MEASURING THE IMPACT OF THE MICRONEGOTIATION TECHNIQUE ON TEAM MEMBER SATISFACTION AND TEAM PERFORMANCE

by

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A Dissertation
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for the Degree of

Doctor of Philosophy

in the field of Education

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AN ABSTRACT OF THE DISSERTATION OF

Jeffery David Kaufman, for the Doctor of Philosophy degree in Education, presented on March 27, 2013 at Southern Illinois University Carbondale.

TITLE: MEASURING THE IMPACT OF THE MICRONEGOTIATION TECHNIQUE ON TEAM MEMBER SATISFACTION AND TEAM PERFORMANCE

MAJOR PROFESSOR: Dr. C. Keith Waugh

Conflict is not an uncommon element of team interactions and processes; however, if unchecked it can cause issues in the ability of the team to achieve maximum performance. Research on task conflict and relationship conflict by de Wit, Greer, and Jehn (2012) found that while in many cases task conflict and relationship conflict within teams can have a negative effect on team performance, in some situations, task conflict benefitted team performance. In response to concerns about conflict in operating rooms, Rogers and Lingard (2006) suggested a conflict resolution tool, micronegotiation, as a way for surgeons to manage conflict. This study used students in health-related courses (radiology, physiology, and microbiology) to measure the effect of training in the micronegotiation technique on team performance on a problem-solving task and team satisfaction. Levels of task conflict and relationship conflict experienced within the teams were also compared between those who applied the technique and those who did not. The results of the MANOVA found no statistically significant differences between teams in the control group (no training) and teams in the experimental group (training) on any of the four dependent variables: team performance, team satisfaction, task conflict, or relationship conflict. The findings may be a result of little variance or presence of conflict within the groups and

future research on the use of the micronegotiation technique may be better served to utilize adult work teams with a vested interest in the group product.

DEDICATION

This is dedicated to my beautiful wife Laura and my amazing son Zane. I thank you for your willingness to allow me to pursue my passion and all your support through this process. You have sacrificed as much as I have to make this happen and the result is truly OUR accomplishment. Thank you.

Thank you also to my parents, Joe and Marsha Kaufman, and in-laws, Dennis and Kay Murphy, who helped me to have the confidence to pursue such an undertaking.

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CHAPTER 1

INTRODUCTION

Background

There are two purposes to this study. The first is to investigate task and relationship conflict within teams of students from health-related classes. The second is to introduce a conflict management intervention to a group process and measure its effect on task conflict and relationship conflict. There are a number of reasons to use a team instead of an individual to complete a job or project. The task may be too large for one person to complete alone or it may require skills that different team members possess. Researchers have found supporting evidence regarding the benefits of using teams. Faust (1959) found that on spatial problems, "group performance was superior to individual performance" (p. 72). Follow-up studies have found similar results where groups were shown to outperform their most proficient member 97% of the time on "contextually relevant and consequential problems" (Michealsen, Watson, & Black, 1989, p. 834). More recently, Cooper and Kagel (2005) found that teams performed better than individuals in signaling game experiments as the need to learn to play more strategically increased. The notion of two heads being better than one seems to have some merit.

Regardless of the reasons, teams must collaborate to effectively meet their goals. Marks, Mathieu, and Zaccaro (2001) identified the primary processes of a team towards the accomplishment of a goal. These processes fall into three categories: transition processes, action processes, and interpersonal processes. LePine, Piccolo, Jackson, Mathieu, and Saul (2008) found that these team processes were positively associated with team performance. Anything that hinders or compromises a team's ability to engage in these processes can lead to decreased productivity and overall group effectiveness.

One issue that threatens a team's ability to function effectively is conflict. Marks et al. (2001) included a conflict engagement dimension as part of their interpersonal process. For Marks et al., conflict engagement is a process related to how groups prevent or resolve conflict that arises through interpersonal interactions in group work.

Two types of team conflict have been widely accepted: task conflict and relationship conflict (Guetzkow and Gyr, 1954) and some have argued that task conflict may actually benefit team performance. While some research supports the notion of conflict enhancing team performance, there are some who are less convinced of the benefits of task conflict. In their meta-analysis of research on task and relationship conflict, De Dreu and Weingart (2003) found that, contrary to Jehn's conclusions, task conflict was negatively correlated with team performance. A follow up meta-analysis by de Wit, Greer, and Jehn (2012) found that task conflict could lead to increases in team performance in some circumstances. The findings from these two studies have been instrumental in helping shape and advance this field of study. Most of the studies on task and relationship conflict agreed that the presence of either task or relationship conflict led to decreases in team member satisfaction in the group processes (DeChurch & Marks, 2000; Janssen, Van de Vliert, & Veenstra, 1999; Jehn & Mannix, 2001).

The risks and benefits of task and relationship conflict can be debated, but the findings suggest that these types of conflict should be considered when investigating methods for teams to function more effectively. Desivilya, Somech, and Lidgoster (2010) found that relationship conflict led to decreases in teams engaging in cooperative processes: and, therefore, lessened their levels of collaboration. Kumar and van Dissel (1996) sought ways to manage conflict within organizations as a way to avoid interruptions to collaboration; and researchers have found that relationship conflict and the negative emotions that accompany relationship conflict lead to

reduced levels of knowledge sharing (Amason, 1996; Jehn and Mannix, 2001; Pelled, Eisenhart, & Xin, 1999).

Decreased collaboration has implications for medical teams as lack of team collaboration has been negatively correlated with team performance in the form of patient outcomes (Baggs Schmitt, Mushlin, Mitchell, Eldredge, Oakes, & Hutson, 1999). Several lines of research connect collaboration with patient outcomes. Researchers have investigated and concluded that the effectiveness of care is positively influenced by higher rates of coordination, a concept related to collaboration (Knaus, Draper, Wagner, & Zimmerman, 1986). Interdisciplinary collaboration was shown to decrease negative patient outcomes (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992). Baggs et al. (1999) found that lack of collaboration in the Intensive Care Unit led to increased length of patient stays and increases in patient mortality. Fassier and Azoulay (2010) had similar findings in their study of the Intensive Care Unit (ICU). They found that much of the conflict centered around two primary issues: end of life decisions and communication. Additionally, they found that this conflict negatively impacted patient safety, team welfare, and cohesion. Nurse practitioners and pharmacists in an ambulatory care setting were able to improve medication use by avoiding adverse medication issues/events in situations of increased collaboration (Urbine, Link, Schneider, Schmitz, & Kistler, 2012). Collaboration may serve as a mediating variable between conflict and patient outcomes or team performance. In most cases conflict is negatively associated with team performance; however, it is possible that the negative relationship between conflict and team performance may not be significant when collaboration is high.

Research has also considered the effects of task and relationship conflict on team member satisfaction and found a negative correlation (DeChurch & Marks, 2000; Janssen, Van de Vliert,

& Veenstra, 1999; Jehn & Mannix, 2001). Satisfaction is an important consideration. Nurse dissatisfaction, for example, can be detrimental to the medical environment in the form of employee turnover (Suzuki, Itomine, Saito, Katsuki, & Sato, 2008) and patient outcomes (Bae, Mark, & Fried, 2010).

Concerns over conflict in medical settings have led to various lines of research in the field. There is interest in the causes and characteristics of conflict from an interpersonal perspective (Jameson, 2003) and organizational perspective (Cohn, 2009). Research continues regarding specific characteristics of the medical environment that may lead to conflict and outcomes associated with these conflicts (Freeborn, 2001; Linzer, Gerrity, Douglas, McMurray, Williams, & Konrad, 2002; Marco & Smith, 2002). Some tools created or adapted for medical use to increase effectiveness such as TEAMStepps (Ferguson, 2008) and Crew Resource Management (France, Stiles, Gaffney, Seddon, Grogan, Nixon, & Speroff, 2005) are not specifically intended to manage conflict but include steps that parallel those used in conflict resolution techniques. To address conflict there are also studies related to the impact of training on conflict and conflict resolution techniques for medical personnel (Haraway & Haraway, 2005; Zweibel, Goldstein, Manwaring, & Marks, 2008).

Rogers and Lingard (2006) suggested a technique for managing conflict in operating rooms. Referred to as a micronegotiation, the technique includes steps for controlling individual emotions, exhibiting respect for the position of others, and solution seeking. The technique is intended to be brief, as Rogers and Lingard suggested it should take less than a minute to complete. Additionally, they suggested that the micronegotiation should become a pattern of interaction such that it could eventually become a style. At that point it is no longer a technique being used, but the way that parties in a difficult situation manage differences and conflicts.

Theoretical Framework

Jehn (1994) highlighted the effects of the presence of conflict on team performance and team member satisfaction. She is credited for advancing the notion of two distinct types of conflict, task and relationship, initially proposed by Guetzkow and Gyr (1954). It was also Jehn (1994) who developed the Intragroup Conflict Scale as a way of measuring these constructs. Her contention was that the effects of task conflict and relationship conflict were not identical. Where relationship conflict would likely lead to decreases in team performance, task conflict could lead to gains in team performance. It is task conflict and relationship conflict that this study seeks to investigate. Specifically the study seeks to better understand the effects that training on a conflict resolution technique can have in the intensity of task conflict and relationship conflict and their effect on team performance and team satisfaction. The micronegotiation technique (Rogers & Lingard, 2006) is the conflict resolution technique to be used as the intervention to measure its effect on task conflict, relationship conflict, team performance, and team satisfaction.

Statement of the Problem

Task and relationship conflict have been found to have negative relationships with both team performance and team member satisfaction in most settings. However, investigation of these phenomena has not been conducted with teams of students in health-related classes. In addition to the investigation of the effect of task and relationship conflict in teams of medical personnel, there is also a need to identify and measure the impact of the use of the micronegotiation technique that may manage the effects of these types of conflict.

Purpose of the Study

This research study seeks to extend the theory of task conflict and relationship conflict and their effect on team performance and satisfaction to student populations in health-related courses. Task conflict and relationship conflict have been studied in medically-related settings, but no studies look specifically at how these types of conflict affect the performance and satisfaction of a team of students in courses leading to work in health professions. Further, no studies investigating the effects of a conflict resolution intervention on task conflict, relationship conflict, team member satisfaction, and team performance in teams of health profession students were identified. There appears to be justification for pursuit of such a research agenda given the interest of conflict in medical settings and a shortage of research on the role of task conflict and relationship conflict on team performance in this environment.

As previously mentioned, there are tools such as TEAMStepps and CRM used in medical settings to help facilitate communication within and between teams. The tool chosen to be tested in this study is Micronegotiation, which is specifically intended to manage conflict within a surgical team. Since a positive relationship between conflict and medical errors appears to exist (Baldwin & Daugherty, 2008), and conflict has been found to contribute to a breakdown in collaboration (Amason, 1996; Jehn & Mannix, 2001), which can also lead to negative patient outcomes (Baggs et al., 1999), the goal was to test a tool specifically intended to address conflict. The micronegotiation technique meets this goal.

The micronegotiation technique includes steps to help the team leader determine the appropriate conflict management style to use to address the concern as well as create an environment where team members feel heard. 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)

Skjørshammer (2001) found in his study of conflict in Norway hospitals that the primary styles used by physicians were forcing and avoidance. Micronegotiation directs the leader to engage in a dialogue by asking for concerns and interests of the team members, which is contrary to an avoidance approach. Additionally, by asking for the interests of the other parties the team leader is also engaged in a process that is more collaborative than forcing. The six steps of the micronegotiation do not include actual problem solving, but they do help set the tone for a dialogue that can lead to group problem solving.

Micronegotiation is also intended to be a leadership tool rather than a consensus model, which is important since many teams are directed by a leader who can set the tone for group interactions. Rogers and Lingard (2006) mentioned that surgeons tend to see themselves as leaders and the recommendations they made place the onus of behavioral change on the shoulders of surgeons. In this way, micronegotiation is a leadership tool. Kim (2002) found that participative management approaches that integrate effective supervisory communications can

lead to higher satisfaction responses among employees. Micronegotiation seems to open the door for such a management and communication style and may address the negative effects of conflict on team member satisfaction.

It is for the reasons mentioned above that the micronegotiation technique was chosen as the intervention tool. The technique is intended to address one of the primary interests of this study; team member satisfaction. Additionally, as a conflict management tool, it is also relevant to address the concepts of task conflict and relationship conflict. Finally, while the technique does not directly speak to team performance, its effect on task conflict and relationship conflict may lead to changes in team performance.

Research Questions

This study was guided by the following research questions:

1. What is the nature and strength of the relationship between task conflict and team performance?

2. What is the nature and strength of the relationship between relationship conflict and team performance?

3. What is the nature and strength of the relationship between task conflict and team member satisfaction?

4. What is the nature and strength of the relationship between relationship conflict and team member satisfaction?

5. What effect does training on the micronegotiation technique have on task conflict in teams of health profession students?

6. What effect does training on the micronegotiation technique have on relationship conflict in teams of health profession students?

7. What effect does training on the micronegotiation technique have on team performance in teams of health profession students?

8. What effect does training on the micronegotiation technique have on team member satisfaction in teams of health profession students?

Significance of the Problem

There seems to be sufficient reason for studying conflict and conflict management techniques. LePine et al. (2008) found that conflict can hinder the ability of teams to engage in team processes such as collaboration. A 2011 survey by Accountemps found that managers spend approximately 18% of their time managing conflicts among their employees; and a 2008 study by CPP Inc., the publishers of the Thomas-Kilmann Conflict Mode Instrument and the Myers-Briggs Assessment, found that employees spend an average of 2.1 hours per week handling conflict. This means employees are using paid time intended for job related productivity dealing with conflict, costing companies an estimated $359 billion. The report also stated that 27% of respondents had seen conflict eventually change to personal attack and 25% indicated they had missed work in an attempt to avoid conflict.

Conflict within groups has consistently been found to be negatively correlated with team member satisfaction (De Dreu & Weingart, 2003; de Wit, Greer & Jehn, 2012). Hulin (1991) connected employee satisfaction with intentions to leave; and Luu and Hattrup (2010) found consistently negative correlations between job satisfaction and turnover in their study comparing this phenomenon in France, Japan, the Philippines, and the United States of America. Turnover can be an expensive proposition for which an organization must account. For example, in one study the cost for replacing a single teacher was estimated to be approximately $9,500 (Barnes, Crowe, & Schaefer, 2007).

The negative effects of conflict can be felt in any organization; however, the technique of interest in this study was intended for use by individuals in healthcare fields in general and surgeons specifically. While the population from this study is future healthcare professionals rather than surgeons or medical personnel, it is important to look at the significance of investigating techniques for managing medical conflict as this is ultimately the intended setting for the micronegotiation technique (Rogers & Lingard, 2006).

Evidence of the negative effects of conflict in medical settings is available. Baggs et al. (1999) connected lack of collaboration with decreases in the quality of patient outcomes. Baldwin and Daugherty (2008) found that residents who reported experiencing higher rates of conflict with colleagues also reported higher rates of significant medical errors (SME) and adverse patient outcomes (APO). According to Baldwin and Daugherty, medical residents who reported higher instances of being humiliated or belittled also reported higher rates of committing medical errors. 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)

The 1999 report *To Err is Human,* by the Institute of Medicine (IOM), stated that anywhere from 44,000 – 98,000 individuals die in hospitals each year as a result of medical errors. This is coupled with estimates that these errors cost between $17 billion to $29 billion a year. The IOM stated that "faulty systems, processes and conditions" were primary contributors to these medical errors (1999, p. 2). A more recent study sponsored by the Society of Actuaries

(2010) also 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 indicates that medical errors affect the individual patients, patient employers and the national economy.

Nurse turnover is also an issue related to conflict. Studies have consistently shown a correlation between nurse intentions to leave/turnover and the nurse dissatisfaction in the quality of work relationships (Buffington, Zwink, Fink, Devine, & Sanders, 2012; Estryn-Behar, van der Heijden, Fry, & Hasselhom, 2010; O'Brien-Pallas, Murphy, Shamien, Xiaogiang, & Hayes, 2010; Suzuki et al., 2008). Likewise, De Milt, Fitzpatrick, and McNulty (2011) found a negative correlation in general job satisfaction and turnover among nurse practitioners; and O'Brien-Pallas et al. (2010) found that among reasons for leaving given by nurses, the most important consideration was poor working relationships. Still others called for "improved manager support, respectability, relationships, a desire for improved shared leadership, and listening to ideas/concerns" (Buffington et al., 2012, p. 278).

