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Michael Yoerger
University of Nebraska at Omaha, myoerger@unomaha.edu

Joseph A. Allen
University if Nebraska at Omaha, josephallen@unomaha.edu

John Crowe
University of Nebraska at Omaha, johncrowe@gmav.unomaha.edu

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The Impact of Pre-Meeting Talk on Group Performance

Michael Yoerger

University of Nebraska at Omaha

Joseph A. Allen

University of Nebraska at Omaha

John Crowe

University of Nebraska at Omaha

Abstract

Interactions that occur prior to a meeting constitute pre-meeting talk (PMT). Of the different

PMT types, research suggests that small talk PMT is especially meaningful. In this study,

meeting participants' interactions both prior to and during the meeting were video recorded,

coded into sense units, and classified by coding schemes. This study investigated the influence of

small talk PMT on both perceived and objective group performance, as well as the potential for

positive socio-emotional and problem-focused statements to serve as mediators. The results

supported the mediating influence of both types of statements for only perceived performance.

Our results suggest a group level babble effect can take place in meetings, such that groups who

engage in more extensive discussion tend to believe they achieved high performance, but

objective ratings do not support this belief. Theoretical and practical implications, limitations of

the study, and future research opportunities are discussed.

        Keywords: pre-meeting talk, perceived group performance, babble effect, meetings

The Impact of Pre-Meeting Talk on Group Performance

Think back to your last meeting. What did you and your fellow meeting attendees do while you were sitting in the meeting room, waiting for the meeting to begin? Did you talk to others sitting around you? Do you think your interactions with others during this time impacted the meeting? These questions hint at a facet of meetings that has only recently received the attention of researchers. This phenomenon, pre-meeting talk (PMT), can be best described as the verbal and nonverbal (e.g., nodding or headshaking) interactions that take place in a meeting location prior to the meeting's start, as soon as at least two attendees have assembled (Allen, Lehmann-Willenbrock, & Landowski, 2014; Mirivel & Tracy, 2005). Although one previous study found a positive association between small talk PMT and perceived meeting effectiveness (Allen et al., 2014), research has not yet investigated how and the degree to which PMT impacts within-meeting behaviors and processes. In order to understand the importance of improving meetings and collaborative processes in group contexts, it may be insightful to examine the cost of poor group performance and unproductive meetings in organizations. For example, ineffective meetings cost American organizations approximately $37 billion every year (Cohen, Rogelberg, Allen, & Luong, 2011), and this cost has likely increased with the rise in the number of meetings in general.

The reason meetings have begun to garner interest in recent years may be partly due to the dynamics of the changing work environment. The work environment has become increasingly team oriented in recent years (Lovelace, Shapiro, & Weingart, 2001) and teams are, therefore, even more important to organizational functioning than in the past. As evidence of this trend, there are now approximately 25 million meetings per year in the U.S. (Allen, Lehmann-

Willenbrock, & Rogelberg, 2015). This means the outcomes of these meetings are more important today than ever before.

The purpose of the present study is to investigate how the conversations that occur just before the meeting begins impact within-meeting behavior and group performance. More specifically, we investigate small talk PMT in what is the first study of this phenomenon to occur in a controlled setting. First, we provide a look into theoretical mechanisms in existing literature that bear relevance to understanding small talk PMT. We primarily draw these mechanisms from the input-process-output model (Guzzo & Shea, 1992). Second, we will also examine nuances of the relationship between small talk PMT and perceived group performance, such as the possibility that problem-focused and positive socio-emotional statements act as mediators in this relationship.

The Context of Workplace Meetings

Specific purposes of a given meeting vary considerably and can include information sharing, employee development, decision making, completing specific tasks, and/or recognition and celebration (Leach, Rogelberg, Warr, & Burnfield, 2009). A meeting may also serve to highlight an organization's mission, priorities, or purpose (Tracy & Dimock, 2003). Of course, advice for how to design meetings can depend greatly on the specifics of a meeting's purpose and a consideration of the larger context of organizational needs. In some meetings, a secondary purpose may be to facilitate the rapport building that can occur as a result of the opportunity to socialize; how this opportunity is used determines whether a sense of community and togetherness is fostered or destroyed (Tracy & Dimock, 2003). In other situations, meeting leaders may view the reinforcement of the organizational structure, including differences in

status and making the organizational hierarchy more salient, as more important than rapport building (Rogelberg, Leach, Warr, & Burnfield, 2006).

Although the aforementioned findings illustrate some of the roles that meetings can serve, the meeting context remains understudied. One of the first real attempts to study meetings as an independent phenomenon was made by Schwartzman (1986), who developed a framework to consider the roles, purposes, and importance of meetings. Researchers have subsequently examined a variety of aspects of meetings, including the information sharing that occurs within them (McComas, 2003) and factors contributing to the effectiveness of meetings (Luong & Rogelberg, 2005). Only in recent years have studies begun to examine the impact of meeting events on post-meeting outcomes, such as employee engagement and job satisfaction (Allen & Rogelberg, 2013). Therefore, we seek to further explore the influences of these types of events and how they are shaped by the interaction that occurs immediately prior to meetings.

Pre-Meeting Talk

The specific types of PMT in which employees engage can vary greatly. Pre-meeting interactions may be as simple and mundane as discussions about television shows or as complex as detailing the long-term financial forecast of a company. To qualify as PMT, the interactions must take place between two or more meeting attendees who have assembled virtually, through conference call, or in person in the meeting location before the meeting's official start (Allen et al., 2014; Mirivel & Tracy, 2005). Even the absence of verbal communication is still likely a form of pre-meeting interaction that may affect a meeting and its outcomes, as silence has been suggested to convey information (Dhulipala, Fragouli, & Orlitsky, 2010). As soon as the leader or mediator of a meeting indicates that a meeting has officially begun, the PMT period has ended.

Pre-meeting talk consists of four basic types: small talk, meeting preparatory talk, work talk, and shop talk (Mirivel & Tracy, 2005). Small talk is defined as interactions that are relatively unconstrained and that seemingly have no clear goal or purpose (Coupland, 2000). Meeting preparatory talk consists of interactions that pertain to the meeting itself, such as what will be covered, a review of the agenda, the structure of the meeting, or even the refreshments served (Mirivel & Tracy, 2005). Work talk refers to employee interactions that are focused on the specific work environment in which employees fulfill their responsibilities. Shop talk refers to interactions related to issues, events, and people directly related to the organization (Mirivel & Tracy, 2005).

Due to the findings of past research (e.g., Allen et al., 2013), we suspect that small talk PMT holds the most potential for impacting interaction during a subsequent meeting. Specifically, implicit goals of small talk may include networking or putting others at ease. Discussing the weather, television shows, and sports are all common topics in small talk. Despite its seemingly trivial and unimportant nature, researchers have found that small talk can play a crucial role in creating, developing, and maintaining relationships (McCarthy, 2003). One reason that small talk may lead to such outcomes in the work environment is that it allows employees an opportunity to connect with one another on a more personal and equal level than may be possible in most other conversations. Employees who engage in small talk and develop higher quality relationships with their coworkers will likely have greater trust and feel more able to seek out support, feedback, and advice when they are in need, which could improve the smooth functioning of the organization. We believe that such an influence is particularly likely in groups that have been newly formed, as in the present study. Therefore, we focus primarily on small talk PMT.

Mirivel and Tracy (2005) were the first researchers to study PMT. Their initial study took place in a single organization and examined a half dozen weekly staff meetings. The observed meetings were focused on information sharing. The PMT period generally exceeded 15 minutes for each of these meetings. Interestingly, this study revealed that different variants of PMT tend to be fleeting under naturalistic conditions. One implication of the fleeting nature of PMT in naturalistic settings is that it is difficult to ascertain the influence that any one variant has on a given meeting's processes and outcomes (Mirivel & Tracy, 2005). For example, a conversation that begins with discussing the weather, shifts to focusing on the questionable statements made by a supervisor, and finally moves to considering how long the upcoming meeting will last contains three PMT variants in a fairly short timeframe. Discovering how each PMT variant influences the subsequent meeting would thus be fairly difficult. As such, the aim of this study is to first take a broader approach by examining PMT in general.

