# Reflective Communicator Roles in Preservice Teacher Team Email Discussions

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## ABSTRACT

The objective was to model a type of effective team participant, reflective communicators, and their communications roles during four, eight-person preservice teacher team email discussions of their classroom observations. An aggregate statistical analysis revealed significant correlations between the quality of reflective observations provided, and the number and quality of responsive messages received from other team members. Conversely, high responsive message senders were associated with low quality messages. Reflective communicators were theorized to occupy a distinctive niche in the team, both as a source of high quality reflective observations and who engaged in high frequency, bi-directional responsive communications. Based on these criteria an individual analysis of the data revealed 13 reflective communicators among the 32 participants. Reflective communicators tended to communicate with other reflective communicators in groups containing multiple reflective communicators and increased these communications over time. Issues were raised concerning the rights of teams to assure them access to reflective communicator leaders.

### Keywords

Reflective communications, team composition, message directions

## INTRODUCTION

Recently, great importance has been placed on the value of teamwork skills in increasing learning and performance in education, military, and corporate settings (O'Neil, Chung & Brown, 1997). Morgan et al. (1986, p. 3) defined a team as "a distinguishable set of two or more individuals who interact interdependently and adaptively to achieve specified, shared, and valued objectives." Burke et al. (1993) concluded, however, that the demand for effective teams has outpaced the study of teamwork skills. They identified several overlapping conceptualizations of teamwork competencies that were relevant to the present study of preservice teacher teams, including: coordination (properly sequenced behavior and exchange of useful information); leadership (providing and accepting feedback, and help); and, communications (transmission and reception of support behavior). Several studies have reported that patterns of giving and receiving elaborated help are critical components of teamwork skills (Webb, 1993). Giving explanations helps senders of messages to reorganize and clarify material (Bargh & Schul, 1980); receiving explanations can benefit by filling in gaps of understanding or correcting misperceptions and strengthening connections between new information and previous learning (Mayer, 1984; Wittrock, 1990). However, both O'Neil, Chung and Brown (1997) and Brannick et al. (1993) have reported that the number of explanatory messages *sent* was negatively correlated with outcome measures, i.e., the more team members communicated the more their task performance suffered. Because of methodological choices, no study has yet been conducted on relations between the number and quality of messages *received* and outcome measures.

Researchers have found that group electronic communications promote the sharing of multiple perspectives that lead to the likelihood that one member will produce examples and interpretations hitherto unconsidered (Koschmann, et al., 1996; Feltovitch, et al., 1996). Reed and Bolstad (1991) found that in a word problem task involving mastery of an equation, students provided with both simple and complex examples outperformed all others, including those who had been presented with one example plus step by step procedures for solving word problems, in general. Exposure to multiple examples of concepts in particular performance tasks in collaborative learning may contribute to greater individual discrimination of the underlying concept.

This study was concerned with team communications that might be associated with individual preservice teachers' conceptual understanding of teaching standards as observed in field classroom activities through computer mediated teamwork. It was hypothesized that preservice teachers in computer mediated groups who exhibited particular teamwork skills, such as the frequency and quality of messages communicated, and who had access to multiple examples produced by the team, would also construct higher quality observations. Data concerning these communications skills associations would also contribute to the analysis of the characteristics and roles of a type of effective team member, *reflective communicators*, and lead to criteria for the equitable composition of teams.

# METHOD

## Task and Procedure

Using the California Teaching Standards for the Profession as a framework, teachers were set the task of observing and reporting on activities in their supervisors' classrooms that exemplified five different standards in weekly writing assignments. The five standards used were:

1.2 Uses a variety of strategies and resources to meet the needs of all students.

2.7 Create opportunities for students to become self-directed learners.

3.4 Develops and uses a repertoire of instructional strategies well suited to teaching to a particular subject matter.

4.5 Chooses and adapts instructional materials to make subject matter relevant to students' understanding of subject matter.

5.4 Uses a variety of assessments to determine what students know and are able to do.

Email listserv discussion groups were used to communicate observations of these standards. In addition, the teachers were asked to follow up by responding to particular participants for whatever reason they cared to. Whether in making observations or in responding to particular participants, all messages were addressed and copied to the whole group.

## Sample

Thirty-two multiple subject teachers in a 5th year credential program were randomly assigned to four email groups of eight participants each. Of this group, 29 were female.