The cost associated with this turnover can be high. The Lewin Group (2009) estimated the average cost of replacing a registered nurse at $36,567 and a PriceWaterhouseCoopers 2008 report stated that for every 1% increase in nurse turnover rate, a hospital incurs an additional $300,000 in expenses annually. Hospitals that do a poor job of retaining nurses spend approximately $3.6 million per year more than hospitals with high retention rates (PriceWaterhouseCoopers, 2008). These costs are exacerbated by the shortage of nurses and nursing faculty (PriceWaterhouseCoopers, 2008; Siela, Twibell, & Keller, 2009) and have been found to have a negative impact on patient well being (Gelinas & Bohlen, 2002),

Time constraints, which were discussed earlier and are part of the medical environment, are also related to physician pressure. These constraints lead to physician burnout as well as

physician nurse conflict and adverse patient outcomes. Konrad et al. (2010) found that physicians felt that they did not have enough time to provide their highest quality care. According to Espin and Lingard (2001), time is a dominant theme as a catalyst for tension between physicians and nurses. In research using multiple regression models of analysis, time pressure has been shown to serve as a statistically significant predictor of job stress among physicians (Linzer et al., 2002). Spickard, Gabbe, Christensen, and Torpy (2002) also found perceived work demands as one of the primary factors contributing to physician burnout. A possible product of physician stress and burnout is its impact on patient outcomes. There is some evidence to suggest the depersonalization aspect of burnout can be associated with longer post-discharge recovery time (Halbesleben & Rathert, 2008). Thus, the effects of nurse and physician stress and dissatisfaction extends beyond their own issues and can connect to patient outcomes.

The many problems that accompany conflict in organizations suggest that the identification of tools to manage conflict can be highly beneficial for the organizations themselves as well as their employees and individuals who utilize the organizations' services.

Limitations and Delimitations

The research was delimited to students in radiology, microbiology, and physiology from a medium-size public university in the Midwest. This limits how the findings can be generalized as members of this specific population differ from medical personnel for which the micronegotiation technique was intended. Another delimitation was the decision tasks used (The NASA Moon Survival Task & Lost at Sea: A Consensus-Seeking Task), which were neither authentic to medical settings nor related to the class content from which the participants were

drawn. This places all participants on the same level of expertise, which assists in isolating the technique as the predictor variable; but, it may also limit the ability to generalize the findings.

Several limitations arose within the study. Students from the physiology class were administered the study in their lab session rather than in normal lecture class time like the students in microbiology and radiology. The differences in administration could lead to alternative reactions to the measures of task conflict and relationship conflict. Additionally, while teams of three were intended to be used throughout, due to the number of students in a class or lab, some teams of four were also used. Different team sizes may lead to differing levels of team performance and satisfaction, or conflict, and thus was controlled for in the statistical analyses. Finally, these teams were formed from students from the same classes that normally lead to health professions; however, not all students reported pursuing a health profession. Because the teams were formed by convenience from homogenous participants (participants from the same class) they are different than medical teams which are formed from heterogeneous participants from different fields. This homogeneity can impact the levels of conflict experienced within the teams. It is possible that the similarity of the participants made them less likely to encounter conflict in how to complete the tasks or personality clashes. In fact, the relatively low levels of conflict and limited variances of those reported conflict was, perhaps, the greatest limitation. First of all, without conflict there is no need for an intervention to manage conflict. Secondly, because the levels of reported conflict were so similar across all teams, the sample size would have needed to be much larger to detect any statistically significant differences and small effect sizes.

CHAPTER 2

LITERATURE REVIEW

As mentioned in Chapter 1, there are two purposes to this study. The first is to investigate task and relationship conflict within teams of students from health-related classes. The second is to introduce a conflict management intervention to a group process and measure its effect on task conflict and relationship conflict. Regarding the first purpose, the research seeks to understand if the effects of task conflict and relationship conflict within a team of health profession students are consistent with the effects found in teams in previous studies. Research has found that in some circumstances task conflict led to higher team performance, while in most cases it was shown to be negatively correlated with team performance (De Dreu & Weingart, 2003; de Wit, Greer & Jehn, 2012). Since instances exist where task conflict may show gains in team performance, other circumstances may also exist where this happens. Health profession students may have some unique characteristics that create an instance where such gains may be present. Thus far, task conflict and relationship conflict have not been investigated in teams comprised of health profession students.

The study will also introduce a conflict management tool as a team completes a group task. Micronegotiation (Rogers & Lingard, 2006) is a technique recommended for surgeons managing operating room teams. The purpose of the technique is to allow team members to air their concerns and quickly and efficiently make a decision as to the action to be taken (Rogers & Lingard, 2006). Kim (2002) found that when managers use a participative style of management it is positively associated with employee job satisfaction. Since the micronegotiation technique could be classified as a participative management style it suggests that it should lead to higher levels of procedural satisfaction among team members. Introducing the management technique

to a group task may help determine if the technique has any effect on the impact that task and relationship conflict have on team performance and team member satisfaction.

Several areas need to be addressed to investigate the topic of task conflict and relationship conflict. The general concepts of conflict and conflict resolution will be discussed. The meta-analyses of De Dreu and Weingart (2003) and de Wit et al. (2012) related to task conflict and relationship conflict will be addressed since this is the theory that is being extended. A brief overview of teamwork processes from Marks et al. (2001) will be included as this is part of the group process. General team conflicts will be discussed and the review will also provide an overview of the medical environment, including the types of conflicts that arise in medical settings, training and interventions to manage conflict, and the cost of conflict related issues in medicine. Finally, the review will show the interrelation of these concepts and how they direct this study.

<div align="center">**Conflict and Conflict Styles**</div>

The term "conflict" holds many connotations and denotations. To some it means to fight, while to others it may be as innocuous as having scheduled two appointments at the same time. It can be defined as war or a psychological state of having two incompatible wishes or desires. It is necessary to determine what type of conflict is the focus of this study. The initial discussion will include a broader array of possible definitions; but for the sake of this study, one definition provided by the Collins English Dictionary will be used. Conflict is defined as, "a state of opposition between ideas, interests, etc; disagreement or controversy" (2009). This is likely the most common type of conflict experienced by individuals in most settings.

To understand how to resolve conflict, researchers also need to understand individual reactions to conflict. Conflict styles are an individual's reaction to the appearance of conflict.

Blake and Mouton (1964) developed the idea of the managerial grid or what is commonly referred to as the dual concerns model. The grid considers two factors related to management: concern for people and concern for production. An individual's management style is then determined by how much concern he/she places on concerns for the people being managed and concern for meeting production.

Kilmann and Thomas (1977) used the notion of dual concerns in developing the Thomas-Kilmann Conflict Mode Instrument. The instrument altered the managerial grid slightly by replacing concern for people with cooperation, and concern for production with assertiveness. Cooperation is the extent to which one is concerned with meeting the needs of others and assertiveness relates to the degree to which one is concerned with meeting their own needs. An individual's conflict style is then determined by identifying how much concern they hold for meeting their own needs in relation to meeting the needs of others in the face of conflict. The five conflict styles identified by Kilmann and Thomas are accommodating, avoiding, competing, compromising, and collaborating.

Rahim and Rahim (1983) included elements of both the dual concerns model and Kilmann and Thomas' (1977) model in developing his Rahim Organizational Conflict Inventory. The five styles identified in Rahim's inventory were integrating, compromising, dominating, obliging, and avoiding. In his model, integrating was the style most similar to Kilmann and Thomas' collaboration. Dominating was similar to competing, obliging similar to accommodating, and avoiding and compromising were similar in both models. Understanding an individual's primary conflict style may help predict potential disputes as well as determine possible interventions to either prevent or resolve those conflicts.

Generally speaking, having a high concern for both self and others is often called integrating (Rahim & Rahim, 1983) or collaborating (Kilmann & Thomas, 1977). Because collaboration and integration are used interchangeably in this context, collaboration will be used going forward. Collaboration is often believed to be the preferred approach when managing conflict due to the high attention it pays to both the concerns of self and others, but it can be difficult to develop and generally requires more time to utilize. Sometimes it may not take actual collaboration but simply the perception of collaboration to create a more collaborative work environment.

Keenan, Cooke, and Hillis (1998) found:

In general, when the nurse perceives (a) that the physician regularly manages nurse–physician conflicts with other-oriented styles (collaborating, compromising, obliging), and (b) that the work group norms support both strong constructive and aggressive–defensive behaviors, then the nurse is very likely to use proactive conflict strategies to manage nurse–physician conflicts. Conversely, when the nurse perceives (a) that the physician regularly manages nurse–physician conflicts with self-oriented styles (dominating, avoiding), and (b) that constructive and aggressive–defensive norms are weak, the nurse is very likely to use avoiding to manage conflicts. (p. 68)

One problem with perception is that it can vary from person to person. For example, in one study "surgeons reported good collaboration with the nurses 85% of the time, whereas the nurses reported a favorable collaboration only 48% of the time" (Lee, Berger, Awad, Brandt, Martinez, & Brunicardi, 2008, p. 2331). This gives an indication of how one party can hold a substantially different view of the relationship than the other party. In fact, individuals may not be aware of the styles they are using. According to Reich, Wagner-Westbrook, and Kressel

(2007), "respondents' ideal conflict styles were more competitive, more avoidant, and less collaborative than were their actual conflict styles" (p. 12).

In his study of hospital conflict in Norway, Skjørshammer (2001) found that, "when in conflict professionals use three major behavioral approaches to handling the situation: avoidance, forcing and negotiation/compromise, usually in that order" (p. 11). He defined a forcing style as using formal or informal power to take care of an issue. There may be some real concerns regarding the long-term impact on the relationships when avoidance or forcing styles are used. For example, "avoidance means not talking about the issue publicly or not bringing it up later with the other party" (Skjørshammer, 2001, p. 11). Using such a style, the issue has little chance of being resolved, which creates an environment where it can arise repeatedly over time and continue to serve as a disruption.

Avoidance or forcing styles are appropriate in some situations, but in instances of heightened stress it is a concern that these will exacerbate the circumstances and further deteriorate the relationship between the parties. Rogers and Lingard (2006) suggested that avoidance is a popular reaction among nurses and "it has also been argued that physicians react to conflict by an avoiding response that is so significant that they do not acknowledge that a conflict even exists" (p. 570). There appears to be little hope for resolution if one party refuses to acknowledge an issue in need of resolution even exists.

While Skjørshammer (2001) found avoidance and forcing to be the dominant conflict management styles in his study, other styles have been observed in different studies. The accommodating style exhibits high concern for others and low concern for self. Using the Thomas-Kilmann instrument with healthcare professionals has shown a predisposition for accommodating more often than for business executives, suggesting not just a predominance of

less assertive techniques, but also a higher ratio of other-focused styles in medicine in comparison to other fields (Shell, 2001). The findings that medical professionals tend to use less assertive conflict styles speaks to the interest in investigating the effects of task and relationship conflict in this specific setting.

Understanding the conflict styles of individuals in any organization is not a new research area and it has led to a variety of trainings to address issues of conflict. Training on team collaboration and communication for medical personnel are common with teamwork being an obvious need. "The conflict management literature documents that when parties show each other appropriate levels of respect and engage in a collaborative approach to conflict management such conflicts are often transcended" (Jameson, 2003, p. 563). Offering training on respect and communication as an antecedent to collaboration may make sense. As a way to work more collaboratively with patients and patients' families, Kendall and Arnold (2008) suggested that physicians work with their patients by getting to know their stories, tending to emotions, and establishing shared goals for treatment. These skills may require training to develop.

In addition to understanding conflict generally, there is also a need for some method to resolve conflict. Individuals such as Mohandas Gandhi and groups such as the Quakers provided examples of resolving both large scale social and personal conflict by utilizing non-violent and alternative forms of dispute resolution (Kriesberg, 2009). Likewise, organizations like The William and Flora Hewlett Foundation helped fund the development of theory and practice on methods for resolving conflict (Kriesberg, 2009). Their financial support helped create conflict theory centers in universities such as Harvard, Syracuse, and Georgia Tech (Kovick, 2005). These events helped move the notions and methods of conflict resolution into more of a mainstream discussion.

Conflict styles such as avoiding, collaborating, compromising, competing, and accommodating often overlap with approaches used in negotiations. Rubin, Pruitt, and Kim (1994) identified the five styles on their model as yielding, problem solving, contending, compromising, and inaction, which bear similar characteristics of the five conflict styles. This is noteworthy since negotiation can serve as a conflict management approach and is mentioned among the reasons that negotiation is used. Lewicki, Saunders, and Barry (2006) stated:

> Negotiations occur for several reasons: (1) to agree on how to share or divide a limited resource, such as land, or property, or time; (2) to create something new that neither party could do on his or her own, or (3) to resolve a problem or dispute between parties. (p. 2)

Negotiation in medical settings is not a new concept. Anastakis (2003) discussed the importance for physicians in leadership positions to possess negotiation skills as it is a standard part of their daily duties. Likewise, negotiation skills have also been identified as essential to career advancement among medical personnel in academics (Sarfaty, Kolb, Barnett, Szalacha, Caswell, Inui, & Carr, 2007). Because negotiation can be a somewhat formal process, however, it may be difficult to manage some medical conflicts with this method (Holbrook, 2008). For example, a patient and physician would most likely have to schedule a time to prepare and present their perspectives and interests if they hoped to investigate mutually acceptable conclusions. Rogers and Lingard (2006) recognized that the time required for a formal negotiation was unrealistic for some medical situations and their micronegotiation used basic elements of negotiations to be completed in an abbreviated format.

The previously cited research on conflict provides a definition of conflict, an overview of conflict styles, an introduction to collaboration, and mention of the history of conflict resolution. The present study looks more specifically at task conflict and relationship conflict and their

effect on teams of students in health-related courses. Given this, it is fitting to consider conflict as it relates to teams.

Task and Relationship Conflict

With more and more teams being used in organizations, it is important to understand the circumstances in which they can be most effective. One area of interest is the impact of conflict. Jehn is one of the primary researchers investigating various types of conflict and their effect on group performance and satisfaction. Guetzkow and Gyr (1954) discussed the differences between conflict resulting from interpersonal friction (relationship) and conflict rooted in the completion of a task (task), which is the theoretical framework that directed this study. Jehn is often credited with advancing this notion of separating conflict into either task related or relationship related and differentiating between the effects of each on group processes (Jehn, 1994; Jehn, Northcraft, & Neale, 1999). To measure these constructs, she developed the Intragroup Conflict Scale (ICS), a model that initially included eight questions based on a subscale of Rahim's (1983) conflict measure (Jehn, 1994). In 2002, Pearson, Ensley, and Amason tested the ICS and found that a six question version of the scale was valid in predicting their hypotheses regarding measurement of task conflict and relationship conflict.

Jehn also posited that some level of task-related conflict was beneficial to team productivity and outcomes, but that it was detrimental to team member satisfaction (Jehn, 1994). She concluded that relationship conflict, however, leads to declines in both team productivity and team member satisfaction. De Dreu (2008) was less optimistic regarding the benefits of task conflict than Jehn and suggested that any supposed benefits arose in only a very narrow set of circumstances.

Jehn and Mannix (2001) looked at task and relationship conflict individually to understand how each one impacted group outcomes such as team member satisfaction and productivity. They defined task conflict as, "an awareness of differences in viewpoints and opinions relating to a group task" (Jehn & Mannix, 2001, p. 238). Relationship conflict was defined as, "an awareness of interpersonal incompatibilities, includes affective components such as feeling friction and tension" (Jehn & Mannix, 2001, p. 238). Jehn's contention, based on her 1994 study, was that task-related conflict could lead to increased group performance. This suggests that as task-related conflict increases to a certain degree, so too does team productivity. At the same time, Jehn contended that relationship conflict is negatively associated with team productivity, meaning that as relationship conflict increases, team productivity decreases. Her findings suggested that teams benefit to some degree from task-related conflict and are hindered by relationship conflict.

This notion was tested and generally accepted for several years until De Dreu and Weingart's (2003) meta-analysis of studies on task and relationship conflict's effect on team performance and satisfaction. De Dreu and Weingart found a statistically significant, negative correlation (-.23) between task conflict and team performance across the 25 studies of their meta-analysis. Their findings contradicted Jehn's contention that task conflict leads to increased productivity. However, their findings did agree with prior conclusions regarding the negative correlations between relationship conflict and performance and satisfaction. De Dreu and Weingart's (2003) meta-analysis led to researchers addressing additional questions raised from their somewhat contradictory findings. The research then moved from looking simply at task and relationship conflict on its own to investigating variables that mediate and moderate the effects of task and relationship conflict (Bierly, Stark, & Kessler, 2009; Hinds & Mortensen,

2005; Liu, Fu, & Liu, 2009; Parayitam & Dooley, 2007; Rispens, Greer, & Jehn, 2007). As these studies were published, De Dreu (2008) argued that any positive correlation found between task conflict and team performance was only present in limited circumstances, and he questioned some of the methodology used in studies reaching these conclusions. De Dreu did not discount that positive conflict exists or suggest that task conflict is always and unilaterally a hindrance to group productivity. The debate led the field to begin investigating the methods and measures used to study these phenomena (De Dreu, 2008).

As a follow up to De Dreu and Weingart's 2003 meta-analysis, de Wit et al. (2012) conducted their own meta-analysis of 116 empirical studies related to task and relationship conflict. They concluded that the picture of task conflict and its effect on group productivity is not black and white. They found that conditions exist in which task conflict does indeed lead to better productivity. One example of a circumstance that produced positive outcomes was within top level management teams (de Wit et al., 2012). The takeaway from these findings is that there are some characteristics or variables related to top management teams that lead them to perform better in the presence of task conflict. Within their research, de Wit et al. found task and relationship had weak correlations in top management teams, leading them to suggest that top management team members may be better able to prevent task conflict from turning into relationship conflict.