Unlike Mirivel and Tracey (2005), who examined the phenomenon of PMT in a single organization, Allen and colleagues (2014) surveyed individuals from a variety of different organizations. The main contribution of Allen and colleagues (2014) was its finding that engaging in small talk in the PMT period predicted perceived meeting effectiveness, above and beyond good meeting practices. Allen and colleagues (2014) also found that the positive relationship between the use of PMT and perceived meeting effectiveness was stronger for more introverted meeting attendees. One possible explanation for this finding is that PMT can be especially encouraging for introverts to verbally express themselves in meetings, and these introverts may perceive the meeting to be more effective as a result. It is also possible that the greater inclusion of introverts could lead to an actual increase in aspects of meeting effectiveness, such as enhanced decision making. Together with past research, these results raise

the possibility that a combination of introverted and extraverted meeting attendees can be an

advantage in the meeting setting and utilizing small talk PMT is one simple way in which greater

participation of introverted participants may be effectively encouraged. Overall, there is

substantial evidence to indicate that pre-meeting talk, especially small talk PMT, will impact the

meeting process, as this assertion is supported by a variety of existing theory.

Theoretical Foundation for the Impact of PMT on Meeting Processes and Outcomes

The dominant theoretical perspectives on group performance consist of input-process-

output models (Guzzo & Shea, 1992). Although various models exist (Hackman, 1987; Hackman

& Morris, 1975), they all suggest that input and process variables have a major impact on

outcomes such as group performance. Therefore, we focus here on the IPO model's theoretical

framework for this manuscript.

Research suggests that the initial communicative input event in a group setting tends to

have a large impact in establishing a tone and creating a foundation for all interactions that

follow (Feldman, 1984). Eriksen and Dyer (2004) suggest that conversation is considered in

relation to initial statements made by group members and group outcomes are significantly

impacted by what occurs in the time prior to the official start of the group work. Even

conversation lasting a matter of seconds has been found to set the stage for the long-term process

of conversation (Gersick & Hackman, 1990; Guzzo & Shea, 1992).

According to Zellmer-Bruhn and colleagues (2004), an interaction pattern may be described by

the trends in usage of speech and the way ideas are verbally conveyed, as well as how these

trends and the attentional focus of the dialogue shift over the course of a conversation. While

group performance tends to improve over time, patterns of interaction are usually established

during the input stages of the interactive process and are somewhat more resistant to output

change over time (Gersick & Hackman, 1990). What occurs during the PMT period may influence participants' perceptions of socio-emotional aspects of the meeting environment. Greater amounts of communication in the pre-meeting period can increase feelings of comfort and familiarity among meeting attendees, which may allow the individuals to communicate more effectively during the meeting period. The ability of group members to engage in productive interactive processes from the start of their time together until their goals have been achieved is a major determinant of the quality of a group's performance (Eriksen & Dyer, 2004). As a whole, this area of research suggests that what occurs in the input stages of interaction holds a great deal of potential to facilitate group cohesion and optimal teamwork output, but if used ineffectively, the full potential of the group and the opportunities presented by the meeting setting will not come to fruition. **Proposed Research**

Based on previous research (e.g., Allen et al., 2013), small talk PMT appears to be the type most likely to influence subsequent meeting interaction. On the surface, such talk may appear to be somewhat trivial and unimportant, yet its potential to create, develop, or otherwise influence relationships could be quite significant. Pre-meeting small talk may be able to foster a sense of familiarity, connectedness, and trust among a diverse group of employees, which could enhance aspects of communication and organizational functioning. Ultimately, the ability of group members to engage in high quality interaction from the beginning of an interactive event can enhance their ability to achieve performance outcomes (Eriksen & Dyer, 2004). We suspect that this influence may be especially likely in groups that have newly created, as in the current study. Taken together, the forgoing rationale and theories support the following general hypothesis concerning PMT and perceived group performance:

Hypothesis 1: Small talk PMT is positively related to (a) perceived group performance, as well as objective group performance, indicated by the (b) average quality, (c) average originality, (d) average creativity, and (e) number of solutions.

Pre-Meeting Talk and Meeting Processes.

Research indicates that the initial communication within a group has a large impact on the progression of a conversation (Feldman, 1984). Studies have also revealed that this phenomenon can operate through either positive or negative cycles in the interaction process (Lehmann-Willenbrock, Allen, & Kauffeld, 2013). Based on existing research on sequences of interaction processes within meetings, we believe that the amount of small talk PMT is positively related to positive socio-emotional statements and problem-focused statements, both of which are described below.

Socio-emotional statements are defined as statements that pertain to creating, maintaining, and enhancing relationships with others in the meeting, as well as fulfilling emotional needs of those in the meeting (Lehmann-Willenbrock et al., 2013). We believe the influence of socio-emotional meeting statements will be especially consequential in the meeting setting, as relational communication has been considered to be the basic fabric of any group (Keyton, 1999). Although these types of statements may be negative or positive in nature, our focus in this study is only on positive socio-emotional statements. Positive socio-emotional statements may be directed towards encouraging participants to speak, focusing attention on others, providing support for others' ideas when possible, voicing disagreements by using objective facts, causing laughter by making jokes that are not at the expense of any individuals, separating facts from opinions, identifying is certain information is new or already known, expressing feelings, and offering praise of others (Lehmann-Willenbrock et al., 2013).

According to Baran, Shanock, and Miller (2012), employees have socio-emotional needs, and the fulfillment of these needs, such as the presence of a rewarding and enriching environment, can result in a variety of positive outcomes, such as increased effort among employees and improved performance. As individuals receive greater amounts of compensation or socio-emotional support, employees may be motivated to work harder and provide greater contributions in order to show their appreciation. We believe that such an atmosphere will allow employees to feel more secure and be more resilient, as well as be better able to cope with any difficulties, challenges, and obstacles that may be presented.

Given the complexity of many issues that are considered in meetings and uncertainty in knowing how to approach such issues, problem-focused statements help clarify problems and promote common understandings. Unlike socio-emotional statements, every statement in this category is considered to be useful, regardless of whether it is positive or negative in nature. Problem-focused statements may identify, describe, or make connections with a problem, as well as define a problem's objective, identify a solution, describe a solution, respectfully object to a solution, provide connections with a solution, refer to specialists, or involve questions (Kauffeld & Lehmann-Willenbrock, 2012). According to Wittenbaum (2004), groups must spend sufficient time defining a problem and analyzing it in order to be most successful. Therefore, it seems likely that meeting groups that do not verbalize these statements as much will not work together as effectively as those groups that do.

Overall, the input-process-output model perspective and research relating to setting the tone in group contexts indicates that there is a relationship between positive moods, emotion, and affect and effort in complex cognitive tasks, increased cooperative behavior, and improved performance in certain types of job positions (Barsade, 2002). A possible explanation for this

relationship is that individuals who become more familiar with and fond of one another feel

more invested in the activities they engage in with others in the group, such as a meeting. These

individuals may also tend to become more motivated to achieve high performance in order to

perpetuate positive feelings in the group. Whether or not a group has a positive or negative

collective mood has far-reaching implications. In considering reasons for these findings, one

possibility is that a positive tone can lead employees to feel that they are being supported,

nurtured, and encouraged in a safe environment, and higher performance and favorable outcomes

can result.

Hypothesis 2a: Small talk PMT is positively related to positive socio-emotional

statements in group meetings.

Because of the impact of more extensive communication being linked to a better ability

for a group to share ideas effectively, we believe that the overall amount of PMT may be related

to the amount of problem-focused statements.

