# Developing Trust in Virtual Teams[*]

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## Abstract

*A research project with distributed electronic teams was conducted to examine how virtual temporary teams quickly develop and maintain trust relationships with people that they hardly know, and may never meet again, with the goal of producing interdependent work. We collected data from 14 teams of students from three different universities with the aim of providing a theoretical and empirical explanation of what temporary, distributed teams do to produce trust as a foundation for cooperative work. Our results suggest that high levels of trust were maintained in teams that engaged in continuous and frequent interaction, were more efficient in moving through the phases of the project, focused on the work content of their projects, and achieved sufficient amounts of social penetration during the first part of the project to increase their work effectiveness throughout its conclusion. The implications of trust in virtual teams are discussed.*

## 1. Introduction

Recent attention to the virtual organization [1,2,6], suggests that temporary, distributed work groups and global teams are becoming increasingly common to all organizations [1,10]. These are groups of people who must work closely together for a short period of time, learn from each other and accomplish specific goals, but for whom face-to-face contact is too costly or simply not possible most of the time. A major problem for temporary electronic teams is converting the individual skills and efforts of strangers into interdependent work products in a short period of time while using computer-based communication technologies to coordinate their work. To accomplish work in this way, "people must reduce their uncertainty about one another through operations that resemble trust" [9, p.169].

The purpose of this research is to examine how trust is developed in temporary, electronic teams. In particular, we examine how virtual temporary teams quickly develop and maintain interpersonal working relationships with people that they hardly know, and may never meet again, with the goal of producing interdependent work. A better understanding of how virtual teams self-organize and handle problems related to trust is critical to the management of virtual organizations [7,8]. Our aim is to provide a theoretical and descriptive explanation of what temporary, distributed teams *do* to produce and maintain trust as a foundation for cooperative and interdependent work. That is, for work that must be accomplished quickly, trust is less about relating than *doing*.

## 2. Swift trust and temporary systems

Most models of trust development assume that trust develops gradually over time [3]. Trust increases as people learn (a) the rewards and punishments for trusting behavior, (b) who to trust and how predictable people are in their trusting behavior, and (c) the shared beliefs and values of the group's collective identity. Meyerson, Weick and Kramer [9] have argued that a different form of trust, *swift trust*, is necessary in temporary systems. Situations requiring swift trust do not allow for this incremental, gradual evolution based in increasing knowledge and information about others' behaviors. Since the temporary group must move forward quickly to accomplish goals, members must act swiftly as if trust were in place rather than waiting to see who can be trusted and who cannot. They must work continuously and consistently to maintain expectations of trust.

Swift trust is less an interpersonal form than a cognitive and action form. Since speed is of the essence, any distractions from the central task will subtract from group performance. For example, monitoring others' behaviors, personal disclosure, idiosyncratic behavior or time spent relating may divert a group away from shared goals and cause it to lose forward momentum. Temporary systems require quick mutual adjustments so that people can innovate as required. Mutual adjustment means that people will have to continuously communicate and make joint decisions on the spot [12]. That is why temporary systems are typically configured as situations of physical

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co-location. In this way, communication and instant decision-making are facilitated. In situations where people cannot come together in the same physical location, a variety of computer-based communication technologies are used to coordinate and communicate work activities.

## 3. Analyzing trust in electronic teams

The constant interaction necessary for the development and maintenance of swift trust requires consistent access to technology, the forming of good communications habits (e.g., checking and responding to email as demanded by the task), and the ability to attend to requests from a distance while simultaneously handling local work demands.

To understand what people do to maintain swift trust in temporary, electronic teams, we focus on a group's naturally occurring communication in context. Communication is conceptualized as a social activity requiring the attention and interaction of two or more people. Producing monologues, no matter how well formed or elegant, does not constitute communication. Similarly, sending email messages does not guarantee that anyone will read them, understand them, pay attention or respond, particularly when people are strangers, work at a distance and may not have good access to communications systems. Unlike the demands of face-to-face communication where the gaze of one person on another at the end of a question may be sufficient to force interaction, electronic communication lacks such nonverbal cues. One goal of this research is to examine how electronic groups maintain constant communication despite these seeming constraints.