The other outcome that was investigated in the studies mentioned above was team member satisfaction. Researchers consistently found that both relationship- and task-related conflict were negatively associated with team-member satisfaction, meaning that as incidents or levels of relationship conflicts increased, the satisfaction of team members decreased (De Dreu & Weingart, 2003; de Wit et al., 2012). Employee satisfaction is related to intentions to leave

and employee turnover (Hulin, 1991). Turnover is a costly endeavor in any field, but perhaps more so in medicine, where replacing nurses, who are in short supply, can be expensive.

De Dreu and Weingart (2003) contended that the findings on the benefits of task conflict may be statistically significant but not practically applicable, and their position does have merit. In the 2012 meta-analysis by de Wit et al. there were instances where task-related conflict did not have negative effects on group productivity. For instance, when the conflict occurred in group work among top management teams the correlation between task conflict and group performance was positive. However, the corrected population correlation was .09, which is little to no correlation at all, and may not be strong enough to outweigh the potential negatives that accompany task conflict.

Another finding from de Wit et al. (2012) was that as the correlation between task and relationship conflict increased, the correlation between task conflict and group performance became more negative. This finding seems to suggest that relationship conflict was moderating the effects of task conflict leading to more negative outcomes. If this is the case then controlling for relationship conflict and maintaining task conflict may lead to benefits in team performance; however, the question then becomes how this can be done. This concern may be evident when de Wit et al. (2012) stated that, "compared to when the study was conducted in a classroom or laboratory setting, task conflict were more negatively related to performance in studies conducted in the field" (pp. 370-371). No explanation was offered for this discrepancy, but one possibility could be that relationship conflict and task conflict are more difficult to separate in real world situations, leading to negative effects on team performance.

Finally, de Wit et al. (2012) found that task conflict was more positively related to group performance where outcomes were measured in financial performance or decision making

quality rather than overall group performance and outcomes. Knowing task conflict can be positively related to team performance is beneficial in situations where group performance can be broken into smaller subsets for evaluation. However, in instances where it is not possible or practical to break team performance into smaller subsets, then task conflict is more likely to hurt team performance.

Conflict in Organizations and Teams

Task conflict and relationship conflict are investigated in the context of teams and their impact is often measured in team outcomes. It is important then to include some information related to team conflict, teamwork and team processes as work teams are becoming more and more popular within organizations (Sikes, Gulbro, & Shonsey, 2010). Teams are generally made up of individuals from diverse backgrounds that bring unique skill sets and values to the task to be completed (Chen, 2006). While the differences within the individuals are part of what make teams such an attractive approach to problem-solving and task completion, they can also be cause for conflict (Jehn et al., 1999). Thus, research to provide a better understanding of team conflict can be valuable for organizations who utilize teams as a primary approach to problem-solving.

Conflict within teams and organizations is potentially problematic. A study by CPP Inc. (2008) found that 29% of the employees they surveyed reported dealing with conflict "always" or "frequently", and 85% reported dealing with conflict to some degree. Regarding the effect of conflict on performance, 9% of respondents stated they had seen a project fail due to conflict. The report showed ego clashes, stress and heavy workloads were the primary causes for the presence of conflict, and the costs of these conflicts can be high, with CPP Inc. estimating it at $359 billion per year.

It would seem that successful teams would be able to manage conflict, or at least overlook it, because they reap the benefits of the team's production. However, according to Dixon, Gassenheimer, and Feldman Barr (2002), conflict within even successful sales teams can lead to team members exiting the group due to negative perceptions of the outcome as a result of relational distance. They propose that when conflict arises, whether it is task or relational conflict, the teammates have the option of engaging in voicing their concerns and seeking to resolve the conflict, or keeping quiet and leaving those conflicts unresolved. Unresolved conflict leads to increases in relational distance. Relational distance is defined as, "congruency between one team member's economic and relational work values and styles and those perceived as being available as part of the team context" (p. 250). Dixon et al. suggested that voicing activities that engage conflict resolution tend to lead to reductions in relational distance. Increases in relational distance reduces positive perceptions of group outcomes, meaning that even a successful team outcome can be perceived as negative as a result of conflict. In these instances of negative perceptions of outcome, members are more likely to exit the team.

Conflict is a factor in the general mood and structure of work teams as well. Gamero, Gonzalez-Roma, and Peiro (2008) found that task conflict was an antecedent to relationship conflict, and that relationship conflict then affected the affective climate of the team. In their study, this path of conflict dictated team enthusiasm or tension. In self-managed teams, Langfred (2007) found that conflict led to a breakdown in trust, which then led to group restructuring. The newly restructured teams would be less effective and showed reductions in task interdependence. Each of these instances showed reductions in team performance as a result of conflict.

How a team engages conflict also appears to be an important factor. Somech, Desilivya and Lidogoster (2009) found that teams employing a cooperative conflict style, as opposed to competitive conflict style, envisioned the conflict as a group process, and were more confident that their fellow team members would reciprocate cooperative behavior. This seems to require a level of trust and suggests that a cooperative management style may be able to neutralize some of the trust compromising effects found in Langfred's (2007) study. Somech et al. (2009) also found that team identity was a factor in whether or not a team would choose a cooperative or competitive style to manage conflict. Their research suggested that the more closely the members identified with the team, the more likely they were to use a cooperative style.

In addition to team identity, team cohesion is also important. Whether the style used to engage in conflict is cooperative or competitive, the members of the team most likely need to engage in some behavior geared towards resolving conflict if they have any hope of moving past it to create some level of team cohesion. According to Tekleab, Quigley, and Tesluk (2009), standing in the way of team cohesion is relationship conflict. However, the more willing a team is to engage in discussions and activities intended to manage a conflict, the less negative are the effects of relationship conflict on team cohesion. Tekleab et al. also found a positive relationship between team cohesion and perceived team performance and team member satisfaction. The theme that seems to arise from these studies is that willingness to engage in conflict in a cooperative manner can be highly beneficial in reducing the negative impact of conflict on team formation, identity and satisfaction.

Marks et al. (2001) provided a taxonomy of group processes that included ten processes nested within three overarching categories. The taxonomy pulled together a range of processes outlined in other research and placed them under the categories of transition, action, and

interpersonal processes. Conflict management and affect management are two processes within the interpersonal category that relate to research on task conflict and relationship conflict in general and specifically to the use of the micronegotiation technique.

The conflict management process connects to task conflict and relationship conflict. Marks et al. (2001) identified two types of conflict management. "Preemptive conflict management involves establishing conditions to prevent, control, or guide team conflict before it occurs. Reactive conflict management involves working through task and interpersonal disagreements among team members" (Marks et al., 2001, p. 363). Both preemptive and reactive conflict management applies to task conflict and relationship conflict. Task conflict and relationship conflict can be active or latent, thus requiring different approaches for each situation.

Affective management was defined as, "regulating member emotions during mission accomplishment, including (but not limited to) social cohesion, frustration, and excitement" (Marks et al., 2001, p. 363). This could certainly be relevant to task and relationship research, but may be more applicable to the use of micronegotiations as a tool to address the controlling of emotions. Lepine et al. (2008) found a strong positive relationship between teamwork processes and team performance and team-member satisfaction. The correlation between teamwork processes and team performance and team-member satisfaction may also be correlated to task conflict and relationship conflict, which are the two dependent variables in this research study. The degree to which the processes of proactive and reactive conflict management are used may serve as a direction for future research.

Medical Conflict

This study focuses on task conflict and relationship conflict within teams of students in health profession programs. Prevalent conflict styles of physicians and nurses have previously been discussed and are an important aspect of interactions among medical personnel. To pursue this line of research, however, it is important to consider some characteristics of the medical environment as well. Two elements that play a role in medical conflict are time constraints and power discrepancies, each of which can lead to increases in employee stress and decreases in employee satisfaction.

Within medical settings, much of the conflict research looks at how conflict arises, what tools are available to help prevent and resolve conflict, and the impact of interventions to assist in the development of skills to manage and prevent conflict. The importance of studying the causes of medical conflict rests in its impact on the ability of medical staff to communicate and collaborate effectively such that the quality of patient care is optimal (Kendall & Arnold, 2008). There is a thread that connects conflict to collaboration and patient outcomes. For this reason, conflict, such as the task conflict and relationship conflict investigated by Jehn (1994), continues to be an important centerpiece of the research. Leever, Hulst, Berendsen, Boendemaker, Roodenburg, and Pols (2010) looked at how physicians and nurses coped with conflict. Coping styles have a variety of influences such as the nature and context of the conflict and personal motives. With so much on the line and so many variables to consider, medical conflict research is still trying to understand the causes and types of conflict that arise in medical settings. The ability to cope with conflict is important because conflict can negatively affect collaboration (Amason, 1996; Jehn & Mannix, 2001; Pelled, Eisenhardt, & Xin, 1999).

Another possible concern related to collaboration is team formation. According to The American Heritage Dictionary, "ad hoc" means to form from what is available and form for a particular problem or need. In knowledge-intensive fields, ad hoc teams are one option for managing tasks (Mulder, Swaak, & Kessels, 2004). Emergency medical situations, for example, are prime instances where ad hoc teams are used to come together to manage a specific situation (Tschan, Semmer, Gautschi, Hunziker, Spychiger, & Marsch, 2006). This differs from a stable team where the members may already be familiar with one another and may have had the opportunity to complete some team building processes, which can be problematic. Ad hoc cardiopulmonary resuscitation (CPR) teams were found to have delayed the administration of the first defibrillation, which is positively related to adverse patient outcomes, compared to preformed teams (Hunziker, Tschan, Semmer, Zobrist, Spychiger, Breuer, Hunziker, & Marsh, 2009). Additionally, questions of leadership may compromise the collaboration and effectiveness of ad hoc teams. Coady (1999) found that nurses, who are often first responders to resuscitation emergencies, were hesitant to take the lead in initiating defibrillation procedures, choosing instead to call for help despite their knowledge and training on the procedure. Due to the fact that in many cases ad hoc teams are formed around developing emergency situations and the team composition is ever changing based on situational needs, collaboration can be compromised (Tschan, et al., 2006). These findings suggest team formation as another potential factor in conflict and collaboration to be considered.

Causes and Types of Medical Conflict

Even though progress has been made at understanding conflict in medical settings, time is still spent attempting to gain a clearer perspective of conflict. Jehn (1994) suggested that task-related conflict was beneficial for group processes; but, this claim has since been refuted,

replicated, and argued as to its merit. Skjørshammer and Hofoss (1999) studied the carryover of individual and work characteristics of physicians and how they related to conflict at work in medical settings. They found that physicians who reported conflict in their personal lives reported higher rates of conflict in their work lives. Jameson (2003) pointed to the presence of relationship conflict between anesthesiologists and nurse anesthetists. Cohn (2009) observed the conflict that arises between administrators and physicians regarding timeliness of decisions on the administrator's part, as well as conflict resulting from the decisions themselves. These investigations into types and causes of conflict in medical settings lead to the question of how conflict affects medical care and team processes.

Baldwin and Daugherty (2008) found a relationship between a wide range of variables and conflict in medical residents. Among these related variables was the number of hours of sleep a resident got during a week. The linear relationship appeared negative as the number of conflicts increased as hours of sleep each week decreased. Another example was the positive relationship between alcohol use and conflict. As alcohol use increased, so too did the number of conflicts reported. Other factors identified in their study as being related to increased reports of conflict were stress rating, weight change, and using medication to sleep. Baldwin and Daugherty suggested that it is premature and potentially inaccurate to suggest that increased alcohol use or decrease in hours slept led to conflict, since it is entirely possible that the relationship is reversed. Perhaps conflict leads to less sleep and increased alcohol consumption. Still, the value in the research rests in that it points to the many factors that can be associated with conflict in medical settings.

Skjørshammer (2001) pointed out that conflict can be present among groups or individuals; and conflict may be a result of in-group ethnocentrism (Deutsch, 1994; Sumner,

1906). In this phenomenon members of one group view themselves as superior based on their group membership. In the case of physicians and medical specialists this can lead to unwillingness to consider opinions from other groups due to a perceived diminished competence on the part of the other group. If surgeons, for example, perceive other medical disciplines, such as podiatry or dermatology, as less valuable than their own, it may be easy to disregard recommendations made by members of those groups.

Evidence of in-group ethnocentrism appears to be present in the comment by one anesthesiologist regarding nurse anesthetists. The anesthesiologist stated, "this is going to sound strange, but you could teach a chimpanzee how to give anesthesia as long as there was somebody supervising him" (Jameson, 2003, p. 571). The comment came as part of Jameson's study of conflict between anesthesiologists and nurse anesthetists, and it suggests a definite negative perception about the value that the nursing group brings to an operating room. In this setting, nurses administer the anesthesia and the anesthesiologists supervise them. Comments from both parties suggested a clear separation in the groups. One nurse noted, "I have chosen not to socialize with them so much. Some of the anesthesiologists want more socializing. When we have our Christmas parties and things like that it's all very friendly, but it's still separate" (Jameson, 2003, p. 572). This would seem to suggest an example of a relational conflict. Jehn (1994) defined relational conflict as, "characterized by friction, frustration, and personality clashes within a group" (p. 224). The notion that anesthesiologists and nurse anesthetists may have disputes within their profession points to a larger tenuous interaction at the group level, but comparing a colleague's contribution as equal to that of a chimpanzee seems extreme and relational in nature.

Relational conflicts can be exacerbated by some aspects of the medical environment which are conducive to high stress and time constraints. Marco and Smith (2002) pointed out that "The ED [emergency department] environment is replete with obstacles to effective communication that lead to misunderstanding and conflict" (p. 348). This can be said of a wide array of medical settings including medical training. According to Baldwin and Daugherty (2008):

> The finding that many other variables were significantly associated with both serious interprofessional conflict and significant medical errors clearly identifies a large number of residents who in the course of their training report feeling generally stressed, abused, dissatisfied, overworked, sleep deprived, and inadequately supervised. Such findings are suggestive of a work environment that is not only highly demanding and stressful, but, at times, fragmented, disorganized, chaotic, and abusive. We suspect that both interprofessional conflict and medical errors are likely to occur more frequently under such conditions and, indeed, may be potentiated by a common set of undesirable working conditions. (p. 582)

Bullying may also be an issue that leads to relationship conflict and medical errors. Some medical participants in Baldwin and Daugherty's (2008) study responded in the affirmative that they had been humiliated, belittled, slapped, kicked, pushed, or hit at some point during the course of their residency. Miedema, Tatemichi, Hamilton, Lambert-Lanning, Lemire, Manca, and Ramsden (2011) investigated abuse and bullying among Canadian family practice physician colleagues and coworkers. While only a small percentage of respondents reported suffering abuse at the hands of a colleague or coworker in the previous month (9% from a colleague and 6% from a coworker), the toll of that abuse was concerning. Participants who

reported being bullied also reported symptoms of anxiety and depression, as well as loss of professional confidence following those experiences.

The general concerns raised by these studies point to some issues within medical settings that can be catalysts to conflict. To understand task conflict and relationship conflict in this context these issues must be considered. There are two other items related to the medical environment that are also important to note: time and power. Time constraints increase pressure on those working within them; and power, or lack of power, creates opportunities for relationship conflict in the completion of tasks and making of decisions.

Time is in high demand in medical settings such as hospitals, operating rooms, and intensive care units. Evidence for this can be found in the communication tools used in these environments. One of the purposes of the TEAMStepps approach is to efficiently communicate information between medical teams and individual members so decisions can be made quickly and accurately (Ferguson, 2008). The TEAMStepps process recognizes that time is limited and needs to be judiciously managed. Similarly Crew Resource Management is intended to address issues and crises effectively and in a timely manner (Hunt & Callaghan, 2008).

One way to measure time constraints in medicine is to ask those involved in medical care how much time is available and how much time they feel they need to perform their duties at a high quality level. Physicians in Germany, Great Britain, and the United States all stated that on average they needed approximately two more minutes per patient to provide what they considered the highest quality care (Konrad et al., 2010). Marco and Smith (2002) pointed to the heavy patient loads and need for multitasking as one of the reasons that emergency rooms are predisposed to the appearance of conflict. Likewise, time pressure due to a variety of factors including heavy patient loads was shown to contribute to physician stress (Linzer et al., 2002);

and work demands were shown to negatively affect job satisfaction and commitment among health maintenance organization (HMO) physicians (Freeborn, 2001).