Hypothesis 2b: Small talk PMT is positively related to problem-focused statements in

group meetings.

Meeting Processes and Perceived Group Performance

Prior studies indicate that the type of communication utilized in meetings can exert a

marked impact on meeting outcomes, such as group performance. For example, the use of

procedural communication has been found to encourage proactive communication in meetings

(Lehmann-Willenbrock et al., 2013), which may be considered the taking on of responsibility by

attendees. According to Wittenbaum and colleagues (2004), the processes in meetings that

facilitate coordination among members are of critical importance in maximizing the performance

of groups.

However, the impact of meeting processes is not limited to merely procedural or exclusively task-focused communication. For example, research suggests that positive affect leads to the building of rapport, cohesiveness, and cooperation in a group (Amabile, Barsade, Mueller, & Staw, 2005), which can ultimately allow that group to communicate their ideas and understand each other more effectively (Seligman & Schulman, 1986). It is also thought that verbal statements that reinforce positive mood can have the effect of promoting task-related behaviors (Lehmann-Willenbrock et al., 2013), which may facilitate perceived group performance.

Therefore, the forgoing rationale and theories support the following hypothesis concerning meeting processes and meeting outcomes:

Hypothesis 3: Positive socio-emotional statements in group meetings are positively related to (a) perceived group performance, as well as objective group performance, indicated by the (b) average quality, (c) average originality, (d) average creativity, and (e) number of solutions.

Hypothesis 4: Problem-focused statements in group meetings are positively related to (a) perceived group performance, as well as objective group performance, indicated by the (b) average quality, (c) average originality, (d) average creativity, and (e) number of solutions.

In sum, the forgoing theoretical framework and process rationale suggests that small talk PMT relates to meeting processes, which in turn will impact perceived group performance. Through enhancing the effectiveness of communicative process and facilitating the development of cohesiveness and rapport, we argue that perceived group performance will tend to improve as a result of small talk PMT. Given that interactive patterns established early on in a group setting

tend to be followed throughout the rest of the conversation, we believe that the amount of small talk PMT will be related to the number of positive socio-emotional and problem-focused statements made in meetings.

We expect that the greater number of positive socio-emotional statements will be positively related to perceived group performance due to the development of greater cohesiveness and rapport, leading to greater efforts in achieving group goals. We expect that a greater number of problem-focused statements will be positively related to group performance due to these statements helping to promote a common understanding of the problem and clarifying the complexities of the tasks (see Figure 1).

As such, the following full-mediation hypotheses are proposed:

Hypothesis 5: The amount of small talk PMT positively indirectly relates to (a) perceived group performance, as well as objective group performance, indicated by the (b) average quality, (c) average originality, (d) average creativity, and (e) number of solutions, through the amount of positive socio-emotional statements in group meetings.

Hypothesis 6: The amount of small talk PMT positively indirectly relates to (a) perceived group performance, as well as objective group performance, indicated by the (b) average quality, (c) average originality, (d) average creativity, and (e) number of solutions, through the amount of problem-focused statements in group meetings.

Method

Sample and Procedure

We recruited 243 students who were enrolled in a psychology or communication course at a Midwestern university for 68 groups, each consisting of between three and six individuals. Participants received course credit in exchange for their participation. Upon arriving to the

session, participants were instructed to enter the meeting room, seated at a table, told that the study was about meetings, asked to sign the consent form, and then informed that the meeting time would begin in approximately five minutes but were not given a reason for the delay. After starting a video recorder to capture both the PMT and regular meeting periods, the researcher left the room and allowed participants to freely engage in open-ended discussion for five minutes prior to the official start of the meeting. Upon reentering the room, the researchers distributed a meeting agenda to participants, indicating that the group meeting time was to be spent discussing the general education curriculum requirements and ideas for how those requirements might be revised. Participants were told that the group with the highest performance would receive a reward. Each group was told to write their ideas down on a list. After 25 minutes, the researcher collected the meeting agendas and asked participants to complete a post-meeting survey. Because all of the group interactions were video recorded, researchers were able to analyze that data by using a coding scheme designed for workplace meetings.

Coding of Pre-meeting Talk and Meeting Talk

The first author and an independent coder who was blind to the hypotheses were trained to code both pre-meeting and meeting discussions, using the coding schemes described below. We used the INTERACT software (Mangold, 2010) to code all verbal interactions. Difficulty sometimes arose when a given message could reasonably be considered as being part of more than one of the established categories. The fleeting nature of PMT and the occurrence of side conversations further complicated the process. Therefore, coders were taught basic concepts of qualitative research methodology and provided detailed background knowledge concerning the primary constructs of interest. Part of the coders' training involved a consideration of contextual factors that could influence interpretations and meanings of dialogue. Certain phrases could have

much different meaning depending on the tone in which they are uttered and the progression of the conversation leading up to the utterance.

To assess the number of small talk PMT statements prior to the meeting and the number of both problem-focused and positive socio-emotional statements during the meeting, we first cut the pre-meeting and meeting videos into sense units, which may best be described as segments in which a single thought or idea is expressed (cf. Bales, 1950). Upon completion of unitization, a subset of these videos was classified by sense unit by two independent raters. These raters independently classified each sense unit in the PMT period as belonging to one of the four categories of PMT and then used the same process to code the meeting period according to the act4teams coding scheme. The PMT coding scheme was developed by the research team, and the act4teams coding scheme, which classifies verbal meeting behavior into four facets, has been established by previous research (e.g., Kauffeld & Lehmann-Willenbrock, 2012).

The results of the coding were used to establish inter-rater reliability per the process outlined by Cohen (1960). Following the first five independently coded pre-meeting videos, the kappa agreement for the pre-meeting period interactions was $\varkappa = .74$, and the kappa agreement for the meeting interactions was $\varkappa = .75$. Following each coder independently completing 15 additional, separate videos, another subset of videos were independently coded by each rater, resulting in an acceptable level of agreement for the premeeting period, $\varkappa = .81$, and for the meeting period, $\varkappa = .73$. Once all videos were coded, we assessed the number of small talk PMT sense units in the pre-meeting period and the number of positive socio-emotional and problem-focused statements in the meeting period.

Rating of Group Performance

As previously mentioned, we developed multiple indicators of objective performance.

We assessed each group's quality, originality, and creativity (the multiplicative product of quality and originality ratings) scores and calculated the total number of solutions generated. According to Guzzo and Shea (1992), performance of a group may include the degree to which meeting goals are achieved and the usefulness of proposed solutions. Three research assistants independently rated each solution on quality and originality, using a 5-point Likert-type scale, and this approach utilized a modified version of the consensual assessment technique (Amabile, 1996). If a solution was not applicable to the meeting purpose, then raters indicated that the solution was invalid and should be excluded from the analysis. The primary reason for the exclusion of a solution was that the groups wrote down the answer to a discussion question on the lines provided for recommendations. Multiple solutions were generated by each group, and each individual solution was rated independently. Raters were instructed to think of quality as the completeness of the solution and how well it addresses a problem. Interrater agreement was assessed using intraclass correlation analysis (Shrout & Fleiss, 1979); following the rating of the first 100 solutions, the intraclass correlation value was .713. Once all solutions were rated, the intraclass correlation value was .705, which is considered to be an acceptable reliability for such ratings.

Measures

A variety of measures were included in the survey to assess participant perceptions of outcomes, such as meeting quality, and characteristics of the participants, such as their levels of positive affectivity. All participants completed the measures in the same order.

Small talk PMT. Small talk PMT was assessed by using the INTERACT software program to divide meeting interactions into sense units and calculating the total number of these sense units in each group's pre-meeting period. This approach is in line with past research that

uses the INTERACT software to identify the frequencies of statements (Kauffeld & Lehmann-Willenbrock, 2012). Based on past research, we expected that there would be substantial variability in the amount of PMT observed, with some groups engaging in frequent communication and other groups being more reserved (Lehmann-Willenbrock et al., 2013). Interactions were coded as "small talk" if they discussed topics unrelated to their university, such as the weather, their family and friends, or their personal problems.