Once involved in an interaction, participants must actively respond to what transpires by signaling their involvement and by doing what is requested of them. We conceptualize this active interaction as initiations and responses [11]. Initiating an interaction by asking a specific question or making a proposal implicates the receiver in generating a relevant response. Initiations are strategies for interaction. They make one's own preferences public and invite others to acknowledge them. They structure and open up a field of action within which the group can participate. But to initiate interaction requires trust. Each individual initiation is an enactment of swift trust [9], contributing to the collective perception that trust is reasonable, inspiring more trust and more initiations from other members of the group.

If initiating interactions is part of doing trust work, so, too, is generating the relevant responses. A response indicates to the initiator (and everyone involved in the interaction) that the receiver has done her obligatory part. Consequently, the making of responses signals and inspires trust in the group. Those willing to risk initial action can trust they will receive some response and that

their interactions will be appreciated, whether in agreement or disagreement, but not in silence. As partners become implicated in their group's electronic interactions, they will cycle through a series of initiations and responses. These cycles of initiations and responses are not unrelated events. Instead, they are placed in an historical sequence pushing participants forward to some ultimate conclusion of the communication sequence, such as the completion of the project.

The pace of these cycles is important to the timely coordination of activities. If teammates do not respond immediately, then the next cycle is put off. Participants in temporary teams need to move especially swiftly through each cycle, focusing on the requirements for its completion while at the same time foreseeing and activating the beginning of subsequent phases. Only in this way will there be sufficient time to work through each phase. To attain this kind of efficiency in complex systems depends on trust between actors. Breakdowns in trust would require attention and time paid to repairing relationships. Swift trust depends entirely on the rapid and successive interplay of initiations and responses. Thus, we predict that when responses are made to interaction initiations, swift trust is maintained, action moves forward, and new initiations emerge. We further expect that high performing teams will be more successful in maintaining trust over time than will low performing teams.

## 4. Research Study

### 4.1 Setting and Method

Graduate and undergraduate business students in three geographically distant U.S. universities participated in a three-week distributed team project for their MIS classes on the "Social Issues of Computing." There were 12 students from a Northeast university, 13 students from a Southwest university, and 23 students from a Southeast university. Teams had to self-select members using an electronic distribution list and then organize themselves and their work. Each distant team had three members, but because the number of students from each university was not the same, 11 teams consisted of three members from each of the three universities, and 3 teams consisted of two members from the Southeast university and one from a different university. Two teams consisted of three members from the same university and were not included in this data set, leaving us with a total of 14 teams.

Students across the three universities were given the same project instructions, requirements and deadlines. They were encouraged to log in every day of the three-week (24-day) project. We made allowances on the weekend for students who did not have a computer at home and for whom getting to school was difficult. But

due to the asynchronous nature of the medium, and the short duration of the project, we stressed the importance of frequent contact with the group, and that students "work as swiftly as possible."

The project consisted of three major phases, each a week long and with specific project deliverables.

**4.1.1. Getting together.** During the <u>first week</u> of the project, students were asked to introduce themselves on an electronic distribution list, called "cyberstars," and to say anything that "might be of interest to others and would help them get to know you." Once students introduced themselves, they then had to find team members from the other universities. Team formation was expected to be completed one week (seven days) from the start date of the project. Once teams were formed, they had to "announce" their formation on cyberstars and include the names and universities of their members for professor approval. All three professors participated in the distribution list discussion and responded to questions from any student from any university.

**4.1.2. Getting organized and selecting a project topic.** Once teams were formed and announced to the "cyberstars" distribution list, students created their own distribution lists for their team members and communicated with each other via electronic mail (email). Teams had two basic tasks during the <u>second week</u>. First, they had to jointly negotiate the selection of a project topic. Topic selections had to fit the subject matter of the course ("Social Issues of Computing"), and have policy implications. Teams were expected to announce their topic to the "cyberstars" distribution list by the end of the second week for professor approval.. Second, they had to organize themselves, structure a division of labor and begin to assign work tasks. How they self-organized was left entirely to the discretion of the team.

