

# The effect of manager's frequency and quality of communication on team's performance

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## Abstract

**Objective.** This paper wants to empirically test hypothesis that team leader's (who is the strongest determinant of communication climate and shared mental models within the team) higher frequency and quality of communication leads to higher performance.

**Method.** Hypothesis was tested on a sample of 237 leaders of sales teams from a large financial institution. The team leaders were rated based on quality and frequency of their communication by their subordinates. Team leaders had to be in their positions at least for 1 year. Standard sociomapping items with previously demonstrated reliability and validity were used to measure communication. Team performance was measured by average team member's annual revenue.

**Results.** Regression analysis showed positive effect of quality and frequency of team leader's communication on team performance.

**Conclusions.** From theoretical perspective, the paper follows up on studies investigating relationship between communication satisfaction and team performance. Practical implications lie mainly in interventions and other efforts to improve communication within organizations. Further, it highlights the necessity to consider managers' communication-related competencies during their selection and consecutive development.

**Limitations.** The main limitations of this study are its cross-sectional character and specificity of the sample (effect of intervening variables such as company culture cannot be excluded).

**Keywords.** team leader; quality of communication; frequency of communication; team performance; sociomapping

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## **Introduction**

Work teams are a group of people striving to achieve a shared goal. In order to act collectively, team members have to coordinate their actions. This coordination necessitates mutual communication of individual team members (Marks, Mathieu, & Zaccaro, 2001). This highlights that the team's ability to achieve shared goals should be dependent on frequency and quality of mutual communication between individual team members (Marlow, Lacerenza, Paoletti, Burke, & Salas, 2018) where particularly the team leader's communication should play a crucial role (Marks, Mathieu, et al., 2001). However, scientific investigation of this topic provided mixed results (Bahbouh, 2012; Leenders, Engelen, & Kratzer, 2003).

The first reason for these mixed findings could be that not all communication between the team members has to be instrumental toward accomplishing the shared team task. In fact, even though communication about personal topics can promote trust within the team, it can also serve as a distraction from working on the shared team task (De Dreu, 2008).

Second, the stage of development of the team or the stability of its environment may come into play. As we described earlier, communication is crucial when individual team members need to coordinate in their shared goal pursuit. However, after certain experience with the task, all team members develop a good cognitive representation of how to coordinate; i.e., good shared mental models and transactive memory systems are present, and high frequency of communication can be redundant or even a hindrance while working on the team task (Edwards, Day, Arthur Jr., & Bell, 2006; Lewis, 2004; Marks, Sabella, Burke, & Zaccaro, 2002).

In addition to these concerns, there are also frequent caveats to team performance measures. Researchers have either been working with team's performance in some artificial tasks in lab settings, which leads to questions about generalizability of such findings (e.g., Marks, Mathieu, et al., 2001), or actual field data about performance are used, where there could be any number of intervening variables between the effect of frequency and quality of communication on team's performance, such as business cycle or dependency on other external factors (Kendall & Salas, 2004).

## **Sociomapping and communication research**

Sociomapping is a process that allows for an analysis and depiction of team communication. It uses a set of standard relational scales whose outputs are visualized in the form of sociomap, which is a graph depicting communication patterns within the team using landscape metaphor for more intuitive reading (Bahbouh, 2012). Sociomapping has been used for investigation of team communication since HUBES (Human Behavior in Extended Spaceflight) high fidelity spaceflight simulation experiment in 1994 and consecutively in EKOPSY (1995-1996), Mars 105 (2009), Mars 500 (2010-2011) and Sirius 2017 (Bahbouh, 2012).

The importance of communication has been emphasized by cosmonauts themselves. Especially a conflict between two crew members, which led to premature termination of space mission or the first recorded space strike leading to cutting off of the control center from the

space crew. In addition, even SPHINX 1999 high fidelity space flight simulation had to be terminated due to conflicts within crew. Nowadays, the relationship between communication and team performance (or its failure) of space crew a well-established fact (Kanas & Manzey, 2008; Landon, Vessey, & Barrett, 2016).

Similar picture can be drawn from aircraft crew setting, where communication failures presented the most frequent reason for air crashes in the 90es, with estimates from 70 to 80% (Lauber, 1987; Tajima, 2004).