Positive Socio-Emotional Statements. The act4teams coding schemes includes the encouragement of others to speak, conveying support for others' ideas, voicing disagreements by using objective facts, expressing feelings, and offering praise of others all as types of positive socio-emotional statements (Lehmann-Willenbrock et al., 2013). In order to minimize the impact of interactive "noise" we did not include simple active listening statements, such as "mmhm" as part of this variable.

Problem Focused Statements. As discussed previously, the act4teams coding scheme includes the identification of a problem, an illustration of a problem, causes and effects of a problem, defining of an objective, and problems with solutions as problem-focused statements (Kauffeld & Lehmann-Willenbrock, 2012). Similar to our approach with positive socio-emotional statements, we made an effort to reduce the impact of noise by excluding "organizational knowledge" statements that occurred often yet were distinctly different from the rest of the problem-focused statements as a whole.

Perceived group performance. Perceived group performance was assessed by using a 4-item measure from Reiter-Palmon (2013) that was created specifically for this study. Participants were asked to think of indicate their agreement with a series of statements concerning their meeting. Sample items included, "Our team came up with some well thought out ideas to the

problem" and "Our meeting group came up with some creative ideas." Items were rated on a 5-point Likert-type scale ranging from 1 being "strongly disagree" to 5 being "strongly agree." The ICC(1) value for this variable was .85 and the ICC(2) value was .57. Furthermore, the r_{wg} value for this variable was found to be .92, which exceeds the minimum threshold of .70 (Meyer, Mumford, Burrus, Campion, & James, 2014) and provides further justification for aggregation.

Average quality, average originality, average creativity, and number of solutions.

The objective indicators of group performance were assessed by using a modified version of Amabile's (1996) consensual assessment technique. The recommendations made by participants were each rated in terms of the quality. These group performance ratings considered the quality, originality, creativity, and quantity of solutions generated by each group. Three research assistants, who were blind to the hypotheses of this study, were provided with instructions (see Appendix A) and then rated proposed solutions in terms of quality/appropriateness by using a 5-point Likert-Type rating scale with answers ranging from 1 (*very low quality*) to 5 (*very high quality*) (see Appendix B). Upon completing 10% of the ratings, raters compared scores and resolved any discrepancies to ensure that consensus was achieved. The inter-rater reliability coefficient had to be .70 or higher to continue with the independent rating process (James, Demaree, & Wolf, 1984). Inter-rater reliability values in this process are provided below. The average rating for each recommendation was used in the final analyses.

Potential control variables. Various demographic and control variables were included in the survey. These potential control variables included gender, age, race, and year in college. Previous meetings research has incorporated similar control variables, such as age and tenure (Rogelberg, Allen, Shanock, Scott, & Shuffler, 2010). These measures were completed by participants at the conclusion of the questionnaire. This approach is in line with Maruyama and

Ryan (2014), who argue that placing demographic questions at the end of a survey tends to increase the likelihood that respondents will answer such questions and mitigate the risk that the inclusion of these questions will influence the responses to other questions.

Other potential control variables for group level analyses included the length of the PMT period, the length of the meeting period, group size, and collector ID. Although an effort was made to keep the PMT and meeting periods constant across all groups, some variation occurred. However, the length of the PMT period was not significantly associated with the amount of small talk PMT and, therefore, was not controlled for in the analyses.

Results

Table 1 contains the means, standard deviations, and alpha reliability coefficients for all scales in the study.

To test Hypotheses 1a-1e, regression analyses were conducted (see Table 2). The number of small talk PMT sense units was included and found to significantly relate to perceived group performance ($\Delta R^2 = .13$; $\beta = .36$, $p < .001$), yet not found to significantly relate to the average quality ($\Delta R^2 = .21$; $\beta = -.05$, $p = .69$), average originality ($\Delta R^2 = .15$; $\beta = -.07$, $p = .56$), average creativity ($\Delta R^2 = .13$; $\beta = .01$, $p = .93$), or number of solutions ($\Delta R^2 = .18$; $\beta = -.02$, $p = .87$). Therefore, H1a was supported and H1b-H1e were not supported.

For Hypothesis 2a and 2b (see Table 3), the number of PMT sense units was included and found to significantly relate to both the number of positive socio-emotional statements ($\Delta R^2 = .16$; $\beta = .40$, $p < .001$) and the number of problem-focused statements ($\Delta R^2 = .06$; $\beta = .24$, $p = .046$). Therefore, H2a and H2b were supported.

For Hypothesis 3a-3e (see Table 4), the number of positive socio-emotional statements was included and found to significantly relate to perceived group performance ($\Delta R^2 = .18$; $\beta = $

.43 $p < .001$), yet not found to significantly relate to the average quality ($\Delta R^2 = .23$; $\beta = -.16$, $p =$ .16), average originality ($\Delta R^2 = .17$; $\beta = -.16$, $p = .18$), average creativity ($\Delta R^2 = .15$; $\beta = -.08$, $p = .53$), or number of positive socio-emotional statements ($\Delta R^2 = .08$; $\beta = -.20$, $p = .08$). Therefore, H3a was supported and H3b-H3e were not supported.

For Hypothesis 4a-4e (see Table 5), the number of problem-focused statements was included and found to significantly relate to perceived group performance ($\Delta R^2 = .20$; $\beta = .45$, $p < .001$), yet not found to significantly relate to the average quality ($\Delta R^2 = .21$; $\beta = -.06$, $p = .64$), average originality ($\Delta R^2 = .14$; $\beta = .00$, $p = .99$), average creativity ($\Delta R^2 = .15$; $\beta = .03$, $p = .79$), or number of solutions ($\Delta R^2 = -.18$; $\beta = -.07$, $p = .58$). Therefore, H4a was supported and H4b-H4e were not supported.

Hypotheses 5a-5e and 6a-6e were to be tested using mediation analyses following the steps outlined by Preacher and Hayes (2008) to determine the extent to which the relationship between the amount of small talk PMT and measures of perceived and objective performance is mediated by the number of positive socio-emotional statements or the number of problem-focused statements. However, the previous non-significant findings related to the objective indicators of performance in Hypotheses 5b-5e and Hypotheses 6b-6e preclude further mediation analyses. To test these hypotheses, the variables were entered into an SPSS macro (Hayes, 2013) to test the direct and indirect effects using a bootstrap resampling technique with a maximum number of samples set at 5,000 and a 95% bias corrected confidence interval to determine the significance of the mediator.

For H5a, mediation analysis revealed a significant effect of small talk PMT on the amount of positive socioemotional statements ($b = .268$, $p < .001$) and a significant effect of the number of positive socio-emotional statements on perceived group performance ($b = .006$, p

=.02). The direct effect of small talk PMT on perceived group performance was non-significant, $b = .003$, $p = .06$, and was smaller in effect size than the total effect of small talk PMT on perceived group performance, $b = .005$, $p < .001$. The unstandardized indirect effect of PMT on perceived group performance through the mediator positive socio-emotional statements was .0002 with a 95% confidence interval ranging from .0004 to .0039, revealing that the number of positive socio-emotional statements fully mediates the relationship between amount of small talk PMT and perceived group performance (see Table 6). Thus, Hypothesis 5a was supported.

For H6a, mediation analysis revealed a significant effect of small talk PMT on the amount of problem-focused statements ($b = .182$, $p = .049$) and a significant effect of the number of problem-focused statements on perceived group performance ($b = .006$, $p < .001$). The direct effect of small talk PMT on perceived group performance was significant, $b = .004$, $p = .02$, and was smaller in effect size than the total effect of small talk PMT on perceived group performance, $b = .005$, $p < .001$. The unstandardized indirect effect of PMT on perceived group performance through the mediator problem-focused statements was .001 with a 95% confidence interval ranging from .0002 to .0027, revealing that the number of problem-focused statements partially mediates the relationship between PMT and perceived group performance (see Table 7). Thus, Hypothesis 6a was partially supported.