**4.1.3. Research, write, and present a five-page policy paper.** Students could use a variety of sources for their documentation, including traditional books and articles, or resources from the Internet. Together, students wrote a five-page policy recommendation which they handed in to each member's local professor by the end of the <u>third week</u>. During the last week of the project, students from all three universities participated in a videoconference, where team members saw each other for the first time, and where some teams presented their project findings.

All three professors graded the project papers separately and then discussed together (via telephone conference) the final grade for the paper. All team members received the same grade for the paper. In addition, individual grades were calculated for the frequency, number, and quality of email posts, whether students completed all their daily work, and presentations to their respective classrooms.

## 4.2 Data collection

We collected data from three main sources. (1) <u>Survey questionnaires</u>. On the first day of the project, all participants completed a questionnaire focused on demographics, school performance, computer access and experience, and general attitudes about computers. (2) <u>Email messages</u>. We collected individual email messages to "cyberstars," to their teammates, and to their professors. We analyzed these messages by coding embedded initiations and responses by category. We describe these measures below. (3) <u>Performance measures</u>. These were determined from professor evaluations (grades) for the final paper. Although the instructors monitored the progress of the project and responded to questions and problems, all data were collected and coded after course completion.

## 4.3 Measures

Ability was measured as the average grade point average (GPA) and average age of team members. We measured computer access by asking members if they had computers and modems at home. Computer experience was measured with a question asking members "how much computer experience they had prior to this class" (where 1 is "no experience" and 5 is "a great deal"). Similarly, members' experience with electronic communication was measured on a 5-point scale (where 1 is "no experience" and 5 is "a great deal"). Performance scores were measured by the team's final grade on their joint paper. We coded teams whose scores were above 90% as high-performing and teams whose scores were 90% or below as low-performing.

We also examined three measures of diversity to determine the degree to which differences among team members affected their ability to perform. We wanted to know whether (1) graduate students on the team, (2) all students from different schools or two from the same school, or (3) same- or mixed-gender teams affected the team's ability to perform.

## 4.4 Measures of trust

We coded the body of electronic mail for each team for interaction <u>initiations</u> to other team members and <u>responses</u> to initiations. (Each email message could contain multiple initiations and/or responses.) To be coded as an initiation or response, certain criteria had to be met:

- **Initiations** could be <u>questions</u> (e.g., "How was your weekend?") or <u>statements</u> (e.g., "Please send me your comments."). They could be <u>implicit</u> (e.g., "I just set up my distribution list. I think it's working.") or explicit. But the most important aspect of coding a question or statement as an

initiation was that a response had to be possible or plausible.

- **Responses** could either be a <u>direct</u> response to a request (e.g., in response to "How was your weekend?" would be a description of the weekend), or an <u>implicit</u> response to a request (e.g., in a response to "Please send me your comments," would be an email message with comments listed or attached, but without verbal markers such as "Here are my comments...").

- **Anyone can respond to an initiation**, not just the person to whom a particular request is made (e.g., Team Member A may specifically ask Team Member B about the status of her research while Team Member C actually responds with a status update of her research). Similarly, the same person who initiates can also respond (e.g., "We should all set up distribution lists" in one email message might be followed by separate email responses from everyone on the team, including one from the person who made the initial request.)

<u>Categories of Initiations</u>. We coded the email messages in chronological order for each team. Categories for type of initiation and response were derived from the data as suggested by grounded theory and the use of open-coding [5]. The final set of coding categories and definitions are described in Table 1.

**Table 1. Definitions of Coding Categories**

| Categories of Initiations | |
|---|---|
| | **Definitions** |
| GETTING TOGETHER<br># Initiations =133 (15%)<br># Responses= 56 (10%) | Initiations and responses focused on forming a team and finding partners (e.g., Contact me if you're interested in <u>me/topic</u>.) |
| WORK: PROCESS<br># Initiations = 356 (40%)<br># Responses= 259 (45%) | Initiations and responses about how to conduct the work of completing the project (e.g., "How should we distribute the work?") |
| WORK: CONTENT<br># Initiations = 156 (17%)<br># Responses= 129 (22%) | Initiations and responses about the particular topic area they agreed to research (e.g., We need <u>help/ideas</u> on content for this section of the paper. |
| WORK: TECHNICAL<br># Initiations = 24 (3%)<br># Responses= 11 (2%) | Initiations and responses asking for help on technical aspects of the project (e.g., "How do you upload files from you PC?") |
| NEEDING CONTACT<br># Initiations = 193 (22%)<br># Responses= 98 (17%) | Initiations and responses asking how to find or get in touch with team members (e.g., "Where is everyone? Let's use [synchronous] talk.") |
| FUN TALK<br># Initiations = 32 (4%)<br># Responses= 26 (4%) | Initiations and responses about fun/personal activities (e.g., "How was your weekend?") |

