication so that the present results would be meaningless in their contribution to the social psychology debate. However, other research findings strongly disagree with this notion of e-mail inappropriateness since there is ample evidence indicating the spread of the CMC employment, especially the e-mail, throughout the society. As regards the media choice literature, there is also evidence for the substitutive phenomena occurring between CMC devices and other communication medias because of their easy availability (e.g., D'Ambra, Rice, & O'Connor, 1998). This is to say that, independent of the perceived social appropriateness of a medium for achieving a distinct social goal, the simple availability of e-mail is sufficient to annul such potential perception of inappropriateness.

Limitations and Future Directions

The present contribute does not intend to be exhaustive nor to be a full account of Wicklund and Vandekerckhove's thesis (2000). On the contrary, there are both apparent limitations and theoretical aspects deserving additional investigation. First of all, results derive from non-interactive experiments. In order to extend the

validity of the given theoretical argumentations, experiments addressing interactive mediated communications should be undertaken. Second, the present thesis entails, above all, the e-mail as a speed-facilitating device and disregards other relevant communicative settings, such as cell-phone, chat-line, and telephone. Obviously, a speed communication analysis should also be extended to these communicative settings so as to prove its theoretical validity throughout the communicative media.

Finally, it seems to be clear that there are many factors producing changes in communication consistent with speed orientation thesis. Communicators' gender, relationship type (i.e., new/old acquaintance), level of relational intimacy, behavioural haste, and communicative setting are all potential factors related to a speed communication state. In such a complex scenario, it becomes difficult to disentangle the specific role and the reciprocal relations between these factors. Hopefully, future research should enable a reformulation of speed communication thesis so as to consider as much factors as possible provoking abbreviated communications.

Beyond Speed Communication Analysis:

Episodic Memory and Personal Blues

Kraut et al. (1998) contributed to the social psychology debate on CMC with results that linked depression and waning in social ties with the use of CMC. Although later findings have been contrary to this interpretation and give a more optimistic view of CMC (e.g., Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford, 2002; Wästlund, Norlander, & Archer, 2001), it is always possible that people may suffer from depression symptoms due to an overuse of the Internet communicative tools. To some extent, the results of the present thesis might contribute to shed light on one of the psychological mechanisms producing the Internet blues phenomenon.

Out of the CMC literature, Brewin (1996, 1999) found that when there is a deep cognitive processing of the personal memories, then it is less likely to be reached by depression symptoms. In other words, it is as if an optimal functioning of the episodic memory buffers from potential traumatic and depressing events.

Considering Brewin's contribution, social interactions that allow past-memories to be processed by persons would be of benefit for preventing from depression symptoms. E-mail instead, and other speed-facilitating devices, could

be communication means that inhibit more sophisticated cognitive processes, in that they engender a speed-orientated state. The recalling and retelling of memories that form a history of the relationship make the links stronger and promote the individual's identity (Thorne, 2000).

BIBLIOGRAPHY

Atkinson, J. W., & Birch, D. (1970). *Dynamics of action*. New York; Wiley, 1970.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality & Social Psychology*, 63, 596-612.

Bakhtin, M. M. (1981). Discourse in the novel. In M. Holquist (Ed.), *The dialogic imagination*. Austin, TX: University Press.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bargh, J. A., McKenna, K. Y. A., & Fitzsimons, G.J. (2002). Can you see the real me? The activation and expression of the 'true self' on the Internet. *Journal of Social Issues*, 58, 33-48.

Berry, W. (1993). *Sex, economy, freedom, and community*. New York: Pantheon.

Birch, D., Atkinson, J. W., & Bongort, K. (1974). Cognitive control of action. In B. Weiner (Ed.), *Cognitive views of human motivation*. New York: Accademic Press.

Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A Dual Representation Theory of Posttraumatic Stress Disorder. *Psychological Review*, 103, 670-686.

Brewin, C. R., Reynolds, M., & Tata, P. (1999). Autobiographical Memory Processes and the Course of Depression. *Journal of Abnormal Psychology, 108*, 511-517.

Brown, R. (1965). *Social psychology*. New York: The Free Press.

Cantelmi, T., Del Miglio, C., Talli, M., & D'Andrea, A. (2000). *La mente in Internet: psicopatologia delle condotte on-line*. Padova: Piccin Press.

Clark, H. H. (1985). Language use and language users. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology*. New York: Random House.

Clark, H. H., & Brennan, S. A. (1991). Grounding in communication. In L.B. Resnick, J.M. Levine, & S.D. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 127-149). Washington, DC: APA Books

Clark, H. H., & Schaefer, E. F. (1989). Contributing to Discourse. *Cognitive Science, 13*, 259-294.

Clark, M. S., Fitness, J., & Brisette, I. (2001). Understanding People's Perceptions of Relationships is Crucial to Understanding their Emotional Lives. In J.O. Fletcher & M.S. Clark (Eds.), *Blackwell Handbook of Social Psychology: Interpersonal Processes* (pp. 253-278). Padstow, Cornwall: T.J. International Ltd.