Discussion

This study investigated the relationship between small talk pre-meeting talk, the number of particular types of meeting behaviors (problem-focused and positive socio-emotional), and perceived, as well as objective, group performance. Regarding past research, the only prior study to examine the relationship between PMT and meeting outcomes (Allen et al., 2014) suggested that the use of small talk PMT predicted perceived meeting effectiveness. Furthermore, past

studies have also suggested that what occurs in workplace meetings is related to performance

outcomes at the organizational level (Kauffeld & Lehmann-Willenbrock, 2012). In the present

study, a main focus of our efforts was to determine if more small talk PMT might predict

perceived group performance in a lab setting. Most surprising to us was that small talk PMT

related to key interaction behaviors (e.g., problem-focused statements) and to perceived meeting

outcomes, but did not relate to the objective group performance indicates. We review all the

hypotheses and findings here with emphasis on why this particular result was not manifested in

the data.

Hypothesis 1a, in which we posited that small talk PMT is positively related to perceived

group performance, was supported. There are a variety of reasons to suggest that PMT may

positively influence the frequency and quality of subsequent meeting communication. Meetings

are often perceived negatively, and empirical research suggests that higher frequencies of

meetings exert a negative impact on the well-being of employees, regardless of whether or not

meeting goals are achieved (Rogelberg et al., 2006). Although engaging in small talk PMT

would do little to alleviate the lost time due to meetings, it seems logical that a higher amount of

interaction (particularly positive, social interaction) would mitigate some of the negative

perceptions of the meeting experience and in doing so result in attendees feeling that they are

better able to focus on their tasks at hand.

However, it must also be noted that neither small talk PMT nor positive socio-emotional

statements and problem-focused statements were found to be related to any of the objectively

rated performance outcomes. The lack of an association between problem-focused statements

and objective performance measures challenges the conventional wisdom that the elaboration of

task-relevant information increases a group's performance. One potential reason for this

surprising relationship may be, at least partly, due to the nature of the group task. As suggested

by Watson and Michaelsen (1988), the type of task and complexity of the issue discussed largely

influence which strategy will bring about the most desirable outcomes. Given that many of the

meeting attendees were not extremely familiar with the general education requirements as they

currently existed, they may not have generally been able to build upon the complexity of these

problem-focused statements to in order to bring about enhanced objective performance (see

Hirokawa, 1982), even when they engaged in a greater number of them. Additionally, our results

may suggest a group level babble effect can take place in meetings, such that groups who engage

in more extensive discussion tend to believe they achieved high performance, but objective

ratings do not support this belief. The "babble effect" refers to a phenomenon in which the

amount that an individual speaks is more influential in shaping others' perceptions of that

individual as a leader than the quality of the individual's contributions (Jones & Kelly, 2007).

Numerous studies have supported the general finding that quantity of talk tends to be more

influential than quality of talk (e.g., Regula & Julian, 1973; Hayes & Meltzer, 1972). Yet, to our

knowledge, no previous studies have examined the existence of a group-level babble effect in the

meeting context, in which meeting attendees' perceptions of a meeting's success may be more

influenced by the quantity, rather than quality, of meeting contributions.

   Hypothesis 2a suggested that the amount of small talk PMT is positively related to

positive socio-emotional statements in group meetings, which was supported. Thus, it seems that

initially establishing strong communication in the pre-meeting period may exert a positive

influence on certain types of discussion throughout the meeting period. The impact on positive

socio-emotional meeting statements is of particular importance given the degree to which

relational communication is considered to be critically important in binding a group together

(Keyton, 1999) and fulfilling the emotional needs of meeting attendees (Lehmann-Willenbrock et al., 2013). Hypothesis 2b suggested that the amount of pre-meeting talk is positively related problem-focused statements in group meetings, which was supported. Engaging in more extensive communication prior to the meeting also appears to lead to a more robust discussion of topics relevant to the meeting, such as statements that define a problem or propose a solution to a problem. One possibility is that the greater discussion before the meeting can lead to a shared mindset and a stronger degree of understanding among members of the meeting group. This increase in understanding may develop in the form of considering how other meeting attendees are conceptualizing particular problems, as well as the internal motivations underlying the decision making of other attendees.

Hypothesis 3a posited that the number of positive socio-emotional statements in group meetings is positively related to perceived group performance, which was supported. Based on this finding, it seems that such relational communication may have a beneficial impact on perceptions of group performance due to the emotional needs of members being met and the meeting environment providing an enriching and rewarding atmosphere that leads meeting attendees to develop a stronger desire to help and an increased inclination to make high quality contributions in the meeting. Hypothesis 4a posited that the number of problem-focused statements in group meetings is positively related to perceived group performance, which was supported. This finding indicates that placing an emphasis on aspects of specific issues relevant to the meeting tended to result in a perception of enhanced performance. By keeping much of the meeting discussion focused on the task at hand, meeting attendees are perhaps better able to discuss complexities of problems and proposed solutions more in depth, resulting in the perception of higher quality ideas.

Hypothesis 5a suggested that the number of positive socio-emotional statements in a meeting would mediate the relationship between the amount of small talk PMT and perceived group performance. The reasoning behind this hypothesis is that engaging in small talk PMT may result in less restrained, higher quality and more productive discussion as a result of ameliorating anxiousness within meeting attendees, particularly when the nature of the meeting may induce high anxiety. These findings suggest that greater amounts of small talk PMT do not lead to increased perceptions of group performance when increased positive socio-emotional communication does not also occur. If the interaction during the PMT period does not allow people to foster a meeting environment conveying security and support, then the perception of discussion quality, and perhaps other meeting outcomes, will not be enhanced.

Hypothesis 6a suggested that the number of problem-focused statements in a meeting would mediate the relationship between the amount of small talk PMT and perceived group performance. This finding suggests that a condition of PMT exerting a positive impact on perceived group performance is that the PMT must be followed by a thorough consideration of the focal topic. In other words, a given group must spend time developing a common understanding of the problems they face, especially if the problem being presented has many possible solutions. When meeting attendees do not first develop a common understanding of definitions and the nature of the issue at hand, such a group is more likely to produce lower quality outcomes (Mitroff & Featheringham, 1974). Similarly, meeting attendees seem to be more likely to consider their group meeting to have been effective if there is an extensive consideration of the issues at hand.

Research and Theoretical Contributions

The forgoing study provides several research and theoretical contributions to our understanding of meetings through the input-process-output model framework. Of particular importance is the finding that small talk PMT is positively associated with both problem-focused and positive socio-emotional statements. Given the research indicating the importance of particular communicative behaviors, including these two types of statements, for performance outcomes, this research is a significant step forward in identifying predictors of these functional forms of communication. In addition to the instrumental value of these meeting statements in achieving meeting outcomes, organizations may also desire a greater frequency of these statements due to organizational leaders seeking to boost camaraderie through fostering supportive statements within group settings or to ensure that group members achieve a greater understanding of each other's perspectives to impact outcomes beyond the meeting. As a whole, these findings fit well with prior studies that have found the initial communicative events in an interaction to be very influential on subsequent communication and the progression of conversation for the duration of an event. By engaging in PMT prior to a meeting, attendees are provided with an opportunity to set the path of a conversation in a positive and meaningful direction that allows attendees' collective potential to reach fruition.