## Data Analysis

### *Scoring Rubrics*

Rubrics were developed for coding the email transcripts. One rubric was used to score the classroom *observations* about teaching standards. Three dimensions were scored (ascending scale): 1. Aptness, the extent to which students' observations were relevant to the standards (0, 1, 2 or cannot score); 2. Detail and context, the extent to which there was sufficient detail and context to explain what the teacher and/or students were doing in the classroom instruction (0, 1, 2 or cannot score); 3. Reflection, or the extent to which observations incorporated: (3.1) interpretations about teacher's strategy or student outcomes; (3.2) interpretations explaining why a strategy was beneficial; (3.3) questions; (3.4) connections to other observations; or, (3.5) alternatives considered (0-5 based on one point for each criterion, or cannot score).

A second rubric was applied to all *responses to observations*. These were scored for quality by two independent raters who achieved 90% agreement. This scale used the same criteria as the Reflection dimension above (0-5 based on one point for each of criteria, or cannot score).

### *Plan of Analysis*

In Phase 1 of the study, the data were statistically analyzed by correlating measures of messages sent and received, reflective response quality and observation quality. Based on these findings, Phase 2 focused on an individual analysis that modeled the qualities and roles of effective communicators and their distribution in the four groups. In Phase 3, we examined communications among effective communicators in the four groups and over time.

# RESULTS

## Phase 1: A Correlational Model of Sending and Receiving Message Frequency and Quality Across Standards

A model was proposed concerning the interactions of sending and receiving messages, response quality and observation quality. Following previous findings, it was hypothesized that a negative correlation would obtain between the number of messages sent by individuals and their quality. In contrast, it was hypothesized that individuals who received a high number of messages would attract high quality responses, either because the latter would find their messages interesting and accessible, or because they perceived them as needing help. Therefore, a positive correlation was expected between the number of messages received and response quality received. If these high receivers did, in fact, construct interesting and accessible messages, then we would expect them to have relatively high observation scores, i.e., a positive correlation between number of messages received and observation scores. But, if high receivers had a negative correlation with observation scores, then this would give credence that they might need help and were perceived by others as needing help. Finally, it was speculated that a reciprocity principle might be operative concerning the number of messages sent and received and, therefore, that a positive correlation would be obtained between the two measures. We had no hypotheses concerning other iterations of these variables, i.e., between the number of messages respondents sent or received and, respectively, the quality they received or sent; or, between respondent quality sent and quality they received. The results are displayed in Figure 1. The results were significant for all predictions made concerning relations between number of

messages sent and received and response quality. While significances at .05 are modest, given the small sample sizes of this study, and in most studies of teamwork, and the fact that all were in the expected direction, the findings were considered respectable. There was a negative correlation of -.366 ($p < .05$) between the number of messages respondents sent and the quality of those messages; and, a positive correlation of .484 ($p < .05$) between the number of messages respondents received and the mean response quality of the messages they received. Therefore, those who receive more messages tend to receive high quality messages and those who send many messages tend to be low quality message providers. Moreover, the number of messages sent was correlated significantly with the number of messages received (.413 $p < .05$) suggesting that some form of reciprocity principle was operative, but the direction of the effect is uncertain. It may have been the case that the number of messages received may have prompted respondents to send back a proportional number; and/or, the number of messages sent may have encouraged other participants to send back a proportional number. All other correlations were non-significant as expected. In addition, we investigated whether the relationships among variables between individual members within each group supported the hypotheses, or if there were non-hypothesized dependencies within any given group. The only significant correlations identified within each group supported the hypothesized model. No other relationships among the variables within a respondent group were significant.