Clark, M. S., & Mills, J. (1993). The difference between communal and exchange relationships: What it is and is not. *Personality and Social Psychology Bulletin*, 19, 684-691.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-Experimentation: Design & analysis issues for field settings*. Boston, MA: Houghton Mifflin Co.

Csikszentmihalyi, M. (1993). *The evolving self*. New York: Harper.

Daft, R.L., & Lengel, R.H. (1984). Information Richness: A New Approach to Managerial Behavior and Organizational Design. In L. L. Comings and B. M. Staw (Eds.), *Research in Organizational Behavior* (pp. 191-233). Homewood, IL: JAI Press.

D'Ambra, J., Rice, E. R., & O'Connor, M. (1998). Computer-mediated communication and media preference: an investigation of the dimensionality of perceived task equivocality and media richness. *Behaviour & information technology*, 17, 164-174.

Darley, J., & Batson, J. (1973). From Jerusalem to Jericho": A study of situational and dispositional variables in helping behavior. *Journal of Personality and Social Psychology*, 27, 100-108.

Devine, P.G., Sedikides, C., Fuhrman, R.W. (1989). Goals in Social Information Processing: The Case of Anticipated Interaction. *Journal of Personality and Social Psychology*, 5, 680-690.

Elliot, S. (1954). The physiology of motivation. *Psychological Review*, 61, 5-22.

Hass, G. H. (1984). Perspective taking and self-awareness: Drawing an E on your forehead. *Journal of Personality and Social Psychology*, 46, 788-798.

Hawkins, N. E., & Meyer, M. E. (1965) Time perception of short intervals during finished, unfinished and empty task situations. *Psychonomic Science*, 3, 473-474.

Heim, M. (1992). The erotic ontology of cyberspace. In M. Benedikt (Ed.), *Cyberspace: First steps* (pp. 59-80). Cambridge, MA: MIT Press.

Joinson, A. N. (2001). Self-disclosure in computer mediated communication: The role of self-awareness and visual anonymity. *European Journal of Social Psychology*, 31, 177-192.

Jourard, S. M. (1971). *The transparent self* (Rev. ed.). New York: Van Nostrand Reinhold.

Kiesler, S., Siegel, J., & McGuire, T. W. (1984). Social psychological aspects of computer-mediated communication. *American Psychology*, 39, 1123-1134.

Kiesler, S., & Sproull, L. (1992). Group decision making and communication technology. *Organization Behavior and Human Decision Processes*, 52, 96-123.

Kingsbury, D. (1968). *Manipulating the amount of information obtained from a person giving directions*. Unpublished honors thesis, Harvard University, Cambridge, MA.

Klein, S.B., Loftus, J. & Kihlstrom, J.F. (1996). Self-knowledge of an amnesic patient: Toward a neuropsychology of personality and social psychology. *Journal of Experimental Psychology: General*, 125, 250-260.

Krauss, M. R., & Fussell S. R. (1991). Perspective-taking in communication: representations of others' knowledge in reference. *Social Cognition*, 9, 2-24.

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet Paradox Revisited. *Journal of Social Issues*, 58, 49-74.

Kraut, R., Mukhopadhyay, T., Szczypula, J., Kiesler, S., & Scherlis, B. (1999). Information and communication: alternative uses of the Internet in households. *Information-Systems-Research*, 10, 284-303.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and

psychological well-being? *American Psychologist*, 53, 1017-1031.

Lazarus, R. S. (1991). Cognition and motivation in emotion. *American Psychologist*, 46, 352-367.

Lewin, K. (1926). Untersuchungen zur Handlungs- und Affekt-Psychologie. II.: Vorsatz, Wille und Bedürfnis. *Psychologische Forschung*, 7, 330-385.

Lewin, K. (1935). *A dynamic theory of personality*. New York: McGraw-Hill.

Lewin, K. (1943). Defining the "field at a given time". *Psychological Review*, 50, 292-310.

Locke, J. (1998). *Why we don't talk to each other anymore: The de-voicing of society*. Touchstone, New York.

McKenna, K. Y. A., & Bargh, J. A. (1998). Coming out in the age of the Internet: Identity "de-marginalization" through virtual group participation. *Journal of Personality and Social Psychology*, 75, 681-694.

Mead, G. H. (1934). *Mind, self and society*. Chicago: University of Chicago Press.

Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and Structure of Behavior*. Holt, Rinehart and Winston, Inc.

Miller, D. T., Norman, S. A., & Wright, E. (1978). Distortion in Person Perception as a Consequence of the

Need for Effective Control. *Journal of Personality and Social Psychology*, 6, 598-607.

Morris, M., Nadler, J., Kurtzberg, T., & Thompson, L., (2002). Schmooze or lose: Social friction and lubrication in E-mail negotiations. *Group dynamics: theory, research, and practice*, 6, 89-100.

Odd-Gunn, D., & Gunn, C.W. (2001). *Electronic communication maintains long-distance relationships*. Poster presented at the Second Annual Meeting of the Society for Personality and Social Psychology, February 1-3, 2001, San Antonio, Texas.

Pantaleo, G., & Wicklund, R. A. (2001). *Prospettive multiple nella vita sociale*. Padova/Bologna: Decibel & Zanichelli.