In terms of methodological contributions, this project marks a significant first step in the study of meeting interaction. To our knowledge, it is the very first study to examine PMT in an in-person research setting. It was less than a decade ago when meetings research began to pick up pace. In 2006, Rogelberg and colleagues began to examine particular aspects of workplace meetings and outcomes, such as employee well-being. Since then, meetings research has grown considerably; however, a large portion of this research has been cross-sectional in nature. The approach to coding and analyzing meeting interactions in a software program capable of

extensive conversation analysis has only become possible in recent years due to technological

advancements like the development of the Interact coding software. Considerable challenges to

this approach remain, however. In addition to the process being incredibly time-intensive, there

is also a certain amount of subjectivity within the coding process, although subjectivity is

mitigated by establishing inter-rater agreement. A variety of technical challenges are also present

within the process. Malfunctioning cameras, software glitches, and differences in the way in

which different computers play coded files are all a part of this process, but these problems will

likely be increasingly addressed over time. Despite the challenges faced, this study represents an

important progression in meetings research to investigate meeting processes before, during, and

as a result of the meeting.

Implications for Practice

One of the main implications of this study is that the findings suggest that meeting

leaders who aim to increase the focus on a problem or to encourage attendees to provide others

with socio-emotional support may benefit from promoting pre-meeting communication. The

relatively brief time preceding a meeting may be thought of as critical in setting the stage for

certain aspects of the meeting, and there may be a variety of other benefits of utilizing the PMT

period in addition to those investigated in this study. As one example, it seems logical to expect

that the PMT can foster the building or maintenance of relationships among coworkers and allow

them to be more comfortable and participative in the meeting, which ultimately may prove

beneficial to attendee performance or other meeting outcomes.

Practitioners may also find value in this research when considering how best to use video

recording along with advanced coding software to achieve a stronger ability to analyze their

meeting processes in their quest for improvements in meeting processes, efficiency, or a host of

other outcomes. Evaluating organizational meetings with the Interact software and the

Act4Teams coding scheme can do much to enhance the awareness of organizational leaders in

their efforts to discourage negative meeting behaviors and determine what specific types of

meeting interaction may be most desirable for their particular organization's meetings.

      With further study and examination, it is likely that more specific uses of PMT, as a tool

to manipulate a meeting and work environment, will be discovered. Due to Allen and colleagues'

(2014) previously finding that small talk PMT is positively related to perceptions of meeting

effectiveness, meeting leaders may be able to use this knowledge as a means of manipulating

meeting perceptions. As future research examines even more outcomes of PMT, meeting leaders

will be increasingly able to use PMT to transform their meetings and guide attendees toward

specific types of meeting interactions and influence desired meeting perceptions.

      Given the lack of a positive relationship between either small talk PMT and objective

performance outcomes or positive socio-emotional statements/problem-focused statements and

objective performance outcomes, it seems that a group-level babble effect may be taking place.

Meeting attendees may believe that engaging in greater amounts of certain types of discussion

results in stronger performance, yet objective ratings indicate otherwise. To the degree that

meeting attendees believing their group meetings are effective simply based on the amount of

discussion, meeting leaders may take greater care to guard against this threat by facilitating the

meeting to elicit the strongest contributions and avoiding or deterring counterproductive

discussion that may simply waste time. The threat of such behaviors is very real. For example,

Henningsen and Henningsen (2015) examined individual contributions in group discussions and

found that while the individual who talked the most tended to influence group decision making

the most, the group member with the most expertise influenced the group relatively less.

Furthermore, these authors suggest that introverted experts are routinely at risk of being

overwhelmed by "nattering nabobs" that choose to dominate discussions regardless of their

actual expertise (Henningsen & Henningsen, 2015). Meeting leaders may attempt to address this

through implementing changes in meeting design, such as turn taking.

Limitations and Future Directions.

Several limitations must be considered. First, there are a variety of differences between

PMT studied as it naturally occurs and PMT studied in a laboratory environment. For example,

Mirivel and Tracy (2005) indicated that most of the naturally-occurring PMT they observed took

place over the course of 15 minutes, and this period took place prior to the scheduled start time

of the meeting. Due to the constraints of the laboratory environment, the participants in the

present study were only able to be recorded following their written consent to participate in the

study, which did not take place prior to the scheduled meeting start time. The delay of the

meeting's start to provide a PMT period may elicit a fundamentally different interpretation of the

interaction period than if the PMT had started prior to the meeting. Also, the present analyses did

not consider the degree to which PMT conversation was of a positive or negative nature. Data

regarding group composition, such as whether any participants in a given group knew each other,

were not collected; therefore, it is not known to what degree the extent of PMT may reflect

familiarity or comfort due to pre-existing connections.

Also, the artificiality of the meeting setting presents an additional constraint; many

participants mentioned the presence of the camera in the pre-meeting period and indicated that

they believed the interaction before the meeting was a focus of the study. Participants being

aware of being recorded can influence the mental processes of a group (Wicklund, 1975). That

being said, the mentally challenging task of generating recommendations to revise the core

curriculum did seem to effectively take the participants' minds off the camera for the majority of

time. A number of students openly engaged in criticism of aspects of particular professors, which

seemed to indicate lower levels of reactivity to the camera. However, this limitation should not

necessarily be thought of as being negative. Rather, research lab studies often provide a way to

test initial hypotheses and set the stage for future research.

There are also a variety of future research directions that merit further consideration.

First, research may examine the role of personality in the impact of PMT. For example, research

can explore what personality characteristics, or combinations of personality characteristics, may

make individuals more or less likely to either engage in PMT or to be influenced by PMT.

Personality theories enable researchers to understand associations between thought and actions

(McCrae, 1994). It may be useful to consider "The Big Five" major personality traits, which

include Agreeableness, Neuroticism, Extraversion/Introversion, Openness to Experience, and

Conscientiousness (McCrae, 1994). It also seems possible that specific PMT variants may

differentially exert influences on individual behavior depending on personality factors.

Second, greater attention may be given to the nature of PMT through Social Interaction

Analyses. According to Sauer and Kauffeld (2013), social network analyses (SNA) integrate

theory with tools for achieving a greater understanding of how people interact with certain others

in a group. In the context of a meeting, all members are connected within a web and the

relationships between any two sets of individuals within the web vary considerably. A key

advantage of SNA is that it may allow for a much greater exploration of the nature of PMT. For

example, SNA may allow investigation of how the impact of PMT differs depending on its use

by meeting leaders or regular attendees.

Additionally, it seems that if significant effects are observed in relatively short-lived research sessions involving undergraduate students, then the effect may be more pronounced in long-term work groups. At the same time, it is important not to overlook the potential importance of PMT for newly formed, or temporary, meeting groups. That is, for such meeting groups the PMT period is a crucial time in which participants get to know each other for the first time, meaning PMT could potentially have more influence on particular outcomes in such situations. It may be wise for future studies to assess whether or not the attendees in the meeting groups being studied are all meeting each other for the first time or not.

Finally, it is possible that a common third factor, such as highly social-oriented group members, may have influenced the amount of discussion in both the PMT and meeting periods. Although we did not focus on such individual differences in this study, it may be of interest to explore in future research.

Conclusion

Considering the rise in meeting frequency over the past few decades, it seems surprising that more research has not previously been conducted on PMT (Allen et al., 2014; Mirivel & Tracy, 2005). This research presents a significant step forward in understanding how PMT may influence meeting interactions, which ultimately influence perceptions of meeting outcomes.