## 5. Results

### 5.1 Preliminary analyses

Table 2 shows descriptive data about the teams, and how the data were distributed across GPA, age, computer experience, and diversity. Of the 14 teams, 6 were high-performing and 8 were low-performing. Preliminary analyses indicated that the three diversity measures (having a graduate on the team, members from three versus two universities, or mixed-gender groups) were unrelated to success and to measured team processes. We do not discuss the effects of diversity further.

Given that most students had access to computer labs at their university, computing at home was not related to the team's ability to perform. However, having a modem at home was important for this distant project. The four teams that had one or fewer members with a

modem at home performed significantly lower (m=81.8) than teams that consisted of at least two members with a modem at home (m=90.4), $t$ (12) = 2.66, $p$ <.05.

Since members formed their own teams without considering their potential partners' level of intelligence, finding no relationship between GPA and performance was not surprising. However, team average age did differentiate between high- and low-performing teams, such that high performing teams were on average older (m=26.3) than low-performing teams (m=23.8), $t$ (12)=2.18, $p$ <.05. Neither previous experience with computers nor previous experience with electronic communication were related to team performance.

**Table 2. Characteristics of teams in the study**

| | | | | | | | | Diversity Measures | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Team | Score | Mean GPA | Mean Age | Comp. at Home | Modem at Home | Comp. Exp. | Elec.Comm Exp. | Graduate in Team | School Location | Gender |
| 1 | High | 3.23 | 22.7 | 3 | 3 | 4.00 | 2.67 | Yes | All Differ | All Female |
| 2 | Low | 2.65 | 23.3 | 3 | 3 | 4.67 | 4.00 | Yes | All Differ | Mixed |
| 3 | Low | 2.93 | 23.3 | 1 | 1 | 4.00 | 3.67 | Yes | All Differ | All Female |
| 4 | High | 2.94 | 28.2 | 2 | 2 | 3.33 | 2.67 | Yes | All Differ | Mixed |
| 5 | High | 2.73 | 22.7 | 3 | 3 | 4.33 | 3.33 | No | Two Same | Mixed |
| 6 | Low | 3.20 | 24.7 | 2 | 1 | 3.67 | 2.67 | No | All Differ | All Male |
| 7 | Low | 3.07 | 23.0 | 1 | 1 | 4.00 | 3.33 | Yes | All Differ | Mixed |
| 8 | Low | 2.86 | 24.6 | 3 | 2 | 5.00 | 3.00 | Yes | Two Same | Mixed |
| 9 | Low | 3.35 | 26.8 | 3 | 3 | 4.33 | 3.67 | Yes | All Differ | Mixed |
| 10 | High | 2.93 | 28.8 | 2 | 2 | 3.33 | 2.67 | Yes | All Differ | Mixed |
| 11 | Low | 3.12 | 22.0 | 2 | 0 | 4.33 | 2.33 | Yes | All Differ | All Male |
| 12 | High | 3.17 | 27.7 | 3 | 2 | 4.67 | 3.67 | Yes | All Differ | Mixed |
| 13 | High | 3.39 | 28.1 | 3 | 2 | 3.67 | 2.00 | Yes | All Differ | Mixed |
| 14 | Low | 3.03 | 22.3 | 2 | 2 | 3.67 | 1.33 | No | Two Same | Mixed |
| Total | High=6 Low=8 | m=3.04 sd=0.22 | m=24.9 sd=2.50 | | | m=4.07 sd=0.51 | m=2.93 sd=0.74 | Yes=11 No=3 | Diff=11 Same=3 | Mixed=10 Same=4 |