Time constraints lead to physician burnout as well as physician nurse conflict and adverse patient outcomes. Konrad et al. (2010) found that physicians felt that they did not have enough time to provide their highest quality care. According to Espin and Lingard (2001), time is a dominant theme as a catalyst for tension between physicians and nurses. In research using multiple regression models of analysis, time pressure has been shown to serve as a statistically significant predictor of job stress among physicians (Linzer et al., 2002). Spickard, Gabbe, Christensen, and Torpy (2002) also found perceived work demands as one of the primary factors contributing to physician burnout. A possible product of physician stress and burnout is its impact on patient outcomes. There is some evidence to suggest the depersonalization aspect of burnout can be associated with longer post-discharge recovery time (Halbesleben & Rathert, 2008). Thus the effects of nurse and physician stress and dissatisfaction extends beyond their own issues and can connect to patient outcomes.

Marco and Smith (2002) referred to fatigue as "ubiquitous" and explained the stress felt by emergency room staff who are expected to provide quality patient care "24 hours a day, seven days a week, including holidays" (p. 347). The standard of work duty set forth by the Accreditation Council for Graduate Medical Education limits first year resident hours to an average of 80 hours per week over a four week period (Lockley et al., 2004). However, it allows for residents to be scheduled for 24 consecutive hours (Nasca, Day, & Amis, 2010). The allowance of a 24 hour schedule comes despite research showing that reducing the amount of time on duty increased resident's weekly hours of sleep and decreased attentional failure

(Lockley et al., 2004). The high hours of duty stated in the standards provides one example of the high expectation placed on medical personnel.

Baldwin and Daugherty (2008) asked participants the question, "do you believe that sleep deprivation or fatigue caused you to make a significant medical error at anytime during your current year of residency?" (p. 575). That the question was worthy of inclusion seems to suggest that fatigue is part of the job. Of medical residents in the Baldwin and Daugherty study, 45% admitted making medical mistakes; and of those, 41% stated fatigue was the cause of their most significant medical error. Fatigue appears to be an aspect of the medical environment that affects the professional relationships and patient outcomes.

In addition to the shear amount of hours on duty, another issue is the ambiguous nature of time among medical personnel. While time has a very concrete and finite definition when looking at hours, minutes, and seconds, the perception and expression of time is more relative. The words "soon" and "hurry" can mean very different things to different people for example. Expressing, using, and defining time can lead to medical conflict. According to Skjørshammer (2001):

> Nurses and physicians seem to have different perspectives on time and punctuality, accounting for why their perception of urgency may vary. To nurses, time seems to be spread out linearly, in a way that makes it possible to divide time and control the use of time. To physicians, time seems to come in terms of tasks. Their challenge is not to portion time, but to prioritize the most urgent tasks at hand. This different conception of work time creates conflicts and is the basis for perceptual differences of urgency. Due to the higher definitional power of most physicians, there is a tendency for a physician's time perception to dominate professional interactions. (p.16)

As Skjørshammer (2001) pointed out, in the context of a medical setting, the physicians have the power to define and express time. Nurses may experience conflict as a result of having time dictated to them by a physician holding more power. However, it is not only the nurses who can feel as though time is out of their control. Doctors can also face conflicting definitions of time and how it should be utilized in their interactions with hospital administration. Where physicians are trained to make quick diagnoses to begin treatment, hospital administrators may consider a "quick" decision to be one that takes only three months to make (Cohn, 2009). In both cases, where either the physician or nurse encountered conflicting definitions of time, power played a role in determining who ultimately got to create and control the timeframe for action. To some degree this power discrepancy led to conflict.

The role of power in conflict is a broad topic. Conflict can arise through situations of power inequity or ambiguity, and power can also serve as the basis for the selected mode for resolving the conflict, such as in the forcing conflict style (Skjørshammer, 2001). The general belief that doctors give orders and nurses carry them out is not always the case, as there are instances where the nurse has sources of power available to them as well. This power may be exerted in refusing to provide care to a patient in instances when the nurse feels at a higher risk of harm or is morally opposed to the prescribed treatment (Frederich & Strong, 2002). While this does not show an extraordinary source of professional leverage, it does indicate that nurses do have some degree of self determination. It also points to a potential area of dispute between nurses, doctors, and even the patient or the patient's family. Additionally, it can highlight a sense of interdependence on behalf of all the parties, as well as the power structure that is inherent in this setting (Skjørshammer, 2001). Power is also an essential element in the forcing style of conflict resolution. Forcing is based on the use of informal or formal power to attain

one's goal (Skjørshammer, 2001). In this way power can serve as a resolution tool; however, leveraging power in this manner may lead to additional conflicts.

Power can be exerted in a variety of ways, one of which is in the ability to make decisions regarding tasks and how they are completed. "Task conflict is that which is characterized by disagreement that pertains to different ideas about a task and how it might be completed" (Rogers & Lingard, 2006, p. 569). There are a near infinite amount of tasks to be completed on a daily basis within a hospital and a wide range of options for completing those tasks. The opportunity for task-related conflict is high and increases with the occurrence of working in teams (Lee, et al., 2008). Team members may also have opinions as to the acceptable way for the team to interact. "Physicians view themselves as members of an expert culture, so they think of teams in terms of individual contributions, much like members of a golf team compete in their own matches" (Cohn, 2009, p. 6). This perception of individualistic contribution coupled with potential presence of ingroup ethnocentrism (Deutsch, 1994) can hinder effective team interactions regarding medical decisions. The task-oriented nature of the work done in medical settings, as well as the importance of the accuracy in completing these tasks, creates an environment ripe for disputes between the individuals involved in the process.

Conflict can also arise between patients and their families who may have views contrary to the goals of doctors and nurses. These differing views may lead to conflict due to misunderstandings, disagreements in treatment options, or patients' feeling they are not fully included in the process (Kendall & Arnold, 2008). As Curlin, Roach, Gorawara-Bhat, Lantos, and Chin (2005) pointed out, even patient religion is a source of conflict as it can lead to vastly divergent beliefs on the treatments and treatment administration. Creating shared goals, which is

a way of sharing power, is one recommendation offered by Kendall and Arnold (2008) for addressing potential patient conflicts.

Conflict Training and Education

The other question this study will address is how task conflict and relationship conflict are affected by training team members on a conflict management technique. Training is one way to address the problem of conflict for individuals, teams, and organizations. According to Patterson (2010), organizations that provide conflict training, "equip their leaders with essential tools for success by teaching them: (1) how to build relationships; (2) how to develop and maintain rapport with others in spite of disagreement; (3) how to cultivate trust and foster a sense and spirit of community; and (4) how to maximize diversities and also capitalize on mutual interests and objectives among colleagues and between the organization and its employees" (p. 545). Tools vary, but the notion of equipping personnel with some type of method for managing conflict seems to be the key in many trainings.

Some research suggests there are benefits related to satisfaction, attitudes, and behavior that come from conflict training. Brockman, Nunez, and Basu (2010) found that graduate students who participated in conflict education workshops over a three year period exhibited behavioral changes in the way they attended to conflict with their faculty advisors. Pre-workshop surveys suggested that avoidance and accommodating were the conflict styles of choice for the students, but post-workshop surveys indicated higher collaborative scores. Likewise, conflict resolution training was shown to lead to increases in marital satisfaction within Iranian couples (Askari, Abbas, Noah, Hassan, and Babba, 2012).

One difficulty or problem associated with training is that skills taught in training may not be transferred by the learner into actual workplace situations for which the skills are intended. Among the factors that increase the opportunity for transfer of training are support of managers, goal-setting, peer support, pre-training motivation, and involvement of participants from the very beginning of the training development process (Jaidev & Chirayath, 2012).

Beyond the simple concern for transfer of knowledge is the appropriateness of the training that is offered and its sufficiency in creating the desired outcome. Considering systems theory, Swanson (1994) argued that human resource development programs that are internally focused, but ignore a total organization perspective and systems approach, are a waste of company resources. Thus, training needs to be appropriate to the context of the organization, and steps need to be taken to insure the skills can be successfully transferred into practice.

There has been research conducted on conflict-related training aimed at helping medical personnel understand and manage conflict as well. However, research has not included task conflict and relationship conflict as part of the variables to be studied. In some cases the studies focused on administrators rather than medical teams specifically. Despite the following studies not addressing all the specific variables of this study, they are still important to review as they provide insight into some of the effects that have been measured related to conflict management interventions in medical settings. Additionally, team management tools related to medical teams exist and must be considered as well.

Saulo and Wagener (2000) studied the effect of mediation training for healthcare personnel. Participants for this study were healthcare professionals from health-related fields such as a community hospital and health maintenance organization. The subjects participated in 25 hours of mediation training over a two-week period. The researchers created an instrument to

measure comfort level with conflict (Cronbach's alpha of .82). They also used a pre/post self-reporting method for participants to indicate the mediation skills they used prior to and after completing the training. Observations and interviews were also used. Saulo and Wagener found increases in comfort levels with conflict among the participants who also indicated they were using specific mediation skills such as active listening and reframing.

Haraway and Haraway (2005) studied the effect of conflict resolution training on supervisors and managers in a northwest Florida hospital. Their interest was focused on how teaching conflict management would impact employee stress and used a pre- and post-test design for the study. The expectation was that if given tools to manage conflict, which is a cause of stress and strain, the supervisors and managers would report reduced scores on the Revised Occupational Stress Inventory, which they completed as the pre- and post-test measurement instrument.

Based on comments from the participants, and statistical analysis of the responses to the pre and post-test, the findings of the study appeared positive for helping employees cope with conflict. One participant reported feeling, "more adept at handling conflict between members" (Haraway & Haraway, 2005, p. 15). Additionally, the pre and post-test responses showed statistically significant reduced scores for role overload and role boundaries as well as psychological and interpersonal strain.

Zweibel, Goldstein, Manwaring, and Marks (2008) also studied medical conflict resolution techniques and how much of the content covered in conflict education workshops was actually retained by the participants. Their interests, however, rested not only in what participants retained at the knowledge level, but also what they were able to transfer to their workplace. The qualitative study included two day workshops given separately to residents and

faculty from a Canadian medical school, and used pre- and post-workshop surveys and interviews for data collection. Zweibel et al. found that participants identified changes in their own perceptions of conflict suggesting they had a "new spin on conflict" (p. 326). Participants also showed alterations in their problem-solving communication styles, stated by Zwebel et al. as "I learned it was better to listen than to be smart" (p. 326). Each of these themes suggested an individual change in how conflict is perceived, and either an intention to change behavior or actual behavioral change.

In a study by Brinkert (2011), nurse managers were taught conflict coaching skills. The nurse managers participated in 12 hours of training over four days, and follow up qualitative and quantitative measures were used to identify the outcomes of that training. The study found increases in conflict coaching competencies and conflict communication abilities for both nursing managers and their supervisees.

The studies by Zweibel et al. (2008), Haraway and Haraway (2005), Saulo and Wagener (2000), and Brinkert (2011) all provided some insight into the value of training, but also offered an incomplete picture. The first concern is the sample size of the studies. Haraway and Haraway had 23 participants in their study and Brinkert had 20 participants in his training on conflict coaching. Saulo and Wagener had 173 participants over the three years of their study; however, they encountered a similar concern to the others related to how the application or benefits of the trainings were measured. In each of the studies, job application and benefits conclusions were based on self reports in the form of questionnaires or interviews. Saulo and Wagener used a post-intervention questionnaire, Zweibel et al. (2008) used pre- and post-test surveys and interviews, Haraway and Haraway (2005) used several stress measurement instruments in a pre-test/post-test model, and Brinkert (2011) included post training interviews

and questionnaires for both the conflict coach training participants, their supervisors, and their internal clients. Of these four, only Brinkert employed some sort of outside evaluation to assess behavioral change or benefit. He did so by having those receiving the coaching complete a questionnaire on the skills of the participants who completed the conflict coach training. Beyond Brinkert's study, occurrence of behavioral change was self reported by the participants themselves, running the risk of either inflated views of their behavioral changes or response bias, where the participant responds in the manner they think will please the experimenter.

One gap in the research is the use of an unbiased quantitative measure to determine the impact of the training. This is not to diminish what can be learned from the research or the value of using qualitative self-reported data as a measure of training effectiveness. However, the present research seeks to utilize a methodology to control for variables and isolate the impact of the training. Additionally, even though it is possible to question some of the findings of the studies mentioned above, they do highlight examples of studies investigating conflict training in medical settings.

Not all researchers concluded that training on conflict management leads to changes in the training participants. Boone, King, Gresham, Wahl, and Suh (2008) studied the effects of training with nurses in a cardiovascular laboratory (n=9) and telemetry unit (n=18). The nurses in the cardiovascular laboratory served as the experimental group and the nurses from the telemetry unit were the control group. The two-hour training was aimed at changing the participants' ways of thinking rather than changing their behavior and based on the belief that conflict arose through misunderstandings and defensiveness. Participants completed the Collaborative Behavior Scale (Stichtler, 1989) before the training and one and three months after the training. Boone et al. (2008) concluded that, based on responses from the participants, the

intervention was not successful in "improving the nurses' perceptions of conflict management (collaboration) with physicians" (p. 172). In fact, in some instances the nurses' scores actually decreased after the intervention. Boone et al. offered several possible explanations for these findings, including the small sample size and limitations of the instrument measuring perceptions.

As training on conflict and conflict management for medical professionals continues to grow, trainers and researchers are looking at specific medical contexts rather than "one size fits all" education (Kaufman, 2011). Medical educators realize that even within an environment like a hospital, where conflict may appear to be somewhat homogeneous, there are specific conflict management skills needed for specific departments, units and teams. Thus education for managing conflict must meet those specific needs (Rogers, Lingard, Boehler, Espin, Klingensmith, Mellinger, & Schindler, 2011).

Training on managing conflict for medical professionals may be moving towards formal education on conflict management. In 2010, The Joint Commission, a national healthcare organization accrediting body, suggested changes to their Medical Staff Bylaws to include developing a plan for managing conflict to be instituted by 2012 (Welch & Gregory, 2010). Formalizing the need to have a conflict management plan would seem to necessitate some type of education program for staff. In addressing this requirement by the Joint Commission, Scott and Gerardi (2011) suggested the need for a strategic approach to managing conflict that includes "a collaborative mindset and individual conflict competency" (p. 59). Competence relates to possessing a required skill or level of knowledge, which suggests the need to measure whether or not the skill or knowledge has been acquired. Thus education of the skill and assessment of acquisition would appear to accompany Scott and Girardi's suggestion.

Some researchers have expressed interest in how to provide conflict education including using modeling and self-directed learning (Eason & Brown, 1999). Conflict management is considered a soft skill, which may not be something traditionally taught in medical curriculum. However, bedside manner, another skill that falls into the "soft" category, is beginning to be accepted into medical school education with significant funding being provided to teach the skill to future physicians (Johnson, 2011). It is plausible that similar expectations related to medical professionals managing conflict may precipitate adding this concept to medical school curriculum. However, post-hoc training will still most likely be an important method for preparing medical personnel to manage conflict, so identifying effective tools for doing so is important.

In addition to conflict training, research is also looking at developing methods for managing these conflicts. One notable tool of interest, and the intervention used in this research, is the micronegotiation technique. Micronegotiation offers several steps that a surgeon can use to manage conflict in the operating room and maintain a collaborative environment, without the surgeon giving up the leadership or decision making role (Rogers & Lingard, 2006). Rogers and Lingard gave attention to Fisher, Ury, and Patton's (1991) concept of principled negotiations, which seeks to find equitable "win win" outcomes for negotiators, but in a manner that maintains the authority of the surgeon. A foundational purpose of the technique is to help operating room team members to feel heard and hopefully maintain their satisfaction with the process, which is related to collaboration.

Rogers and Lingard (2006) envisioned the micronegotiation technique being used to reduce conflict by allowing team members to have a voice in the process and directing the surgeon to the most appropriate conflict response. There is evidence suggesting that giving

individuals an opportunity to participate in a process leads to higher rates of satisfaction as well as increased productivity. In their 1986 meta-analysis of studies on participation, satisfaction, and productivity, Miller and Monge found that allowing employees to participate in decision making processes led to higher rates of satisfaction among those employees. This suggests that providing a vehicle for team members to have a voice in the process may lead to different satisfaction levels than if no vehicle were provided. More recent studies have identified similar findings related to management styles that allow for greater participation on the part of the employees (Kim, 2002). Lichtenstein, Alexander, McCarthy, & Wells (2004) found that status in cross functional medical teams was an indicator of levels of participation in team discussions. The higher the status of the individual the more they engaged in discussions. Lack of participation by lower status individuals appeared to lead to decreased job satisfaction and increased intentions to quit.

Another communication tool is TEAMStepps. According to Ferguson (2008), TEAMStepps is a communication tool designed in a collaborative effort between the Human Services Agency for Healthcare Research and Quality (AHRQ) and the Department of Defense (DoD) Health Care Team Coordination Program (HCTCP). One element of TEAMStepps is DESC, which is the four-step script for communicating concerns. DESC stands for describing the situation, expressing concerns about the situation, suggesting alternatives, and stating consequences. While these are not specifically geared towards the management of conflict, there are some overlapping characteristics between the steps of TEAMStepps, Principled Negotiations, and Rogers and Lingard's (2006) micronegotiation.