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Table 1

Descriptive Statistics and Intercorrelations

Variable	*M*	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9	10.	11.
1. Length of Pre-Meeting Talk	5.26	0.60	-										
2. Length of Meeting Talk	24.69	1.68	-.23	-									
3. Size of Meeting Group	3.62	0.85	-.03	-.19	-								
4. Number of Small Talk PMT Sense Units	45.58	40.03	.08	.04	-.12	-							
5. Number of Problem-Focused Talk Sense Units	75.12	29.87	-.03	.24	.07	.24*	(.51)						
6. Number of Positive Socio-Emotional Sense Units	51.16	26.00	.15	.08	.19	.40*	.61*	(.50)					
7. Perceived Group Performance	3.74	.55	-.09	-.00	.18	.36*	.45*	.43*	(.86)				
8. Average Quality of Solutions	2.38	.45	-.25*	.43*	.04	-.04	.04	-.15	.21	-			
9. Average Originality of Solutions	2.84	.53	.21	.36*	.04	-.07	.08	-.15	.28*	.89*	-		
10. Average Creativity of Solutions	7.00	2.00	-.25*	.34*	.07	.01	.10	-.08	.30*	.93*	.92	-	
11. Number of Solutions	8.36	5.13	-.33*	-.18	.24	-.06	-.12	-.28*	.10	.09	.10	.00	-

Note. $N = 67$ *$p < .05$

Table 2

Hierarchical Regression Analysis of Number of Small Talk Pre-Meeting Talk Sense Units on Perceived Group Performance, Average Quality, Average Originality, Average Creativity, and Number of Solutions

Model: Perceived Group Performance	R^2	ΔR^2	B	SE_B	β
Step 1	.13*	.13*			
Constant			3.77	.06	
Number of Small Talk PMT Sense Units			.01	.00	.36*
Model: Average Quality	R^2	ΔR^2	B	SE_B	β
Step 1	.21*	.21*			
Constant			.43	.96	
PMTlength			-.11	.09	-.15
MTGlength			.10	.03	.39*
Number of Small Talk PMT Sense Units			.00	.00	-.05
Model: Average Originality	R^2	ΔR^2	B	SE_B	β
Step 1	.15*	.15*			
Constant			.92	1.19	
PMTlength			-.11	.11	-.13
MTGlength			.10	.04	.33*
Number of Small Talk PMT Sense Units			.00	.00	-.07
Model: Average Creativity	R^2	ΔR^2	B	SE_B	β
Step 1	.13*	.13*			
Constant			1.52	4.51	
PMTlength			-.58	.40	-.18
MTGlength			.34	.14	.30*
Number of Small Talk PMT Sense Units			.00	.01	.01
Model: Number of Solutions	R^2	ΔR^2	B	SE_B	B
Step 1	.18*	.18*			
Constant			45.94	11.29	
PMTlength			-3.34	1.00	-.40*
MTGlength			-.81	.36	-.27*
Number of Small Talk PMT Sense Units			-.00	.02	-.02

Note. $N = 65$. PMTlength = length of premeeting talk. MTGlength = length of meeting. * $p < .05$

Table 3

Hierarchical Regression Analysis of Number of Small Talk Pre-Meeting Talk Sense Units on Number of

Positive Socio-Emotional Statements and Number of Problem-Focused Statements

	DV: Number of Positive Socio-emotional Statements					DV: Number of Problem-Focused Statements					
Model	R^2	ΔR^2	B	SE_B	β	Model	R^2	ΔR^2	B	SE_B	β
Step 1	.16*	.16*				Step 1	.06*	.06*			
Constant			52.22	2.97		Constant			75.25	3.61	
NumPMTSMTSU			.26	.07	.40*	NumPMTSMTSU			0.18	.09	.24*

Note. N = 65. NumPMTSU = number of small talk premeeting talk sense units. *p < .05

Table 4

Hierarchical Regression Analysis of Number of Positive Socio-Emotional Statements on Perceived Group

Performance, Average Quality, Average Originality, Average Creativity, and Number of Solutions

Model: Perceived Group Performance	R^2	ΔR^2	B	SE_B	β
Step 1	.18*	.18*			
Constant			3.45	.10	
Number of Small Talk PMT Sense Units			.01	.00	.43*
Model: Average Quality	R^2	ΔR^2	B	SE_B	β
Step 1	.23*	.23*			
Constant			.35	.95	
PMTlength			-.10	.09	-.13
MTGlength			.11	.03	.41*
Number of Small Talk PMT Sense Units			-.00	.00	-.16
Model: Average Originality	R^2	ΔR^2	B	SE_B	B
Step 1	.17	.17			
Constant			.82	1.17	
PMTlength			-.10	.10	-.11
MTGlength			.11	.04	.34*
Number of Small Talk PMT Sense Units			-.00	.00	-.16
Model: Average Creativity	R^2	ΔR^2	B	SE_B	β
Step 1	.15	.15			
Constant			1.28	4.50	
PMTlength			-.55	.40	-.17
MTGlength			.36	.14	.30*
Number of Small Talk PMT Sense Units			-.01	.01	-.08
Model: Number of Solutions	R^2	ΔR^2	B	SE_B	B
Step 1	.08*	.08*			
Constant			43.80	11.01	
PMTlength			-3.01	.98	-.36*
MTGlength			-.74	.35	-.25*
Number of Small Talk PMT Sense Units			-.04	.02	-.20

Note. $N = 65$. * $p < .05$

Table 5

Hierarchical Regression Analysis of Number of Problem-Focused Statements on Perceived Group

Performance, Average Quality, Average Originality, Average Creativity, and Number of Solutions

Model: Perceived Group Performance	R^2	ΔR^2	B	SE_B	β
Step 1	.20*	.20*			
Constant			3.75	.06	
Number of Small Talk PMT Sense Units			.01	.00	.45*
Model: Average Quality	R^2	ΔR^2	B	SE_B	β
Step 1	.21*	.21*			
Constant			.40	.98	
PMTlength			-.12	.09	-.16
MTGlength			.11	.03	.40*
Number of Small Talk PMT Sense Units			.00	.00	-.06
Model: Average Originality	R^2	ΔR^2	B	SE_B	β
Step 1	.14*	.14*			
Constant			.99	1.20	
PMTlength			-.12	.10	-.14
MTGlength			.10	.04	.32*
Number of Small Talk PMT Sense Units			.00	.00	.00
Model: Average Creativity	R^2	ΔR^2	B	SE_B	β
Step 1	.15*	.15*			
Constant			1.80	4.57	
PMTlength			-.59	.40	-.18
MTGlength			.34	.15	.29
Number of Small Talk PMT Sense Units			.00	.01	.03
Model: Number of Solutions	R^2	ΔR^2	B	SE_B	B
Step 1	.18*	.18*			
Constant			44.60	11.42	
PMTlength			-3.29	.99	-.39*
MTGlength			-.77	.37	-.25*
Number of Small Talk PMT Sense Units			-.01	.02	-.07

Note. $N = 65$. * $p < .05$

Table 6

Mediation Analyses for Number of Small Talk Pre-Meeting Talk Sense Units on Perceived Group

Performance, Average Quality, Average Originality, Average Creativity, and Number of Solutions

through Number of Positive Socio-Emotional Statements.

	b	SE	t	R^2
Hypothesis 4a: Perceived Group Performance				.20*
Indirect Path				
Independent → Mediator (PSES)	.268*	.08	3.52	
Mediator (PSES) → Independent	.006*	.00	2.40	
Total Effect (c path)				
NumPMTSU	.005*	.00	3.01	
Direct Effect (c' path)				
Independent → Dependent	.003	.00	1.87	
Hypothesis 4b:Quality				.22*
Indirect Path				
Independent → Mediator (PSES)	.418*	.11	3.67	
Mediator (PSES) → Independent	-.001	.00	-.95	
Total Effect (c path)				
NumPMTSU	-.001	.00	-.40	
Direct Effect (c' path)				
Independent → Dependent	.000	.00	.04	
Covariates				
PMTlength	-.101	.09	-1.17	
MTGlength	.110*	.03	3.49	
Hypothesis 4c: Originality				.16*
Indirect Path				
Independent → Mediator (PSES)	.418*	.11	3.67	
Mediator (PSES) → Independent	-.001	.00	-.79	
Total Effect (c path)				
NumPMTSU	-.001	.00	-.58	
Direct Effect (c' path)				
Independent → Dependent	-.000	.00	-.19	
Covariates				
PMTlength	-.102	.11	-.95	
MTGlength	.110*	.04	2.80	
Hypothesis 4d: Creativity				.15*
Indirect Path				
Independent → Mediator (PSES)	.423*	.12	3.66	
Mediator (PSES) → Independent	-.004	.01	-.57	
Total Effect (c path)				
NumPMTSU	.001	.01	.09	
Direct Effect (c' path)				

Independent → Dependent	.002	.01	.33	
Covariates				
PMTlength	-.55	.40	-1.36	
MTGlength	.37	.15	2.46	
Hypothesis 4e: Number of Solutions				.22*
Indirect Path				
Independent → Mediator (PSES)	.418*	.11	3.67	
Mediator (PSES) → Independent	-.027	.02	-1.65	
Total Effect (c path)				
NumPMTSU	-.003	.01	-.17	
Direct Effect (c' path)				
Independent → Dependent	.009	.02	.55	
Covariates				
PMTlength	-3.13*	.99	-3.15	
MTGlength	-.65	.36	1.79	

Note: n = 64. *$p < .05$. NumPSES = number of positive socio-emotional statements. NumPFS = number of problem-focused statements. PMTlength = length of the pre-meeting period. MTGlength = length of the meeting period.