Parks, M. R., & Floyd, K. (1996). Making Friends in Cyberspace. *Journal of Communication*, 46, 80-97.

Pennebaker, J., & Agosti, A. (2002). Unpublished data, University of Texas, Austin, TX.

Pool, I. de Sola (1983). *Technologies of freedom*. Cambridge, MA: Harvard University Press.

Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. Duck (Ed.), *Handbook of personal relationships* (pp. 367-389). Chichester, England: Wiley.

Rheingold, H. (1993). *The virtual community: Homesteading on the electronic frontier*. Reading, MA: Addison-Wesley.

Rice, R. E. (1987). Computer-mediated communication and organizational innovation. *Journal of Communication*, 37, 65-94.

Ryan, R., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychology*, 55, 68-78.

Schank, R., & Abelson, R. (1977). *Scripts, Plans, Goals and Understanding*. Lawrence Erlbaum Associates Publishers: Hillsdale, New Jersey.

Sethi, A., Mischel, W., Aber, J. L., Shoda, Y., & Rodriguez, M. L. (2000). The role of strategic attention deployment in development of self-regulation: Predicting preschoolers' delay of gratification from mother-toddler interactions. *Developmental Psychology*, 36, 767-777.

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunication*. London: John Willey & Sons, Ltd.

Stoll, C. (1995). *Silicon snake oil*. New York: Doubleday.

Thorne, A. (2000). Personal Memory Telling and Personality Development. *Personality and Social Review*, 4, 45-56.

Tolman, E. C. (1920). Instinct and purpose. *Psychological Review*, 27, 218-233.

Treviño, L. K., Webster, J., & Stein, E. W. (2000). *Organization Science*, 11, 163-182.

Tulving, E. (1989). Remembering and knowing. *American Scientist*, 77, 361-367.

Tulving, E. (1991). Concepts of human memory. In L.R. Squire, N.M. Weinberger, G. Lynch, J.L. McGaugh (Eds.), *Memory: Organization and locus of change* (pp. 2-32). New York: Oxford University Press.

Waldfoegel, S. (1948). The frequency and affective character of childhood memories. *Psychological Monographs*, 62, WHOLE No. 291.

Wästlund, E., Norlander, T., & Archer, T. (2001). Internet Blues Revisited: A Replication and Extension of Kraut et al (1998) Internet Paradox Study. *CyberPsychology and Behavior*, 4, 385-391.

Webster, J., & Treviño, L. K. (1995). Rational and social theories as complementary explanations of communication media choices: Two policy-capturing studies. *Academy of Management Journal*, 38, 1544-1572.

Weiner, B. (1975). *Cognitive views of human motivation*. New York: Academic.

Wicklund, R. A., & Steins, G. (1996). Person perception under pressure: When motivation brings about egocentrism. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 511-528). New York: Guilford.

Wicklund, R. A., & Vandekerckhove, M. M. P. (2000). Delay of gratification in interaction rituals. In T. Postmes, R. Spears, M. Lea, & S. Reicher (Eds.), *SIDE issues centre stage: Recent developments in studies of deindividuation in groups* (pp. 191-202). Amsterdam, Netherlands: Koninklijke Nederlandse Akademie van Wetenschappen Verhandelingen, Afd. Letterkunde, Nieuwe Reeks, deel 183.

Zeigarnik, B. (1927). Über das Behalten von erledigten und unerledigten Handlungen. *Psychologische Forschung*, 9, 1-85.

APPENDIX

A) QUESTIONNAIRES AND SCALES

Communication Habits (used in the 1st and 3rd Surveys)

(Italian version: Abitudini Comunicative)

Rispondi alle seguenti domande facendo una X sopra il numero corrispondente alla tua scelta:

a. Quanto tempo in media usi Internet per navigare durante la settimana: 1-mai 2-30 min 3-un'ora 4-tre ore 5-sei ore 6-più di 6 ore.

b. Quanto tempo in media usi la posta elettronica durante la settimana: 1-mai 2-30 min 3-un'ora 4-tre ore 5-sei ore 6-più di 6 ore.

c. Quanto tempo in media usi il computer durante la settimana (escluso sia Internet che posta elettronica):
1-mai 2-30 min 3-un'ora 4-tre ore 5-sei ore 6-più di 6 ore.

d. Quanto tempo passi in media a chiacchierare faccia a faccia con i tuoi amici (anche in gruppo) durante un giorno normale: 1-mai 2-30 min 3-un'ora 4-tre ore 5-sei ore 6-più di 6 ore.

e. Quante lettere postali scrivi in media: 1- più di una alla settimana 2- una alla settimana 3- almeno una al mese 4- almeno una all'anno 5- meno di una all'anno 6 non scrivo lettere

In-box questionnaire (used in the 4th Survey)

(Italian Version: Ricerca sull'e-mail In-box)

Sesso: M F Et ..... Professione.....

Rispondi alle seguenti domande riguardo le tue abitudini nella scelta di vari mezzi di comunicazione, facendo una [X] sul numero corrispondente alla tua scelta.