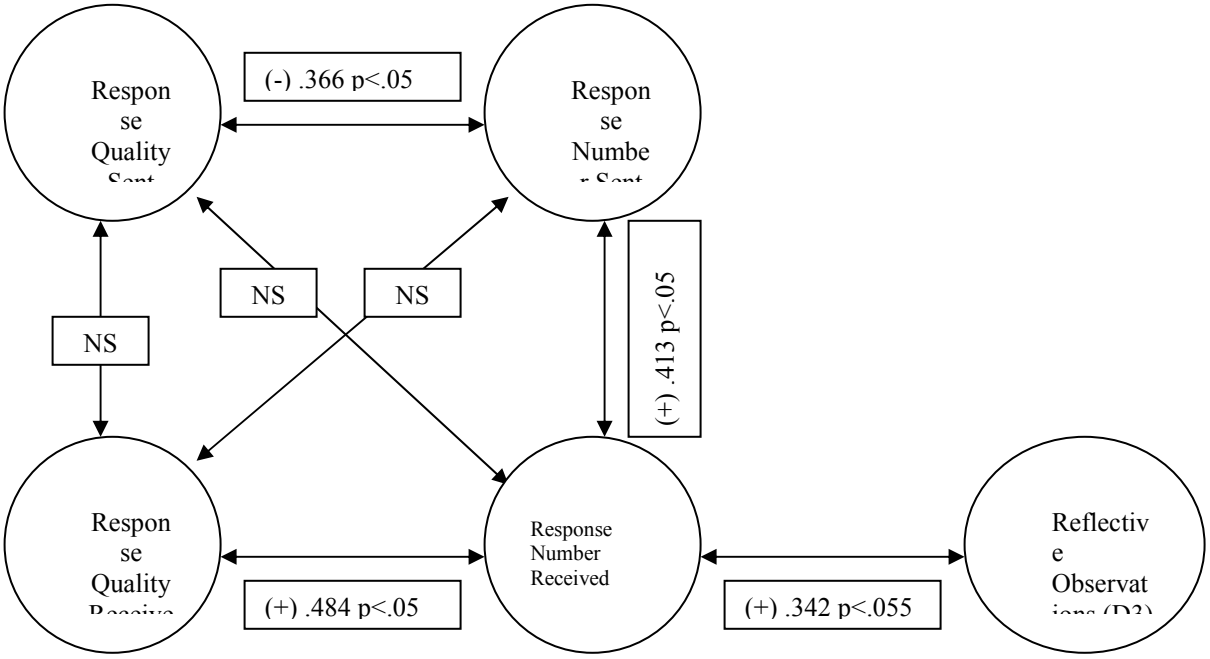


Figure 1. Correlational Model of Mean Number and Quality of Messages Sent and Received Across Standards.
"NS" denotes that correlation is not significant.

The correlations for number of messages received and observation scores were less conclusive. Whereas, a modest significant positive correlation of .342 ($p < .055$) was obtained for the number of messages received and the observation reflections score (dimension 3), correlations with dimensions 1 and 2 were non-significant. This suggests that the number of messages received may be related to one's conceptual performance, but the effect is limited to teachers' competencies in elaborating their observations reflectively and not in making apt or detailed observations. However, this finding tends to support the conclusion that high messages receivers attract high quality messages because their observations are more reflective, not because they are perceived as needing help.

### Phase 2: High Reflective Communicators and Distribution in Groups

In this phase of the analysis, we took a closer look at those individuals who received a high number of messages. Because of the significant correlation found between number of response messages received and reflective quality of observations (dimension 3 score), and also between number of response messages received and number of response messages sent, we characterized individuals who were high on all three of these variables as "high reflective communicators," and we looked at the way in which those individuals were distributed across the four email groups. This allowed us to explore the nature of their communication in a given group in our subsequent phase 3 analysis.

A quantitative score for "reflective communication" was computed for each participant. For each of three variables (dimension 3 score, number of responses received, and number of responses sent), participants received a sub-score of 3, 2, or 1, indicating their ranking in the top, middle, or bottom third respectively, among all participants. A sum of all three ranking sub-scores was computed to create a single reflective communication score, with a range from three to nine.

The next step was to identify the high reflective communicators and look at their group membership. Thirteen out of the thirty-two participants were identified as the "high" scorers; they received a reflective communication score between seven and nine, indicating a combination of threes, or threes and twos on the three sub-rankings. High reflective communicators were not evenly distributed among the four email groups, as illustrated in Table 1. While three of the groups had three or four out of eight members identified as high reflective communicators, Group 3 had only two such members, and their reflective communication scores were sevens. Thus even with random assignment to groups, the number of high reflective communicators was not equitably distributed.

**Table 1. Distribution of high reflective communicators across email groups**

| Listserv Group | No. of High Scorers/ Their Reflective Communication Scores | No. of Lower Scorers/ Their Reflective Communication Scores |
|---|---|---|
| Group 1 | 3 Scores: 9, 8, 7 | 5 Scores: 6, 5, 4, 4, 3 |
| Group 2 | 4 Scores: 9, 8, 8, 8 | 4 Scores: 6, 6, 5, 4 |
| Group 3 | 2 Scores: 7, 7 | 6 Scores: 6, 5, 5, 4, 4, 3 |
| Group 4 | 4 Scores: 8, 8, 8, 8 | 4 Scores: 5, 4, 4, 3 |

Table 2. Summary of response messages among high reflective communicators

| | Percentage of response messages sent by high reflective communicators that are received by other high reflective communicators | | |
|---|---|---|---|
| Listserv Group | Responses messages up to the mid point | Responses messages from mid to final point | Reponses messages overall |
| Group 1 (3 "high" members) | 42.85% | 50.00% | 46.88% |
| Group 2 (4 "high" members") | 52.94% | 71.42% | 63.16% |
| Group 3 (2 "high" members) | 25.00% | 20.00% | 22.22% |
| Group 4 (4 "high" members) | 70.0% | 82.61% | 78.79% |

