

THE EFFECT OF A “MICRONEGOTIATION” TECHNIQUE ON TEAM INTERACTIONS

Jeffery Kaufman, Marian University Indianapolis

ABSTRACT

Conflict can have detrimental effects on team interaction, performance, and member satisfaction, so research on tools and techniques aimed at reducing or resolving conflict is crucial. This study trained the leaders of teams made up of health profession students on a micronegotiation technique (Rogers & Lingard, 2006) to measure its effect on levels of task conflict, relationship conflict, team performance, and team member satisfaction. The research was conducted at a mid-size, Midwestern university and included 148 students from Radiology, Physiology, and Microbiology courses divided into 47 teams. No statistically significant differences were identified for any of the dependent variables between the groups whose leaders were trained in the micronegotiation technique and the groups whose leaders were not trained on the technique. While this may seem to indicate a shortcoming on the part of the technique, low levels of emotional investment in the process may have led to little group conflict to address. Additionally, the real value of the technique may be as a way for team leads to assess conflict strategies rather than as a resolution tool.

INTRODUCTION

When conflict exists between members of a team of professionals providing health care to patients, the breakdowns in communication and collaboration can have devastating effects. Finding ways to prevent or manage conflict is essential for all individuals involved in interprofessional teams, from managers to administrators to the individual professionals themselves. This study investigated the use of a micronegotiation technique (Rogers & Lingard, 2006) intended for use by surgeons in managing operating room conflict. The research looked at the effect of the technique on task conflict, relationship conflict, team performance and team member satisfaction on teams of undergraduate health profession students.

The literature review was completed using two methods. First, searches were conducted in EBSCOhost and PubMed using key words such as conflict, medical conflict, negotiations, medical errors, and medical conflict resolution. Those searches were delimited to years 1990 to present. The second method was reverse tracking of relevant articles using the reference list. In this method, reference lists in specifically relevant articles were reviewed and sources from the reference list then investigated.

The literature review suggests that there appears to be evidence of the negative impact of conflict on medical outcomes. Baldwin and Daugherty (2008) surveyed medical residents and found that those who reported experiencing higher rates of conflict with colleagues also reported higher rates of significant medical errors (SME) and adverse patient outcomes (APO). Higher rates of committing medical errors was also related to higher rates of residents reporting being humiliated or belittled. Baldwin and Daugherty (2008) found:

Of the 2,811 residents who reported having no interprofessional conflict, 669, or 23.8% reported making a SME, with 3.4% APOs. By contrast, the 529 residents who admitted serious conflict with at least one other professional reported a total of 36.4% SMEs and 8.3% APOs. For the 193 reporting conflict with two or more other professional groups, the SME rate was 50.5% and 16% APOs. (p. 581)

Conflict comes with high social and economic costs. In medicine, the Institute of Medicine's (IOM) report *To Err is Human* (1999) stated that between 44,000 – 98,000 individuals died in hospitals each year as a result of medical errors and that these errors cost between \$17 billion to \$29 billion a year. The IOM indicated that “faulty systems, processes and conditions” were primary contributors to these medical errors (1999, p. 2) with communication and interaction of medical personnel being among the faulty systems. The Society of Actuaries (2010) determined that \$1.1 billion was spent on short-term disability claims, and over 10 million excess days of work were missed as a result of medical errors. This expands the breadth of economic impact beyond only the organizational level to national and even international level given the context of the global marketplace. When considering Swanson's (1995) business perceptions of human resource development, addressing conflict and its effect would certainly seem to qualify as “a major business process, something an organization must do to succeed” (p. 207).

One of many accelerants for conflict within healthcare teams may be the conflict style employed by various parties. For example, Skjørshammer (2001) found that forcing and avoidance were the primary styles used by physicians in his study of conflict in Norway hospitals. This is not to suggest that the use of either the forcing or avoidance style is always inappropriate, but if a conflict is consistently not addressed or repeatedly shut down by one party through an exercise of power, it can have lasting effects on individuals' ability to collaborate effectively. In a medical setting, this may lead to less than optimal patient care (Baggs Schmitt, Mushlin, Mitchell, Eldredge, Oakes, & Hutson, 1999).