## 5.2 Trust measures

There were a total of six categories that we used to measure trust (see Table 1). For each category, we divided comments into initiations and responses and counted them. Table 3 reports the results. Work Process initiations and responses were positively correlated with team performance ($r$'s= .51 and .48, $p$ <.10, respectively),. Similarly, Work Content initiations and responses were strongly related to how well the team performed on the final project ($r$'s= .67 and .61, $p$ <.05, respectively), as were Total initiations and responses ($r$'s = .59 and .55, $p$ <.05, respectively). These three variables also reveal significant mean differences among high- and low-scoring teams suggesting that high-performing teams initiated and responded to more email messages about how to accomplish the work (Work Process) and what the content of the paper should be (Work Content) than did teams who did not perform very well. Interestingly, high-performing teams also seemed to have fun. Even though there were very few Fun initiations and responses overall, the majority of Fun initiations and responses occurred in high performing teams (see Table 3). We next report the dynamics of team initiations over time. To simplify the graphics, we focus on the first pair part of interactions, the initiations. We argue they are the most critical part of the interaction since they initiate and constrain what comes next.

## 5.3 Trust measures over time

Figure 1 shows the average total initiations generated by teams each day. The peaks and valleys were somewhat similar for high- and low-performing teams, driven primarily by project deadlines and typical student work schedules. Because many team members did not have modems at home or easy access to computer labs on the weekends, lulls in email traffic occurred over the weekends (days 4-5, 10-12 and 18-19). Easter occurred over the second weekend (day 10 was Good Friday), although none of the participating schools had special days off. Peaks were driven by project deadlines, days 8, 15 and 24, as teams attempted to complete the phases of the project on time.

**Table 3.** **Measures of trust for high- and low-performing teams**

| Trust Measures | Corr. w/ Score | Mean (St.Dev) of High-Perf. Teams | Mean (St.Dev) of Low-Perf. Teams | t-value (df=12) | p |
|---|---|---|---|---|---|
| Get Together Initiations | .22 | 10.3 (3.9) | 8.9 (2.4) | 0.88 | .40 |
| Get Together Responses | .11 | 3.2 (1.2) | 4.6 (2.1) | −1.54 | .15 |
| Work: Process Initiations | .51+ | 35.7 (14.5) | 17.8 (7.5) | 3.02 | .01 |
| Work: Process Responses | .48+ | 25.2 (12.2) | 13.5 (8.2) | 2.15 | .05 |
| Work: Content Initiations | 67** | 18.5 (7.3) | 5.6 (2.4) | 4.15 | .01 |
| Work: Content Responses | .61* | 16.5 (10.5) | 3.8 (2.4) | 2.92 | .03 |
| Work: Tech Initiations | .09 | 1.83 (.41) | 1.65 (1.3) | .34 | .74 |
| Work: Tech Responses | .31 | 1.00 (.89) | 0.63 (1.1) | .70 | .50 |
| Needing Contact Initiations | .37 | 18.2 (9.9) | 10.5 (3.6) | 1.81 | .12 |
| Needing Contact Responses | .18 | 9.2 (5.6) | 5.4 (2.6) | 1.71 | .11 |
| Fun Initiations | .30 | 4.02 (3.2) | 0.95 (1.6) | 2.37 | .04 |
| Fun Responses | .22 | 3.67 (3.1) | 0.50 (1.4) | 2.55 | .03 |
| Total Initiations | .59* | 89.3 (29.3) | 45.3 (7.5) | 3.60 | .01 |
| Total Responses | .55 * | 59.2 (25.5) | 28.4 (10.3) | 2.79 | .03 |
| TOTAL MESSAGES | .44 | 63.3 (14.3) | 25.3 (12.5) | 3.12 | .01 |

