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Exploring the puzzle of civility: Whether and when team civil communication influences team members' role performance

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Abstract
Does 'being nice' to each other always improve employee performance? Although research on workplace incivility has been growing, little is known about the flip side of it – workplace civility. In fact, different theoretical perspectives have suggested that civility could have positive (i.e. the flexibility perspective) or negative (i.e. the heuristics perspective) cognitive implications. In the current research, we examined whether and when workplace civility (operationalized as team civil communication) influences team members' role performance in two studies. In Study 1, we recorded team

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civil communication among 108 teams of students who participated in a team-based simulation, and found that team civil communication enhanced team members' role performance. In Study 2, we observed and coded 186 real-time surgeries conducted by surgical teams from a health-care center. Results showed a more nuanced and complex pattern regarding the influence of team civil communication, insofar as it enhanced team members' role performance in teams with less complex tasks, but the effect decreased or even flipped to negative when team task complexity increased. These findings suggest that civility can have both positive and negative influences on performance, with the net effect being contingent upon the broader environmental demands faced by the team.

Keywords
role performance, team communication, team task complexity, teamwork, workplace civility

A large and growing body of research has shown that interpersonal communication characterized by rude and insulting remarks (i.e. incivility) can have devastating consequences on employees' well-being, and even performance, in a variety of organizational contexts (e.g. for reviews, see Porath and Pearson, 2013; Schilpzand et al., 2016). Surprisingly, however, there are very few organizational studies investigating what some might view as the flip side of incivility – the impact of workplace civility – on employee performance. One exception is Porath et al.'s (2015) research, which may be the most systemic research investigating the impacts of workplace civility so far. Specifically, spanning a field sample and a lab study, Porath and colleagues have shown that individuals demonstrating more civility were more likely to be perceived as warm and competent, held more ties in the leadership and advice networks at work, and ultimately received better performance ratings.

In the workplace civility can manifest itself in various forms, such as verbal civility (e.g. civil communication) and non-verbal civility (e.g. civility conveyed from facial expressions and body gestures). In the current study, we focus on verbal civility at work and operationalize it as work-based civil communication, such as interpersonal communication characterized by courteousness, graciousness, consideration, support and/or encouragement in work-related contexts (Andersson and Pearson, 1999). More specifically, we investigate whether and when civil communication may influence team members' role performance either in a positive or in a negative way. One may assume that because uncivil communication has detrimental effects on employee functioning, civil communication would exert the opposite effect and that being 'nice' and 'polite' should positively affect employee performance. However, a closer look at the literature suggests that this assumption may be questionable.

First, from a conceptual perspective, the opposite behavior to being uncivil does not necessarily constitute being civil, but rather being neutral (i.e. demonstrating a lack of incivility). Indeed, research in psychology suggests that seemingly opposite dimensions, such as positive and negative affect, do not always represent bipolar opposites and may in fact function as independent dimensions that encompass asymmetrical effects on outcomes of interest (Watson and Clark, 1997). Thus, research findings on the impacts of workplace incivility may not be generalized to predict the impacts of workplace civility. Second, previous empirical and theoretical research has suggested that positive affective events (Weiss and Cropanzano, 1996), such as civil communication and actions, can have both positive and negative psychological consequences, making the nature of the association between civility and performance less intuitive and straightforward than one might assume. On the one hand, some theoretical perspectives, such as the flexibility hypothesis (Isen, 2008) and broaden-and-build theory (Fredrickson, 2013), have suggested that positive events could induce positive affect which enhances individuals' cognitive flexibility and corresponding performance. On the other hand, affect-as-information theory (Schwarz, 2012; Schwarz and Clore, 2007) and affect-as-cognitive feedback theory (Huntsinger et al., 2014) suggest that encountering positive events and experiencing positive affect may trigger heuristic and superficial cognitive processes that compromise one's performance. Thus, it is not completely clear how to resolve the discrepancy of evidence on the positive versus negative cognitive implications brought by positive affective events such as civil communication. In the current research, we refer to the first set of theories as the 'flexibility perspective' and the second set as the 'heuristics perspective'.

In organizations, there is one particular context where civil behavior directed toward others may be especially important – the team context. Considering the interdependent nature of teamwork, the potential effects of civil communication on team and its members' effectiveness may be particularly salient. For example, assuming civility functions in accordance with the flexibility perspective, a team may benefit from the communication and collaboration of 'smarter minds' among team members brought on by civility (DeChurch and Mesmer-Magnus, 2010). At the same time, according to the heuristics perspective, positive exchange among group members can lead to 'groupthink', which in turn may lead to disastrous consequences (Janis, 1972). Given that the existing literature offers little insight into the impact of civility in teams, we pay particular attention to whether and when team members being civil to each other can influence their role performance. In the current research we particularly focus on team civil communication, defined as 'the summation of communications reflecting courteousness, graciousness, consideration, support and/or encouragement conveyed by all team members during the completion of team tasks', and examined the impacts of team civil communication on the role performance of team members.

Given the discrepancy of evidence regarding the direction of the association between positive affective events and performance, it is possible that this association may have its own contingencies. As such, in the current research we investigated team task complexity, defined as the extent to which the team's job is multifaceted and difficult to perform (Humphrey et al., 2007), as a boundary condition on the effect of team civil communication on team members' role performance. Team tasks that encompass a higher scale of complexity usually impose higher demands on team members' cognitive capacities (Campbell, 1988), making them more vulnerable to cognitive deficiencies induced by affective events (Beal et al., 2005; Schwartz and Clore, 2007). Therefore, we expect that when team task complexity is high, team civil communication is more likely to demonstrate negative influences on performance.

To address these research questions, we conducted two studies in the current research. In Study 1, we documented team members' communication when they performed a decision-making task in a lab, and investigated whether civil communication influenced their role performance in the team. In Study 2, we collected field data from real-time surgeries conducted by surgical teams, by recording civil communication during these surgeries, and the role performance of nurses and anesthesiologists, allowing us to cross-validate our findings from Study 1. In addition, in Study 2, we examined team task complexity as a moderator of the relationship between civility and performance. Our study offers two central contributions to the management literature. First, it advances the understanding of workplace civility and its consequences on individual and team performance beyond current anecdotal speculations. Second, by exploring the potential boundary conditions on the relationship between civility and performance, we are able to offer a plausible explanation as to when workplace civility may impact important organizational outcomes, thereby providing a potential explanation for the discrepancy in findings found within research results noted previously.

Hypotheses development

Conceptually, workplace civility, including civil communication, is not synonymous with other similar constructs in the organizational literature, including organizational citizenship behavior (OCB), interpersonal justice, and ingratiation (for a detailed discussion about these constructs, see Porath et al., 2015). Civility differs from OCB in that OCB is usually enacted with the explicit intention of benefiting a target (e.g. coworker, team, organization [Podsakoff et al., 2000]) whereas civility does not necessarily involve such an intention (Andersson and Pearson, 1999). Interpersonal justice concerns how individuals are treated by authorities or figures involved in executing procedures and/or determining outcomes (Colquitt et al., 2001), while civility is less restricted in hierarchy and can refer to civil behaviors initiated by anyone at work. Although both ingratiation and civility may involve pleasing and desirable social exchanges, ingratiation is typically studied as an impression management technique used to manage a person's social image to his or her own advantage (Bolino and Turnley, 2003), while civility motives are not egoistic in nature.