### Phase 3: Communications Among High Reflective Communicators

In this final phase, we investigated the nature of the communication within email groups, and any differences between groups, with a focus on the role of those identified as high reflective communicators. Within each group we looked at the number of response messages that high reflective communicators received from each other. We also looked at this data at two different points during the study to identify any patterns of change over time in the percentages of response messages sent and received among high reflective communicators: a) after the second round of observations and response messages had been sent (mid-time point); and b) after the fifth and final round of observations and response messages (final time point).

Table 2 summarizes findings about the response messages among high reflective communicators. There was a high level of responses sent and received among "high" members. Groups 2 and 4, each with four out of eight reflective communicator members, had 63.16% and 78.79% of their response messages sent and received among high reflective communicators. Group 3, which had only two reflective communicator members, had the lowest overall percentage (22.22%) of response messages sent and received among "high" members. A second finding from this analysis was the increase in percentage of response messages among high reflective communicators from the midpoint to the final round of responses, which was evidenced for groups 1, 2, and 4. We speculate that the reciprocity principle may be at work for "high" members. The more reflective communications high member send, the more they receive, and the effect may be compounded over time. Once

again, Group 3, with only two reflective communicator members did not display the same compounding effect over time among its "high" members.

## DISCUSSION

Identification of the reflective communicator type in teamwork communications has been supported by three kinds of evidence: (1) In an aggregate statistical analysis, significant correlations were found between those who received many messages, their observation reflection scores, and the quality of messages they received; (2) In an individual analysis, 13 reflective communicators were identified in the four groups. Those groups with the highest number of reflective communicators tended to communicate with each other more than they did with less reflective participants; (3) It was also found that reflective communicators in groups with three or four increasingly selected each other to communicate with over the course of the email discussions.

What possible roles might reflective communicators play in teamwork? While it is tempting to identify reflective communicators as leaders, or at least co-leaders, they were not so in the conventional sense, and this may be related to the nature of the task in this study. As the findings show, reflective communicators attract communications from other team members, including other reflective communicators. If reflective communicators lead then they do so by example. It is theorized that their initial high quality reflective observations were inviting and accessible to others, particularly those who were competent in reflective communications themselves. Reflective communicators speak in a relatively personal voice. By making interpretations, evaluative comments and speaking a language of wondering and questioning they reveal something of themselves, their points of view and opinions. By making connections to other experiences and offering alternatives to what was observed, they also reveal themselves as good analysts and comprehenders of the task. These are particularly valuable skills that might serve the needs of the group as a whole in this observational task: communicators who provide a strong flow of worked and reasoned examples of high quality observations and responses to others' observations. A follow-up qualitative study of the email transcripts would provide further evidence concerning these claims.

Even those who did not interact with reflective communicators were able to look on by reading the email texts created by them and so may have benefited by reading alone. But, perhaps, for this strategy to be effective in supporting low performers' reflective growth, it might require longer team projects than in the present case. While we can see how reflective communicators might serve the group, it is also apparent that a reflective communicator, by attracting many reflective communications, thereby receives more feedback on her own observations and reflections. She also receives a goodly flow of incoming high quality models of reflections, which could be subsequently adapted to personal use. And in recognizing and communicating with other reflective communicators concepts are exchanged in a uniformly high quality class. The richly competent, therefore, may benefit most, because their own communications have been multiply placed in context by other high quality communicators. And the rich communicators increasingly find and interact with other rich communicators. We are tempted to interpret this social grouping as adaptive for individual high reflective communicators, for they would obtain, potentially, a rich set of evaluative and contextual perspectives with which to view their own observations and could use these perspectives to create more interpretative, evaluative, responses themselves.

But, surely there is also a downside to these conclusions. We found that Group 3, which had only two marginally high reflective communicators, scored lowest in most of our performance indicators. It follows that it may be necessary to have a minimal critical mass of high reflective communicators in a group. From this perspective, once high reflective communicators are identified they could be equitably assigned to all groups. In the present context, three high reflective communicators might have been required in an eight-person group. One might also adopt rules or guidelines encouraging high reflective communicators to "communicate with those you might not ordinarily communicate with and provide support for such fellow team members." What is perplexing here is how to achieve such democratic ends, while at the same time exploiting the value of the interchange among high communicators and their high quality reflective text for all team members to read.

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