

Can I trust you? – Personal profiling for a first impression of trustworthiness in virtual project teams

Ellen Rusman, Jan van Bruggen, Peter Sloep, Martin Valcke², Rob Koper

Open University of the Netherlands, The Netherlands
²Ghent University, Belgium

ABSTRACT

This article reports what information members of a virtual project team specifically find important for the formation of an initial impression of the trustworthiness of their colleagues. Collaboration in virtual project teams heavily relies on interpersonal trust, for which perceived trustworthiness is an important determinant. We reviewed different trust-requiring and collaborative online environments to determine what information people have available through profiles. Taking this analysis as a starting point, a group of 226 students with experience in virtual project teams was questioned on signals they preferred to use to form an impression of trustworthiness. On the basis of the results obtained we have formulated several recommendations for the design of groupware environments. They pertain in particular to personal identity profiles.

Keywords: virtual project team, trust, trustworthiness, profile, online identity, impression formation, design, computer supported collaborative environments

INTRODUCTION

Virtual project teams are increasingly looked upon as a format for collaboratively solving complex and knowledge-intensive projects, within and between companies as well as in (inter)national non-profit organizations (Finholt, 2002; Perry, 2008). Several different notions of a virtual project team have been used in previous research, but here we understand it to be an organizational form which is assembled on an as-needed basis for the duration of a project and staffed by two or more members across spatial, temporal, cultural and/or organizational boundaries (Hung, 2004; Powell, 2004). Team members sporadically meet in person; communicate via ICT (e.g. email, chat, video-and/or audio-conferencing); they may not have a prior history of working together and may never meet in the future (Hung, 2004; S. Jarvenpaa & Leidner, 1998).

Interpersonal trust between team members within such virtual project teams is broadly acknowledged to benefit collaboration and communication (Corbitt, 2004; Gambetta, 1988; S. Jarvenpaa, Knoll, & Leidner, 1998; S. Jarvenpaa & Leidner, 1998; S. L. Jarvenpaa, Shaw, &

Staples, 2004). The extent to which a person (the trustor) trust a team member (the trustee) to perform is the trustee's perceived trustworthiness (Hardin, 2002). Perceived trustworthiness is an important factor influencing interpersonal trust, next to a persons trust propensity, situational characteristics (e.g. perceived risk, task complexity, social control mechanisms) and the mood of a person at the time of trust formation (Castelfranchi & Falcone, 1999; Riegelsberger, 2005; Rousseau, Sitkin, Burt, & Camerer, 1998). In face-to-face settings, people construct a first impression of each other's trustworthiness based on different types of signals (perceived features of objects or events which indicate the presence of not observable properties) received through different routes (Bacharach & Gambetta, 1997; Donath, 2006, 2007). A person can obtain information that signals such properties via direct encounters with another person as well as via reputational information via a connection (Olson & Olson, 2000; Riegelsberger, 2005). In mediated settings these signals and routes are not abundantly available, but people nevertheless form a rather persistent impression base on the information they do collect (Cooper & Bott, 1999; Hancock & Dunham, 2001; Walther, 1995, 2005; Zolin, Hinds, Fruchter, & Levitt, 2002). Although initial models for impression formation in mediated settings assumed a severely hampered and depersonalized communication process (Short, Williams, & Christy, 1976; Siegel, Dubrovsky, Kiesler, & McGuire, 1986), subsequent research has shown that only the process of forming an impression is slowed down (Walther, 1993, 1995, 1996). The cognitive need to form an impression of others is undiminished in mediated settings. People just use any type of information source in any way they can in order to form an initial impression (Laat & Lally, 2003; Lea & Spears, 1995; Liu, 2001; Postmes, Haslam, & Swaab, 2005; Walther, 2005); all observations done hereafter are coloured by this perception, people even avoid to search for disconfirming information (Good, 1988; Petty & Cacioppo, 1986).

Although extensive research has been done on the influence of information modality (e.g. text, video, audio) and richness (Daft & Lengel, 1986) on trust formation (Bos, Olson, Gergle, Olson, & Wright, 2002; Olson & Olson, 2000), it remains unclear what specific information transmitted in these differently encoded messages 'does the trick' in professional settings. Several methods are used to support initial impression formation. Most make personal background and social information available, through story-telling, role-playing games, team-building exercises, personal profiles and elements in training. Even though they all have been found to support trust formation (Bacharach & Gambetta, 1997; Feng, Lazar, & Preece, 2004; Hung, 2004; Kanawattanachai & Yoo, 2005; Rusman, Bruggen, Cörvers, Sloep, & Koper, 2009; Zolin, Fruchter, & Hinds, 2003), we don't really know what specific type of information people are looking for in professional contexts to determine whether someone is able, honest, incorruptible, consistent, responsible and so on (Macrae, 2001; Mayer, Davis, & Schoorman, 1995; Rusman, Van Bruggen, Sloep, & Koper, submitted). We do know that this first impression is especially important to accelerate trust formation in the initial phases of a virtual project team (S. L. Jarvenpaa et al., 2004). It thus is imperative to offer the 'right' and not too much information, to try and meet the need of virtual team members, thereby allowing them to function best.