** $p < .01$        * $p < .05$        + $p < .10$

There were, however, notable differences between high- and low-performing teams. High-performing teams, on the average, generated more total initiations throughout the life of the project than did the low-performing teams (see Table 2). These differences were particularly salient at the beginning and end of the project, indicating more early initiations to find partners and quickly form teams and more effort in the final completion of the project for high-performing teams. In addition, the mid-point peaks had different meanings. The low-performing teams peaked at the mid-point (day 13) while the high-performing teams were just building to an even higher peak four days prior to the project deadline.
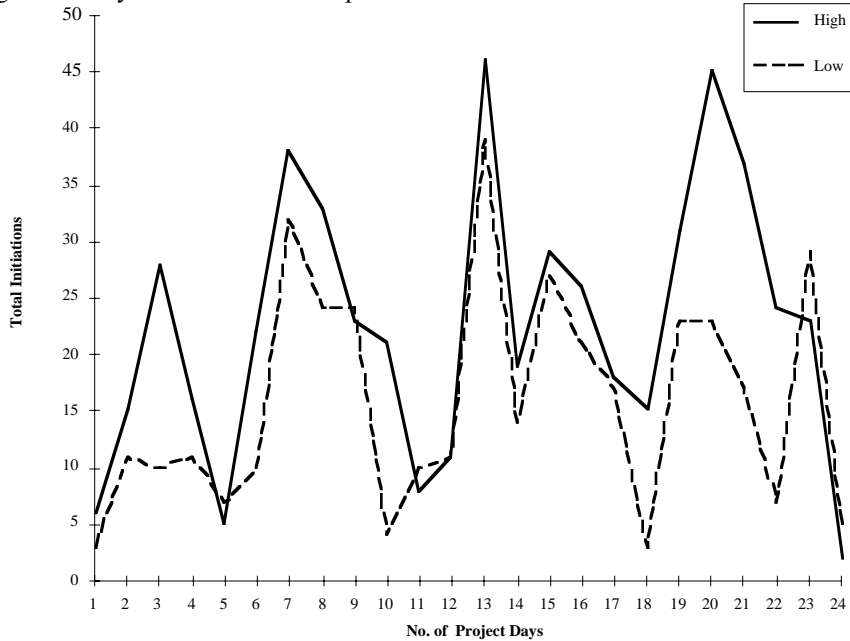


Figure 1. Total initiations for high- and low-performing teams

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In Figures 2a and 2b, the three most revealing trust categories were combined to show the cycles of initiations over time for the high- and low-performing teams. In Figure 2a, there were two peaks during the first phase (day 8). High-performing teams began by generating Getting Together initiations on day 3, where they also initiated Work Process and Work Content messages. In contrast, low-performing teams peaked with Getting Together initiations on the day before the first deadline (day 7). In fact, one team was generating Getting Together initiations during the second phase of the project (day 14). Work Process initiations did not start up until day 6 of the project, and Work Content began three days after that.
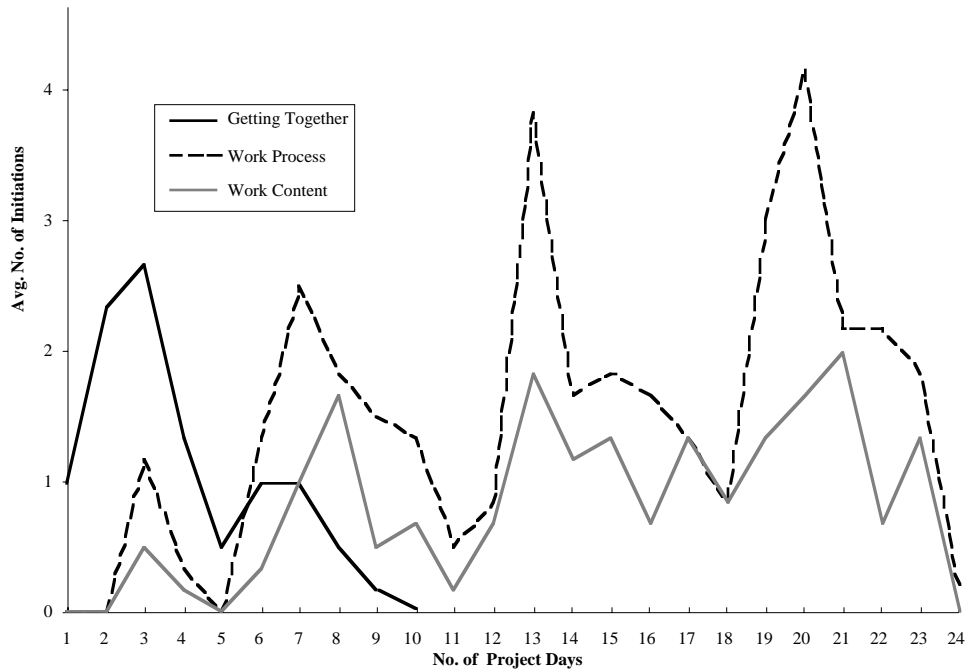