1) Quanto tempo in media usi internet per navigare durante la settimana

1-mai 2-circa 30 min. 3-circa 1 ora 4-circa 3 ore 5-circa 6 ore
6-pi  di sei ore

2) Quanto tempo in media usi la posta elettronica durante la settimana

1-mai 2-circa 30 min. 3-circa 1 ora 4-circa 3 ore 5-circa 6
ore 6-pi  di sei ore

3) Quanto tempo passi in media a "chattare" durante la settimana

1-mai 2-circa 30 min. 3-circa 1 ora 4-circa 3 ore 5-circa 6
ore 6- pi  di 6 ore

4) Quanto tempo passi in media a chiacchierare faccia a faccia con i tuoi amici (anche in gruppo) durante una giornata normale

1- meno di 30 min. 2- 30 min. 3- 1 ora 4- 3 ore 5- 6
ore 6- pi  di 6 ore

5) Quante lettere postali scrivi in media

1-pi  di una alla settimana 2-una alla settimana 3-almeno una al mese
4-almeno una all'anno 5-meno di una all'anno 6-non scrivo lettere

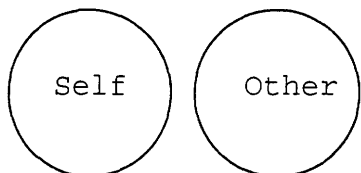
Controlla la tua inbox e rispondi alle domande per ciascuna e-mail ricevuta dai tuoi amici : per piacere considera solo le e-mail ricevute dai tuoi amici.

e- mail n° →	1	2	3	4	5
Sesso del mittente	M F	M F	M F	M F	M F
Età del mittente	.....	.....	.....	.....	.....
Scrivi la lettera corrispondente alla figura che meglio descrive la relazione fra te e il mittente della e-mail (vedi foglio numero 3)	.....	.....	.....	.....	.....
Da quanto tempo lo conosci (indica il numero di mesi circa)	.....	.....	.....	.....	.....
Durante un mese quante volte contatti questo amico tramite (scrivi numero delle volte)	e-mail 1	e-mail 2	e-mail 3	e-mail 4	e-mail 5
e-mail	.....	.....	.....	.....	.....
Faccia a faccia	.....	.....	.....	.....	.....
Chat	.....	.....	.....	.....	.....
Telefono fisso	.....	.....	.....	.....	.....
Telefono cellulare	.....	.....	.....	.....	.....
SMS	.....	.....	.....	.....	.....
Lettere postali	.....	.....	.....	.....	.....
Segna con una X la casella che meglio descrivelo scopo della e-mail ricevuta	e-mail 1	e-mail 2	e-mail 3	e-mail 4	e-mail 5
Segna con una X le e-mail che contengono uno o più ricordi condivisi tra te e il mittente (Es. "Ti ricordi quando siamo stati a Parigi.....")	nessuno uno più di 1	nessuno uno più di 1	nessuno uno più di 1	nessuno uno più di 1	nessuno uno più di 1
Conta il numero delle parole che compongono le e-mail senza considerare i saluti iniziali e finali (Es. "ciao" o "bacioni")	.....	.....	.....	.....	.....

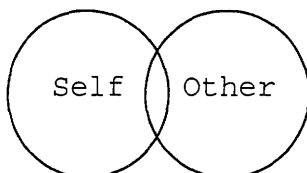
Inclusion of Other in the Self Scale

(used in the 4th Survey)

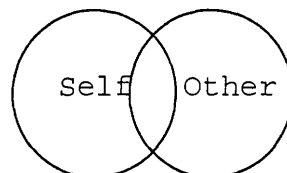
Please circle the letter below each picture which best describes your relationship



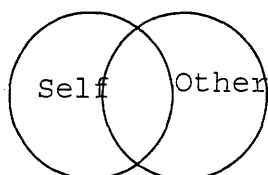
A.



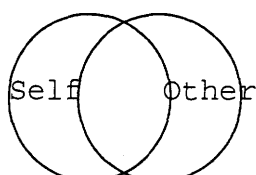
B.



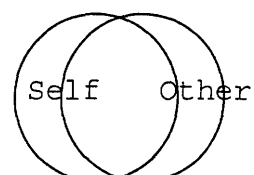
C.



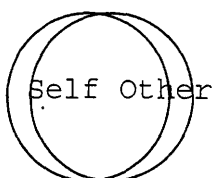
D.



E.



F.



G.

E-mail Questionnaire (used in the 6th Survey)

(Italian version: Questionario sull'E-mail)

Rispondi alle seguenti frasi usando la scala numerica riportata sotto ognuna di esse (1- Assolutamente Vero e 7- Assolutamente Falso). Cerca di essere il piu` sincero e spontaneo possibile e considera il modo in cui scrivi le e-mail in generale e non come le scrivi in determinate circostanze o in alcuni casi particolari.