Nevertheless, aircraft accidents are an extreme example of team failures. It is much harder to estimate failures in common work teams. Some sources estimate that 50% of work team failures are due to suboptimal communication (Brent & Dent, 2017). In common work teams, we can expect similar relationship between communication and performance, which nevertheless presents some difficulties with operationalization of team performance. Extensive meta-analysis of 72 studies compiling information about almost 5000 teams showed relationship between communication, information sharing, and performance (Mesmer-Magnus & Dechurch, 2009). This relationship is collaborated by other studies (Becerra & Gupta, 2003; Hirokawa, 1980). Nevertheless, some other studies identified inversed “U” relationship between communication and performance, where too much communication can hinder team performance (Leenders et al., 2003; Smith, Olian, Sims, & O’Bannon, 1994).

### **Role of team leader’s communication**

Previous research has shown that among all team members, team leader’s communication is critical in all stages of team’s task work. Team leader is frequently the source of information about the task, especially in organizational setting, where leader represents and disseminates information from the organization to the team as well as communicates on team’s behalf with the organization (Fleishman et al., 1991). Indeed, previous research has shown that team leaders’ communication is crucial for team members shared mental models and transactive memory systems (Marks, Zaccaro, & Mathieu, 2001) and that team leaders’ communication is perceived as more important and team members communicate with them more frequently as compared to other team members (Bahbouh, 2014). Team leaders also play key role in creating team climate. (Dragoni & Kuenzi, 2012). As such, we expect that quality and frequency of team leaders’ communication will be positively related to team performance, where quality of team leader’s communication is defined as an extent to which it is clear, complete and timely (González-Romá & Hernández, 2014; Rozehnalová, 2013).

## **Method**

### **Sample**

Data about frequency and quality of communication from 237 managers of sales teams from a large financial institution was collected. The data collection was a part of more complex development center program. The inclusion criteria were that the managers had to be in their position for at least one year. After consenting to participate on the development center

program, subordinates of each manager were contacted to fill in measures of frequency and quality of their communication with the particular team members. The average size of the team was 9.679 (*median* = 9, *SD* = 4.245), team size ranging from 3 to 26 with average response rate 67.7 %.

## Measures

**Communication measures.** Standard sociomapping questions for measuring frequency and quality of communication were used (Bahbouh, 2012; Rozehnalová, 2013). Frequency of communication was measured by “How often does your superior communicate with you about work-related matters?” statement, which was rated on 5-point scale (1 – almost never, 5 – almost all the time). Similarly, quality of communication was measured by “Rate your superior’s quality of communication in terms of its content and timeliness” statement, which was rated on 5-point scale (1 – *could often be higher*, 5 – *often above average*). These scales showed to have high test-retest reliability (mean  $r = .798$ ) and validity (e.g., correlation between current frequency of communication and estimation of time spent together was  $r = .781$ ; for more information see Bahbouh, Rozehnalová, & Děchtěrenko, 2013; Rozehnalová, 2013).

**Table 1.** Descriptive statistics for variables of interest

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Communication frequency	237	2.267	5	4.247	0.502
Quality of communication	237	1.8	5	3.844	0.583
Team size	237	3	26	9.679	4.245
Average team member's annual revenue	237	-112045.055	122530.945	0	45610.831*

*Note.* \* Approximately 1 800 EUR.

Ratings of manager's frequency ( $r_{WG}$  *mean* = 0.8, *SD* = 0.17, *median* = 0.85) and quality ( $r_{WG}$  *mean* = 0.75, *SD* = 0.13, *median* = 0.77) of communication showed sufficient within-group agreement (cf. LeBreton & Senter, 2008) to justify their aggregation to team-level means, consistent with direct-consensus model (Chan, 1998; Kozlowski & Klein, 2000). For descriptive statistics, refer to Table 1.

**Team performance.** Team performance was measured by average team member’s annual revenue in CZK. Due to the sensitive nature of this information this variable was mean-centered for the purposes of this paper (*SD* = 45610.831), see Table 1. for details.

**Table 2.** Correlations of variables of interest

		Frequency of communication	Quality of communication	Team size	Average team member's annual revenue
Frequency of communication	of	1	0.625**	-0.287**	0.185**
Quality of communication	of	0.625**	1	-0.105	0.196**
Team size		-0.287**	-0.105	1	-0.011
Average team member's annual revenue	team annual	0.185**	0.196**	-0.011	1

Note. \*\*. Correlation is significant at the 0.01 level (2-tailed).