Medical environments are unique and as such require contextualized consideration for when teaching conflict management skills to healthcare professionals (Kaufman, 2011). Investigations on various methods for managing conflict and increasing collaboration and understanding among interprofessional teams are ongoing and necessary. One such method is the use of Interprofessional Education (IPE). There appears to be some evidence regarding the benefits of IPE for providers and patients (Carpenter, Barnes, Dickinson, & Wooff, 2006). As the use of IPE has increased, studies have focused on appropriate learning outcome expectations (Thistlethwaite & Moran, 2010) and ways to measure IPE's effect on participants (Thannhauser, Russell-Mayhew, & Scott, 2010).

Others tools, such as Crew Resource Management, have also been applied to medical and interprofessional teams to increase communication and collaboration (France, Stiles, Gaffney, Seddon, Grogan, Nixon, & Speroff, 2005; Haller et al., 2008; Lerner, Magrane, & Friedman, 2009; McGreevy, Otten, Poggi, Robinson, Castaneda, & Wade, 2006). Additionally, training on conflict and conflict resolution skills for medical personnel has also shown promising results in participant perceptions of conflict and behavioral change in reacting to conflict (Brinkert, 2011; Haraway & Haraway, 2005; Saulo & Wagener, 2000; Zweibel Goldstein, Manwaring, & Marks, 2008).

This study investigated the effect of teaching team leaders on the use of a micronegotiation technique as introduced by Rogers and Lingard (2006). The technique was recommended for use by surgeons for managing conflict within the operating room and addresses the issue of communication and active listening that are essential to resolving conflict (Back & Arnold, 2005; Gill, 1995). Rogers and Lingard (2006) recommended the following:

Practice expedited negotiation as a conflict response process. Developing a pattern of this type of problem solving allows it to become a style. This “micronegotiation” should take less than a minute but consists of the following steps found in formal negotiation: Take a few seconds to allow for the control of emotions in a tense clinical situation, particularly if conflict has already occurred. Listen to the ideas or concerns of the other party and paraphrase or summarize them to indicate that they were heard. State your primary need or interest. It might be possible to suggest a solution, but it is important to indicate that there might be other reasonable options. Allow the other individual to react and express a respect for his position. Decide which conflict response will now be optimal. Problem solving is preferred whenever possible. (p. 572)

Before providing a description of the methodology for this study one point stands out that is worth discussing. The final sentence directs the leader to choose an optimal conflict response. This suggests that the technique may be less a conflict resolution technique and more a conflict resolution assessment technique, as it directs the user to gather information and then select the appropriate response. The difference is worth noting, but the benefit of the system comes in its ability to move the user into a collaborative mindset, rather than settling on avoidance or forcing, which Skjørshammer (2001) saw in his study. This will be discussed further in the discussion section.

METHODOLOGY

The effect of training on the micronegotiation technique was measured on levels of task conflict and relationship conflict as defined by Jehn (1994), as well as satisfaction and team performance, using a pre- and post-test design. Four research questions served to guide this study:

- R1 What effect does training on the micronegotiation technique have on task conflict in teams of health profession students?*
- R2 What effect does training on the micronegotiation technique have on relationship conflict in teams of health profession students?*
- R3 What effect does training on the micronegotiation technique have on team performance in teams of health profession students?*
- R4 What effect does training on the micronegotiation technique have on team member satisfaction in teams of health profession students?*

Participants

The study included 148 students from health profession and pre-health profession programs at a medium-sized, Midwestern, state university. The students came from four classes (radiology pre-clinical, radiology post-clinical, microbiology, and physiology) and were divided into 47 different teams with either three or four students in each team. Teams included only students from within the same class. This population was chosen for a variety of reasons chief among them was the fact that in studies included in previous meta-analyses looking at task conflict and relationship conflict (De Dreu & Weingart, 2003; de Wit, Greer & Jehn, 2012), none using health profession students could be located. Additionally, because many in this population would be or hoped to matriculate to health professions, such as radiology departments and medical school, it was an appropriate population for studying a technique aimed at medical teams. Permission was granted by the university's institutional review board prior to recruitment or data gathering.

Among the participants, 21 of the participants were Medical/Dental Education Preparatory Program (MEDPREP) students, 19 from the microbiology class and two from the physiology class. MEDPREP serves as an opportunity for students interested in pursuing medical school to prove their potential success in that field. Thus, students in the program hope to matriculate to dental or medical school. Radiology students (n=74) naturally move into health profession positions, meaning that of the 148 total participants, 95 (64.19%) intended to matriculate to health professions.