Quando scrivo una e-mail ad un amico/a:

A. Spesso penso che ricevero' subito una risposta.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

B. In genere sono conciso e mi limito a comunicare le cose essenziali.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

C. Raramente le e-mail che scrivo sono lunghe.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

D. Quando scrivo e-mail lunghe lo faccio perche`:

a. ho qualcosa di importante da dire.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

b. ho una esperienza negativa da raccontare.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

c. ho una esperienza positiva da raccontare.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

d. devo scrivere ad una persona che non vedo e sento da molto tempo.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

E. Nella maggior parte dei casi trovo che sia molto noioso scrivere e-mail.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

F. Ritengo che le e-mail siano un mezzo di comunicazione utile.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

G. Quando posso preferisco comunicare con altri mezzi diversi dalle e-mail.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

H. In genere presto molta attenzione al modo in cui scrivo.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

I. In genere scrivere una e-mail ad un amico/a e` come parlargli faccia a faccia.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

Postal Letter questionnaire (used in the 6th Survey)

(Italian version: Questionario sulle lettere postali)

Rispondi alle seguenti frasi usando la scala numerica riportata sotto ognuna di esse (1- Assolutamente Vero e 7- Assolutamente Falso). Cerca di essere il piu` sincero e spontaneo possibile e considera il modo in cui scrivi le lettere postali in generale e non come le scrivi in determinate circostanze o in alcuni casi particolari.

Quando scrivo una lettera postale ad un amico/a:

A. Spesso penso che ricevero' subito una risposta.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

B. In genere sono conciso e mi limito a comunicare le cose essenziali.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

C. Raramente le lettere che scrivo sono lunghe.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

D. Quando scrivo lettere lunghe lo faccio perche`:

a. ho qualcosa di importante da dire.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

b. ho una esperienza negativa da raccontare.

1	2	3	4	5	6	7
Assolutamente						Assolutamente
Vero						Falso

c. ho una esperienza positiva da raccontare.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Assolutamente
Vero

Assolutamente
Falso

d. devo scrivere ad una persona che non vedo e
sento da molto tempo.

1 2 3 4 5 6 7
Assolutamente
Vero

Assolutamente
Falso

E. Nella maggior parte dei casi trovo che sia molto
noioso scrivere lettere.

1 2 3 4 5 6 7
Assolutamente
Vero

Assolutamente
Falso

F. Ritengo che le lettere siano un mezzo di comunica-
zione utile.

1 2 3 4 5 6 7
Assolutamente
Vero

Assolutamente
Falso

G. Quando posso preferisco comunicare con altri mezzi
diversi dalle lettere postali.

1 2 3 4 5 6 7
Assolutamente
Vero

Assolutamente
Falso

H. In genere presto molta attenzione al modo in cui
scrivo.

1 2 3 4 5 6 7
Assolutamente
Vero

Assolutamente
Falso

I. In genere scrivere una lettera ad un amico/a e` come
parlargli faccia a faccia.

1 2 3 4 5 6 7
Assolutamente
Vero

Assolutamente
Falso

Partner Availability Perception

(used in the 7th Experiment)

(Italian version: Percezione del Destinatario)

Adesso ti chiediamo di descricerci alcune "percezioni" che hai della persona con cui stai per interagire. Ti chiediamo di usare la scala riportata di seguito e che va da 1 (Assolutamente in disaccordo) a 7 (Assolutamente d'accordo). Ti ricordiamo che non ci sono risposte giuste o sbagliate ma quello che conta e` come a te sembra di "percepire" questa persona in questo esatto momento.

1. La sento vicina a me... quasi come fosse gia` presente.

1	-	2	-	3	-	4	-	5	-	6	-	7
(Assolutamente in disaccordo)						(Assolutamente d'accordo)						

2. Sento che e` pronta a rispondermi e a darmi del feedback

1	-	2	-	3	-	4	-	5	-	6	-	7
(Assolutamente in disaccordo)						(Assolutamente d'accordo)						

3. Non riesco proprio a "percepire" nulla di lei

1	-	2	-	3	-	4	-	5	-	6	-	7
(Assolutamente in disaccordo)						(Assolutamente d'accordo)						

4. Mi sembra una persona difficile da raggiungere per comunicare

1	-	2	-	3	-	4	-	5	-	6	-	7
(Assolutamente in disaccordo)						(Assolutamente d'accordo)						

5. Credo proprio che appena sentira` o leggera` le mie prime parole mi rispondera` subito

1	-	2	-	3	-	4	-	5	-	6	-	7
(Assolutamente in disaccordo)						(Assolutamente d'accordo)						

6. Penso che sara` difficile comunicare con questa persona

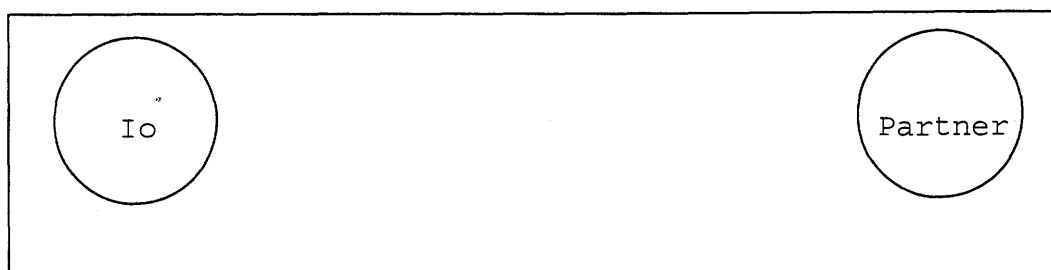
1	-	2	-	3	-	4	-	5	-	6	-	7
(Assolutamente in disaccordo)						(Assolutamente d'accordo)						