In this article we present a study that aims to determine what specific information virtual project team members find beneficiary and useful to have available for trying to determine whether an individual team member is worthy of their trust in the initial phases of a virtual project team. One way to provide this info is through a **personal identity profile**, which contains static or dynamic information on a person's identity (Danis, 2000). Although some research has been done on

profiles and their elements (Berlanga, Bitter-Rijkema, Brouns, Sloep, & Fetter, accepted; Boyd & Heer, 2006; Lee, 2002), the use and function of the information elements available in these profiles, is assumedly to depend largely on the characteristics of the context they are implemented in. Information provided in privately-oriented, mediated contexts will be different than in professional contexts. In this study we initially look at both type of contexts and available information elements, as there is an indication that more private, personal oriented information is also important for people in a mediated professional context (Wilson, Straus, & McEvily, 2006).

Our focus is furthermore on the type of information and not so much the modality of the media by which an impression of a team members' trustworthiness is formed. Although there is a difference in types of cues which can be transferred by different media, we assume the information content is the key determinant for the formation of trustworthiness. We expect that information signaling a persons professional ability, benevolence, accountability and so on, are most preferred by virtual team members. If we know what type of information virtual team members in general are looking for we can take this into account while designing artifacts or methods, such as a personal identity profile. Although individuals each use different, implicit personality theories to attribute characteristics to another person (Arnold, 1998), we here try to find their overlap when it comes to signaling trustworthiness in a professional setting.

Concluding, we seek an answer to the following questions:

1. What type of information is initially made available by system designers to allow the formation of a first impression of trustworthiness in existing trust-requiring and/or groupware environments?
2. What type of information users consider important for the formation of a first impression of trustworthiness in a virtual project team?
3. What type of information users consider as practical for collaboration in a virtual project team?

METHOD

Analysis of high-trust-requiring and groupware environments

We first identified several online environments where people interact as individuals on an equal footing and where trust is an important factor for enabling this interaction. We selected environments where one may presume that people do not know each other yet and thus depend on information provided in a profile to form a first impression. We did not restrict our observations to professional environments only, as research on virtual project teams indicates that more personal and social-oriented information is likely to have a positive influence on trust formation. Table 1 represents the high-trust-requiring environments we selected for our observations. For each environment we specified with what aims people seek interaction and what risks they run, which then need to be overcome by trusting others in these environments.

	Aim of individual	Risk	Observations in:
Dating	Find a suitable partner, find a friend	Encountering 'wrong' people, leading to harassments	www.match.com www.makefriendsonline.com
Buying/selling	Buy or sell something	selling: don't get payment for your goods; buying: don't get your goods or get rubbish	www.ebay.com
Couch exchange	Stay in the house of an unknown host/host an unknown visitor	as guest: visit might be unpleasant or even dangerous; as host: visitor might be unpleasant, dangerous or prone to theft	www.couchsurfing.com
Social networking	Link to people in a network in order to communicate, get recommendations or get informed on various shared interests (e.g. activities, photo's etc.)	harassment by unknown people (connections in the x th grade)	www.linkedin.com (network for professionals); www.hyves.nl (network for friends); www.facebook.com (mixed user group); http://elgg.net (educational professionals)
Recruitment	Find suitable people for a job; find a job	Hire incompetent or non-existing employees; except a job at an non-existent and financial distrustful organization	www.monsterboard.nl ; www.reputator.net ; www.aupair-world.nl

Table 1: Inventory of high-trust-requiring, online environments

We also analysed profiles within several groupware and professional environments (Table 2):

Environment	Description	References
Moodle	An open source course management system designed to help educators create online	http://moodle.org

	learning communities	
Future Learning Environment	FLE is server software for computer supported collaborative learning	http://fle3.uiah.fi
EGroupware	Free enterprise ready groupware	http://www.egroupware.org
PhPGroupware	Multi-user groupware suite	http://www.phpgroupware.org
Pexpi	Personal expertise template used within several OUNL distance courses	(Berlanga et al., accepted; Ogg et al., 2004; Rusman et al., 2009; Rusman, Bruggen, & Koper, 2007)
Who is who	Template for employee overview within OUNL (internal view)	http://www.ou.nl/eCache/DEF/85.html (external view)

Table 2: Overview of groupware and collaborative environments

Within each of these 17 environments we identified the information elements which were available in the personal identity profiles and could be used to form a first impression of trustworthiness. Thus, we obtained a list with all information elements specific to each of these different contexts (Appendix A), as well as a count of the commonly used information elements across these environments (see ‘results’ section).