Monetary gift cards were used to heighten the emotional investment of the participants in the outcomes of their group tasks. Saavedra and Van Dyne (1999) found a statistically significant correlation between personal reward and emotional investment within work teams, which seems to support this method. Given that the activity was not part of the students' grade for the class, the monetary gift was intended to give the students incentive for trying to do well, which would hopefully lead to an increase in discussion among teams attempting to get the right answers. Team members from the four teams with the highest combined scores from the Lost at Sea: A Consensus-Seeking Task and the NASA Moon Survival Task received a gift card ranging in value from \$30 - \$10. Each member of the team finishing with highest score received a \$30 gift card, each member of the team with the second highest score received a \$20 gift card, and each member of the teams with the third and fourth highest scores received \$10 gift cards. Students were informed of how the gift cards would be distributed both when their consent was initially obtained and immediately prior to beginning their first group task. Additionally, the students were told how their scores would be tabulated and that their scores were being compared among all participants in all classes including their own.

Procedure

One week prior to the beginning of the study each participant completed consent and demographic information forms. Using the demographic information, stratified random assignment was used such that the most senior students, determined by age or grade level, were randomly assigned leader roles. Students were only placed in teams with members of their own class. Due to class sizes, teams were made up of either three or four students including the team leader. This method resulted in 148 total students in 47 different teams. These different teams

were then randomly assigned to either the control group or intervention group using a randomized number program.

The study used three phases. In Phase I, all teams completed the Lost at Sea: A Consensus-Seeking Task. Task instructions generally suggest 15-20 minutes for completing the tasks used for this study; however, because it has been suggested that time stress is a catalyst of conflict in medical settings (Marco & Smith, 2002); the teams were given only 12 minutes to try and increase the opportunity for time-related stress. When all groups finished their group tasks, each individual member separately completed the Intragroup Conflict Scale (Pearson, Ensley, & Amason, 2002), which measured team conflict, and a satisfaction scale (Priem, Harrison, & Muir, 1995) that measured participant satisfaction with the team process. The results of the initial completion of the task as well as the Intragroup Conflict Scale and satisfaction scale were used in a similar way to the studies on training effects conducted by Haraway and Haraway (2005), Brinkert (2010), and Zweibel et al. (2008), who used pre- and post-test survey and interview data to serve as a baseline for comparison.

In Phase II, team leaders from the intervention group were removed from the room and, as a group, given background information and a short training on the steps of the micronegotiation technique. They were instructed to use this technique if and when conflict or disagreement occurred during the completion of the Phase III task. The training lasted fifteen minutes and included an introduction to conflict styles, the steps of the micronegotiation technique, and several minutes to practice reflective listening. The intervention group leaders were told what the rest of the participants were doing while they were in the micronegotiation training.

While the leaders of the intervention groups were being trained on the micronegotiation techniques, all other participants, including non-intervention group leaders, either watched a short video clip as an entire group or were regrouped and completed a short brainteaser exercise in their new, temporary groups. The brainteaser was a visual brainteaser in which a common phrase was presented in the form of pictures and the teams attempted to figure out the common phrase. The video was a clip from the movie *Castaway* in which the main character fights the breakers while attempting to paddle his makeshift raft out to open water. This was chosen as it loosely related to the Lost at Sea task they had just completed. Use of either the video or brainteaser exercise was based on whether or not the classroom had video capabilities. These participants were not informed about what the intervention group leaders were doing while they were watching the video or completing the brainteaser.

In Phase III, the teams completed the NASA Survival Task. The teams remained intact from Phase I as Korsgaard, Schweiger, and Sapienza (1995) suggested that intact teams show higher emotional investment in group processes. As in Phase I, teams were given 12 minutes to complete the task and once finished, they again separately completed the Intragroup Conflict Scale and the satisfaction scale. Finally, the participants completed the Group Task Procedures Questionnaire to determine if the micronegotiation technique was used by the team leads trained on the technique.

Measures

Both the Lost at Sea: A Consensus-Seeking Task (Nemiroff & Pasemore, 1975) and the NASA Moon Survival Task ask participants to imagine a scenario where they are stranded in a particular environment and to then rank order a specific list of 15 available resources that have been salvaged from their boat or spaceship based on the item's importance to their survival. Both tasks have been previously used in team and group process related research (Innami, 1994; Kimura & Kottke, 2009; Littlepage, Robison, & Reddington, 1997; Miner, 1984; Reinig, 2003; Roch & Ayman, 2005), and the items in each have a correct ranking such that accuracy can be measured. The presence of correct answers was important as it provided an objective measure of team performance, which was one of the dependent variables. Additionally, the inauthentic nature of the tasks was beneficial in reducing subject matter expertise as a possible confounding or extraneous variable.