In the workplace, civil communication is usually enacted on the basis of behaviors that are by nature both social/relational and emotion-laden (Andersson and Pearson, 1999). When individuals encounter such social-emotional communication at work, they readily try to appraise the events and estimate how they might affect their well-being, leading to affective reactions that carry a hedonic tone in accordance with the appraisal (Lazarus and Folkman, 1984). In other words, owing to the positive tone inherent in affective events such as civil communication, individuals who are exposed to this should experience positive affect (for a review, see Weiss and Cropanzano, 1996; for empirical evidence, see Fredrickson, 2013; Isen, 2008; Porath and Erez, 2007, 2009; Rafaeli et al., 2012). For instance, to induce positive mood, the experimenter in Erez and Isen's (2002) study handed participants a small bag of candies, smiled and told them how much he appreciated their willingness to participate in his study. Similar verbal manipulations leading to demonstrations of 'being civil' have been deployed by Isen and colleagues to induce positive affect in participants (Isen, 2008). Thus, in the current research, it is reasonable to assume that team civil communication, as a positive social interaction or affective event, will induce positive moods among team members. This assumption allows us to develop our hypotheses under both the flexibility and heuristics perspectives regarding the cognitive implications of positive affect, as presented in the following.

Affect-driven theories, such as the flexibility hypothesis (Isen, 2008) and broaden-and-build theory (Fredrickson, 2013) underpin the flexibility perspective. These theories suggest that positive affect improves performance by enhancing individuals' thinking, flexibility and problem-solving abilities. Specifically, Isen and her collaborators have found the flexibility effects of positive affect through an extensive research program, which demonstrated that when individuals encountered positive events and/or experienced positive affect, they showed patterns of thought that were flexible and inclusive (Isen and Daubman, 1984), creative (Isen et al., 1987), integrative (Isen et al., 1991), open to information (Estrada et al., 1997), and forward-looking (Pyone and Isen, 2011). Similarly, broaden-and-build theory suggests two important functions of positive affect: the *broadening* function, such that positive affect can widen individuals' array of thoughts, action urges and percepts coming to mind, which in turn all lead to the emergence of novel, varied, and exploratory behaviors; and, the *building* function, such that positive affect can continue to have enduring effects on building one's acquisition of personal resources (e.g. social support, resilience, skills and knowledge) and ultimately result in enhanced health, career and life fulfillment (Fredrickson, 2013). In fact, according to Fredrickson (2013), the proposed broadening function was especially inspired by Isen's flexibility hypothesis. In all, exposure to positive acts and the experience of positive affect have been found to promote flexibility in thinking, which in turn facilitates the quality of problem solving and the efficiency of decision making.

Based on this rich array of findings, we suggest that the facilitative effect of positive affect on flexibility in thinking and decision making is highly relevant to the team setting. Specifically, when a higher level of positive affect is induced by acts of civility in teams, individual members may have a broader scope of attention and accordingly pay more attention to the roles of other team members; they will also be more likely to form a systematic cognitive map of the role responsibility and expertise distribution within the team (Huang, 2009; Isen, 2008). Moreover, they may be more likely to engage in flexible information processing because positive affect enables them to see the interconnectedness between different roles and integrate individual role knowledge to form a team knowledge system (Chi et al., 2011). In turn, this knowledge system should enable team members to achieve optimal strategies and respond effectively to team task demands (Huang, 2009; Isen, 2008). Overall, the flexibility perspective suggests that:

> Hypothesis 1: Team civil communication is positively related to team members' role performance.

Despite extensive research evidence consistent with the flexibility perspective, recent advances in theoretical perspectives and empirical evidence are starting to suggest that positive affective events and positive affect do not necessarily always have beneficial effects on individual functioning (e.g. Forgas, 2002; Huntsinger et al., 2014). Among these alternative theoretical perspectives, both affect-as-information theory and affect-as-cognitive feedback theory emphasize the role of heuristic thinking in understanding the cognitive functions of positive affect, and are thus most relevant to the current research; when combined we refer to them as the heuristics perspective. Specifically, affect-as-information theory suggests that affect serves as a signaling function that adaptively directs people's cognitive processing by providing information about their psychological environment (Schwarz, 2012; Schwarz and Clore, 2007). That is, while negative affect signifies the presence of a problem, positive affect signifies a safe and benign environment. Accordingly, positive affect suggests that careful and detailed processing is not required and therefore, individuals in positive affective states will likely rely on heuristic, top-down processes that have served them well in the past. Similarly, affect-as-cognitive feedback theory (Huntsinger et al., 2014) suggests that affective states convey information about the validity of cognitively accessible mental content. That is, positive affect makes current thoughts seem particularly valid and can lead people to have great confidence in them (i.e. underestimate the associated risks), whereas negative affect has the opposite effect. At the core of these two theories is the notion that positive affective states lead people to rely on heuristics and to be confident – or even overconfident – in their evaluations and performance (Sidi et al., 2018). This runs the risk of interfering with regulatory decisions essential to task performance, such as the need to change a course of action, the need to allocate more time or cognitive resources to a task, the need to solicit the help of others, and the need to monitor one's progress (Bjork et al., 2013; Moore and Healy, 2008).

Heuristic thinking may be especially problematic in the team setting because of the interdependent nature of team tasks. In particular, when heuristic thinking occurs in teams, team members are likely to rely on existing task procedures and strategies, avoid seeking and considering alternative viewpoints, maintain harmony by overly striving toward consensus, and feel overconfident about the team's capabilities (Esser, 1998; Janis, 1972). These team processes can sometimes lead to 'groupthink', which may prevent team members from developing sophisticated team mental models or achieve desirable team outcomes, especially when the team task requires detailed and careful information processing. Indeed, many decision-making failures in the business world, and in governance, can be at least partially attributed to 'groupthink' brought about by excessive team cohesion (for a review, see Esser, 1998).

However, the heuristics perspective of positive affect does not suggest that positive affect will always lead to heuristic processes. Instead, this perspective suggests that it will lead to superficial processes when 'the judgement is overly complex and cumbersome' and when 'time constraints or competing task demands limit the attentional resources that may be devoted to forming a judgement' (i.e. the cognitive limitation view; Schwarz and Clore, 1996: 444). In other words, when individuals' work tasks do not occupy a great deal of their cognitive resources, they are less likely to use heuristics because such simplification rules and shortcuts are not required. In contrast, when tasks are more cognitively demanding, the temptation to use heuristics to simplify the decision-making process becomes more eminent. Therefore, if civility encourages individuals' use of heuristics, it will likely occur when they work on more cognitively demanding tasks. Ironically, heuristics pose risks particularly in these tasks because they suggest solutions that are less likely to be generalizable in such cases. This proposition is also consistent with the ecological rationality view of heuristics that proposes that individuals are adaptive to their environment such that they engage in a risk calculus and are more likely to use heuristics when they weigh the risks as lower than the benefits (for a review, see Gigerenzer and Gaissmaier, 2011). When working on more demanding tasks, individuals' minds are likely to be too occupied to comprehensively and accurately evaluate the risks of potential heuristics, such as those induced by civility. In this situation (i.e. when tasks are more demanding), given that civility usually implies that the task environment is benign, individuals are more likely to underweigh the risks associated with heuristics relative to the benefits, and thus have an enhanced likelihood of applying these heuristics.