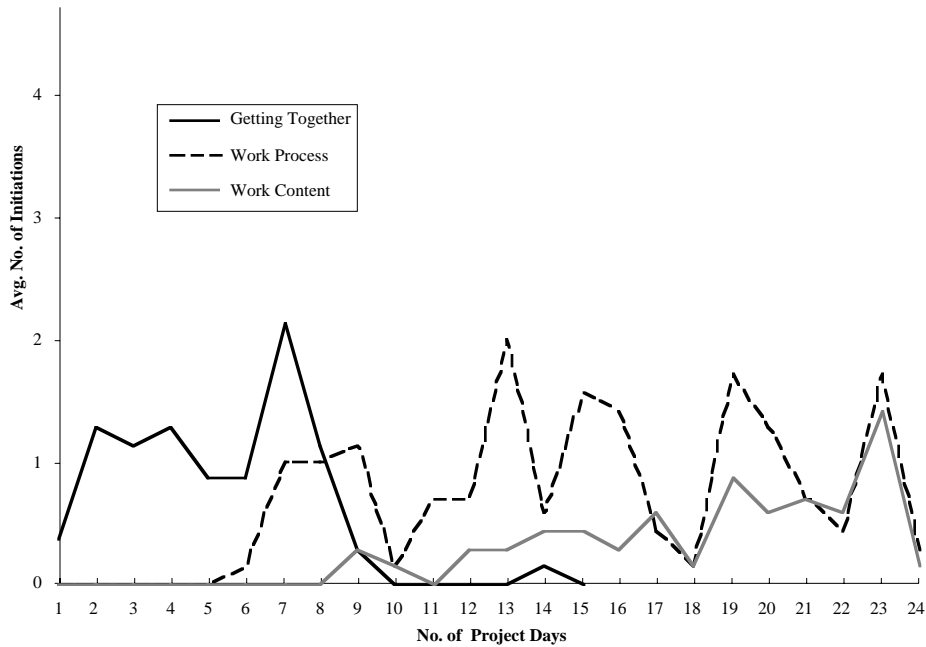**Figure 2a. High-perfoming teams by trust categories**



**Figure 2b. Low-perfoming teams by trust categories**

The dynamics of initiation cycles over time varied considerably for high- and low-performing teams. Comparing Figures 2a and 2b, we see that, on average, high-performing teams' initiations escalated over time, whereas the cycles of initiations for low-performing teams reached a plateau and decreased as the project

progresses. In Figure 2a, the dips on the weekends for high-performing teams were less deep as the project progressed and the peaks were higher across all categories until three days before the project ended when all initiations begin to taper off. In contrast, Work Process initiations for low-performing teams contained sharp dips and rises and Work Content initiations did not peak until the day before the project was due (see Figure 2b). As a result, low-performing teams found themselves fighting to make the deadlines (days 15 and 24) and not sustaining their efforts. In general, there was less team involvement over time.

# 6. Discussion

As predicted by theories of swift trust (Meyerson et al., 1996), trust development in temporary teams is more about doing than relating. Continuous interaction among team members fosters trust and predicts team performance. However, it is not the number of messages sent by each team that predicts final score, but the initiations and responses that are embedded in those messages. We argue that team members who initiate interaction are displaying some level of trust. A simple question like, "What should we do?" is an invitation to reflect on and plan the future together. To the extent that such an initiation receives a response, the group begins to build a prototype for "what to do" which they can accept, reject, change or refine as they go along.