*Inclusion of Other in the Self Scale modified**(used in the 7th Experiment)*

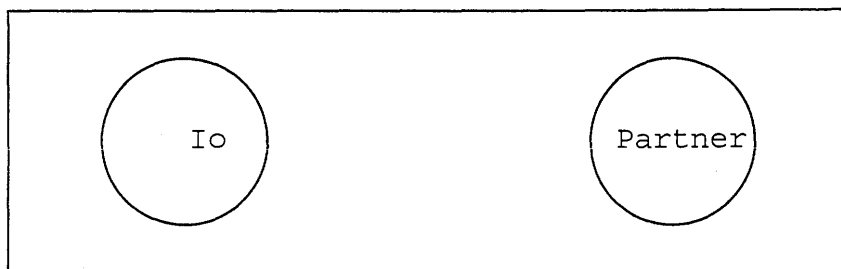
(Italian version: Vicinanza)

Per piacere cerchia la lettera (da A a F) corrispondente alla figura che meglio descrive la sensazione di vicinanza che hai del partner con cui stai per interagire.

A.

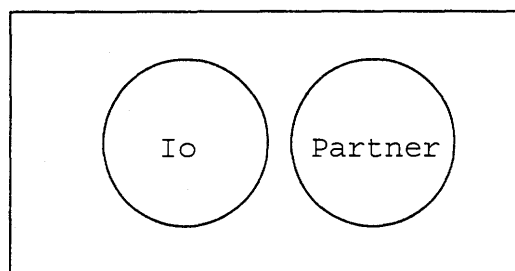
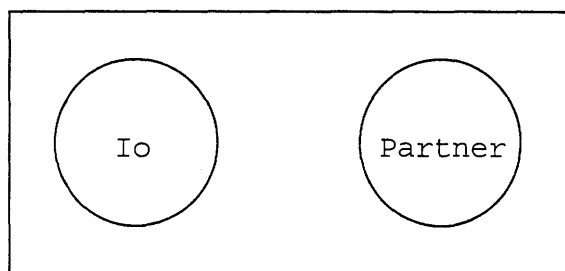


B.



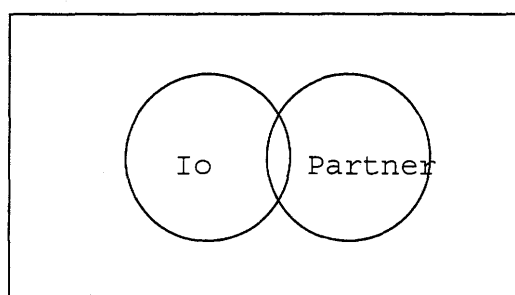
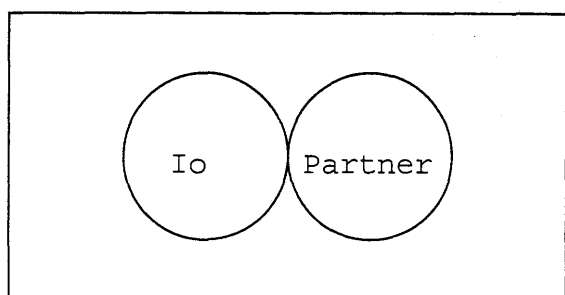
C.

D.



E.

F.



*Female Confederate's Presentation Questionnaire**(used in the 7th Experiment)*

(Italian version: Foglio di Rievocazione)

Nei fogli seguenti troverai delle domande a cui ti viene chiesto di rispondere il piu` velocemente ed accuratamente possibile. Le domande riguardano le informazioni che hai appena letto sulla persona con cui comunicherai tra poco. Non preoccuparti se fai difficolta` a ricordare. Infatti questo non e` assolutamente un test che valuta la tua abilita` di memorizzazione. Nonostante questo ti chiediamo di fare del tuo meglio. Ricordati che una volta girato foglio non potrai tornare indietro. Grazie!

Parte A

Domande generali sulla persona con cui interagirai:

Il nome _____

Il cognome _____

Scrivi il maggior numero di caratteristiche di personalita` tra quelle lette nella presentazione che ti ricordi:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Parte B

Rispondi al maggior numero di domande relative alla breve biografia che ti e` stata presentata.

1. Dove e` andata a 5 anni? _____

Cosa ha visto di particolare? _____

2. Cosa ha fatto quando aveva 9 anni?

Come si sentiva? _____

Cosa stava per accadere? _____

3. Dove e` andata a 11 anni?

In che situazione era? _____

Cosa era chiuso? _____

4. Cosa e` accaduto a 16 anni?

Con chi? _____

Dove si sono conosciuti? _____

5. Dove si e` iscritta a 19 anni?

Con chi si e` consigliata? _____

6. Dove e` andata l'anno scorso? _____

Per che ragione? _____

Con chi era? _____

Come era il tempo? _____

*Male Confederate's Presentation Questionnaire**(used in the 7th Experiment)*

(Italian version: Foglio di Rievocazione)

Nei fogli seguenti troverai delle domande a cui ti viene chiesto di rispondere il piu` velocemente ed accuratamente possibile. Le domande riguardano le informazioni che hai appena letto sulla persona con cui comunicherai tra poco. Non preoccuparti se fai difficolta` a ricordare. Infatti questo non e` assolutamente un test che valuta la tua abilita` di memorizzazione. Nonostante questo ti chiediamo di fare del tuo meglio. Ricordati che una volta che giri un foglio non puoi piu` tornare indietro. Grazie!