Following this logic, we propose that although team civil communication interferes with team members' effectiveness via heuristic thinking, this effect may only occur when team tasks are more cognitively demanding, such as when team task complexity is higher. Team task complexity refers to the extent to which a team's job is multifaceted and difficult to perform (Humphrey et al., 2007). Task complexity can be manifested in various ways, such as complicated task procedures and processes requiring complex skill and knowledge sets, poorly understood and/or dynamic means–end relations, and uncertainty regarding the appropriateness of alternative approaches to achieve team task objectives (for a review, see Campbell, 1988). Previous research has shown that team tasks with high complexity are usually associated with high demands imposed on individuals' information processing capabilities, and that more complex tasks require individuals to dedicate greater attentional resources to task-related efforts (Beal et al., 2005; Humphrey et al., 2007). As such, team task complexity indicates the extent to which team tasks are cognitively demanding to team members – the critical boundary condition we proposed previously in understanding when civility leads to heuristics. Taken together, the heuristics perspective suggests that the benefits of civil communication may be weakened because of the problems associated with heuristic thinking, but these problems may only become salient when team tasks are more complex, a situation in which heuristics are more likely to surface among team members and interface with their performance. Thus, we hypothesize:

> Hypothesis 2: Team task complexity moderates the association between team civil communication and team members' role performance, such that the positive effect of team civil communication on team members' role performance is weakened under conditions of higher (vs lower) team task complexity.

Study 1: Methods and results

Participants, task and procedure

Participants were 432 undergraduate students from an introductory management course at a southeastern university in the USA. Participants received extra credit for participating in the study. Students were randomly assigned into four-person teams, resulting in a total of 108 teams. The average age of participants was 20.70 years (*SD* = 2.50), and the participants were 54% male. The task used was a computer simulation called the Team Interactive Decision Exercise for Teams Incorporating Distributed Expertise, or TIDE[2]

(Hollenbeck et al., 1995). TIDE[2] runs across networked terminals and provides a mechanism to study factors that influence team decision-making accuracy.

In this study, the TIDE[2] task required teams to make a series of decisions based on a specific military scenario. Accordingly, each team member played a different role within a naval combat 'command and control' team that was expected to protect the airspace in their simulated geographic area. To accomplish their protection goal, the four-person teams had to make a series of decisions on how to react to airplanes that entered their airspace. Each role played in this simulation was only allowed access to certain attributes of the incoming aircraft. Therefore, no single member of the team could independently gather all available information about the threat of the incoming aircraft. To determine the threat an posed by an incoming aircraft, team members needed to gather information in their respective roles and then share information with other team members until a final decision was made.

The roles randomly assigned to team members were: commanding officer (CO) of an aircraft carrier called CARRIER; CO of an aircraft equipped with warning systems called 'Airborne Warning and Control System' or AWACS; CO of a sea-based warning station called CRUISER; and CO of a land-based warning station called 'Coastal Air Defense' or CAD. After a training session, each team was exposed to 12 incoming aircraft and was expected to make a response decision for each aircraft. Because team members were assigned to separate cubicles during the experiment without the ability to see one another, all communication between group members were in the form of text messages through computers. The computer simulation allocated a certain amount of time for each team to make a decision about an approaching aircraft before forcing teams to assess the next aircraft. When the computer timer ran out, team members playing the roles of AWACS, CRUISER and CAD had to make individual decisions as to whether they wanted to ignore the plane, defend against it, or engage in some other action in the continuum between these two options. After these three team members sent in their recommended decisions, the CARRIER combined these judgments to make the final response decision for the team. Therefore, the team member serving in the CARRIER position was in a leadership position because he or she made the final decision for the team. Both the CARRIER's final decision for the team, and the other three members' recommended decisions were recorded by the computers.

Measures

Team civil communication. Team civil communication was operationalized as the number of text communications during team members' completion of team work in each trial that included elements of courteousness, graciousness, consideration, support and/or encouragement. Examples of team civil communication in Study 1 include 'YOU ROCK, KEEP THE INFO COMIN'', 'That was great', and 'Please keep sending me your info'. Three undergraduate research assistants separately evaluated all text communications. Specifically, they first evaluated whether each occurrence of the text can be categorized as civil communication (or not) and then counted the number of civil communications in each trial for every team. Agreement on the number of civil behaviors (*Kappa* = .58, $p <$ .001) among the three coders was acceptable (Fleiss, 1971). At the trial level, inter-class correlations of the number of civil behaviors (*ICC*[3, *k*] = .81) were also acceptable among the three coders. Therefore, we aggregated three coders' ratings at the trial level (i.e. the number of team civil communications in each trial), by averaging scores across the three coders.

Team members' role performance. The TIDE[2] software automatically provided a score for each trial. Scores were determined based on how closely team members' decisions matched the correct response, as programmed in the simulation software. Decision options available to the teams ranged on a six-point continuum from ignore, the lowest level of aggressiveness, to defend, the highest level. Intermediate responses were review, warn, ready and lock-on. Participants earned two points if their response decision was correct (e.g. when both the correct decision and the participant's decision were to warn), one point if the decision was off by one on the response continuum (e.g. when the correct decision was to warn while the participant's decision was to ready), and zero points if their decision was off by two on the continuum (e.g. when the correct decision was to warn while the participant's decision was to lock-on). Participants lost one point if their decision was off by three (e.g. when the correct decision was to lock-on while the participant's decision was to review) and lost two points for being off by more than three (e.g. when the correct decision was to *lock-on* while the participant's decision was to ignore).[1]

We operationalized team members' role performance in two ways. First, given that the team member serving in the CARRIER role was in a leadership position and made the final decision for the team, we used the response accuracy of participants in the CARRIER positions as the first performance criterion and referred to it as 'overall team role performance'. This operationalization was consistent with previous studies using the TIDE[2] simulation (e.g. Hollenbeck et al., 1995) and also reflected the team's performance level during each trial.

Second, at the end of the simulation, the TIDE[2] software also automatically tallied the average team member performance for each of the 12 aircraft decisions by averaging four team members' performance in each trial, which we termed the 'average team members' role performance'. This operationalization was consistent with previous studies using the TIDE[2] simulation (e.g. Hollenbeck et al., 1994) and reflected the average judgment accuracy of each individual's decision making. Participants were informed that every team member's decision would be evaluated in determining whether their team operated effectively as a unit, and that each of them should attempt to make an accurate judgment as best they could. Therefore, averaging the accuracy of all team members' judgments should also adequately reflect team members' role performance.

Control variables. Team incivility was included as a control variable, because any incidence of incivility during teamwork may prevent team members from performing in a desirable way (e.g. Riskin et al., 2015, 2017). As with team civility, three research assistants coded team incivility by counting the number of text communications that were conveyed in an aggressive, impolite and improper way, such as 'Use your brain, not mine', 'DON'T SORRY MY ASS. GET TO WORK!!!', and 'Where the hell were you on that one'. The level of agreement across three coders was acceptable both at the within-trial level (*Kappa* = .59, $p < .001$) and at the between-trial level (*ICC*[3, *k*] = .86).

Therefore, we aggregated three coders' ratings at the trial level by averaging scores across the three coders. We also controlled for total number of text communications in each trial to rule out the possibility that performance was simply enhanced by more information sharing (Mesmer-Magnus and DeChurch, 2009).