Survey on importance of information for a first impression of trustworthiness

Using the list with information elements obtained by observing high-trust-requiring environments as our starting point, using a survey by means of a structured questionnaire at the Ghent University, Belgium. The objective of this survey was to determine which information elements the respondents consider most important for the formation of a first impression of trustworthiness in the context of virtual project teams.

Participants

Data were collected among bachelor level students, enrolled in the Educational Sciences programme at the Ghent University, as a part of their acquaintance with doing research. Thus, a convenience sample of 226 respondents (mean age = 18,2 years, SD= 1,85) was obtained, 93% of which were female and 7% male. 99 % of the respondents had previous experience with collaboration in a f2f project team, either in a (part-time) job or during their study. 95 % had previous experience with collaboration in a virtual project team, probably earlier within the curriculum. 88% of the respondents had experience with online conversations with people they had never met before. The majority of the online conversations took place via text-based media only, either via sec chat and/or e-mail (78%) or in combination with SMS (9%).

Materials

The questionnaire contained twelve open, as well as close-end questions in the respondents native tongue (Dutch). Open-ended questions referred to background variables of respondents, such as age, as well as the description of experiences and explanation of responses. Participants were also asked in an open question to think of at least 15 information elements they would value high to form a first impression of a virtual project team member. Here we report on the results of the subsequent close-ended questions only (see appendix A for an overview of relevant

questions and answer options). These questions referred mainly to rating the importance of potentially available information elements in a pre-defined list. Although the rating of an information element could each be seen as a separate question, we consider them part of one general question.

Procedure

Preceding the completion of the questionnaire, participants received a short presentation that clarified our definition of virtual project teams, showed examples of them, discussed the role of interpersonal trust for collaboration and the objectives of the questionnaire. We also explained the way items had to be scored, which was again described in the questionnaire. Respondents were told that the responses to this questionnaire would be kept anonymous and that it would take about 30 minutes to complete the close-end questions of the questionnaire.

Prior to rating the information elements, respondents were prompted by a scenario in the questionnaire that described them as a member of a new European project, which required them to collaborate in a virtual project team (Appendix A). They were asked to imagine that they were part of this virtual team and told that, within two weeks from the start of the project, they had to form a first impression of their team members' trustworthiness. They could determine what information (from a pre-defined list) they would have available within the profiles of their team members. This could be done by rating the information on importance for forming a first impression of trustworthiness. Respondents were then asked to rate information elements on a 5-point Likert scale: (1) Definitely not important, (2) Not important, (3) Neutral, (4) Important, (5) Definitely important.

In addition, respondents were also asked to indicate per information element if they thought the information would be of practical use for collaboration in a virtual project team.

RESULTS

Analysis

Based on the analysis, we extracted a list of 157 information elements that were available in profiles within high-trust-requiring online environments as well as groupware environments. This list could be divided in static (unchangeable) as well as dynamic (changeable, based on behaviour) information elements (Danis, 2000). All elements became part of the answer options of the survey (Appendix A). We also checked which information elements were available across eight or more environments, thus indicating what designers commonly considered important for the representation of identity as well as for impression formation of their users. This resulted in the following list with overlapping elements across these environments:

- Name (first and surname)
- Pseudonym (alias/display name)
- Photo
- Personal description/about me
- Age/date of birth
- Reference to personal URL (blog, website, homepage)

- Contact data (business/private)
- Contact method
- Location data (business/private)
- Occupation/function/position/role
- Company/organization/employer
- Education
- Interests (private/professional)
- Languages (level, preferred language for communication)
- Testimonials (references, info from others about person)

These information elements largely overlap with the information elements found by Berlanga *et.al* (accepted) while looking at three well-known social network sites.

Survey

For all information elements, their mean importance and standard deviation was calculated based on the respondents' scores. Missing values were not taken into account. Mean values equal or higher than 4 were considered as an indication that they were commonly considered important for the formation of a first impression of trustworthiness within the group, whereas mean values equal or lower than 2 were considered unimportant. We rounded all figures to two decimals. Most SD's were less than 1, still either indicating scores of 'neutral or definitely important' in case of the important elements and 'definitely not important or neutral' in case of the least important elements. Thus we identified a list with 23 information elements generally considered important for the formation of a first impression of trustworthiness. Tables 3 and 4 provide an overview of the most and least important information elements.