Parte A

Domande generali sulla persona con cui interagirai:

Il nome _____

Il cognome _____

Scrivi il maggior numero di caratteristiche di personalita` tra quelle lette nella presentazione che ti ricordi:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Parte B

Rispondi al maggior numero di domande relative alla breve biografia che ti e` stata presentata.

1. Dove e` andato a 5 anni? _____

Cosa ha fatto di particolare? _____

2. Cosa e` successo quando aveva 9 anni?

Perche`? _____

Come si chiamava? _____

3. Dove e` andato a 11 anni?

In che situazione era? _____

Cosa era chiuso? _____

4. Cosa e` accaduto a 16 anni?

Con chi? _____

Dove si sono conosciuti? _____

5. Dove si e` iscritto a 19 anni?

Cosa lo ha convinto? _____

6. Dove e` andato l'anno scorso? _____

Per che ragione? _____

Con chi era? _____

Come era il tempo? _____

B) MATERIAL

*Messages used in the 6th Survey**Postal Letters*

1.

Carissimo Luca,
come va? È da tempo che non ci si vede. Ho pensato di scriverti per avere tue notizie. Per quanto mi riguarda le cose vanno molto bene: mi sono laureato, sto facendo il tirocinio post-laurea e un corso di formazione. Ricordo con piacere le giornate trascorse in riva al fiume a discorrere senza riuscire a prendere mai un pesce! Coltivi ancora la passione della pesca? Io, non ho avuto più il tempo, ma ad esser sinceri, neanche lo stimolo dal momento che ci devo andare da solo. Che ne dici di rivederci e riprendere questo nostro hobby?
Un abbraccio,
Mauro

2.

Cara Caterina,
è trascorso un sacco di tempo dall'ultima volta che ci siamo parlate. Ormai non ricordo neanche più. Abbiamo trascorso tutto il periodo delle superiori in banco assieme, poi un giorno hai voluto chiudere ogni contatto. Ammetto che quella frase che mi ricordo ancora: "non ho più nulla da dirti" mi ha lasciato l'amaro in bocca, e dopo tanto tempo a volte ancora ci ripenso. Non sono mai riuscita a darti una risposta. Le prime volte che ti rivedevo in giro provavo un po' d'imbarazzo, poi una sera hai incontrato mia sorella ed hai voluto rinsaldare la nostra amicizia. Il tutto è durato circa un anno durante il quale ci siamo frequentate ma io non ero riuscita completamente ad instaurare quel rapporto di confidenza che ci legava prima, e forse neanche tu. Poi di nuovo hai voluto rompere. Non mi ricordo la reazione che ho avuto questa seconda volta: se abbia pianto, se sia rimasta o meno delusa; so solo che non ho più cercato un appiglio per parlarne. Da lì le nostre strade si sono divise: tu lo studio, io il lavoro e nuove amicizie. Ti ho visto solo molto di rado e di sfuggita in alcune discoteche sebbene non abitiamo distanti. Ogni tanto ho qualche notizia sul tuo conto, so che non hai ancora terminato l'Università e

che hai i capelli rossi... Chissà magari un giorno, quando saremo madri e saremo a fare la spesa, ci s'incontrerà e alcuni segreti verranno svelati. Un saluto dal tuo braccio destro dell' ITIS di Cervignano.

Simonetta

3.

Cara Chiara,

è da un po' che non ci sentiamo, ma ho pensato fosse brutto perdere un'amicizia che, tutto sommato, ci ha dato molto ad entrambe.

Adesso abbiamo vite molto diverse e siamo anche piuttosto distanti fisicamente, ma sarebbe molto bello se ricominciassimo a scriverci come abbiamo fatto già per quel breve periodo. Dalla nostra, adesso abbiamo un po' più di maturità sulle spalle, quindi credo possa essere stimolante confrontare le nostre esperienze.

Sperando in una tua risposta,

CIAO

Paola

4.

Caro Marco, lo so che è un sacco di tempo che non ci sentiamo e sono imperdonabile per questo, ma ti assicuro che negli ultimi tempi ho avuto moltissimi impegni. Ho pensato molte volte di telefonarti, ma rimandavo sempre al giorno dopo, lo sai come vanno queste cose. Mi è sempre sembrato strano come a volte si può essere legati strettissimamente a una persona e poi non vederla per molto tempo. Spero tu stia bene comunque e non abbia perso il tuo naturale buon umore. Devo assolutamente venire a trovarti uno di questi giorni non appena avrò due o tre giorni liberi e un po' di denaro sufficiente. Naturalmente l'invito che ti ho fatto a venire in Italia è ancora valido e ovviamente vale anche per la tua cara mogliettina. Ho un sacco di cose da raccontarti.