Analytic strategy

Owing to the pattern of missing data, we constrained the data to be analyzed specifically to those trials with at least three team members who successfully made decisions before the allotted time ran out, resulting in a total of 1106 valid observations (valid observation rate = 85.3%).[2] Because data used in this study have a nested structure (i.e. trials were nested in teams) and our focus is on within-team interactions, we used the Mplus 7 software and its multilevel modeling capabilities to analyze our data. In particular, we specified a two-level model. At Level 1 (i.e. within-team level), we estimated the effects of civil communication among team members on the two team members' role performance variables, controlling for the effects of uncivil communication and the total number of text communications for each trial. All variables were group-mean centered to obtain unbiased estimates of the within-team level main effects (Hofmann and Gavin, 1998). At Level 2 (i.e. between-team level), we estimated the mean values and variances of the between-team level components of the studied variables.

Results

Means, standard deviations and inter-correlations among variables are presented in Table 1. Team civil communication was positively correlated with average team members' role performance (r = .10, p = .001) and overall team role performance (r = .08, p = .009), providing preliminary evidence for Hypothesis 1. On average, each team sent out 24 instances of text communication during one trial (SD = 11.28, median = 23), among which .05 were coded as civil (SD = .23, ranging from 0 to 3) and .07 were coded as uncivil (SD = .30, ranging from 0 to 4).

Results of the examined model are presented in Table 2.[3,4] As shown in Table 2, the number of instances of civil communication exhibited among team members was positively related to both overall team role performance (γ = .23, p < .001) and average team members' role performance (γ = .23, p < .001), suggesting that in trials characterized by more civility expressed by team members, teams on average had higher levels of role performance. Thus, Hypothesis 1 was supported. In contrast, the number of instances of uncivil communication exhibited among team members was neither significantly related to overall team role performance (γ = .06, p = .268) nor average team members' role performance (γ = -.03, p = .396).[5]

An alternative explanation to our results on the positive impact of team civil communication on team members' role performance may be that the causal direction is actually opposite to the one suggested in our model, such that role performance preceded civil behaviors exhibited among team members. That is, the immediate and continuing performance feedback received by participants could influence the amount of civil communication enacted by team members. Although the study design did not allow us to directly

Table 1. Study 1: Means, standard deviations and correlations among variables.

Variables	*M*	*SD*	1	2	3	4
1. Total number of text communications	24.00	11.28				
2. Team uncivil communications	.07	.30	.02			
3. Team civil communications	.05	.23	.06*	.08**		
4. Overall team role performance	1.41	.68	−.04	.03	.08**	
5. Average team members' role performance	1.25	.52	−.01	−.01	.10**	.72**

M = mean; *SD* = standard deviation; correlations are within-team level correlations ($N = 1{,}106$); * $p < .05$; ** $p < .01$.

Table 2. Study 1: Unstandardized coefficients of the estimated model.

	Overall team role performance		Average team members' role performance	
	Estimate	*SE*	Estimate	*SE*
Intercept	1.41**	.02	1.25**	.02
Predictors				
Total number of text communication	−.01	.01	−.01	.01
Team uncivil communication	.06	.05	−.03	.04
Team civil communication	.23**	.07	.23**	.06
Level 1 residual variance	.43**	.03	.26**	.02
Level 2 residual variance	.01	.01	.01	.01

SE = standard error; Level 1 $n = 1{,}106$; Level 2 $n = 108$; ** $p < .01$.

examine such a causal direction owing to the lack of temporal separation, we were able to conduct a cross-lagged analysis between team communication and team members' role performance in two adjacent trials. Of the 1106 trials included in the main analysis, a total of 998 pairs of adjacent trials (i.e. trial *N*-1 and trial *N*, with *N* ranging between 2 and 12) were identified and included in the analyses. Then, based on McArdle (2009), we fit a multilevel model by regressing the team civil communication, team uncivil communication, overall team role performance, and average team members' role performance in trial *N* on the same variables in trial *N-1* (i.e. auto-regressive effects) at Level 1. In addition, at Level 1, we specified the effects of team civil communication and uncivil communication in trial *N-1* on role performance variables in trial *N*, as well as the effects of role performance variables in trial *N-1* on team civil and uncivil communication in trial *N* (i.e. cross-lagged effects). Consistent with the model in our main analyses, we also specified the effects of civil and uncivil communication on role performance variables in the same trial at Level 1. At Level 2, we estimated the mean values and variances of the between-team level components of the variables. Results showed that none of the cross-lagged relationships between measures in trial *N-1* and those in trial *N* were significant. In particular, the non-significance of the relationships between role performance variables in trial *N-1* and team civil communication in trial *N* suggests that the reverse causality is an unlikely alternative explanation. The effects of civil communication on overall team role performance ($\gamma = .20$, $p = .004$) and average team members' role performance ($\gamma = .22$, $p = .002$) in the same trial (i.e. trial *N*) remained significant. Interested readers can request the complete set of results from the first author.

Study 2: Methods and results

Sample and design

To assess the generalizability of findings in Study 1 to a field setting, and in order to examine how team task complexity may condition the impact of civility on team members' role performance, we studied surgical teams in a large tertiary health care center in Israel. In total, 377 randomly selected surgical teams from nine surgical wards participated in this study, with team sizes ranging between three and eight members. For three-person teams, each team consisted of one surgeon, one nurse and one anesthesiologist. For teams with more than three members, each team consisted of at least two nurses and at least one anesthesiologist. The majority (91 %) of surgeries observed in the current study had more than three team members, with an average of 5.47 members per team. The data collection took place continuously over a six-month period. Given workload scheduling and team staffing procedures at this particular hospital, only 5% of teams shared the exact same member composition at any given time during this period.

Data were collected by senior medical students, all of whom underwent a multi-session training program focusing on observing surgeries and using an observation form.[6] For each randomly selected surgery, the trained observers used two checklists to monitor the degree to which each of the two groups of surgical team members, namely (a) nurses and (b) anesthesiologists, performed as specified by the standard, evidence-based and role-specific patient safety protocols developed for their respective role by the Israel Ministry of Health. While it would have been ideal to examine a similar variable for the surgeons, this was not possible for two main reasons. First, there is no standard protocol for surgeons' procedures that is relevant and applicable for all types of surgeries. Each surgery requires a separate protocol and often once the patient is opened up, the surgical plan is changed, for example if scarring from previous surgeries is found. Second, even if a very experienced surgeon could rate whether a specific surgical team conducted the surgical procedure in the best way, this is not standardized and would require a different expert surgeon for each type of surgery. Thus, it was out of the realm of the observers' capability to determine whether the surgeons carried out all the task steps related to their job in a comparable manner to the role-specific performance indicators of the nurses or anesthesiologists. Trained observers used the checklists to record role-specific behaviors demonstrated by the nurses and the anesthesiologists, respectively, as a collective entity. In other words, the checklists were designed to assess whether the role responsibilities shared by all team members holding the same role were fulfilled collectively, rather than whether each individual team member, or which individual member, fulfilled his or her role responsibilities. As such, scores on the two checklists represent the role performance of nurses and anesthesiologists, making these scores indicators of team members' role performance (Humphrey et al., 2009). Hereafter, we refer to the scores on the two checklists as 'nurses' role performance' and 'anesthesiologists' role performance'. As indicated below, the observers also documented team civil and uncivil communication during this period.