Table 7

Mediation Analyses for Number of Small Talk Pre-Meeting Talk Sense Units on Perceived Group

Performance, Average Quality, Average Originality, Average Creativity, and Number of Solutions

through Number of Problem-Focused Statements.

	b	SE	t	R^2
Hypothesis 5a: Perceived Group Performance				.25*
Indirect Path				
Independent → Mediator (PFS)	.182*	.09	1.96	
Mediator (PFS) → Independent	.006*	.00	3.14	
Total Effect (c path)				
NumPMTSU	.005*	.00	3.01	
Direct Effect (c' path)				
Independent → Dependent	.004*	.00	2.36	
Hypothesis 5b: Average Quality				.21*
Indirect Path				
Independent → Mediator (PFS)	.173	.09	1.93	
Mediator (PFS) → Independent	.000	.00	-.20	
Total Effect (c path)				
NumPMTSU	.001	.00	-.40	
Direct Effect (c' path)				
Independent → Dependent	.000	.00	-.34	
Covariates				
PMTlength	-.111	.09	-1.29	
MTGlength	-.103*	.03	3.29	
Hypothesis 5c: Average Originality				.15*
Indirect Path				
Independent → Mediator (PFS)	.173	.09	1.93	
Mediator (PFS) → Independent	.000	.00	.19	
Total Effect (c path)				
NumPMTSU	-.001	.00	-.58	
Direct Effect (c' path)				
Independent → Dependent	-.001	.00	-.61	
Covariates				
PMTlength	-.112	.11	-1.05	
MTGlength	-.100*	.04	2.56	
Hypothesis 5d: Creativity				.15*
Indirect Path				
Independent → Mediator (PFS)	.166	.09	1.83	
Mediator (PFS) → Independent	.004	.01	.41	
Total Effect (c path)				
NumPMTSU	.001	.01	.09	
Direct Effect (c' path)				

Independent → Dependent	.000	.01	-.01
Covariates			
PMTlength	-.578	.40	-1.44
MTGlength	.331*	.15	2.24
Hypothesis 5e: Number of Solutions			.19*
Indirect Path			
Independent → Mediator (PFS)	.173	.09	1.93
Mediator (PFS) → Independent	-.015	.02	-.70
Total Effect (c path)			
NumPMTSU	-.003	.01	-.17
Direct Effect (c' path)			
Independent → Dependent	.000	.02	.01
Covariates			
PMTlength	-3.34*	1.00	-3.32
MTGlength	-.75*	.37	-2.03

Note: n = 64. *$p < .05$. NumPSES = number of positive socio-emotional statements. NumPFS = number of problem-focused statements. PMTlength = length of the pre-meeting period. MTGlength = length of the meeting period.
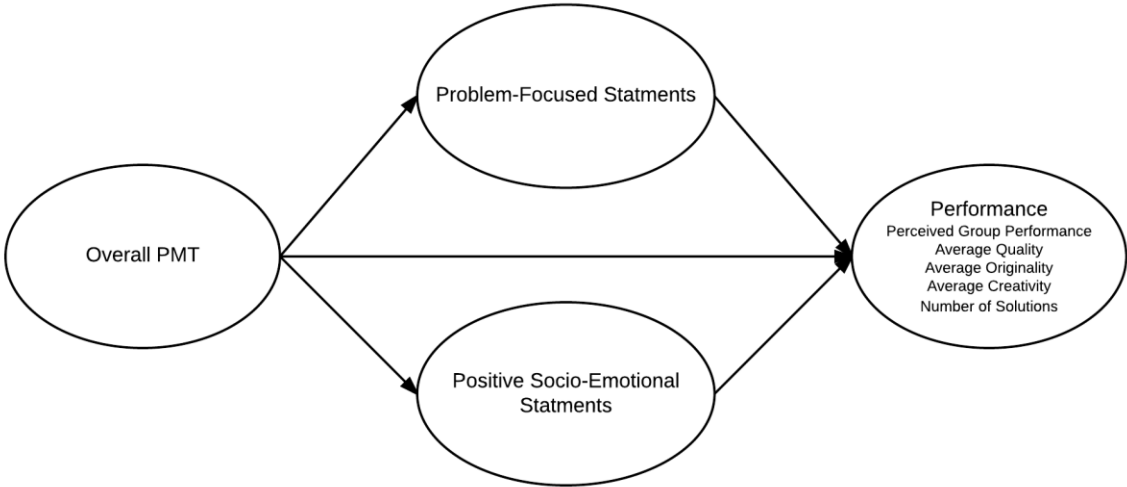
Figure 1. Relationship between overall PMT, performance, and each mediator.

Appendix A: Rater Instructions

Instructions for Ratings

1. Please read all the solutions before you start rating.

2. Remember that each rating scale should be independent from the other, and do not allow your judgment about one to interfere with the other. That is, you can have an original solution that is low quality/appropriateness.

3. Do not let wording, grammar and typos influence your rating.

4. Read the problem carefully before rating, and re-familiarize yourself with it periodically (particularly if you are taking a break).

5. Do not "read into" the solution - do not assume. Rate on what they wrote not what you THINK they meant.

6. Rate the solution as one solution in its totality. Even if there are multiple parts or multiple solutions/ideas.

7. When you are finished with rating, confirm that you did use 1s and 5s. If you did not, please review your 2s and 4s respectively and see if you can code these items as 1s and 5s

Appendix B: Criteria for Quality and Originality Ratings

QUALITY / FEASIBILITY RATING SCALE

The "originality" scale above measures novelty, whereas the quality scale measures the degree to which the solution is a plausible and appropriate solution to the prompt presented. Originality also includes the degree of logic and coherence in a solution.

Answers to the problem should be rated on a five-point scale based on the following criteria:

Completeness: Is the solution complete and addresses multiple issues raised by the problem?

Effectiveness: Is the solution viable, feasible, practical or appropriate?

1. Very low quality: solution not plausible or appropriate

2. Low quality: solution somewhat plausible; little logic and coherence

3. Average quality: solution plausible and somewhat appropriate; some logic

4. High quality: solution plausible, appropriate, and logical

5. Very high quality: solution very plausible and appropriate; very logical and coherent

ORIGINALITY RATING SCALE

Originality is comprised of three components:

NOVELTY: Does the idea represent a relatively unique approach to the problem (relative to other ideas)?

IMAGINATION: Does the idea present an imaginative approach?

STRUCTURE: Is the idea structured and limited by the problem as presented? Does the problem address the assumptions presented in the problem? Does the idea show thinking outside the box?

1. Very unoriginal: Very simple and/or common idea.

2. Unoriginal: Simple idea. One that is not novel, not imaginative, and is structured by the problem.

3. Neutral (neither unoriginal nor original): Idea shows limited novelty or imagination and is still structured by the problem.

4. Original: Idea shows some novelty and imagination and is less structured by the problem.

5. Very original: Idea is unique and novel, imaginative, and not structured by the problem.