Finally, there is research on the application of Crew Resource Management (CRM) to crisis management in medical settings. CRM is a teamwork methodology used in the airline

industry. As Hunt and Callaghan (2008) pointed out, CRM is about averting crises rather than a plan for managing them when they occur, and was "a training solution to reduce aircraft accidents" (p. 690). However, the relevance of the principles of CRM extends to a wide range of situations where team collaboration and training can help avoid crises. Medical settings are such an environment, as evidenced by the numerous studies related to the application of CRM to medical teams (France, Stiles, Gaffney, Seddon, Grogan, Nixon, & Speroff, 2005; Haller et al., 2008; Lerner, Magrane, & Friedman, 2009; Mcgreevy, Otten, Poggi, Robinson, Castaneda, & Wade, 2006). Similar to TEAMStepps and micronegotiation, CRM recognizes the importance of each team member and their ability to identify potential concerns at any point in a process, as well as empowering each one to voice those concerns (Lerner et al., 2009).

Micronegotiations, TEAMStepps, and CRM are only a few techniques that are being applied to medical settings. These, and many tools not listed here, have overlapping premises on one or more elements related to controlling emotions and giving team members a voice. As Kim (2002) found, participative management styles such as this are positively correlated with team performance and satisfaction. Even though CRM and TEAMStepps are not specifically intended for conflict management purposes, there is value in their clarification in communication to reduce or prevent potential conflicts. Application and training on these tools serve as examples of similar types of training pursued by the present study in training medical teams on the use of the micronegotiation technique.

As mentioned previously, transfer of skills and knowledge from training to actual workplace practice is an important consideration for human resource development professionals and organizations (Jaidev & Chirayath, 2012). A possible option for assisting with the transfer of skills to the workplace may be checklists. The World Health Organization (2008) rolled out a

surgical checklist to help insure that certain essential steps were taken during a surgery to increase safe outcomes for the patients. The checklist included three phases, one of which may be appropriate for a reminder of skills such as CRM, TeamSTEPPS, and micronegotiations. Phase two, Time Out, may be an optimal time to clarify how the appearance of conflict within the team will be handled, as this phase is used to communicate the plan for the surgery. The checklist has been shown to be highly effective in reducing surgical complications and death (World Health Organization, 2009), which suggests the potential for acceptance in surgical teams. Thus, including a checkbox clarifying how the team will manage arising conflict would likely increase the chances that the team would engage in those conflict management activities.

Summary

The focus of this research is task and relationship conflict and their effect on team performance and member satisfaction. The meta-analyses of De Dreu and Weingart (2003) and de Wit, Greer, and Jehn (2012) found that both task conflict and relationship conflict are negatively associated with member satisfaction. De Dreu and Weingart (2003) also found that task conflict was negatively associated with team performance. However, de Wit et al. (2012) did find that in some specific circumstances, such as in top management teams, it is possible for task conflict to lead to higher team performance, leaving open room for debate and research as to better understand those circumstances.

In a medical setting, conflict can arise from a variety of factors such as time constraints, power inequities, and lack of respect. The presence of these types of conflict appears to lead to decreases in team performance in the form of medical errors. Medical errors are shown to have financial and social ramifications. These ramifications range from ecomonic costs such as the $17 billion to $19.5 billion, to extensive loss of life, and an estimated 10 million lost work days a

year (Institute of Medicine, 1999; Society of Actuaries, 2010). Conflict is negatively related to team satisfaction (De Dreu & Weingart, 2003; de Wit, et al., 2012), and this relationship leads to other costs. Hulin (1991) identified that as employee satisfaction decreased, their intentions to leave increased. Increasing nurse turnover can be expensive with $36,567 the estimated cost of replacing a nurse (The Lewin Group, 2009).

Training and interventions have shown to offer some promise in managing conflict. For example, training on conflict coaching was found to increase the conflict managing competencies of nurse supervisors (Brinkert, 2011), and conflict education has shown to enhance conflict coping skills (Haraway & Haraway, 2005). Likewise, team management tools may be able to decrease conflict and the negative effects associated with it. TEAMStepps and CRM each have components for creating clear and effective communication during crises. TEAMStepps includes the DESC script for communicating information (Ferguson, 2008), and CRM offers communication skills for averting crises (Hunt & Callaghan, 2008).

Through a review of the literature, a connection can be drawn between conflict and performance, as well as conflict education and alterations in conflict behavior or perceptions. Additionally, the use of tools for team management may suggest the possible effectiveness of other tools specifically designed for the management of conflict.

CHAPTER 3

METHODOLOGY

Task conflict and relationship conflict in teams of health profession students and the effects of introducing a conflict management intervention are two areas this research seeks to address. Of the 116 studies included in the meta-analysis of de Wit et al. (2012), only three appeared to take place with populations working in or studying a medical field. Most of the studies from that meta-analysis focused on work teams in manufacturing, corporate, or educational environments.

Among the three studies that had a connection to medical settings, not all looked at task conflict and relationship conflict as well as team performance and team member satisfaction. Parayitam and Dooley (2007) studied task conflict and relationship conflict among upper level hospital administrators and managers, which is similar to other studies from the de Wit et al. (2012) meta-analysis that focused on upper level teams. The focus of Parayitam and Dooley's study was not on medical staff interacting with patients, but upper level administrators' decision making processes. Desivilya and Yagil (2005) looked at the role of emotions in conflict management choices. The focus of their study was the role emotion plays in what conflict management style an individual selects. Stalmeijer, Gijselaers, Wolfhagen, Harendza, and Scherpbier (2007) investigated conflict within medical education teams. While this is related to medical settings, the focus was more on the process of curriculum development and the outcome, but did not relate to patient interactions or teams made up of medical personnel. These studies took place in medically-related settings but did not measure task conflict and relationship conflict within teams of health profession students or test an intervention to measure possible changes on team performance and team member satisfaction. While students in courses leading

to health professions are not the same as active medical personnel, the expectation is that these students will be introduced to the culture of health professions as part of their formal educational process.

Research Questions

This study was guided by the following research questions:

1. What is the nature and strength of the relationship between task conflict and team performance?

2. What is the nature and strength of the relationship between relationship conflict and team performance?

3. What is the nature and strength of the relationship between task conflict and team member satisfaction?

4. What is the nature and strength of the relationship between relationship conflict and team member satisfaction?

5. What effect does training on the micronegotiation technique have on task conflict in teams of health profession students?

6. What effect does training on the micronegotiation technique have on relationship conflict in teams of health profession students?

7. What effect does training on the micronegotiation technique have on team performance in teams of health profession students?

8. What effect does training on the micronegotiation technique have on team member satisfaction in teams of health profession students?

Permissions and Population

Prior to the beginning of the study a population was identified. In this case, the population that was targeted was students in courses that traditionally matriculate to medically related professions. In addition to selecting the population, tools for measuring the levels of conflict and satisfaction were chosen based on prior research, and permission for use of the tools was requested from the publishers of the instruments (Appendices H and I). With the population and tools identified and permission to use the tools granted, an application for review of the study was submitted to the Southern Illinois University Office of Sponsored Projects Administration. The study was reviewed, accepted, and permission given to proceed with the research.

Participants included students from a medium-size public university in the Midwest. The students were enrolled in radiology, physiology, and microbiology classes. A total of 148 students separated into 47 teams participated in the study. The researcher presented an outline of the study and addressed any questions the participants had before the students completed the Participant Consent Packet (Appendix A). Targeted convenience sampling was used to identify the population. Students from programs and classes that traditionally matriculate into medical related professions were chosen because among the studies included in the meta-analyses of de Wit, Greer, and Jehn (2012) and De Dreu and Weingart (2003), none included students from health profession related courses. Those that took place in settings associated with the medical field did not focus on medical staff but rather included upper level administrators and medical curriculum developers. The micronegotiation technique was also created for surgeons and operating room staff, suggesting that a population of students from health profession related classes would be a good place to begin research on this technique.

Among the participant sample, 21 of the participants were Medical/Dental Education Preparatory Program (MEDPREP) students, 19 from the microbiology class and two from the physiology class. The MEDPREP program serves as an opportunity for students interested in pursuing medical school to prove their potential success in that pursuit. Thus, students in the MEDPREP program intend to matriculate to medical school. Radiology students naturally move into health profession positions, thus there were 148 total participants with 95 (64.19%) intending to matriculate to health professions. However, as noted in chapters one and five, the differences between health profession students and medical personnel suggest that findings from this study cannot be generalized to groups outside of this study.

For participating in the study, participants were given the opportunity to win a monetary prize. Monetary gift cards were used for two purposes. They were used as a recruitment tool and as an attempt to heighten the emotional investment of the participants in the outcomes of their group tasks. Each member of the team with the most combined correct answers from the Lost at Sea: A Consensus-Seeking Task (Appendix B) and the NASA Moon Survival Task (Appendix C) received a $30 gift card. Each member of the team with the second most combined correct answers received a $20 gift card; and each member of the teams with the third and fourth most correct answers received a $10 gift card. 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. Ties were broken by a blind draw where slips of paper with the team number of each of the teams that tied were placed in a hat and one slip was drawn to determine a winner.

Procedure

The study took place in the first two weeks of the spring 2013 semester. Prior to Phase I, each participant completed a form to gather individual demographic information. This was done week one of the 2013 spring semester. 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. Thus, radiology students were in teams with other radiology students, physiology students were in teams with other physiology students, and microbiology students were teamed with other microbiology students. 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.

Phases I, II, and III were completed in week two of the spring 2013. In Phase I, all teams completed the Lost at Sea: A Consensus-Seeking Task. Because it has been suggested that time stress is a catalyst of conflict in medical settings (Marco & Smith, 2002), the teams were given 12 minutes to complete their task. Instructions for the exercises generally suggest giving participants between 15 to 20 minutes to complete the tasks. When all groups finished their group tasks, each individual member completed the Intragroup Conflict Scale (Pearson, Ensley, & Amason, 2002) that measured team conflict and a satisfaction scale (Priem, Harrison, & Muir, 1995) that measured participant satisfaction with the team process (Appendix D). The results of the initial completion of the task as well as the Intragroup Conflict Scale and satisfaction scale served as covariates in the statistical analysis of the findings from Phase III. This is similar 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 given background information and a short training on the steps of the micronegotiation technique and instructed to use this technique when leading the completion of the next group tasks (Appendix E). While the leaders of the intervention groups were being trained on the micronegotiation techniques, all other participants either watched a random, unrelated video or were given a short brainteaser exercise. Use of either the video or brainteaser exercise was based on whether or not the classroom had video capabilities.

In Phase III, the teams completed the NASA Survival Task. The teams remained intact 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 tasks. Once finished with the group tasks, the participants again completed the Intragroup Conflict Scale and the satisfaction scale. Finally, the participants completed the Group Task Procedures Questionnaire (Appendix F) to determine if the micronegotiation technique was used by the team leads trained on the technique.

Measures

Lost at Sea: A Consensus-Seeking Task

The Lost at Sea: A Consensus-Seeking Task (Nemiroff & Pasemore, 1975) asks participants to imagine being stranded in a lifeboat in the ocean. The scenario explains that 15 items have been salvaged from the boat and the participants are asked to rank them in order of importance based on their necessity for survival. The more important to survival the item is, the higher it is ranked. The task is often used in team and group process related research (Littlepage,

Robison, & Reddington, 1997; Reinig, 2003; Roch & Ayman, 2005), and each item has a correct ranking such that accuracy can be measured. The number of correctly ranked items will serve as the measure of team performance.

NASA Moon Survival Task

The NASA Moon Survival Task uses a scenario whereby participants are told they are stranded on the moon and need to rank the items they have at their disposal in order of importance for survival. The task was chosen as it is an inauthentic task often used in research on team processes (Innami, 1994; Kimura & Kottke, 2009; Miner, 1984). Additionally, it has a "correct" answer as each item has a correct ranking that the team is expected to identify. The number of correctly ranked items will serve as the measure of team performance.

Intragroup Conflict Scale

This Intragroup Conflict Scale was created by Jehn (1994) and is intended to measure the amount of task conflict and relationship conflict within the 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 was averaged for a group score. Regarding the internal reliability of the scale, Pearson, Ensley, and Amason (2002) found average Cronbach's alphas of .82 for task conflict and .86 for relationship conflict, using a six item version of the scale over six different samples. Jehn's Intragroup Conflict Scale is the instrument most often used for measurement of task conflict and relationship conflict, which is why it was used here. For this study, the

Cronbach's alphas for the instrument measuring relationship conflict and task conflict were .873 and .833 respectively.

Satisfaction measure

Satisfaction was measured using a two item scale. Originally introduced by Priem, Harrison, and Muir (1995), the scale includes two questions that read "working with this group has been an enjoyable experience" and "I would like to work with this group in the future." It uses a five-point Likert scale that anchors from "strongly agree" to "strongly disagree." This method was used by DeChurch and Marks (2001) as part of their study on the effects of task conflict in which they reported an item correlation of .94, which is why it was chosen for this study. In this study, the Cronbach's alpha for the satisfaction scale was .959.

Data Management

The study included 148 individual participants placed into 47 different teams that were randomly assigned to either an experimental group or a control group. Each team member completed an inventory at the completion of both tasks. The inventory included three questions that measured relationship conflict, three questions that measured task conflict, and two questions that measured satisfaction level. The individual responses for each team member were then compiled to create an aggregate team score on each question. Teams were made up of either three or four members, which could lead to inaccurate data analysis if not accounted for. To manage the different number of team members, the aggregate team scores for each question were divided by the number of members in the team to create an average team score. While this may adversely affect variance, it was necessary to insure that scores from teams with more than three members were not inflated, which could lead to the appearance of differences that in actuality do not exist.

One other step to be completed was managing missing data. Missing data appeared in the form of a participant forgetting or failing to respond to a question on the inventory or scale. There were five such occurrences in which a participant did not respond to a question on one of the inventories. According to Ritzmann and Weinrich (2007), in situations where missing data rates are less than 1% of the overall data, no attempt need be made for managing that missing data. In this study, the missing data accounted for .003% of the overall data. As such, it would have been acceptable to make no attempt to adjust for this missing data. However, because the team aggregate scores were averaged based on the number of responses for each question by each team, in instances where a missing data point appeared, the divisor was simply changed to average the number of scores that were provided.

Statistical analysis

There were two parts to the statistical analysis for this study. The first analysis addressed research questions one through four and calculated the correlation coefficients between task conflict and team performance and team member satisfaction and the correlation coefficients between relationship conflict and team performance and team member satisfaction.

Research questions five through eight used a between groups design and was intended to be analyzed using MANCOVA with the dependent variables of task conflict, relationship conflict, team performance, and team member satisfaction that were measured in the completion of Phase I serving as the covariates. However, because the differences in the intended covariates were insignificant, a MANOVA was used instead.

Post hoc analyses included correlations and MANOVA analyses with changes in the fixed factors.

CHAPTER 4

RESULTS

This study was guided by eight research questions. The questions sought to identify relationships among the variables and to then measure changes in those variables after the intervention. Research questions one through four addressed the nature and strength of the relationships of task conflict and relationship conflict to team performance and team satisfaction. Research questions five through eight were used to determine what, if any, differences in task conflict, relationship conflict, team performance, and team member satisfaction were present between the control and experimental groups after the intervention when compared to the initial baseline measurements of these same variables.

One hundred and forty-eight students participated in the present study. Of the participants, 102 (68.9%) were female and 46 (31.1%) were male. Participants came from courses in radiology before they attend clinic (n=36, 24.3%), radiology after they attend clinic (n=38, 25.7%), physiology (n=34, 23%), and microbiology (n=40, 27%).

Within the study five different grade levels were represented. Student participants represented the grade levels of freshman (n=15, 10.1%), sophomore (n=21, 14.2%), junior (n=72, 48.6%), senior (n=19, 12.8%), and medprep (n=21, 14.2%). Additionally, students identified their ages according to ranges provided in the demographic questionnaire and the distribution is presented in Table 1.

Table 1

Age Frequencies

Age	18-21	22-25	26-29	30-33	34-37	38-41	42+	Total	Missing	Totals
Frequency	85	43	11	5	1	1	1	147	1	148
Percent	57.4	29.1	7.4	3.4	.7	.7	.7	99.3	.7	100

Table 2 provides the descriptive statistics for responses to the Intragroup Conflict inventory and the satisfaction scale, as well as team performance in the tasks from Phase I and Phase III. There were minimal differences between the mean scores for relationship conflict (1.17 in Phase I and 1.18 in Phase III), task conflict (2.04 in Phase I and 1.997 in Phase III), and satisfaction (4.39 in Phase I and 4.35 in Phase III).

Team performance scores represent the team's answers to the two decision tasks. Each task included 15 items to be ranked in order of importance to survival. Performance scores were calculated by comparing the team's rankings of the items to the correct ranking of the items and then summing the absolute deviations from the correct rankings (Waugh, 1996). Using this system, if a team ranks three items 2, 1, 3 and the correct ranking is 1, 2, 3, then the team's score would be 2. This is derived by the following, $(2-1) + (1-2) + (3-3) = 2$. Thus, the lower the score, the better the team performed, as it had rankings closer to the task authors' correct rankings. There was a sizeable difference in team task performance as the mean performance for Phase I was 63.02 and the mean performance for Phase III was 40.30 (Table 2).