Measures

Team civil communication. Similar to Study 1, team civil communication was operationalized as the number of communications containing instances of courteousness, graciousness, consideration, support and/or encouragement expressed by team members from the preparation stage to the end of the surgical operation. The observers, who were blind to the purpose of the study, were trained to note each civil communication occurring during the surgery between any two or more team members. Examples include, 'well done – having spare equipment ready' or 'glad to see it is you working with us today'.

Nurses' role performance. Using parameters specified by the Israel Ministry of Health patient safety protocols, the head operating room nurse developed a checklist for observers in order to assess the degree of performance requirements met by nurses. Performance requirements included, for example, items capturing whether the closing up of the patient started after all surgical gauze pads were counted (to ensure that no gauze pads or surgical dressings might be left in the body cavity), and whether the form regarding gauze pad counting was signed. We calculated the percentage of these performance requirements that were met for each operation and used it to indicate nurses' role performance in each surgery observed. According to our data, nurses' role performance ranged between 33.33 and 100 (100 represents all role expectations being met), with a mean value of 80.12 (SD = 16.18).

Anesthesiologists' role performance. Similarly, the head of the hospital's anesthesiology department developed a checklist of anesthesiologists' protocol requirements, grounded on those aspects of the Israel Ministry of Health's patient safety protocol relevant to anesthesiologist team members. This list included, for example, whether the anesthesiologists checked the patient's sensitivity to medication and monitored blood gases at appropriate intervals. We calculated the percentage of these performance requirements that were met by the anesthesiologists for each operation and used it to indicate anesthesiologists' role performance in each observed surgery. In our data, anesthesiologists' role performance ranged between 14 and 100 (100 represents all role expectations being met), with a mean value of 75.67 (SD = 21.94).

Team task complexity. Surgical tasks, relative to almost all other occupational tasks, are highly varied and complex (Wood, 1986). Nevertheless, the degree of task complexity encountered by surgical teams does vary significantly (Hazelhurst et al., 2004). Complex surgeries are typically characterized by a greater number of procedures that must be performed in an integrated fashion, along with a need for more intensive coordination among the surgical staff. In the current study, task complexity was assessed by the team's head surgeon. At the close of each operation, the observer asked the head surgeon: 'Relative to the surgeries typically performed by you and your colleagues in your ward, how complex would you rate the surgery that you and your team just completed?' on a 3-point scale, 1 = less complex, 2 = average, and 3 = more complex. To assess the inter-rater reliability of this measure, we asked the head surgeon and one other member from each surgical team in the independent sample of 15 pilot operations to respond to this question independently. Inter-rater agreement was 100%.[7]

Control variables. In order to rule out possible confounding effects, we controlled for a number of patient and team characteristics. To partial out possible effects of patients' general health, we recorded and controlled for the patients' ASA scores – a metric of pre-operative physical status developed by the American Society of Anesthesiologists (Davenport et al., 2006). ASA scores range from 1 (a normal, healthy patient) to 5 (a moribund patient who is not expected to survive another 24 hours with or without surgery). We also controlled for team size (i.e. the number of team members taking part in a given surgery), as it may influence team coordination efficacy and team performance (Stewart, 2006). To show that the performance effects related to team civil communication were independent of members' affiliation and those with whom they have previously worked, we controlled for each team's previous experience by counting the number of surgeries in which at least two members of a given team had participated in the past three months. Additionally, we controlled for the duration of surgery (as longer surgeries are more prone to adverse events), as well as for whether the surgery had a pre-operative briefing (0 = no preoperative briefing was conducted and 1 = otherwise), a process in which the medical team followed a set protocol that was designed to reduce adverse events (for more details see Vashdi et al., 2013). Finally, as in Study 1, we controlled for team uncivil communication (Riskin et al., 2015). Observers were trained to note each uncivil communication in the same way they noted civil communication. Examples include: 'are you blind? Why are you cutting that way?' and 'move yourself already and bring me that tool!'

Analytic strategy

All hypothesized relationships were estimated in the Mplus 7 software. As data were collected from teams in nine different wards, we used a sandwich estimator to account for between-ward differences (i.e. by including the syntax TYPE = COMPLEX in Mplus 7). This estimator takes into account the non-independence of observations owing to cluster sampling (e.g. surgeries from the same ward) and corrects the potential bias in estimation that may result from potential sampling differences (Liu et al., 2015). Two models were specified. In the first model (i.e. Model 1), we regressed the role performance variables (i.e. nurses' and anesthesiologists' role performance) on all control variables, the predictor (i.e. team civil communication), and the moderator (i.e. team task complexity). On the basis of Model 1, we added the effects of the interaction term between the predictor and the moderator in the second model (i.e. Model 2), which was created as the product of the two grand-mean centered variables.

Table 3. Study 2: Means, standard deviations, and correlations among variables.

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. ASA	2.22	.86									
2. Team size	5.47	1.35	.03								
3. Team previous experience	6.14	7.75	.42**	.09							
4. Duration of surgery (hours)	2.57	1.71	.45**	.37**	.38**						
5. Briefing before surgery	.25	.44	.30**	−.03	.41**	.31**					
6. Team uncivil communication	3.14	3.79	.11	.21**	.17*	.24**	.10				
7. Team civil communication	7.62	6.02	−.01	.08	.01	.03	−.14	.06			
8. Team task complexity	2.04	.80	.40**	.30**	.27**	.69**	.24**	.18*	.01		
9. Nurses' role performance	80.12	16.18	.14	.10	.22*	.21**	.17*	−.02	−.01	.21**	
10. Anesthesiologists' role performance	75.67	21.94	.03	−.07	.04	−.09	.10	−.05	−.16*	−.03	.06

N = 186. *M* = mean; *SD* = standard deviation; ASA = American Society of Anesthesiologists Patient Physical Status Classification System; Briefing before the surgery was coded as 0 = no and 1 = yes; Team task complexity was coded as 1 = less complex, 2 = average, and 3 = more complex; * $p < .05$; ** $p < .01$.

Results

Means, standard deviations and inter-correlations among the variables are presented in Table 3 and results of estimations of Models 1 and 2 are displayed in Table 4.[8,9] Owing to missing value patterns of the control and studied variables, our final model estimations included data from 186 teams.[10] Table 3 shows that on average we observed 7.62 instances of civil communication and 3.14 instances of uncivil communication during each surgery. Given that the average duration of surgeries in our study was 2.57 hours, we believe that the occurrence of affective (either positive or negative) team communication in this study was also low, consistent with the low frequency of affective team communication observed in Study 1.

As shown in Model 2, Table 4, team civil communication did not have significant effects on the two role performance variables ($\gamma = -.01$, $p = .970$ for nurses; and $\gamma = -.54$, $p = .057$ for anesthesiologists). Thus, Hypothesis 1 was not supported in this study. Although at first glance, these results seem to suggest no association between team civil communication and team members' role performance and contrast with what we found in Study 1, a closer look at the moderating effect of team task complexity on the relationships between team civil communication and team outcomes provides more insights.