The Intragroup Conflict Scale (Jehn, 1994) is intended to measure the amount of task conflict and relationship conflict within groups. The scale consists of nine questions, such as "how much anger was there among members of the group?" and "how many disagreements over different ideas were there?" (Pearson, Ensley, & Amason, 2002, p. 113). Participants choose a response from the five point Likert-type scale with options ranging from "None or Hardly" to "A Great Deal." The scale was completed individually and then the scores of all team members were averaged for a group score. For this study, the Cronbach's alphas for the instrument measuring relationship conflict and task conflict were .873 and .833 respectively. The scale was chosen due to its widespread acceptance for measuring task conflict and relationship conflict.

Satisfaction was measured using a two item scale (Priem, Harrison, & Muir, 1995) that included two questions; "working with this group has been an enjoyable experience" and "I would like to work with this group in the future." Participants chose their response from a five-point Likert scale anchored from "strongly agree" to "strongly disagree." This method was previously used by DeChurch and Marks (2001) as part of their study on the effects of task conflict and for this study recorded a Cronbach's alpha of .959. The reliability and previous use of this satisfaction scale in studies on task conflict and relationship conflict, coupled with the fact it only required two questions to assist in protecting against test fatigue, met the primary measurement criteria for this study.

FINDINGS

Four questions guided this study and focused on the differences in team performance, levels of task conflict and relationship conflict, and team member satisfaction between teams whose leaders were trained on how to use the micronegotiation technique and teams whose leaders were not trained.

Findings from the data analysis using MANOVA indicate that training on the micronegotiation technique did not lead to a statistically significant difference for any of the dependent variables of the study. There was no statistically significant difference in changes in the levels of task conflict ($F(1,46) = .377$; $p = .542$), relationship conflict ($F(1,46) = .809$; $p = .373$), team performance ($F(1,46) = .088$; $p = .768$), or team member satisfaction ($F(1,46) = .036$; $p = .851$) between those groups with leaders trained in the micronegotiation technique and those not trained in the technique. The results are provided in Table 1.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Control or Experimental Group	Task Performance	6.67	1	6.67	.088	.768
	Relationship Conflict	.051	1	.051	.809	.373
	Task Conflict	.070	1	.070	.377	.542
	Satisfaction	.010	1	.010	.036	.851

The findings from the data analysis would seem to indicate that being trained on the need for and use of the micronegotiation technique did not appear to have any effect on the teams' levels of task conflict, relationship conflict, team performance, or team member satisfaction. Any difference that occurred would be a result of chance rather than the intervention. However, there are several factors that must be considered before drawing the conclusion that the micronegotiation technique is not effective. Perhaps the most important of these factors is the low levels of both task and relationship conflict reported in Phase I of the study. Task conflict, relationship conflict, and satisfaction were all measured on a five point scale. All dependent variables are provided in Table 2 and a chart providing a visual representation of the infinitesimal differences is provided in Figure 1.

	Control (n = 23)	Intervention (n = 24)
	Mean	Mean
Phase I		
Team Performance	65.13	61.00
Relationship Conflict	1.17	1.17
Task Conflict	2.02	2.06
Team Satisfaction	4.43	4.35
Phase III		
Team Performance	39.91	40.67
Relationship Conflict	1.22	1.15
Task Conflict	2.04	1.96
Team Satisfaction	4.37	4.37

Initial levels of task conflict and relationship conflict reported in the control group were 2.02 and 1.17 respectively, and the intervention group reported levels of 2.06 for task conflict and 1.17 for relationship conflict. Both are relatively low suggesting that there may not have been much room for improvement in using the micronegotiation technique. In Phase III the levels remained low with the control group showing increases in task conflict (2.04) and relationship conflict (1.22). The intervention group reported decreased levels of both types of conflict such that task conflict scores dropped to 1.96 and relationship conflict dropped to 1.15.

The intervention group showed decreases in levels of both task conflict and relationship conflict from Phase I to Phase III and the control group showed increases in those variables. Additionally, the intervention group experienced an increase in satisfaction with the team while the control group decreased in their level of satisfaction. Yet despite the fact that this may indicate that the micronegotiation technique was beneficial to the group process, these

differences were not statistically significant meaning they cannot, with confidence, be attributed to the micronegotiation technique.