Table 3: Means and standard deviations of importance of information elements with scores ≥ 4

((1) Definitely not important, (2) Not important, (3) Neutral, (4) Important, (5) Definitely important))

Information element (+ code)	Description	N	Mean	SD
Personal motivation for project		221	4,52	,58
Ideas for project	Thoughts, opinions, insights and plans for project	221	4,51	,64
Reason why you are selected to participate in project		222	4,47	,57
Expectation of project		223	4,35	,71
I would like to work in the following type of situation(s) ..., because ...	Preference and motivation for working in specific situation(s) within the project	220	4,34	,66
I would like to work on this part of the project ..., because ...	Preference and motivation for working on a specific part of the project	222	4,32	,77
Project aims	That which someone strives for within the project from a personal belief and ambition	224	4,32	,81
Project time capacity	Number of hours someone has available for the work that needs to be	218	4,32	,81

Ways I want to contribute to project	done within the project Ideas about potential personal contributions to the project	216	4,31	,60
Previous work experience	List of jobs and functions held	219	4,26	,76
Availability during project	Insight in availability during project, e.g. by showing regular office days/hours, planned holidays and/or planned time spans to work on the project	219	4,24	,83
Personality traits	Summary of important properties and personality traits of a person	222	4,24	,85
Description of relevant work experience	Particulars and characteristics of previously acquired work experience in relation to for the project indispensable competencies	223	4,23	,69
Description education/training	Particulars and characteristics of educational programs/courses followed in relation to for the project indispensable competencies	223	4,20	,84
Managerial work experience	Previous experience with management	218	4,18	,76
Expertise	Areas someone is able and specialized in	217	4,18	,84
Expectation of others within project	Anticipation on future behavior, rules of conduct, contributions of and interactions with team members within project	217	4,16	,74
Language and language proficiency		214	4,09	,84
Appointments made and follow up*	Overview of appointments, with whom they were made, and the status of follow up	219	4,09	,87
Contact data (office)	For example e-mail, (mobile) phone, fax, address (office nr., street, zipcode, skype/msn/ICQ/Yahoo, pager	215	4,06	1,05
Task list with all deadlines, planned and realized tasks within project*	Overview of all tasks, deadlines and status of tasks a project member is responsible for	219	4,05	,84
Preference for role within project	Preferred role with related tasks and responsibilities within the project	217	4,03	,81
Preferred language for communication within project		213	4,00	,95

* dynamic information element

Table 4: Means and standard deviations of importance of information elements scores ≤ 2
 ((1) Definitely not important, (2) Not important, (3) Neutral, (4) Important, (5) Definitely important))

Information element (+ code)	Description	N	Mean	SD
Pseudonym/alias		220	2,05	1,09
Body art		223	2,01	1,14
Daily eating habits		225	1,96	1,03
Favorite spot	Favorite place of a person	220	1,85	,98
Physical stature	Figure and pose of a person	223	1,81	,97
Domestic animal/pet		224	1,68	,98
Hair	e.g. color, model, length	224	1,60	,87
Eyes	e.g. color, shape	224	1,57	,87
Weight		224	1,49	,70
Length		223	1,47	,70
Sign of the zodiac		220	1,46	,87

We also determined the scores for the information elements which were considered commonly as practical for collaboration, employing a threshold of 0,4 for inclusion. Table 5 provides an overview of the identified information elements.

Table 5: Means and standard deviations of practical usefulness of information elements scores $\geq .40$ ((0) not useful, (1) useful)

Information element (+ code)	Description	N	Mean	SD
Availability during project	Insight in availability during project, e.g. by showing regular office days/hours, planned holidays and/or planned time spans to work on the project	225	,44	,50
Contact data (office)	For example e-mail, (mobile) phone, fax, address (office nr., street, zipcode, skype/msn/ICQ/Yahoo, pager	221	,434	,50
Project time capacity	Number of hours someone has available for the work that needs to be	225	,42	,50

Preferred medium for contact during project	done within the project Personal preference for contact media, e.g. via mail, skype, etc.	221	,42	,49
Local time at location of team member*	Time at the residence of a team member. Through time zones, time is dependent on location on the globe.	226	,41	,49
Language and language proficiency		223	,40	,49

CONCLUSION AND DISCUSSION

The current study provides insight in what information elements are commonly perceived as important for the formation of a first impression of trustworthiness. We arrived at this list by querying a group of students with virtual project team experience whom we enlisted in a ‘simulated’ virtual project team. We assumed an equal and not a hierarchical relation between project team members, as the latter might affect the type of information a person is looking for (Albrecht, 2002; Schoorman, Mayer, & Davis, 2007). Our study was carried out by means of convenience sample, primarily containing young Belgian female students. Although this may restrict the applicability of the outcomes, the communality between a large number of respondents at least suggests that results are applicable more broadly and partly transferable to real virtual project teams in countries with a similar culture.