Specifically, we found that team task complexity significantly moderated the effects of team civil communication on role performance of both nurses ($\gamma = -.31$, $p = .004$) and anesthesiologists ($\gamma = -.75$, $p = .008$). Furthermore, by specifying the interaction term between team civil communication and team task complexity in Model 2, the proportion of variance explained in each of the two outcome variables increased by 0.8% (from 8.4% to 9.2%) and 2.7% (from 5.6% to 8.3%) for nurses' and anesthesiologists' role performance, respectively, compared with Model 1. We plotted the interactions at the three different values of team task complexity with nurses' role performance (Figure 1) or anesthesiologists' role performance (Figure 2) as the dependent variable. As indicated in Figure 1, team

Table 4. Study 2: Unstandardized coefficients of the estimated model.

Variables	Nurses' role performance (Model 1)		Nurses' role performance (Model 2)		Anesthesiologists' role performance (Model 1)		Anesthesiologists' role performance (Model 2)	
	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Intercept	80.10**	.89	80.09**	.88	75.57**	1.79	75.57**	1.66
Predictors								
ASA	−.17	1.57	−.19	1.65	1.51	1.63	1.56	1.82
Team size	.57	.77	.26	.40	−.02	.88	.41	.82
Team previous experience	.30	.16	.28	.15	.13	.25	.07	.22
Duration of surgery	.59	.57	.62	.59	−2.41**	.81	−2.39**	.85
Briefing before surgery	2.70	3.99	2.69	3.91	4.92	2.97	5.02	3.21
Team uncivil communication	−.40	.26	−.37	.27	−.21	.42	−.18	.40
Team civil communication (A)	.01	.16	−.01	.14	−.52	.28	−.54	.28
Team task complexity (B)	2.24	1.77	2.26	1.73	1.18	1.71	1.01	1.69
A × B			−.31**	.11			−.75**	.28
Residual variances	238.43**	22.21	236.44**	22.12	452.95**	52.04	441.65**	46.81
R^2	8.4%		9.2%		5.6%		8.3%	

N = 186. *SE* = standard error; ASA = American Society of Anesthesiologists Patient Physical Status Classification System; * $p < .05$; ** $p < .01$.

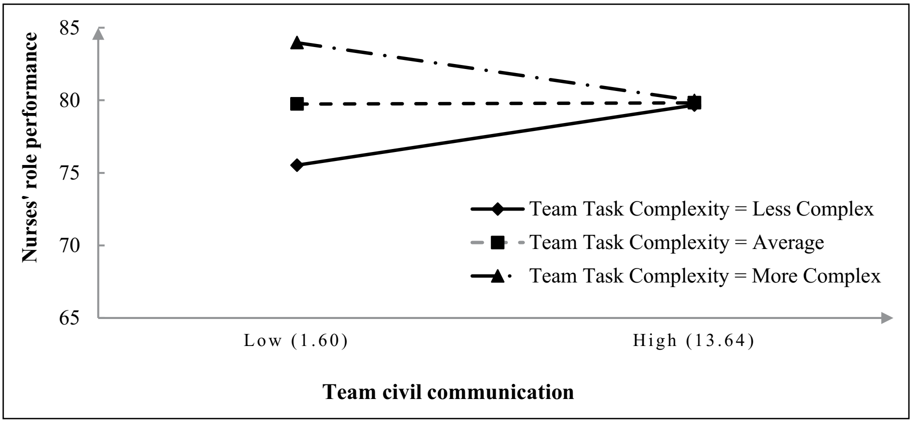

Figure 1. Study 2: Team task complexity moderates the effect of team civil communication on nurses' role performance.

civil communication was significantly and positively related to nurses' role performance specifically during less complex surgeries ($\gamma = .32$, $p = .028$), but not during average ($\gamma = .01$, $p = .958$) or more complex ($\gamma = -.30$, $p = .134$) surgeries. Figure 2 shows that team civil communication was not significantly related to anesthesiologists' role performance in less complex surgeries ($\gamma = .25$, $p = .601$) and average ($\gamma = -.51$, $p = .076$) surgeries, but instead was significantly and negatively related to anesthesiologists' role performance in more complex surgeries ($\gamma = -1.26$, $p < .001$). In other words, for nurses team civil communication enhanced their role performance when surgeries were less complex; but the positive effect diminished as surgeries became more complex. For anesthesiologists, although team civility did not have any associations with their role performance in less complex surgeries, it had significant and detrimental effects on their role performance in more complex surgeries. In sum, these results suggest that the positive effect of team civil commination on team members' role performance tends to decrease and may even flip to negative as team task complexity increases, largely supporting our Hypothesis 2.

General discussion

Results of our two studies suggest that civil communication among team members does not always benefit their role performance. The beneficial effects may potentially emerge when team tasks have lower levels of complexity. However, as team task complexity increases, the positive effects of civil communication on team members' role performance may no longer hold. In particular, in Study 1, team members worked in a well-controlled, simulated environment with clear team goals and straightforward instructions on how to achieve these goals, representing a low task complexity scenario where civil communication enhances performance. In contrast, in Study 2, team members performed surgeries of varying degrees of complexity, thus suppressing the emergence of a main effect of civil communication on performance. More importantly, Study 2 showed that team civil communication was positively related to nurses' role performance in less

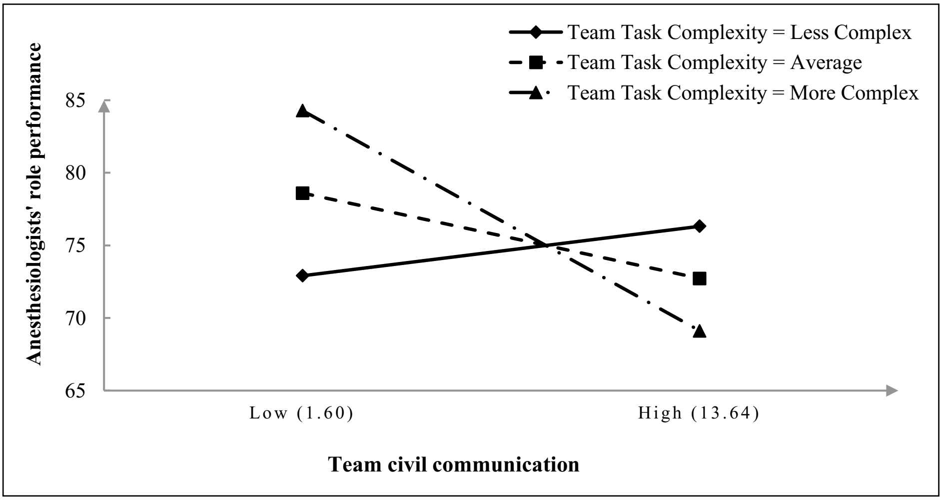

Figure 2. Study 2: Team task complexity moderates the effect of team civil communication on anesthesiologists' role performance.

complex surgeries, but was negatively related to anesthesiologists' role performance in more complex surgeries. In other words, findings from Study 2 suggest that civil communication among team members may only enhance their role performance when team tasks are less complex. However, as task complexity increases, the positive association between civil communication and performance may decrease, disappear and even potentially flip to negative. To sum up, the current research suggests that a contingency approach may be beneficial when seeking to understand the cognitive implications of civility.