Table 2

Descriptive Statistics for Dependent Variables in Phase I and Phase III

	N	Mean	Median	Mode	Std. Deviation
Phase I					
Team Performance	47	63.02	66	68	13.12
Relationship Conflict	47	1.17	1.11	1	.262
Task Conflict	47	2.04	2	2	.379
Team Satisfaction	47	4.39	4.5	4.67	.502
Phase III					
Team Performance	47	40.30	38	32	8.6
Relationship Conflict	47	1.18	1.11	1	.250
Task Conflict	47	1.997	2.08	2.22	.429
Team Satisfaction	47	4.35	4.5	4.67	.521

To measure the nature and strength of the relationship between task conflict and team performance the Spearman's rho was used. Spearman's rho (r_s) is similar to the Pearson correlation but is for use with non-parametric data. The data for this study was such that the normality of the distribution was in question based on the skewness and kurtosis of the distributions. Thus, the non-parametric measure was used.

Research Questions

Research Question #1

What is the nature and strength of the relationship between task conflict and team performance?

The present study found no statistically significant correlation between task conflict and team performance in Phase I (r_s = -.235, p = .112). The findings are presented in Table 3. When the groups were split and analyzed between the experimental and control groups prior to intervention the findings were the same with no statistically significant correlations between the level of task conflict and team performance.

Research Question #2

What is the nature and strength of the relationship between relationship conflict and team performance?

In the present study, no statistically significant relationship between relationship conflict and team performance existed in Phase I (r_s = -.078, p = .603). The findings are presented in Table 3. Similar to Research Question #1, when the groups were split and analyzed between the experimental and control groups prior to the intervention the data still showed no statistically significant correlations between the level of relationship conflict and team performance.

Research Question #3

What is the nature and strength of the relationship between task conflict and team member satisfaction?

Data from the present study found a negative, statistically significant correlation (r_s = -.405, p = .005) between task conflict and team member satisfaction (Table 3).

Research Question #4

What is the nature and strength of the relationship between relationship conflict and team member satisfaction?

The findings that are presented in Table 3 show a negative, statistically significant correlation ($r_s = -.379$, $p = .009$) existed between relationship conflict and team member satisfaction in the present study.

Table 3

Correlations Between Levels of Conflict, Team Performance and Team Satisfaction

	1	2	3	4
1. Satisfaction	-			
2. Task Conflict	-.405**	-		
3. Relationship Conflict	-.379**	.523**	-	
4. Task Performance	.135	-.235	-.078	-

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

To determine the degree to which the team leads trained on the micronegotiation technique were using the various steps in their team interactions a Group Task Procedure Questionnaire was created. The questionnaire was administered to teams in both the control and experimental groups and asked for the number of times certain actions such as reflective listening, suggesting solutions, and allowing team members to offer solutions were used, and what type of approach (problem solving, forcing, avoiding, accommodating, or compromising) the leader used to manage differences.

Interrater agreement was measured by averaging the number of matching responses to the various questions on the questionnaire. The results of the analysis found that 40% of group members agreed on the number of times the leader paraphrased a concern, 34% agreed on the

number of times the leader suggested a solution, 38% agreed on the number of times the leader suggested there were other possible solutions, 97% agreed that the team members were given a voice in decisions, and 68% agreed on the type of approach the leader used to handle differences of opinion within the group. These findings suggest a low degree of agreement among the team members, except for being given a voice in the decision and a moderate rate of agreement regarding the leader's approach to handling differences of opinion.

Questions five through eight addressed any differences that existed between groups that were trained on the micronegotiation technique. The four dependent variables that were investigated in relation to the micronegotiation training were level of task conflict, relationship conflict, team satisfaction, and team performance. The initial plan was to use MANCOVA to control for any pre-existing differences in the control and experimental groups; however, initial analysis of descriptive statistics showed no significant differences in the means of the groups. Due to this fact, controlling for pre-existing differences was not necessary, so a MANOVA was used instead.

Research Question #5

What effect does training on the micronegotiation technique have on task conflict in teams of health profession students?

The results of the MANOVA (Table 4) found no statistically significant differences between the control and experimental groups in their levels of task conflict after the experimental group was trained on the micronegotiation technique ($F(1,46) = .377; p = .542$).

Research Question #6

What effect does training on the micronegotiation technique have on relationship conflict in teams of health profession students?

Experimental groups trained on the micronegotiation technique reported levels of relationship conflict that were not statistically significantly different than those from the control group who were not trained on the technique (F(1,46) = .809; p = .373). The finding of the MANOVA is presented in Table 4.

Research Question #7

What effect does training on the micronegotiation technique have on team performance in teams of health profession students?

The results of the MANOVA (Table 4) found no statistically significant differences between the control and experimental groups in their team performance after the experimental group was trained on the micronegotiation technique (F(1,46) = .088; p = .768).

Research Question #8

What effect does training on the micronegotiation technique have on team member satisfaction in teams of health profession students?

Experimental groups trained on the micronegotiation technique reported levels of team member satisfaction that were not statistically significantly different than those from the control group who were not trained on the technique (F(1,46) = .036; p = .851). The finding of the MANOVA is presented in Table 4.

Table 4

Tests of Between-Subjects Effects

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

Post Hoc Analyses

After answering the research questions, post hoc analyses were performed to determine if other factors may have influenced team performance, team member satisfaction, task conflict, and relationship conflict. The post hoc analyses were completed to include participant demographic data, data on group composition, responses to a post-task questionnaire completed by all participants at the end of Phase III, and initial data from the Intragroup Conflict inventory and satisfaction scale.

Though no statistically significant differences were found between the control groups and the experimental groups in their levels of relationship conflict, task conflict, team performance, or team satisfaction, follow up analyses that considered other factors such as the correlation between task conflict and relationship conflict, the class from which the students were drawn, and the gender of the team leader did find significant relationships.

Correlation Between Task Conflict and Relationship Conflict

For research questions one through four, correlations using Spearman's rho were run to investigate relationships among task conflict, relationship conflict, team performance, and team satisfaction. These findings have been discussed; however, one correlation present in Table 2 but not part of the research questions was between relationship conflict and task conflict among the teams in Phase I. There was a positive and statistically significant correlation (r_{s} = .523, p = <.05) between team scores on task conflict and relationship conflict. Likewise, when task conflict and relationship conflict scores were compared for Phase III, there was also a positive, statistically significant correlation (r_{s} = .578, p = <.05) between the two.

Class Differences

The data showed a statistically significant difference in levels of task conflict ($F_{(3,39)}$ = 6.89; p < .05; partial ε^2 = .346) and relationship conflict ($F_{(3,39)}$ = 3.09; p < .005; partial ε^2 = .192) within teams from the radiology, microbiology and physiology classes (Table 5). In addition, correlation using Spearman's rho found a positive, statistically significant correlation between class and task conflict (r_{s} = .358, p = <.05) and also class and relationship conflict (r_{s} = .376, p = <.05). Finally, in a stepwise regression model, class was the only significant predictor of levels of task conflict within a team, with an R^2 of .139. Class was not a significant predictor of relationship conflict (p = .054).

Table 5

Tests of Between-Subjects Effects for Participant Class

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
	Team Performance	64.545	3	21.515	.278	.841
Class	Relationship Conflict	.227	3	.076	3.086	.038
	Task Conflict	1.998	3	.666	6.892	.001

Leader Gender

When the responses on the Intragroup Conflict inventory, satisfaction scale, and team tasks from Phase I and Phase III were combined, there were several correlations that were found. Two of these correlations were between the gender of the team leader and relationship conflict and team satisfaction, which are provided in Table 6. Relationship conflict was found to have a negative, statistically significant relationship to leader gender (-.357). Additionally, team satisfaction was found to be positively correlated to the gender of the team leader (.305) at a .05 alpha level. However, comparing the means of the teams with female and male leaders on relationship conflict levels for both Phase I and Phase III, the differences were not statistically significant $F(1,45) = 3.866$, p=.055. Likewise, the mean satisfaction scores for Phase I and Phase III were not different at a statistically significant level $F(1,45) = 3.056$, p=.087.

Table 6

Leader Gender Correlation in Combined Responses from Phase I and Phase III

	Relationship Conflict	Task Conflict	Satisfaction
Leader Gender	-.357*	-.224	.305*

*. Correlation is significant at the 0.05 level (2-tailed).

Questions one through four served to direct preliminary analysis regarding the presence of task conflict and relationship conflict, and their relationship to team performance and team satisfaction. These were necessary as they lead to research questions five through eight regarding the effect of the intervention on each of these four variables. While the preliminary analysis found statistically significant correlations between task conflict and relationship conflict and team satisfaction, there were no significant correlations between these variables and team performance.

The primary analysis investigated the effect micronegotiation training had on the dependent variables of team performance, team satisfaction, relationship conflict, and task conflict. The analysis found no significant differences between the control (no micronegotiation training) and experimental (micronegotiation training) teams on any of the four dependent variables.

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is separated into three sections. In the first section the findings of the study will be discussed along with implications related to those findings. The second section will suggest conclusions that can be drawn from this study and the third section will offer considerations for future research on the topic of task and relationship conflict and the micronegotiation technique.

Discussion of Findings

One major aspect of the ongoing discussion regarding task conflict and relationship conflict is their effect on team performance. The initial perspective was that task conflict was positively correlated with team performance, meaning that as groups experienced increased levels of task conflict their performance increased as well (Jehn, 1994). De Dreu and Weingart (2003) questioned this conclusion with their meta-analysis of the existing research on task conflict and relationship conflict, which led to further research by De Wit, Greer, and Jehn (2012), and more specific findings on the influence of task conflict and relationship conflict on team performance.

Research question one responded to the relationship between task conflict and team performance. Initial analysis included only task conflict and team performance in Phase I, where no significant correlations were identified. To expand the investigation, task conflict and team performance scores were combined across Phase I (before intervention) and Phase III (after intervention), and correlation analyses were run again. Consistent with the initial findings, however, no significant correlation was found between task conflict and team performance. Given the debate over the effects of task conflict on team performance, it may not be surprising

that no conclusive evidence arose from this study. Since prior research has found instances where task conflict has led both to higher and lower levels of team performance, meaning that the relationship between task conflict and team performance appears sensitive to the circumstances in which it occurs.

In the meta-analysis by de Wit et al. (2012), instances where task conflict was positively correlated with team performance were identified. Among them was when the correlation between task conflict and relationship conflict was low. In the present study the correlation between task conflict and relationship conflict was positive, statistically significant at the .01 level, and moderately high (.602). This means that as task conflict increased so too did relationship conflict. If prior research is accurate, this positive correlation may negate any of the potential benefits that task conflict alone may have provided team performance. Since the study found no correlations between task conflict and team performance or relationship conflict and team performance no conclusions can be drawn that suggest the task/relationship conflict correlation negated the potential benefits of task conflict on team performance. Any suggestions to this fact would be purely speculative. Additionally, the high correlation between task conflict and relationship conflict along with their similar correlations with other variables in the study may suggest that task conflict and relationship conflict are the same. It is possible that in this study no significant distinction exists between task conflict and relationship conflict from the perspective of the participants. Perhaps more accurately, the low levels of conflict may make any distinction between the two undetectable.

Research question two directed the investigation of the correlation between relationship conflict and team performance. Correlation analysis of scores in Phase I found no significant correlations between relationship conflict and team performance. To further investigate this

relationship, the scores from Phase I and Phase III were combined; but still no statistically significant correlation was found.

The meta-analyses of De Dreu and Weingart and de Wit, Greer, and Jehn (2012) found a negative correlation between relationship conflict and team performance. In these instances, as relationship conflict increased in a team the performance of the team worsened or decreased. It would be expected then that the same would hold true in this study; however, such a conclusion cannot be drawn as the correlations were not statistically significant meaning any differences present may well be the result of chance as opposed to real differences. In this way, the study neither supports nor refutes the findings of previous research.

The correlation of task conflict and team satisfaction was addressed in research question three. A negative, statistically significant correlation of -.405 was found and when the results of both Phase I and Phase III were combined the correlation was still statistically significant and negative (-.343). The findings indicate that as teams encountered higher levels of conflict related to completing their tasks, the members reported experiencing decreased levels of satisfaction with their teams as well as reduced desire to work with their team in the future.

The results support previous research that correlated task conflict with team satisfaction. Beginning with the initial research by Jehn (1994), following through the meta-analysis of De Dreu and Weingart (2003), and continuing to the most recent study by de Wit, et al. (2012), task conflict has consistently been shown to have a negative correlation to team satisfaction.

In previous research on relationship conflict and satisfaction there has been a consistent, negative correlation between the two variables (De Dreu & Weingart, 2003; de Wit et al., 2012). Research question four addressed these correlations as well and found results similar to those from earlier studies. The analysis found a negative, statistically significant correlation of -.379

between relationship conflict and team satisfaction. As with research questions one through three, to further investigate these correlations the scores from Phase I and Phase III were combined. Combined scores also indicated a statistically significant, negative correlation (-.302). Thus, the present study supports earlier findings that suggest increases in relationship conflict lead to decreases in team satisfaction.

Given that task conflict and relationship conflict consistently show negative correlations with team satisfaction in this and previous research, the concern then turns to the potential turnover that accompanies employee dissatisfaction. Medical teams face similar concerns and in fact may be even more susceptible to turnover due to the shortage of nurses compared to the demand (Caron, 2004). This suggests that nurses have ample access to job opportunities outside of the institution where they are presently employed, which may lead to a less durable relationship with that institution and greater willingness to leave. Thus, it is possible that the difficulties of employee turnover due to dissatisfaction may be exacerbated in medical settings where such skills are in high demand.

The linear relationship between task conflict, relationship conflict, dissatisfaction, employee intention to leave, and adverse patient outcomes may be such that reductions in task conflict and relationship conflict may reduce the appearance of dissatisfaction, employee intention to leave, and adverse patient outcomes (Gelinas & Bohlen, 2002). Of course caution is necessary in making the leap to suggesting that reducing task conflict and relationship conflict will lead to these other reductions. Conflict is not the only variable that contributes to employee dissatisfaction and dissatisfaction isn't the only contributing variable to employee turnover (Pape, 1999). Perhaps most importantly, these factors are certainly not the only factors related to patient outcomes, so while reducing task conflict and relationship conflict in medical team

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processes may be beneficial, a systems perspective suggests that changes to the system as a whole would be necessary to truly address these concerns. All that said, the support that this study provides for previous research linking task conflict and relationship conflict does suggest that these are factors that should be considered as part of managing medical teams.

As a response to interventions that may be able to reduce the presence and/or impact of conflict within teams, research questions five through eight were used to direct the investigation of whether or not training team leaders on a technique to manage team disputes would lead to differences in the four dependent variables. This study introduced a short training on a conflict resolution technique, micronegotiation, to teams completing timed tasks to determine its effect on team performance, team satisfaction, and levels of task conflict and relationship conflict. As previously reported in Chapter 4, no statistically significant differences in levels of task conflict, relationship conflict, and team satisfaction were found between teams whose leaders were trained on micronegotiations and those with leaders not trained on micronegotiations. There were also no statistically significant differences on team performance.

These findings are contrary to previous research on conflict training interventions, which suggested that such interventions lead to positive outcomes. Haraway and Haraway (2005) found statistically significant differences between participants' levels of interpersonal strain based on their ability to manage conflict after a conflict management training intervention. Likewise, Zweibel, Goldstein, Manwaring, and Marks (2008) provided conflict resolution workshops to medical residents and medical academic faculty and found participants reported a more positive outlook both on conflict in general and their ability to manage it. Along these same lines, Saulo and Wagener (2000) found that medical personnel who participated in mediation training reported higher comfort levels with conflict, use of mediation techniques such

as reflective listening, and transfer of these skills to interactions with their patients and peers. Thus, the implications of the findings from the present study point to a need for additional research, which is addressed in section two of this chapter. One major difference between this study and those mentioned above is that this study measured the impact of the training on performance, whereas the research mentioned above focused on self-reported attitudinal and behavioral change.

While no differences were evident between the control and experimental groups from Phase I to Phase III, differences were found between members of different classes. MANOVA analysis found statistically significant differences between the levels of task conflict and relationship conflict among teams based on the class from which they were drawn, with teams from the physiology class recording higher means scores on both task conflict (2.313) and relationship conflict (1.323) than any of the other teams. One explanation for this may be the manner in which the study was administered to the physiology class that differed from how it was administered to the other classes. In fact, the differences were such that the most important implication may be the point for future research, which will be discussed in section three of this chapter.