Our first question focused on the identification of information which is made available by system designers within profiles across 17, very different, trust-requiring situations. The results show 15 information elements which are universally present across those contexts, as well as 157 very diverse information elements, ranging from information on ones zodiac sign to professional interests and activities (Appendix A). An analysis of the results reveals that the type of information elements which are seen as important by designers largely depend on the context of the trust-requiring situations and the aim for which the environment is developed; the importance of an element is dependent on the context in which it is supplied. However, restricting ourselves to information elements available within groupware and professional environments only, still a wide range of elements was made available. This indicates that designers hold different views, implicit as they may be, on the information elements users need to interact within a trust-requiring professional context. The remaining common information elements which were available across more than eight environments are largely for identification and practical purposes, with the exception perhaps of such elements as ‘personal description’, ‘occupation’, ‘education’, ‘interests’ and ‘testimonials’. Overall, this analysis provided a basis for the second part of the study as well as an indication that it would indeed be useful to look at a common preference for particular information elements among virtual project team members.

The second question focused on what type of information virtual project team members see as important for the formation of a first impression of trustworthiness in a professional context, independent of the type of medium by which they are transmitted. Making use of the wisdom of

a crowd a list of 23 important information elements could be identified, the selection having been made on content-related, not media-related, considerations only (Table 3). Also information elements, for example one's zodiac sign or pet, which were deemed relevant in another context such as dating, were identified as irrelevant for the formation of an initial impression of trustworthiness within a professional collaborative context (Table 4). Looking at the resulting list of 23 information elements, virtual project team members indeed seem to be specifically interested in information that signals characteristics specific to trustworthiness in a professional context, such as his or her ability, motivation, availability, responsibility and so on. It seems to be important to take the professionals conceptual model of trustworthiness into account while determining what information will be made available within virtual project team environments. Respondents seem to simply assume that basic information on the identity of the other, such as a name, photo etc., are available, since they do not indicate these information elements as important for the determination of trustworthiness. Most strikingly, the list with preferred information elements is almost completely different to the list with information elements provided by the system designers. Looking at the list it is also striking that only few dynamic information elements, that display behaviour, are selected and seen as important for the formation of a first impression of trustworthiness. This corresponds to what we found in a first explorative study (Rusman et al., 2009), in which we researched whether the availability of information in a profile positively affected the formation of a trustworthiness impression. There and then we determined what information was made available in the profile and results indicated that the availability of information helped people to form an impression, as well as aided their collaboration. In this study, qualitative data indicated that people were divided over the display of dynamic data, mentioning pros as well as cons, such as a sense of shared responsibility as well as the sense that 'big brother is watching you'. In the current study we did not specifically ask them to explain their responses in relation to the dynamic information. The de-emphasis of dynamic information could also be related to the fact that our window of research only covered the first two weeks only. In such a short period of time little dynamic information based on user behaviour has become available.

Our third question focused on what information virtual project team members commonly see as practical for collaboration. Here we see that the results are almost all related to an insight in the availability of the other, and in the language and methods with which people can contact each other (Table 5). Some of the information elements overlap with the important information elements from the previous question. Individual information elements can thus have multiple functions.

Looking at the results based on a review of existing trust-requiring contexts and the results based on the selection of users, we see a clear difference between what information designers designed for and the preference of virtual project team members. Furthermore, it is clear context matters. The difference found between information offered and information needed to form an impression of trustworthiness within virtual project teams clearly indicates groupware designers how to adapt their design. It also helps virtual project team leaders to design activities and guidelines that foster a virtual teams performance. The information elements found across all environments could be seen as a kind of baseline, complemented with information elements which matter to the formation of a first impression of trustworthiness.

Results also indicate that, looking at the most important information elements, virtual project team members indeed seem to look specifically at signals that indicate professional trustworthiness properties in relation to the project at hand, such as ability, motivation, responsibility. Although we expected that more personally oriented information would be important for initial impression information, the results do not confirm this expectation. When more personal information is needed, it is in almost all cases related to the professional context. Examples are one's preference and motivation or one's project related personal beliefs and ambitions. It would be interesting to see whether a relation between the preferred information elements and a common conceptual model of professional trustworthiness could be made, for example based on the analysis of the open answers in the questionnaire within the 'simulated' virtual project team. It could be that some information elements provide information for more than one conceptual category, for example one's education could say something about one's ability as well as one's consistency and responsibility, thus providing more signals within one information element. Also, it would be useful to research whether there is a difference between a 'sender' presenting trustworthiness related information and a 'receiver' looking for information, as now we have only looked at the information needs of a receiver. In the future we will apply our insights to actual, rather than 'simulated' virtual teams, as a means to further validate our results empirically.