Theoretical and practical implications

Our findings suggest that civil communication in teams may drive both beneficial and detrimental cognitive processes and lead to the conjecture that how these two opposing effects of civil communication play out with respect to team members' role performance is at least partially determined as a function of environmental demands. Specifically, when team performance environment imposes higher levels of cognitive demands on members' information processing capabilities, the advantages of civil communication may cancel out and even outweigh the potential benefits on team members' role performance. This can be explained by heuristic thinking that is potentially elicited by team civil communication. In contrast, when team environment imposes lower levels of cognitive demands, heuristic thinking is less likely to surface among team members and thus less likely to compromise team members' role performance. With the beneficial role of flexible cognition on team effectiveness still expected, team civil communication is likely to increase team members' role performance under this condition (as found in both Study 1 and Study 2). Taken together, our results across the two studies suggest that while civility has beneficial effects, it also poses some potential risks. Therefore, in developing a theory of workplace civility, scholars should consider a contingency approach, paying particular attention to the identification of boundary conditions.

Additionally, we found that civility affects performance above and beyond the effects of incivility. While most of the research to date has shown that incivility has detrimental consequences for performance (Schilpzand et al., 2016), inferring from these studies that the effect of workplace civility on performance will necessarily be positive remains a risky proposition. In order to conclude that civility in interpersonal interactions beneficially affects important work outcomes, one needs to directly test these effects. The current study does just that by exploring the impact of workplace civility on performance and indeed shows that the effects are not merely simple; nor are they necessarily just positive.

Our results are also important because they show how, with respect to team effectiveness, even relatively infrequent and seemingly inconsequential civil communication between team members can still bring substantial benefits. Indeed, in Study 1, civil communication only consisted of 0.21% of total team communication; and on average in Study 2, team members only exchanged 7.61 instances of civil messages during each surgery. These results suggest that even under the most inauspicious conditions, being civil still has important theoretical implications for individuals and team effectiveness in order to have an effect.

Regarding practical implications, our findings provide an increased incentive for organizations to offer training opportunities on team members' communication skills under different team task conditions. For example, team training modules aimed at enhancing components of support, respect and psychological safety during team members' interactions (e.g. Edmondson, 2003; Osatuke et al., 2009) may be helpful for both team leaders who can serve as role models and team members who are central to the exchange of information in the team, especially in work teams where members are expected to perform simple and routinized tasks. This, however, does not mean that civility should be discouraged for teams in which more complex tasks are expected. Instead, training modules for these teams should offer varying communication strategies for different stages of teamwork. For example, civil communication should still be encouraged before team members start working on their tasks (e.g. planning meeting before a surgery), during the transition phase as the team moves from one task episode to another (e.g. after a major surgical procedure is done and before another major procedure starts during the same surgery), and even in the debriefing meeting or feedback session after all teamwork is done (e.g. discussing each other's performance and providing feedback in a civil way at the end of a complex surgery). However, when team members are engaged in the actual completion of core team tasks, they should be trained to maximally direct their communication to task-relevant content so as to minimize potential consequences associated with superfluous communication. In addition, for teams in which more complex tasks are expected, training modules with emphases on enhanced team reflexivity and elaborated cognitive exchange (Schippers et al., 2014; Vashdi et al., 2013) may be particularly useful in helping team members develop invulnerability to negative consequences of superficial cognitive processes.

Limitations and future directions

Our research has some limitations. First, given the current state of civility research, we focused our attention on establishing the main effect and the boundary conditions of team civil communication on team members' role performance. Future research could extend this line of investigation in multiple ways. For example, although we infer from our findings two plausible mechanisms by which civil communication may influence performance (i.e. the flexibility perspective and the heuristics perspective), our data did not allow for their further exploration here. Thus, these mechanisms should be studied more directly. In addition, future research should include other types of civil communication, especially those that are non-verbal in nature (e.g. physical gestures, facial expressions, tones of voice), to examine whether our findings can be generalized to the full range of civil communication during interpersonal encounters.

Second, we did not explicitly measure our participants' moods during their completion of the team tasks in our studies. We decided to focus on the real-time and naturally occurring effects of civility, but not explicitly measure the related affective states – mainly for practical reasons. Specifically, in Study 1, asking participants to report their real-time affective reactions while working on the simulation would have interfered with the ecological validity of the study and possibly with performance on the task (Isen and Erez, 2007). Similarly, in Study 2, any survey questions presented to the medical staff during surgeries would have distracted them from surgical tasks requiring highly concentrated attention, thus raising ethical issues. However, we do encourage future researchers to replicate our findings by explicitly measuring the affective and cognitive mechanisms underlying the influences of civility, findings of which can help build a more robust case about its importance along with findings here in the current study.

Third, given the nature of our samples – a student team sample in Study 1 where the stakes of team tasks were relatively low, and a surgical team sample where the stakes of team tasks were relatively high – the generalizability of our findings to teams in other contexts, especially those with moderate-level task stakes (e.g. sales teams, sports teams), may be limited. For example, compared with teams with moderate stakes, civility may be more likely to surface in teams with higher stakes where it can be used as an affect regulation strategy to manage otherwise tense team processes (Marks et al., 2001), as well as in teams with lower stakes where team members have more regulatory resources to communicate nicely with each other (Beal et al., 2005). Future research should attempt to explore teams in various contexts for a more nuanced understanding on the effects of team civility on team outcomes.

Fourth, owing to design constraints, and despite the additional analyses reported in Notes 2 and 3, we were still unable to fully elaborate on whether and how leaders' civil behaviors influence followers' civil behaviors and performance. Although the idea that leader civility has trickle-down effects on follower civility holds promise and sounds reasonable, the existing literature has yet to offer systematic evidence of such effects. However, we still believe it is important to consider leaders' roles in future research on civility, especially in identifying the factors that may condition a significant trickle-down effect of leader civility. For example, given that the hierarchical nature of the leader–follower relationship distinguishes it from other types of relationship, hierarchy may play a unique role in determining the trickle-down effects of leader civility, such that civility is more likely to be perceived as a norm and further enacted by followers when more hierarchical relations exist between leaders and followers.

Fifth, we did not consider how team norms may be associated with the influence of team civil communication. For example, in teams with longer tenure and more stable membership, team norms regarding civility (e.g. civility-friendly norm, civility-aversive norm) are more likely to be established and condition the effects of civil communication on individual and team outcomes compared with those in teams with shorter tenure and less stable membership (Koopmann et al., 2016). In addition, teams in different cultures may react differently toward workplace civility, such that teams in a collectivistic culture may be more likely to take civil communication for granted and thus do not benefit as much as teams in an individualistic culture where being 'nice' may be viewed as discretionary (Moorman and Blakely, 1995). Given that both our samples had less stable membership structure and did not cover the full individualistic-collectivistic spectrum, we believe it is necessary for future research to examine civility in teams with various membership structures in various cultures.

To sum up, our objective in this study was to take the most preliminary steps towards integrating civility into management theory and practice. Based on our findings, we conclude that further examination of civility in teams and organizations offers a promising and exciting avenue for future research. For example, regarding the construct of civility, future research could explore various operationalizations of civility to build a more comprehensive picture of what constitutes the best and most effective civil behaviors, such as different forms of verbal (e.g. gratitude, giving credit) and non-verbal civil behaviors (e.g. smiles, a thumbs up) and even virtual civil behaviors (e.g. using emoticons). In terms of outcomes attached to demonstrations of civility, future research could extend the nomological network of the implications of civility by investigating a variety of performance-related outcomes, such as creativity, contextual performance indicators and (un)ethical behaviors.