The present study found a correlation between task conflict and relationship conflict in Phase I (.523) and also in Phase III (.578). These findings are consistent with the findings of De Dreu and Weingart (2003) and de Wit et al. (2012), as they reported average correlations between these variables at .52 and .58 respectively. Both studies concluded that when the correlation between task conflict and relationship conflict was small, the negative correlation between task conflict and team performance was reduced as well. The present study would seem to support the previous findings regarding average correlations; however, since no significant

correlations were found regarding task conflict and team performance it does not advance understanding of how the correlation between task conflict and relationship conflict moderate team performance.

The other correlations of interest were between relationship conflict and gender of the team leader and team satisfaction and gender of the team leader. The correlations suggest that teams with female leaders experienced lower rates of relationship conflict and higher rates of satisfaction than teams led by males. Korabik, Baril, and Watson's (1993) study on conflict style and leadership effectiveness found that subordinate satisfaction was higher for female leaders who were perceived as using obliging, compromising, or integrating conflict management styles. Subordinate levels of solution satisfaction had lower correlations for male leaders who utilized these same conflict management styles, which may account for the higher, significant correlations for female leaders.

While marital satisfaction cannot be equated comprehensively to team satisfaction, there is research showing a relationship between the conflict management styles used by wives and overall marital satisfaction for the spouses. Greeff and de Bruyne (2000) found that both male and female spouses reported higher levels of marital satisfaction when the wife employed collaborative and compromising conflict styles than with any other conflict management style. Again, while marital satisfaction is different than team satisfaction, there does appear to be support for higher rates of satisfaction in interpersonal interaction when collaboration and compromise are used.

In the present study, question five of the Post Task Procedure Questionnaire asked team members to identify the management style used by the team leader to handle disagreements within the team. Teams with female leaders most frequently identified compromise (39 times) as

the leader's management style followed by problem solving (35 times) and accommodating (6 times). Avoidance and forcing styles were never identified as one of the management styles used by female leaders. Among male team leaders, problem solving was most frequently identified as the approach used (35 times), followed by compromising (26 times), accommodating (5 times), avoiding (2 times), and forcing (1 time). Interrater reliability for this question was 68% suggesting above average agreement among the team members regarding the style being used.

These findings seem to support the conclusions of Korabik et al. (1993) regarding satisfaction and management style for female managers. Compromising, integrating, and obliging from the study by Korabik et al. coincide with compromising, problem solving, and accommodating from the present study and reported the highest rates of satisfaction for team subordinates. The present study also appears to find that higher rates of satisfaction are associated with female team managers using compromising, obliging, and integrating styles.

De Dreu and Weingart (2003) and de Wit et al. (2012) found negative correlations between relationship conflict and team satisfaction, as well as negative correlations between team satisfaction and team performance. This would point to a need for teams to address relationship conflict in some way. If female team leaders managed their teams in such a way that reduced relationship conflict and increased team satisfaction then it may suggest a leadership style that can lead to more effective team processes.

Conclusions

The first, and perhaps most important, conclusion regarding this study is the application of the micronegotiation. It is paramount to make the distinction between the participant group for this study and medical personnel. The micronegotiation technique was intended for use by surgeons in an operating room (Rogers & Lingard, 2006) with possible applications to all

medical personnel teams. However, prior to studying the micronegotiation technique in an authentic medical setting, where such a study runs the risk of interfering with the functions of the medical team, it seemed prudent to first test it within a population where potentially negative effects may be relatively innocuous. For this reason, and in part for the convenient availability of the population, teams of students in health related courses were used.

The major 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, and the stakes for poor performance not high enough to evoke emotional investment, so the micronegotiation technique had little opportunity to effect the primary variables. In many cases, the students appeared to simply enjoy the fact that they were getting to participate in an activity rather than listen to a lecture. This may also support the possibility that the physiology students reported higher levels of conflict due to the study taking place during what was essentially their personal time.

The lack of variance in conflict scores may also have been a result of pre-existing relationships between the participants. The radiology classes, while not a cohort model, are very similar to a cohort model as the students track through the same classes until they choose a specialization. Thus, many of the students knew one another prior to the study. Pre-existing relationships, if they are positive, could well predispose groups to lower levels of conflict, or it is possible that negative pre-existing relationships could predispose groups to higher levels of task conflict. The radiology professor did mention, although off the record, that these were good students who generally got along, suggesting that positive, pre-existing relationships were present. Consistently similar conflict scores, coupled with the size of the sample, meant that statistical analyses were not able to detect more subtle statistically significant differences.

The findings of the present study do not discount the potential benefit of the micronegotiation technique based on the factors mentioned above, but they also do not support the investigation of this technique in an authentic medical environment. In fact, the more appropriate environment for this research may be with adult work teams in which team members have a vested interest in the outcome of the team process. Teams may come from fields that are ancillary to medical practitioner teams, such as the populations used in the studies by Parayitam and Dooley (2007) or Stalmeijer et al. (2007), or from fields that are in no way related to medical settings such as many of those from the meta-analyses of de Wit et al. (2012).

One reason other than the lack of findings that suggests it may not yet be appropriate to test the micronegotiation technique in authentic medical settings is the difference between the teams in this study and medical teams. Among these differences is the stable nature of the participant teams versus ad hoc medical teams, which are formed for a single, specific task and where the members come and go at various points in the completion of that task (Tschan, Semmer, Gautschi, Hunziker, Spychiger, & Marsch, 2006). For this study, teams remained intact both as a result of convenience and also with the hopes of increasing emotional investment (Korsgaard, Schweiger, and Sapienza, 1995); however, this is a difference worth noting between teams in this study and medical teams.

Another potential difference is that medical teams function in a hierarchical manner (Coady, 1999), which was not measured in the present study. It is possible that teams in the study utilized a more egalitarian approach to the completion of their tasks. These distinctions are important as they make it inaccurate to generalize the findings of this study to medical settings and medical teams.

In this particular study, no significant differences were found between teams trained on using the micronegotiation and those not trained on the technique, leading to the conclusion that it did not impact team processes regarding satisfaction, task conflict, relationship conflict, or team performance. This is not to suggest that the technique is not useful in managing conflict, but rather that within the parameters of this study it did not achieve significant results. Reasons for the lack of significant findings are discussed in the following section and may point to opportunities to apply the micronegotiation technique more broadly. However, as Swanson (1994) explained, a program needs to consider all the systems in an organization so it is possible that a standard, "one size fits all" technique may not work in complex team processes.

The study found statistically significant correlations between female leadership and two of the variables: higher rates of team satisfaction and reduced reports of relationship conflict. From a practitioner perspective this may suggest that teams should be led by females to enjoy the benefits of reduced relationship conflict and increased satisfaction. It could be suggested that the style used by the leader (collaborating, compromising, obliging), rather than the gender of the leader, may have led to the higher levels of satisfaction and lower levels of relationship conflict. However, correlation analysis of the reported styles found no significant correlations between the reported style used by the leader and these two variables. While there appeared to be benefits in regard to satisfaction and relationship conflict when females were leading teams, there were no statistically significant differences in team performance in teams with male or female leaders, meaning that, at least in this study, gender did not appear to impact performance.

Two perspectives with which to view these findings are from that of a researcher and that from a practitioner, such as a human resource management. From a researcher's perspective the findings on gender of the leader and its impact on relationship conflict, satisfaction, and team

performance raise additional questions as to how to narrow the focus to better understand the interactions between the three. From the human resource management perspective the questions may focus more on organizational needs and weighing the importance of team performance as compared to employee satisfaction. This study is in no way definitive, but it provides food for thought. In an organization where employee satisfaction is a primary concern due to its relationship to intentions to leave and turnover, the potential benefits that may come from utilizing female leaders is worth investigating. Of course the hope would be that additional research will help to better inform practitioner decisions.

A possible conclusion that may also be drawn regarding this study relates to the micronegotiation training itself. A short, 15-minute training on micronegotiation was used in this study. This is vastly different than intervention trainings in other studies such as those of Haraway and Haraway (2005), Zweibal et al. (2008), and Saulo and Wagener (2000), which were much longer. 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. Thus, workforce education practitioners would be wise to consider the length of the training intervention they are providing, and its sufficiency in educating participants such that they grasp the content and are able to transfer necessary skills to their work. Additionally, the micronegotiation training was not pilot tested prior to using it in the study, which may be a best practice for organizational development professionals.

With no statistically significant findings on the benefits or detriments of the micronegotiation technique, it is difficult to make recommendations as to whether or not practitioners should consider using the technique. The results of the study did not suggest that any of the teams suffered negative effects from using the technique, so it does not appear that it

would be harmful to utilize micronegotiations. Organizations, managers and team leaders who wish to use the technique may first want to determine if the steps are appropriate to meet their needs, the level of openness of the members of their team to such a technique, and the severity of the potential conflict they are seeking to manage. Likewise, Jaidev and Chirayah (2012) identified organizational, supervisor and peer support as key factors in transfer of skills and knowledge to job application. Thus, the organizational culture must also be taken into account, and the determination made as to whether it is conducive to the actual application of micronegotiations. Depending on the findings of an investigation of these factors, leaders may wish to choose a method that has more supporting evidence of effectiveness in prior research.

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Recommendations for Future Research

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From the findings of this study, the conclusion can be drawn that the micronegotiation technique is not effective in managing conflict within teams of students in health profession related classes. However, alterations to the study itself may be a more appropriate response before making such a determination. These alterations include the types of incentives used to create emotional investment in the outcomes, an increase in sample size, length and implementation of training, administration of the study and change in the type of work teams studied.

Emotional Investment

Perhaps the first and most important element of the study is the emotional investment of the participants. If the participants are not emotionally invested in the outcome there is little chance that they will feel any tension when completing the task and as such any intervention to address group tension and conflict would be unnecessary. The decision to use monetary rewards as a way to heighten the emotional investment was based on correlations between personal

reward and emotional investment in previous research (Saavedra & Van Dyne, 1999). Because the participants were students who had no real vested interest in the outcomes, they differed from medical personnel whose performance on tasks can have life or death consequences; so it may be beneficial to use more authentic tasks or incentivize team performance with more relevant options. One possibility may be to use graded tasks as students may hold those in higher regard than a chance to win a gift card.

Sample Size

The sample size for this study was 47 teams. This included 148 individual participants over four classes separated into teams of three or four. Because this was a targeted convenience sample of students in health related courses, the population to draw participants from was limited, leading to the smaller overall sample. However, this size likley provided insufficient statistical power to detect medium effect sizes. G*Power 3.1.5, a tool for analyzing and predicting statistical power, recommends 106 teams to detect effect sizes of .25 and greater when using a MANOVA for repeated measures with between factors analysis. Given these considerations, future studies of this design may be wise to utilize a sample size more in line with these recommendations.

Team Education on the Process

For the present study, control group team leaders were not instructed on the steps of the micronegotiation technique, while experimental group team leaders were given a short 10-15 minute instruction on the technique as well as told to use the micronegotiaton technique whenever facing a disagreement or difference of opinion. Only team leads, not team members, were trained on the technique, as Rogers and Lingard (2006) clearly considered this a leadership technique. However, only providing training to experimental group team leads may have

lessened the impact of the training in actual application and its impact on the team interactions. In Waugh's (1996) study on consensus decision making, team leads were given a short training on consensus seeking and members of the team were provided information on consensus seeking as well. Future research on the micronegotiation technique may want to train both team leaders and team members to see if this leads to different outcomes than those presented in this study.

Control of Study Environment

One area where significant differences were found was between teams from different classes. Physiology students reported higher levels of task conflict and relationship conflict. The differences, however, may be due to factors related to the administration of the study, and as such are worthy of consideration for future research. The study was administered to the entire class at one time for the participants from radiology and microbiology, and it took place during class time when lecture would normally be provided. Physiology students, however, participated in the study in smaller lab groups as access to the entire class during normally scheduled lecture time was not available. While radiology and microbiology students were participating using class time that would normally be spent listening to a lecture, physiology students were participating in the study after their shortened lab work was completed. Therefore, it is possible that heightened reports of conflict may be less a result of group interaction and more a result of feelings that their time was being impinged upon.

In each of the radiology and microbiology classes the instructor was present during the administration of the study, while in the physiology classes the teaching assistant left the room once s/he had completed their portion of the lab, leaving only the researcher and the students. The presence of the instructor may have led to students engaging in more socially acceptable behavior as a way of "pleasing" the instructor. Since the physiology groups did not have an

instructor present while completing the study, they may have been less inclined to avoid actions deemed socially unacceptable or that may lead to conflict within their team.

Since the number of participants was much less in each physiology lab, there were also fewer teams when the study was administered to the various physiology labs. This is very different than when the study was administered to the radiology and microbiology classes where the entire class of 30 to 40 students was broken into 12 to 14 teams. The smaller number of physiology teams completing the tasks in close proximity to one another may have led to a willingness to engage in actions that may contribute to conflict more so than in a larger group where social norms of collaboration may have been higher.

It is entirely possible that these factors played no role in the different levels of task conflict and relationship conflict reported by the physiology class; however, the differences in the study environment are worth consideration when interpreting the findings.

Leader Gender

The study identified a statistically significant correlation between female leadership and lower levels of relationship conflict and higher levels of team satisfaction. While this was not a factor that was part of the primary investigation of the study and was not found to be statistically significant when analyzed using MANCOVA, it still poses an interesting direction for future research. Future research may focus on the degree to which gender is a moderator of levels of task conflict and relationship conflict as well as team performance and team satisfaction. Additionally, there may be benefits of investigating gender in relation to training and transfer of learning for micronegotiations.

Order of Tasks

Scores on the task from Phase III were consistently higher than scores on the task from Phase I, raising questions as to how this happened, especially given that the Phase III task (Lost on the Moon) was inauthentic. Logic would suggest that being lost on the moon is something the participants would be less familiar with than being lost at sea (Phase I), so the consistently higher scores does bring up questions. It is possible that the teams developed a process for managing the tasks or developed relationships in Phase I and were therefore more efficient and effective in Phase III. Future research may employ a design whereby the Lost at Sea and Lost on the Moon tasks are completed both before and after the intervention to control for any differences in team performance on the specific tasks.

Summary

Perhaps the most important finding from the study is the lack of any statistically significant differences between groups trained on the use of the micronegotiation technique and those who were not. While this may seem counterintuitive, it may in fact point to the need to study the micronegotiation technique in the setting for which it was intended; within surgical teams. As discussed at the opening of this chapter, the teams from this study differ in a variety of ways from medical teams and it is therefore inappropriate to generalize findings from the population from this study to medical teams. For future research, these differences may be addressed by training on the micronegotiation technique in more authentic medical settings consistent with the context suggested by Rogers and Lingard (2006).

The findings of the study and the recommendations for future research may lead to a better understanding of team conflict in general and medical team conflict specifically; but it is important to note that there are a multitude of factors that lead to conflict. While finding

techniques to manage conflict is important, especially given findings from previous research on the relationships between conflict and medical errors, the end of conflict may only be a symptom of a larger systemic problem. Conflict research will benefit from a balanced approach that looks at both the tools for resolving and preventing conflict, while also investigating ways in which medical systems serve as the catalyst to conflict among administrators, physicians, staff, and patients.

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APPENDICES

APPENDIX A

You are being invited to participate in this **study on teamwork and team performance** because you are a student at Southern Illinois University. The study seeks to better understand how teams work together when completing a timed task. I will explain the study provide you with a Participant Information form and Consent form to complete if you choose to participate. **Participants in the four highest performing teams will receive gift cards worth up to $30.**

Agreement to Participate:

To participate simply complete the Participant Information form and read and complete the Consent form and hand give it to me. Participation is voluntary and you may withdraw from the study at any time by informing me of your wish not to participate at the time of the study. You may also contact me with your intention not to participate via email at jeffkaufman@siu.edu or by phone at 770-262-9648. The study will be held in at this time, in this classroom.

Purpose of the Study:

The study investigates how teams function when completing timed tasks and is specifically interested in individuals intending to pursue careers related to healthcare. You will be completing tasks with your group and filling out a short survey regarding how your team worked together. The entire process should take approximately 1 hour and fifteen minutes and you will have the chance to win one of 12 gift cards ranging in value from $30 - $10.

Managing the Information:

All the information gathered will be stored in a secured location off campus. Each participant will be assigned a four digit number such that no names will appear on any of the research forms. The code will be saved into an Excel spreadsheet that will be stored in a Google Documents folder that can only be accessed by the researchers for this study. Thus, only the principle researchers will be able to identify the individual connected to any specific information.

Benefits to You:

Each member of the highest performing team will receive a $30 gift card, each member of the second highest performing team will receive a $20 gift card and each member of the third and fourth highest performing teams will receive a $10 gift card. Performance is based on the number of correct responses you provide to the team tasks and any ties between teams will be broken by a blind drawing. You will also have access to the findings of the study, which may provide you a better understanding of how you can increase team performance in your real work teams.

How to Participate:

To participate simply complete the consent form and demographic information form I have provided. I will gather these upon your completion and will use the information to randomly assign you to a team. If you choose not to participate you will still be assigned to a team of other non-participants to complete the tasks, however, the data will not be included in the analysis and you will not be eligible to win one of the gift cards for team performance.