REFERENCES

- Albrecht, S. L. (2002). Perceptions of Integrity, Competence and Trust in Senior Management as Determinants of Cynicism Toward Change. *Public Administration and Management: An Interactive Journal* 7(4), 320-343.
- Arnold, J., Cooper, C.L., Robertson, I.T. (1998). *Work psychology. Understanding human behaviour in the workplace*. (3 ed.). Essex: Financial Times Professional Limited.
- Bacharach, M., & Gambetta, D. (1997). Trust in signs. In K. S. Cook (Ed.), *Trust in Society*. (pp. 148-184.). New York.: Russell Sage Foundation. .
- Berlanga, A. J., Bitter-Rijkema, M. E., Brouns, F., Sloep, P. B., & Fetter, S. (accepted). Personal profiles: Enhancing Social Interaction in Learning Networks. *International Journal of Web based Communities*.
- Bos, N., Olson, J., Gergle, D., Olson, G., & Wright, Z. (2002). *Effects of Four Computer-Mediated Communications Channels on Trust Development*. Paper presented at the CHI 2002.
- Boyd, D., & Heer, J. (2006). *Profiles as Conversation: Networked Identity Performance on Friendster*. Paper presented at the 39th Hawaii International Conference on System Sciences, Hawaii.
- Castelfranchi, C., & Falcone, R. (1999). Trust is more than subjective probability: mental components and sources of trust. Retrieved 22 March, 2006
- Cooper, A., & Bott, M. W., J. (1999). Influence of Expectancies and Experience on Impression Formation. *Journal of Psychological Inquiry*, 4, 21-24.
- Corbitt, G., Gardiner, L., Wright, L. (2004). *A comparison of team developmental stages, trust and performance for virtual versus face-to-face teams*. Paper presented at the Proceedings of the 37th Hawaii International Conference on System Sciences, Hawaii.

- Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), 554-571.
- Danis, C. M. (2000). Extending the concept of awareness to include static and dynamic person information. *SIGGroup Bulletin*, 21(no.3.), 59-62.
- Donath, J. (2006, 15 february 2006). Signals, cues and meaning. Retrieved august, 2006, from <http://smg.media.mit.edu/classes/IdentitySignals06/SignalingDraft.pdf>
- Donath, J. (2007). Signals in social supernets. *Journal of Computer-Mediated Communication*, 13(1), article 12.
- Feng, J., Lazar, J., & Preece, J. (2004). Empathy and online interpersonal trust: a fragile relationship. *Behaviour and information technology*.
- Finholt, T. A. (2002). Collaboratories. *Annual Review of Information Science and Technology*, 36, 73-107.
- Gambetta, D. (1988). *Trust: making and breaking cooperative relations*. Oxford: Basil Blackwell.
- Good, D., Gambetta, Diego. (1988). Individuals, Interpersonal Relations, and Trust. In *Trust: Making and breaking cooperative relations* (pp. 31-48): Oxford and New York: Blackwell.
- Hancock, J. T., & Dunham, P. J. (2001). Impression Formation in Computer-Mediated Communication Revisited. *Communication research*, 28(3), 325-347.
- Hardin, R. (2002). *Trust and trustworthiness*. New York: Russell Sage Foundation.
- Hung, Y. C., Dennis, A.R, Robert, L. (2004). *Trust in Virtual Teams: Towards an Ingegrative Model of Trust Formation*. Paper presented at the 37th Hawaii International Conference on System Sciences, Hawaii.
- Jarvenpaa, S., Knoll, K., & Leidner, D. (1998). Is Anybody Out There?: The Development of Trust in Virtual Teams. *Journal of Management Information Systems Vol. 14*(No.4), pp. 29-64.
- Jarvenpaa, S., & Leidner, D. (1998). Communication and trust in global virtual teams. *JCMC*, 3(4).
- Jarvenpaa, S. L., Shaw, T. R., & Staples, D. S. (2004). Toward Contextualized Theories of Trust: The Role of Trust in Global Virtual Teams. *Information Systems Research*, 15(3), 250-264.
- Kanawattanachai, P., & Yoo, Y. (2005). Dynamic nature of trust in virtual teams. *Sprouts: Working papers on Information Environments, systems and organizations*, 2(2), 41-58.
- Laat, d., M., & Lally, V. (2003). Complexity, theory and praxis: Researching collaborative learning and tutoring processes in a networked learning community. *Instructional science*, 31, 7-39.
- Lea, M., & Spears, R. (1995). Love at first byte? Building personal relationships over computer networks. In J. T. Wood & S. Duck (Eds.), *Understudied Relationships: Off the Beaten Track*. Newbury Park: CA: Sage.
- Lee, A., Girgensohn, A., Zhang, J. (2002). Collective construction of facets of a group identity. Retrieved June, 2006, from <http://www.webcollab.com/alee/portfolio/>
- Liu, Y., Ginther, D. (2001). Managing Impression Formation in Computer-Mediated Communication. *Educause Quarterly*, 3, 50-54.
- Macrae, C. N., Bodenhausen, G.V. (2001). Social cognition: categorical person perception. *British Journal of Psychology*, 92, 239-255.
- Mayer, R. C., Davis, J. H., & Schoorman, D. (1995). An integrative model of organizational trust. *Academy of management review*, 20(3), 709-734.
- Ogg, H., van Elk, L., Hondius, A., Stoffberg, A., Aa van, P., Bitter, M., et al. (2004). *Samenwerkend leren digitaal Ondersteund. Handboek*. Utrecht: Stichting Digitale Universiteit.
- Olson, G. M., & Olson, J. S. (2000). Distance Matters. *Human-Computer Interaction*, 15(2&3), 139-178.
- Perry, B. (2008). Virtual Teams Now a Reality. Two out of Three Companies Say They Will Rely More on Virtual Teams in the Future. Retrieved 5 October 2009, from <http://www.i4cp.com; http://www.pr.com/press-release/103409>

- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*: Springer-Verlag, New York.
- Postmes, T., Haslam, S. A., & Swaab, R. I. (2005). Social influence in small groups: An interactive model of social identity formation. *European Review of Social Psychology*, 16, 1-42.
- Powell, A., Piccoli, G., Ives, B. (2004). Virtual teams: a review of current literature and directions of future research. *The database for advances in Information Systems*, 35(1), 6-36.
- Riegelsberger, J. (2005). *Trust in mediated interactions*. University College London, London.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). "Not so different after all: a cross-discipline view of trust". *Academy of Management Review*, 23(3), 393-404.
- Rusman, E., Bruggen, v., J., Cörvers, R., Sloep, P., & Koper, R. (2009). From pattern to practice: Evaluation of a design pattern fostering trust in virtual teams. *Computers in Human Behaviour*, 25(5), 1010-1019.
- Rusman, E., Bruggen, v., J., & Koper, R. (2007). From pattern to practice: evaluation of a design pattern fostering trust in virtual teams. *Conference workshop on CSCL design patterns*, from <http://cosy.ted.unipi.gr/Papers.html>
- Rusman, E., Van Bruggen, J., Sloep, P., & Koper, R. (submitted). Fostering trust in virtual project teams: towards a design framework grounded in a TrustWorthiness Antecedent (TWAN) schema.
- Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: past, present and future. *Academy of Management Review* 32(2), 344–354.
- Short, J., Williams, E., & Christy, B. (1976). *The social psychology of telecommunications*. London: John Wiley.
- Siegel, J., Dubrovsky, V., Kiesler, S., & McGuire, T. (1986). Group processes in computer-mediated communication. *Organizational Behavior and Human Decision Processes*, 37, 157-187.
- Walther, J. B. (1993). Impression development in computer-mediated interaction. *Western Journal of Communication*, 57, 381-398.
- Walther, J. B. (1995). Relational Aspects of Computer-mediated Communication: Experimental Observations over Time. *Organization Science*, 6(2), 186-203.
- Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication research*, 23, 3-43.
- Walther, J. B. (2005). *The rules of virtual groups*. Paper presented at the Proceedings of the 38th Hawaii International Conference on System Sciences, Hawaii.
- Wilson, J. M., Straus, S. G., & McEvily, B. (2006). All in due time: The development of trust in computer-mediated and face-to-face teams. *Organizational Behavior & Human Decision Processes*, 99(1), 16-33.
- Zolin, R., Fruchter, R., & Hinds, P. (2003). *Communication, Trust & Performance: The Influence of Trust on Performance in A/E/C Cross-functional, Geographically Distributed Work*. Stanford: Stanford university.
- Zolin, R., Hinds, P. J., Fruchter, R., & Levitt, R. E. (2002). Trust in Cross-functional, global teams. *CIFE*

APPENDIX A – CONDENSED VERSION OF QUESTIONNAIRE

General

1. What is your gender? (male/female)
2. What is your age? (... year)
3. Do you have experience with collaboration within a face to face project team within work-or study related settings? (n/y)
4. Do you have experience with collaboration within a virtual project team within work-or study related settings? (n/y)
5. Do you have experience with online conversations with people you have never met face to face? (n/y). (y): These conversations were primarily mediated via: text (chat, e-mail); audio conferences; videoconferences; SMS; other, namely
6. Did you meet someone face to face which you previously only knew online? (n/y) If so, was this person face to face very differently then you had until them imagined him/her to be? In which way(s)?

Imagine:

You recently became a member of an international virtual team within an European financed project. This virtual team collaborates independent from time, place, organization and country via a virtual project space during the lifespan of the project. Within the project you have to jointly deliver a product. You work with people from different organizations (companies, governmental and non-profit), with each of them specialized in a certain knowledge domain and with certain discipline-related skills. In order to develop a product meeting high quality standards it is important that you all integrate this specialized knowledge and use your skills. To finish this product in time you are strongly dependent on each other. For you personally the success of this project is important as well. You don't know the people you are going to collaborate with and it is not possible to meet each face to face within this project.

You want to form an impression of the trustworthiness of your different team members within the first two weeks of the project. Within the project this is arranged by making profile information from each team member available. You can determine yourself which information you would like to have available within these profiles.