Ciao a presto

E-mails

1.

Ciao Tiziana!!!

E' oramai quasi un anno dall'ultima volta che ci siamo viste.... come sai sono molto indaffarata qui a Trieste e non capito spesso dalle tue parti. Spero tu stia bene... sei andata a vivere nella casa nuova? Sicuramente sì, oramai l'avrai ristrutturata e riarreddata, a quel che mi ricordo avresti dovuto entrarci in settembre.... e Fabio, come sta? Io sto bene, sto preparando la tesi che oramai dovrei discutere tra pochi mesi... sì, mi laureo e mi farebbe molto piacere ci fossi anche tu... non mi sembra vero... ti ricordi i primi giorni di lezione... sei una delle prime ragazze che ho conosciuto tra le file del teatro Rosmini... comunque spero di riuscire a sentirti prima... magari vengo a trovarti, così mi fai vedere dove sei andata a vivere... oppure, se riesci, vieni tu a trovare me... ultimamente sono quasi sempre a Trieste, a casa dei miei ci vado pochissimo e di sfuggita... ci sono molte cose che stanno cambiando nella mia vita ultimamente... ma ti racconterò meglio quando ci vedremo.

Un tenero abbraccio e un bacio

Elisabetta

2.

ciao Luca,

come stai? E' un pò che non ci si vede!!! Come te la passi?? Dalle sporadiche notizie che mi arrivano sul tuo conto sembra proprio che ti stia divertendo... eh!?? sole e donne, ma cosa vuoi di più!!

Qua le cose procedono esattamente come al solito, niente di nuovo, ma ci divertiamo come sempre. Sai meglio di me che qua le cose da fare sono sempre le stesse. Aspetto notizie sulle tue avventure. Esattamente sai già quando torni?

Salutoni e rispondi presto!!

Marco

3.

Ciao Fede,
ti ricordi ancora di me? Sono la tua vecchia compagna di banco... L'ultima volta che abbiamo chiacchierato non ricordo nemmeno dove fossimo, ma dopo tanto tempo avevo voglia di sapere come stai, come te la passi e come procede la tua vita.

Se anche tu hai voglia e tempo di riprendere a raccontarci noi stesse, fatti sentire. Magari ci beviamo un caffè insieme.

Un abbraccio, Monica

4.

Ciao Betta!

scusami se è passato molto tempo dall'ultima volta che ti ho chiamato.. è per questo che ti chiedo tue notizie.. mi piacerebbe tanto sapere se ci sono delle novità nella tua vita: se il lavoro va bene, se la tua storia con il moroso procede nella giusta direzione.. insomma, tutti gli ultimi sviluppi della tua vita.. ultimamente ho sentito Elena che come me fa procedere un pò a rilento la sua vita qui a Trieste.. Ti farà piacere sapere che ho anche visto Daniela di ritorno dalla Spagna.. Entrambe mi hanno chiesto di chiamarti per poter finalmente passare una serata insieme.. Spero che per te non sia un problema.. magari non fino a tardi.. sì, lo so che il moroso è il moroso.. ma per una volta.. Ti ricordo comunque che io sto ancora aspettando tue notizie per quella famosa cena!!!! un abbraccio forte forte.

Biographic Episodes of the Female Presentation

(used in the 7th Experiment)

(Italian paper version of the Power point presentation)

- a. Quando aveva 5 anni e` andata per la prima volta in montagna. Non ha piu` visto tanta neve come quella volta.
- b. A 9 anni ha vinto una gara di pattinaggio. Era cosi` contenta che per poco baciava il suo amico Matteo.
- c. A 11 anni e` andata in gita con la scuola a Roma. Purtroppo non ha visto il foro romano perche` era chiuso.
- d. A 16 anni ha avuto il suo primo ragazzo, Luca. Si sono conosciuti durante una festa di paese vicino a Treviso.
- e. A 19 anni decide di iscriversi a scienze della comunicazione dopo aver parlato con diverse amiche.
- f. L'anno scorso ha passato le vacanze in Tunisia con gli amici Silvio e Antonella. C'era un tempo fantastico!

Biographic Episodes of the Male Presentation

(used in the 7th Experiment)

(Italian paper version of the Power point presentation)

- a. Quando aveva 5 anni ha visto per la prima volta il mare. Era così emozionato che è andato in acqua vestito.
- b. A 9 anni ha ricevuto la sua prima nota scolastica. Per scherzare aveva nascosto la cartella dell'amico Piero.
- c. A 11 anni è andato in gita con la scuola a Firenze. Purtroppo non ha visto gli Uffizi perché erano chiusi.
- d. A 16 anni ha avuto la sua prima ragazza, Laura. Si sono conosciuti durante una festa in maschera.
- e. A 19 anni decide di iscriversi a psicologia dopo aver letto il libro di Freud "L'Interpretazione dei Sogni"
- f. L'anno scorso ha passato le vacanze in Sardegna a casa degli amici Manuele e Gianni. C'era un tempo fantastico!