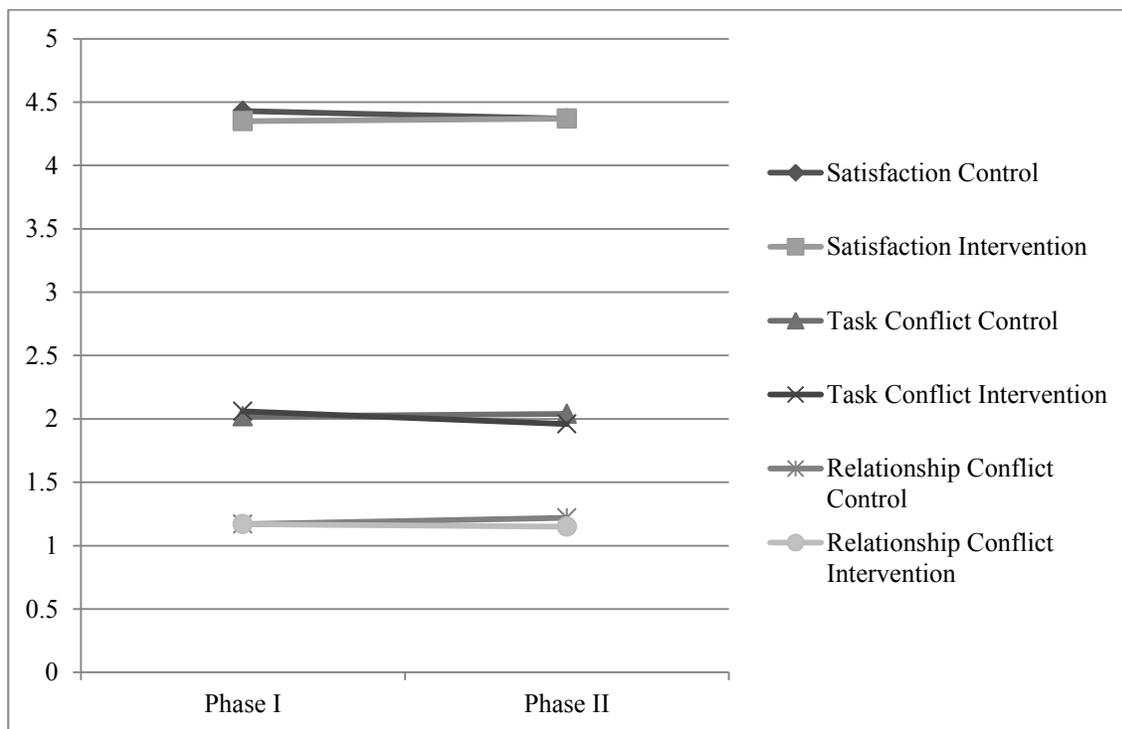


Figure 1 Changes in dependent variables from Phase I to Phase III

DISCUSSION

The findings from the study show no significant effect of training the leaders of health profession student teams in micronegotiation on the key variables of task conflict, relationship conflict, team performance, and team member satisfaction. However, several factors suggest that further research is necessary before drawing conclusions on the utility of such a technique.

One area of concern with the findings of this study and with the student team population was the generally low levels of either task conflict or relationship conflict. The tasks were not authentic, which was intentional to reduce the potential impact of specialized knowledge, and it appears that the stakes for poor performance not high enough to evoke emotional investment. On a scale of one to five with five being a high level of conflict, the initial average conflict scores were 2.04 and 1.17 for task conflict and relationship conflict respectively across all groups. The average score for task conflict dropped to 2.0 and rose to 1.18 for relationship conflict in the post-test. With such low levels of conflict to begin with, there appeared to be very little room for improvement from any intervention, which speaks more to the design of the study than the utility of the technique. In this case, the students may have simply enjoyed the fact that they were getting to participate in an activity rather than listen to a lecture.

Levels of conflict may also have been affected by the use of upper classmen as leaders and the time restrictions for the completion of the tasks. It is possible that younger students

simply “followed” the older, more senior students whom they may have respected, rather than engage in such a way that might be perceived as conflict. Additionally, the teams were given 12 minutes to complete their tasks as a way of increasing stress. However, this limited time frame may not have given the teams enough time to actually engage in conflict. Perhaps giving teams more time to engage in discussion would lead to greater emotional investment and increased intragroup conflict.

Future research may take place in settings (educational or professional) where the outcomes have real-world consequences such that participants are truly invested in the process. It may also be worth randomly assigning team leaders rather than using a stratified assignment using senior participants to reduce this as a factor potentially hindering group conflict. Finally, it may be wise to use the suggested time allotments for task completion as this may allow participants to engage in the discussion in greater depth and hopefully higher emotional investment. Higher emotional investment may lead to higher variances in the conflict responses for measurement.