High-performing teams were much more efficient in moving through the phases of the project. By examining their initiations at each stage, we can see that they tended to remain one step ahead of the low-performing teams. We offer three reasons how high-performing teams achieved this efficiency:

1. High-performing teams quickly began to form teams. Like the proverbial early bird catching the worm, team member selection at the beginning was more efficient.
2. High-performing teams did not get bogged down in evaluating and responding to every initiation. Many times, one response (to some number of similar initiations) was all that was needed to move them forward. In other cases, initiations spawned more initiations as team members "seconded" the original initiation, aligning themselves to the underlying idea of the initiation rather than responding to it.
3. High-performing teams were able to handle several activities at once. One day's messages can include resolutions, additional questions, warnings about upcoming events and commitments (e.g., an upcoming birthday and an upcoming deadline for the project), and fun discussions about dates. They were putting pressure on each other to move quickly and everyone submitted to that pressure. As a consequence, they were increasing their efforts over time with their most intense efforts several days before each deadline instead of at the last minute (or not at all.)

While efficiency was a necessary condition, it was not sufficient for successful performance. What predicted performance was work content initiations and responses. While teams had to get together before they could decide how to structure their work, group interaction about work content was critical for teams to be effective. In order to initiate such work content interactions or respond to them in the email messages, personal and actual engagement in the content of the project was required (e.g., researching or writing one's own section of the paper). Initiating or responding to work process activities was relatively easy and could be done on the spot, whereas work content initiations and responses were more difficult.

Meyerson et al. [9] argue that swift trust becomes either more thick or more thin over time as temporary groups reinforce their initial trust or undermine it. We found a similar dynamic in our temporary electronic teams. The mid-point was a critical moment for accelerating or decelerating initiation-response cycles [4]. The first half of the project produced a rudimentary team history. While temporary teams have no history or previous interactions on which to base evaluations of trust, they had learned *enough* social information about each other to figure out each others' preferences, work styles, schedules and habits. This knowledge could then be used to help them become more effective in working with one another, particularly during the final push to conclude the project.

In addition, the first half served as the basis on which teams could make some evaluations about how they were doing. At the mid-point, the high-performing teams accelerated and initiated more action requests while the low-performing teams decelerated, making fewer initiations as the project came to conclusion. High-performing teams were gathering "social proof" (i.e., positive qualitative and quantitative evidence) that they were reacting to each other as needed. They had achieved deadlines on time and with little apparent struggle, interacting over a variety of circumstances and proving that they could work well together.

Low-performing teams, on the other hand, had to struggle to achieve deadlines. They were consistently putting in their most intense efforts at the last minute. And with fewer total interactions and responses, including contact and fun, they were less socially present to each other. Some teams had absent members, people who rarely sent messages and who made no apologies or gave no explanations for their absences. Consequently, at mid-point, we see the beginning of a decline in initiations. Lack of continuous interaction and the struggle to meet deadlines at the last minute contributed to disconfirming evidence in the reliability of team trust.

Contrary to expectations of swift trust, distributed teams did not focus exclusively on work content or on activities that can be characterized as "staying on task." Our results suggest that in distributed, temporary systems where solutions about who does what are always emergent and negotiable, high levels of work process interaction will be required. But if groups focus exclusively or primarily on work process issues, they push the hard work related to work content to the last minute. Thus, in electronic communications, people can send multi-layered messages with a variety of types of interactions (e.g., fun, procedure, contact, technical information), but if they ignore a focus on work content, trust development and performance may suffer in the end.

Except for age, factors related to team ability did not affect performance. That age mattered suggests that younger students were less able to cope with the ambiguity of self-organizing routines and the attendant requirements for mutual obligations. Presumably with age, people have had more experience with mutual accommodation and are less likely to resist peer influence and control. It is interesting that this more general measure of experience was a better predictor of team success than computer experience and electronic communications experience. Evidently, working on a temporary, distributed team is a different experience from other on-line social experiences (e.g., sending email, posting to Usenet Newsgroups, conversing in chat rooms).

One should be cautious, however, in generalizing from this research. Only fourteen teams were involved in this study. A larger sample is necessary before rigorous statistical analyses can be applied. In addition, further research is necessary to refine the categories of initiations and responses and to better understand their relation to the development of swift trust.

In conclusion, we learned that when team members became committed to continuing their interactions with their team and were able to prove that they identified with group goals, high levels of swift trust were maintained and performance improved. As temporary, distributed groups using electronic communications to coordinate their work become increasingly common, understanding how trust develops in virtual teams is critical for organizations to consider as they move to new forms of electronic work.

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