Conclusion

In two studies, we found that team civil communication increases team members' role performance only when team tasks are less complex (in accordance with the flexibility perspective), but as the level of team task complexity increases, the positive effects of team civil communication on performance diminish and may even flip (consistent with the heuristics perspective). Taken together, these findings suggest that a contingency-based framework may offer the best means by which to understand civility's effects on performance in teams.

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Notes

1 Although we were not able to record the objective level of difficulty for each trial of the team task, we were able to use the correct response of each task trial as a proxy for trial difficulty. In particular, along the six-point decision option continuum used in the study, decisions for which the correct response was at one of the two ends of the continuum (i.e. ignore and defend) were easier for participants to make because the aircrafts with such options as the right decisions usually had attributes that could be unambiguously determined as threatening or not, compared with aircrafts with decision options in the middle of the continuum (i.e. warn and ready). Therefore, trials where the correct decision was ignore or defend were defined as *easy* trials; trials where the correct decision was warn or ready were defined as *difficult* trials; and trials where the correct decision was review or lock-on were defined as *moderately difficult* trials. Then, based on the main analysis in Study 1, we added trial difficulty (coded as 1 = easy, 2 = moderately difficult, and 3 = difficult) as a moderator on the relationship between team civil communication and team members' role performance as an attempt to examine Hypothesis 2. Results showed that trial difficulty did not significantly moderate the effect of team civil communication on overall team role performance (γ = -.13, p = .892) nor the effect of team civil communication on average team members' role performance (γ = -.06, p = .949), thus not supporting Hypothesis 2. We believe this finding is not beyond reasonable, because trial difficulty was determined by the TIDE^2 software and may not have adequate variances across trials allowing participants to perceive sufficient variances in task complexity. Therefore, we did not include this analysis to examine Hypothesis 2 in the main analysis of Study 1; instead, Hypothesis 2 was examined in Study 2 with a more direct and valid operationalization of team task complexity.

2 No significant differences were found between trials included in the analyses (i.e. those with decisions submitted from at least three team members in time) and omitted in the analyses (i.e. those with decisions submitted from fewer than three team members in time), regarding the amounts of civil team communication (t = -.99, df = 1294, p = .320) and uncivil team communication (t = -.95, df = 1294, p = .344). Thus, in the current study it is less likely to be the case that civil/uncivil team communication promoted/prevented team members from submitting their individual decisions in time. We thank an anonymous reviewer for this suggestion.

3 Following an anonymous reviewer's suggestion, we conducted additional analyses to examine whether the behavior of leaders (i.e. those in the CARRIER position) being either civil or uncivil, influenced followers' (i.e. those in the other three positions) behaviors and role performance. We first coded the amounts of civil and uncivil communication initiated from the leader in each trial, respectively. Then we created the amounts of follower civil/uncivil communication by subtracting leader civil/uncivil communication from team civil/uncivil communication used in the main analyses. We also created a follower role performance variable in each trial by averaging the role performance of the three followers on the same team. Next, we fit a model where the effects of leaders' civil and uncivil communication on followers' civil and uncivil communication, as well as follower role performance, were specified. Results showed that leader civil/uncivil communication was not significantly related to follower civil/uncivil communication (γ = -.02, p = .166 for civil communication; γ = -.03, p = .695 for uncivil communication). However, leader civil communication was positively related to follower role performance (γ = .31, p = .019), while leader uncivil communication was negatively related to follower role performance (γ = -.19, p < .001). We discussed the implications of these findings in the Discussion section.

4 Following an anonymous reviewer's suggestion, we also examined whether leader (un)civil communication had significant impacts on average team members' role performance above and beyond followers' (un)civil communication, using variables created in Note 2. Results

showed that leader civil communication had a positive and significant effect on average team members' role performance (γ = .28, p = .015) above and beyond the positive and significant effect of follower civil communication (γ = .20, p < .001). In addition, leader uncivil communication had a negative and significant effect on average team members' role performance (γ = -.12, p < .001), although the effect of follower uncivil communication on average team members' role performance was not significant (γ = .00, p = .994). These findings indicate the particularly important role of leader (in)civility in affecting team goal accomplishment.

5 We also tested the potential interaction effects between civil and uncivil team communication on team members' performance. Results showed that the interaction term was not significantly related to either overall team role performance (γ = -.12, p = .458) or average team members' role performance (γ = -.01, p = .958). Thus, in the current study, the effect of team civil communication on team role performance was not contingent upon the amount of team uncivil communication that transpired in the team work environment.

6 Specifically, observers first spent a day on offsite training where they were familiarized with the observation form, and had veteran observers train them in what to look out for on the basis of cases they had already experienced. Second, each new observer was paired with a veteran observer in the pilot stage for a number of surgeries to learn how to use the observation form onsite. Only when observers felt comfortable with the process and the veteran observers felt they were ready did they start making observations on their own.

7 Additional analyses were conducted to further examine the construct validity of the task complexity measure. Specifically, we asked two independent and experienced anesthesiologists who were employed at different hospitals to rate the complexity of the different surgeries included in our field study, based on both the name of the procedure and the main diagnosis requiring surgical intervention. The anesthesiologists were asked to rate the complexity of the surgeries 'as if they were all being conducted on an average patient'. For each surgery, the anesthesiologists were asked to respond to six items derived from Wood's (1986) operationalization of complexity. Inter-class correlation for the agreement between judges was .64. Our single-item complexity measure correlated at .60 (p < .001) with this six-item measure, offering further evidence of our measure's construct validity.

8 Similar to Study 1, we also examined whether team civil and uncivil communication may interact with each other in influencing team members' role performance. Results showed that the interaction term between team civil communication and team uncivil communication was not significantly related to either nurses' (γ = .02, p = .834) or anesthesiologists' role performance (γ = .05, p = .340).

9 In addition, we examined whether team task complexity moderates the effects of team uncivil communication on team members' role performance. Results showed that team task complexity did not moderate the relationships between team uncivil communication and team members' role performance (γ = .855, p = .094 for nurses and γ = 1.28, p = .073 for anesthesiologists).

10 Cases with missing data for at least one control variable or studied variables were removed from the analysis (N = 191). No significant differences were found between cases included in and omitted from the analyses regarding the key studied variables, including: civil team communication (t = .47, df = 243, p = .640); uncivil team communication (t = -.25, df = 243, p = .804); nurses' role performance (t = -.62, df = 359, p = .539); and anesthesiologists' role performance (t = .33, df = 358, p = .740). Regarding the control variables, cases included in and omitted from the analyses did not differ significantly on their ASA scores (t = .70, df = 337, p = .487) and the duration of surgery (t = -.25, df = 355, p = .800). However, cases included in the analyses had slightly larger team sizes (Δ = .32, t = 2.05, df = 355, p = .041), went through slightly fewer pre-operative briefings (Δ = -.10, t = 2.11, df = 362, p = .036),

and had more previous experience ($\Delta = 1.72$, $t = 2.87$, $df = 359$, $p = .004$) than cases that were omitted. Given that we found no systematic differences between the included cases and the omitted cases on key studied variables, we believe that the missing data pattern is not very likely to bias our current findings.

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