Another factor worth considering for human resource development professionals is the micronegotiation training itself. A short, 15-minute training on micronegotiation was used in this study, which is less than studies such as those of Haraway and Haraway (2005), Zweibal et al. (2008), and Saulo and Wagener (2000). It is possible that the lack of significant findings between those trained and those not trained on micronegotiations is a product of poor training rather than a deficiency in the technique itself. The amount of training on dispute handling to which one has been exposed has been shown to correlate positively with negotiation ability (Rai, 2013), suggesting that the amount provided in this instance may have been insufficient. Additionally, the micronegotiation training was not pilot-tested prior to using it in the study, which may be worth addressing in future studies. HRD professionals will certainly recognize that length of a training alone is not the sole determinant of the potential effectiveness of the training, but in this case it is worth considering for future studies on this topic.

Finally, the technique may not actually be a conflict resolution technique. Rogers and Lindgard’s (2006) “micronegotiation” technique may more accurately be referred to as a conflict assessment. The steps of the micronegotiation seem to assist the team lead in determining the most appropriate course of action. This is different than seeking to amiably settle a team dispute and reach a solution. Rather, the micronegotiation encourages the leader to determine how to best address the conflict. Given the time constraints of an operating room environment, there are times when a full-blown collaborative approach may not be in the best interest of the patient thus, a forcing or competitive style may be the best path. If Skjørshammer (2001) is correct in his finding that the default response to conflict among some medical personnel is avoidance or forcing, then the real value of this technique may be simply getting those professionals to first recognize the presence of a conflict and then to consider perspectives other than their own. Additionally, the micronegotiation could include a step whereby the team lead briefly explains the rationale for the chosen course of action either at the moment of the decision or in a post-task debriefing.

IMPLICATIONS

Despite the findings of the present study, in a medical setting, the utility of the micronegotiation technique may be the fact that it expects the surgeon (or team lead) to consider the appropriate conflict style rather than potentially defaulting to avoidance or forcing styles. There is also value in that it leads them to recognize the conflict that arises. In directing the medical team lead to, “take a few seconds to allow for the control of emotions in a tense clinical situation,” means that the team lead acknowledges that a conflict exists, which moves them away from avoiding (Rogers & Lingard, 2006, p. 572). Likewise, while directing them to, “listen to the ideas or concerns of the other party and paraphrase or summarize them to indicate they were heard,” may not equate to collaboration or dissuade the use of a forcing style, it does at least suggest a more collegial interaction (Rogers & Lingard, 2006, p. 572). In this way, the micronegotiation technique provides a structure for team leads to investigate how best to manage a conflict outside of a visceral reaction.

The potential for the micronegotiation technique to serve as an assessment tool assisting team leaders to choose the appropriate conflict management style as well as moving them to a more collaborative process is an important consideration for HRD professionals. Trudel and Reio (2011) found that conflict style was related to instigating or being the target of incivility. Participants in their study who identified as predominantly using dominating conflict styles, which are also referred to as forcing or competing depending on the instruments used, were more likely to instigate incivility, while those high in integrative, or also referred to as collaborative in some instruments, were less likely to instigate incivility. Additionally, the dominating styles were more likely to be the target of incivility and integrative styles less likely to be the target of incivility. This suggests an opportunity for HRD professionals who can offer professional development on techniques, possibly such as micronegotiations, that may be able to direct team members to use more collaborative methods when encountering conflict.

While this study focused on medical settings and focused on students pursuing careers in health related professions, the need for conflict education within organizations touches all fields. In general, conflict interferes with team collaboration (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008) and poses a significant problem for managers. Accountemps (2011) suggested that up to 18% of a manager’s time is spent resolving conflict and a CPP Inc. (2008) survey found that the average employee spends approximately 2.1 hours per week handling conflict. Additionally, 25% of the respondents in the CPP Inc. survey indicated they had missed work to avoid conflict, and the study estimated that the lost productivity that results from conflict costs organizations around \$359 billion annually.

Given the ethical and economic costs related to conflict in medical and general organizational settings, ongoing research on techniques aimed at not only preparing, but directing, personnel on managing disputes seems to be of value. The micronegotiation technique is just one process that seems to justify continued investigation for positively affecting team and organizational collaboration and outcomes.

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