For any questions please feel free to contact:

Jeffery Kaufman
475 Clocktower Drive
Pulliam Hall, Room 209B
Mailcode 4605
Southern Illinois University
Carbondale, Illinois
618-453-1943
jeffkaufman@siu.edu

Dr. C. Keith Waugh
475 Clocktower Drive
Pulliam Hall, Room 212
Mailcode 4605
Southern Illinois University
Carbondale, Illinois
618-453-4868
ckwaugh@siu.edu

Participant Information

Name: _____

Email Address to be used to notify members of winning teams (please print clearly)

_____

Gender: _____

Your age in years (please check appropriate range):

- ☐ 18 – 21
- ☐ 22 – 25
- ☐ 26 – 29
- ☐ 30 – 33
- ☐ 34 – 37
- ☐ 38 – 41
- ☐ 42 and over

Present grade level (Circle appropriate response) :

Freshman   Sophomore   Junior   Senior   MedPrep

What is your major?

_____

RESEARCH PARTICIPANT CONSENT FORM
Student Team Performance Study
Jeff Kaufman
Doctoral Student
Southern Illinois University
Department of Workforce Education and Development

PURPOSE OF RESEARCH

This is a dissertation research study that seeks to investigate how teams work together on timed team tasks.

SUBJECT SELECTION

YOU WERE CHOSEN BECAUSE YOU ARE A STUDENT AT SOUTHERN ILLINOIS UNIVERSITY CARBONDALE.

PROCEDURE AND DURATION OF PARTICIPATION

I will place you into groups and ask you to complete timed team tasks. Once you have completed the tasks you will be given two short surveys asking how your team worked together. The study will last approximately 1.5 hours.

BENEFITS AND RISKS TO THE INDIVIDUAL

Benefits to the Individual

The benefit of participating in the project is the opportunity to better understand how you work within a team on timed tasks and how well your team compares to others. Additionally, the top performing teams will receive gift cards that will be presented to winners after all team scores have been tallied.

Risks to the Individual

While no physical, emotional or mental risks appear to be present in this study, there is a chance that you may feel disappointed if your team does not perform as well as you want or if you are not one of the top performing teams.

CONFIDENTIALITY

You will be assigned a four digit number upon agreeing to participate in the study. An electronic copy of the code document will be kept in a Google Documents account that can only be

accessed by the researchers. The four digit number is the only identifiable marker to connect demographic and research data to the individual participants and will not be shared with anyone other than the principle investigator (Jeff Kaufman) and his faculty adviser (Dr. C. Keith Waugh). In this way the identities and associated data related to the participants will be confidential. All surveys, instruments or tasks completed in hard copy form will be kept separate from the electronic code document in a locked file cabinet at a secured location. We will take all reasonable steps to protect your identity.

VOLUNTARY NATURE OF PARTICIPATION

I do not have to participate in this research project. If I agree to participate I can withdraw my participation at any time without penalty.

<u>Contacts</u>

Jeffery Kaufman   **Dr. C. Keith Waugh**
475 Clocktower Drive   475 Clocktower Drive
Pulliam Hall, Room 209B   Pulliam Hall, Room 212
Mailcode 4605   Mailcode 4605
Southern Illinois University   Southern Illinois University
Carbondale, Illinois   Carbondale, Illinois
618-453-1943   618-453-4868
jeffkaufman@siu.edu   ckwaugh@siu.edu

I HAVE HAD THE OPPORTUNITY TO READ THIS **CONSENT FORM**, ASK QUESTIONS ABOUT THE RESEARCH PROJECT AND AM PREPARED TO PARTICIPATE IN THIS PROJECT.

_____ /_____
Participant's Signature / Date

_____
Participant's Name **(Please print)**

_____ /_____
Researcher's Signature / Date

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Sponsored Projects Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX B

Team _____ Answer Sheet

You and your team have chartered a yacht. None of you have any previous sailing experience, and you have hired an experienced skipper and two-person crew. As you sail through the Southern Pacific Ocean a fire breaks out and much of the yacht and its contents are destroyed. The yacht is slowly sinking. Your location is unclear because vital navigational and radio equipment has been damaged. The yacht skipper and crew have been lost whilst trying to fight the fire. Your best guestimate is that you are approximately 1000 miles South West of the nearest landfall. You and your friends have managed to save the following 15 items, undamaged and intact after the fire.

_____Sextant

_____Shaving mirror

_____Mosquito netting

_____5 gallon can of water

_____A case of army rations

_____Maps of the Pacific Ocean

_____Floating seat cushion

_____2 gallon can of oil/petrol mixture

_____A small transistor radio

_____20 square feet of Opaque plastic sheeting

_____Shark repellent

_____One quart of 160 percent proof rum

_____15ft nylon rope

_____2 boxes of chocolate bars

_____A fishing kit

In addition to the above, you have salvaged a four man rubber life craft. The total contents of your combined pocket's amounts to a packet of cigarettes, three boxes of matches and 3 £5 notes.

APPENDIX C

Team _____ Answer Sheet

You are in a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Mechanical difficulties, however, have forced your ship to crash-land at a spot some 200 miles from the rendezvous point. The rough landing damaged much of the equipment aboard. Since survival depends on reaching the mother ship, the most critical items available must be chosen for the 200 mile trip. Below are listed 15 items left intact after landing.

Your task is to rank them from most important (write a "1" next to this item) to least important (write a "15" next to this item).

Rank - Item

_____Box of matches

_____Food concentrate

_____50 feet of nylon rope

_____Parachute silk

_____Portable heating unit

_____Two .45 caliber pistols

_____One case dehydrated milk

_____Two 100-pound tanks of oxygen

_____Stellar map (moon's constellation)

_____Life raft

_____Magnetic compass

_____5 gallons of water

_____Signal flares

_____First-aid kit containing injection needles

_____Solar-powered FM receiver-transmitter

APPENDIX D

Post-Task Inventory

Team Number: _____

Please read each statement or question below and consider how you and your group completed the task. Circle the appropriate response.

How much anger was there among members of the group?

   None   A Great Deal

| 1 | 2 | 3 | 4 | 5 |

How much personal friction was there in the group during decisions?

   None   A Great Deal

| 1 | 2 | 3 | 4 | 5 |

How much tension was there in the group during decisions?

   None   A Great Deal

| 1 | 2 | 3 | 4 | 5 |

How many disagreements over different ideas were there?

   None   A Great Deal

| 1 | 2 | 3 | 4 | 5 |

How many differences about the content of decisions did the group have to work through?

   None   A Great Deal

| 1 | 2 | 3 | 4 | 5 |

How many differences of opinion were there within the group?

   None   A Great Deal

| 1 | 2 | 3 | 4 | 5 |

Working with this group has been an enjoyable experience.

| Strongly Disagree | Disagree | Neither Agree Nor Disagree | Agree | Strongly Agree |

I would like to work with this group in the future.

| Strongly Disagree | Disagree | Neither Agree Nor Disagree | Agree | Strongly Agree |

APPENDIX E

Micronegotiation Training Outline

Introduction (1 min)

For the next few minutes we are going to discuss a communication and resolution technique that I will be asking you to use when you return to your teams for the next group task. I will provide you with the background steps of the technique and a chance to practice. When you return to complete your next group task I will ask that you use this technique whenever you are confronted with disagreements or conflict within your team.

Background of the Technique (2 min)

- In their 2006 article *Surgeons Managing Interpersonal Conflict*, Rogers and Lingard discussed the potential impact of conflict that arises in operating rooms among surgeons and other medical staff.
- These different conflicts were cause for concern because of the potential negative effects they can lead to in the way of employee turnover, medical errors, and adverse patient outcomes.
- They provided several actions that a surgeon could take to help reduce the presence or impact of interpersonal conflicts that arise in the operating room.
- One of these actions was a technique they referred to as a "micronegotiation"
- While this technique was designed with a surgical team in mind, it has **applications for teams in general**.
- I will discuss the steps of the technique and give you a chance to **practice and ask questions**.
- The technique is intended to take less than a minute
- When you return to your teams **I will ask that you use this technique whenever you encounter a disagreement or differences of opinion** as your team completes their task**.**

Steps of Micronegotiation (4 min)

1. Take a few seconds to allow for the control of emotions in a tense clinical situation, particularly if conflict has already occurred.
2. Listen to the ideas or concerns of the other party and paraphrase or summarize them to indicate that they were heard.
   a. Example: one of your team members says, "There are two of us who want the make this item number 1 so we should do it." You may respond by paraphrasing such as, "so you would like to make decisions based on majority rule, is that correct?"
3. State your primary need or interest.
   a. Example: Responding to the idea of majority rule you may state your interest as, "I agree that majority rule is fair, but I want to make sure we choose the best answer since we are being evaluated on correct answers."
4. It might be possible to suggest a solution, but it is important to indicate that there might be other reasonable options.

  a. Example: "What if we start by finding the items that we all rank within two spots of each other and then just average the rest? However, this is just one option."

5. Allow the other individual to react and express respect for his/her position.

  a. Example: "What are your thoughts? We are a team so let's figure this out together."

6. Decide which conflict response will now be optimal.

  Optional Conflict Responses

    a) **Problem Solving** – seeking a solution in a collaborative manner that seeks to create win/win situations

    b) **Forcing** – choosing the solution yourself and forcing others to accept it because of your position of power (team lead)

    c) **Compromising** – each individual gives up a little of what they want to reach an agreement

    d) **Avoiding** – pretend no conflict exists or ignore the conflict all together

    e) **Accommodating** – ignoring your own interests and accepting the solutions of others

   Problem solving is preferred whenever possible.

This is an abbreviated negotiation technique that should only **take about a minute to use**.

  o ***This does **NOT** include the actual problem solving process.

Practice (6 min)

Consider this short, ambiguous scenario and take turns practicing the steps of the micro011negotiation technique as the team lead and team member. You will have **3 minutes to play the role** of team leader then switch roles. Remember, the micronegotiaton technique is intended to take less than a minute.

Your team is preparing a presentation to the board of directors. One member has decided they would like to present the opening portion of the presentation; however, this is traditionally done by the team lead (you). The team member is adamant about wanting the role of opening presenter, but you fear your supervisor may not like a change from normal procedure. The team member has just approached you with this request and is somewhat upset already assuming that you are automatically going to say "no." Respond to the situation using the micronegotiation technique.

Questions (2 min)

APPENDIX F

Group Task Procedure Questionnaire

Team Number: _____

Please consider how your team completed the group task and answer the questions as to how many each of the following actions occurred.

1. How many times did the team leader paraphrase or summarize an idea or concern expressed in the team?

2. How many times did the team leader suggest a solution to a disagreement?

3. How many times did the team leader indicate there are other possible solutions than the one he or she suggested?

4. Did you feel as though the team members were given a voice in the decision making process (please circle the appropriate response)?   Yes   No

5. Which approach do you feel the team leader used in handling differences of opinions related to completing the group task (please circle the appropriate answer)?

    a. **Problem Solving** – The team leader sought solutions in a collaborative manner that tried to create win/win situations

    b. **Forcing** – The team leader chose the solution and forced others to accept it because of his/her position of power

    c. **Compromising** – Each individual, including the team leader, gave up a little of what they wanted to reach an agreement

    d. **Avoiding** – The team leader pretended no conflict existed or ignored the conflict all together

    e. **Accommodating** – The team leader ignored his/her own interests and accepted the solutions of the other team members or team member

APPENDIX G

Table 7

Variable Scores from Phase I and Phase III

Team Number	Phase I Team Score	Task Conflict Phase I	Relationship Conflict for Phase I	Satisfaction Phase I	Phase III Team Score	Task Conflict Phase III	Relationship Conflict for Phase III	Satisfaction Phase III
1	70	2.22	1.00	4.67	36	2.11	1.00	4.67
2	42	2.00	1.11	4.00	54	2.00	1.11	4.00
3	48	2.00	2.11	4.33	32	1.44	1.78	4.67
4	78	1.89	1.00	4.33	36	2.22	1.00	4.00
5	70	2.22	1.00	4.00	60	2.22	1.00	4.00
6	60	2.33	1.11	4.00	50	1.78	1.00	3.67
7	66	1.67	1.00	5.00	32	1.67	1.00	5.00
8	82	1.56	1.11	4.67	38	1.33	1.00	4.67
9	64	2.00	1.22	4.67	36	1.56	1.00	5.00
10	68	1.56	1.00	5.00	42	1.61	1.11	4.67
11	36	2.22	1.00	3.00	44	1.89	1.00	3.00
12	68	2.67	1.11	3.67	32	2.22	1.22	3.67
13	74	1.67	1.11	4.00	34	1.33	1.00	3.67
14	40	2.00	1.00	4.50	38	2.58	1.08	4.25
15	80	2.44	1.33	3.67	30	2.44	1.67	3.00
16	70	2.11	1.11	5.00	56	2.22	1.11	4.67
17	54	1.78	1.00	3.67	40	1.78	1.00	3.67
18	68	1.78	1.00	5.00	48	1.78	1.11	5.00
19	74	1.33	1.00	4.33	32	1.33	1.00	4.33
20	44	2.50	1.25	5.00	31	1.75	1.08	5.00
21	66	1.89	1.00	4.67	36	1.33	1.00	4.67
22	82	1.44	1.00	5.00	56	1.22	1.00	5.00
23	54	1.67	1.00	5.00	28	1.67	1.00	5.00
24	68	1.78	1.00	4.67	46	1.44	1.00	4.67
25	60	2.00	1.00	4.67	40	2.11	1.00	4.67
26	70	2.44	1.11	5.00	46	2.44	1.33	5.00
27	58	2.08	1.33	4.25	36	2.42	1.33	4.00

Team Number	Phase I Team Score	Task Conflict Phase I	Relationship Conflict for Phase I	Satisfaction Phase I	Phase III Team Score	Task Conflict Phase III	Relationship Conflict for Phase III	Satisfaction Phase III
26	70	2.44	1.11	5.00	46	2.44	1.33	5.00
27	58	2.08	1.33	4.25	36	2.42	1.33	4.00
28	68	1.92	1.17	4.50	50	2.25	1.33	4.50
29	68	2.56	2.00	2.67	46	2.78	2.11	3.00
30	48	1.78	1.00	4.67	38	2.33	1.11	4.67
31	60	1.89	1.00	4.33	33	2.11	1.22	4.67
32	58	2.11	1.00	4.67	38	2.33	1.33	4.67
33	54	2.00	1.44	3.67	36	2.22	1.67	3.33
34	40	1.78	1.22	4.67	42	1.89	1.00	4.67
35	78	2.22	1.22	4.33	32	2.50	1.50	4.00
36	60	2.11	1.22	4.67	34	2.22	1.33	4.67
37	62	2.54	1.75	3.75	32	1.58	1.25	4.50
38	32	3.11	1.78	3.00	22	2.00	1.44	3.67
39	72	1.56	1.00	4.67	48	1.56	1.00	4.67
40	60	2.67	1.00	4.75	40	3.08	1.33	4.50
41	86	1.92	1.25	4.25	32	2.08	1.50	4.00
42	52	2.89	1.44	4.33	46	1.89	1.00	4.67
43	70	1.78	1.00	4.67	56	2.22	1.00	4.33
44	82	2.00	1.22	4.33	42	2.22	1.11	4.33
45	64	2.22	1.11	4.33	52	2.44	1.33	3.67
46	54	1.67	1.00	4.67	38	1.67	1.00	4.67
47	80	2.00	1.11	4.67	48	2.56	1.11	4.67

APPENDIX H

Table 8

Total Conflict and Satisfaction Scores for Phase I and Phase III*

Team #	Total Conflict Phase I	Total Satisfaction Phase I	Total Conflict Phase III	Total Satisfaction Phase III
1	29	27	28	28
2	28	26	28	26
3	37	26	29	28
4	26	26	29	24
5	29	24	29	24
6	31	23	25	23
7	24	30	24	30
8	24	28	21	28
9	29	28	23	30
10	23	29	25	28
11	29	18	26	18
12	34	24	31	23
13	25	24	21	22
14**	36	36	44	34
15	34	23	37	20
16	29	30	30	28
17	25	22	25	22
18	25	30	26	30
19	21	26	21	26
20**	45	39	34	39
21	26	27	21	25
22	22	30	20	30
23	24	30	24	30
24	25	28	22	28
25	27	28	28	28
26	32	30	34	30
27**	41	34	45	32
28**	37	35	43	35
29	41	17	44	18
30	25	28	31	28
31	26	26	30	28
32	28	27	33	27
33	31	24	35	22
34	27	28	26	28
35	31	26	36	24
36	30	28	32	28
37**	52	32	34	36
38	44	19	31	22
39	23	28	23	28

Team #	Total Conflict Phase I	Total Satisfaction Phase I	Total Conflict Phase III	Total Satisfaction Phase III
40*	44	38	53	36
41**	38	34	43	32
42	39	26	26	28
43	25	28	29	27
44	29	28	30	28
45	30	26	34	23
46	24	28	24	28
47	28	28	33	28

* Higher scores indicate higher levels

**Team had four members

APPENDIX I

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APPENDIX J

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