1. *Which profile information is important to form a first impression of the trustworthiness of a virtual project team member? Think of at least 15 information elements that are important for you to form this impression .(open question).*

Imagine:

You are in the same situation as just described. Several people have already thought about different types of information elements which could become available within a profile and have listed them. You may also determine what type of information will be made available within pre-structured profiles. All team members are asked to indicate per listed information element:

2. *The importance of having this information element available in a profile to form a first impression of trustworthiness of a team member within the first two weeks of a project.*

Indicate your choice by marking: (1) Definitely not important, (2) Not important, (3) Neutral, (4) Important, (5) Definitely important

3. *The practical usefulness of having this information element available in a profile to collaborate in a virtual project team.*

Check the box if you think this element would be practically useful.

**Information elements listed subsequently:
(without descriptions provided in the original questionnaire)**

Static information (116 information elements)

Title/degree	Location (private)	Zodiac	Ways I want to contribute to project	Hates ... during work
Name	Location (work)	Sports and condition	Expectation of others within project	Relevant experience and skills from previous projects
Surname	Personal device/slogan	Ethnic background	Religion	Travel experience
Pseudonym/alias	Terms of employment	Personal interests (hobbies/activities)	Example cultural background and customs	Publications
Date of birth	Job status	Professional interests and activities	Language and language proficiency	Awards
Nationality	Previous work experience	Employer	Preferred language for communication within project	Media experience
Personality traits	Managerial work experience	Branch/sector	Political viewpoint	Presentation experience
Place of birth	Description education/training	Department	Philosophical viewpoint	Teach, learn, preach an useful experience
Raised in/hometown	Drivers license	Salary	Amazing experience/live event	Type of people I love
Gender	I would like to work on this part of the project..., because ...	Name of function/role/position within organization	Favorite links (professional)	Worst project experience
Formal	I would like to	Description of	Favorite links	Best project

photo's	work in the following type of situation(s) ..., because ...	your function/role/position	(private)	experience
Informal photo's	Professional website/homepage	Motivation for your function/role/position	Professional references (articles)	Writing style
Length	Personal website/homepage	Ideas for project	Memberships	Correct written and oral language use
Weight	Willingness to travel for project	Personal aims	Social network (friends/connections)	Future plans
Physical stature	Contact data (work)	Career aims	Degree of relationship	Opinion on project related subjects
Eyes	Contact data (private)	Project aims	Member of a group since ..	Advertisement
Hair	Preferred medium for contact during project	Jobs finished	Expertise domain(s)	On my mind
Body art	Personal assistant/secretary	Projects finished	Motivation behind expertise domain	Favorite spot
Daily eating habits	Pets	Products finished	Recent study or work experience	Sign of special position in group (e.g. ribbon)
Smoking behavior	Situation at home	Current professional activities (next to project)	Personal tip (private)	Sign of identity verification
Drinking behavior	Relation	Current private activities	Personal tip (in relation to projects)	
Informal video	Availability during project	Expectation of project	Tip relevant (re)source for project	
Audio-message for project members	Project time capacity	Personal motivation for project	Preference of role within project	
Video-message for project members	Personal description "About me"	Reason why you are selected to participate in project	Loves ... during work	

Dynamic information (41 information elements)

Number of made/changed/read/commented messages/documents (by profile owner)	Received personal rating of team members	Overview of questions posed by and answers given to team members	Items of friends	Overlapping interests and expertise
Number of seen/changed/commented messages/documents (by others)	Rating given to team members	Local time at location of team member	Overlapping links	Appointments made and follow up
Recently made/changed/seen documents	Received references/testimonials	Last access date and time	Overlapping references	Given reviews/testimonials
Contributions	Received ratings of messages/contributions	Mean last access date and time	RSS feeds	Received reviews/testimonials
Received messages during the last .. days	Received personal rating of team members	Login frequency	Percentage of profile elements filled by profile owner	Recommended by team member x, while ..
Mean response time on messages	Rating given to team members	Online status	Profile visit frequency by team members	
Response percentage	Received references/testimonials	Agenda/diary	Profile visit frequency by profile owner	
Given ratings of messages/contributions	Given references/testimonials	Term frequency within content of messages/documents	Task list with all deadlines, planned and realized tasks within project	
Received ratings of messages/contributions	Overview of posed questions to and answers of team members	Overview overlapping contacts with team members	Frequency of first, second, third authorship of article/reports	

4. *The ten most important information elements to have available in a profile to form a first impression of trustworthiness of a team member within the first two weeks of a project (open question).*
5. *Describe subsequently for each selected information element(open question):*
 - *What are the facts you can derive from this information*

- *What is your interpretation of this information in relation to your impression of trustworthiness of your team members? What can you derive from this information leading to your trustworthiness impression?*
6. *Do you have any additional ideas regarding important information elements for the formation of a first impression of trustworthiness? (open question).*