### Results

To test our predictions about the relationship between manager's communication and team's performance, we conducted linear regression analysis. Previous research showed that frequency of communication is affected by team size (Vraný & Bahbouh, 2014) and indeed, even in our sample there was a significant correlation between team size and frequency of communication, refer to Table 2. Therefore, we always first entered team size as a control variable into the model. In the first tested regression model, entering Frequency of manager's communication explained 3.6% in average team member's annual revenue and this change in  $R^2$  was significant,  $F(1, 234) = 8.774, p = 0.003^1$ . The relationship between manager's frequency of communication and team performance was positive ( $b = 18027.777, p = 0.003$ ), refer to Table 3.

**Table 3.** Regression of communication on team performance.

	Model	$\beta$	$b$	$SE$	$t$	$p$
1	(Constant)		1120.330	7404.392	0.151	0.880
	Team size	-0.011	-115.745	700.785	-0.165	0.869
2	(Constant)		-81370.080	28785.285	-2.827	0.005
	Team size	0.046	496.997	719.836	0.690	0.491
	Frequency of communication	of 0.198	18027.777	6086.058	2.962	0.003
3	(Constant)		-60404.236	21351.011	-2.829	0.005
	Team size	0.01	106.708	692.409	0.154	0.878
	Quality of communication	0.198	15445.814	5039.389	3.065	0.002

Note. Dependent Variable: Average team member's annual revenue

<sup>1</sup>  $R^2$  of the whole model was .036,  $F(2, 234) = 4.401, p = .013$ .

In the second tested model, entering Quality of manager's communication explained 3.9% in average team member's annual revenue and this change in  $R^2$  was significant,  $F(1, 234) = 9.394, p = 0.003^2$ . Quality of manager's communication was also positively related to team performance ( $b = 15445.814, p = 0.002$ ).

## Discussion

Our findings about the positive effect of manager's frequency and quality of communication on team performance have several important implications. First, this study replicates previous findings from lab setting, where team leader's briefs improved team's performance, especially in novel environments (Marks, Zaccaro, et al., 2001). It does so in field setting using long-term teams with real-life team performance measures (Kendall & Salas, 2004). On the first glance, the effect size of standardized regression coefficients seems relatively small. However, considering the number of potential intervening variables that can influence the processes that lead from team leader's communication characteristics to his or her team's objective performance in terms of its sales (i.e., the sources of error, see Mesmer-Magnus & Dechurch, 2009 for more information) and the practical real-world effect as described by unstandardized regression coefficients (i.e., the actual change in team's sales based on changes in team leader's communication characteristics), the effect size seems to be relatively strong (cf. Kelley & Preacher, 2012). Manager's ability to communicate effectively and to be in touch with his or her team showed to be a significant predictor of team performance and as such it should be the focus of training interventions for emerging leaders and communication-related competences should be considered during team-leader selection process.

However – and perhaps more importantly – the current study presents evidence for validity of established communication measurement scales used in sociomapping (Bahbouh, 2012; Rozehnalová, 2013). These seem to be able to capture managers' key behaviors that are necessary for effective regulation of team processes that are essential for team performance.

This study has certain limitations. For example, its cross-sectional character should reflect in certain caution when making claims about causality between our variables of interest. Future studies should map the relationship between trends in manager's communication and team performance over time. In addition, data from one organization were collected, which means that we cannot exclude the potential effect of intervening variables, such as organizational culture. As such, it would be desirable to replicate current finding on a more varied sample. Similarly, information about the size of a branch and size of settlement where the team resided was not available. Future studies account for these intervening variables in order to make the team performance more comparable.

Future studies should also investigate the factors that influence perceived quality of

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<sup>2</sup>  $R^2$  of the whole model was .039,  $F(2, 234) = 4.711, p = .010$ .

manager's communication. Our sociomapping scale serves as a starting point for interventions and as such it is designed to capture as wide scope of problems as possible so it can start the corrective process. Future studies should use more nuanced models of manager's communication so the effect of different aspects of communication behavior can be compared in their effect on team functioning and performance. In addition, it should be investigated, how quality of team leader's communication influences quality of communication within the whole team. Previous research on similar population showed that communication quality as a team level concept is a good predictor of team-level performance (González-Romá & Hernández, 2014) and there is a growing body of evidence suggesting that team leaders are strong determinants of team climate and other team level concepts (Dragoni & Kuenzi, 2012). Sociomapping tool can be a great source of insight into these processes.

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