CHAPTER 2
The Importance of Respect in Collaborative Work:
A Demonstration Using Simulated Top Management Teams

DRAFT

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Author note: This work is part of a dissertation, and so is still in development. Do not cite without author’s permission.
Abstract
This paper argues that respect, defined as esteem for another person’s abilities and character, is an important factor in successful collaborative work. In making this claim, trust is used as the springboard for why interpersonal attitudes are important in the first place. Respect is first differentiated from trust conceptually, and then examined empirically in simulated top management teams. It is argued that respect will affect the group processes of communication, coordination, and conflict in different ways and through alternate mechanisms than trust. Still, both trust and respect will affect group processes and outcomes. The results support this interpretation. The paper concludes by discussing opportunities for future research on respect as well as trust, and the implications this research has for interpersonal factors besides trust and respect.
Introduction

The role that interpersonal factors play in promoting individual and organizational effectiveness is becoming a vital new area for research. Trust is one such factor, and this paper argues that respect is an equally critical factor in promoting effective collaborative work. Respect and trust are related in that they often co-occur, and share some antecedents. Yet they can be distinguished. In simple terms, trust is a judgment about whether your ideas/actions should be believed and accepted while respect is a judgment about whether your ideas/actions have value and are worth reflection. The utility in differentiating respect from trust in collaborative work comes in understanding how each will affect group processes and ultimately, outcomes.

Demonstrating the distinct effects of respect and trust on group processes and outcomes provides an understanding of an important but understudied concept, but it also will provide a more realistic picture of how trust behaves and the size of the effect it has. Since trust and respect are related, measuring one without the other implies that in many prior studies, trust and respect are confounded. In addition, this study should contribute to the literature on how interpersonal processes affect team effectiveness. As the interest in team process research grows (McGrath & Argote, 1999) and teams are increasingly used in organizations as the basic work units (Cohen & Bailey, 1997). Using Hackman & Morris’ (1975) input-process-output model for groups¹, we can think of trust and respect as inputs² and examine how these affect group processes and outputs. In this study, I examine the relationship between group member’s respect and trust for each other; the process variables of communication, conflict, and coordination; and performance outcomes. The process variables map on to two of McGrath and Argote’s (1999) three main functions of group process: managing conflict/consensus, and coordinating member actions. The general model to be tested is presented in figure 1.

Insert Figure 1 here

Since the purpose of this paper is to distinguish respect and trust empirically, I start by defining respect and trust in terms of their core attributes, and using these attributes to

¹ I use groups and teams as equivalent terms
² Respect and trust could also be considered outputs, but that is beyond the scope of this paper.
differentiate the two. I then discuss how trust and respect will each affect group processes via different mechanisms. Finally I will present a test of these assertions using MBA students acting as top management teams.

Respect

Respect has been shown to reduce group conflict (Jehn & Mannix, 2001; Jehn, Northcraft, & Neale, 1999; Jehn & Shah, 1997), to affect the manner in which people regard individuals from groups other than their own (Fiske, Xu, Cuddy, & Glick, 1999; Glick & Fiske, 1999; Glick & Fiske 2000), and to be a positive factor in leader-member exchange theory (Linden & Maslyn, 1998; Maslyn & Uhl-Bien, 2001). Unfortunately, these authors mostly measure respect without ever defining it. Tyler and colleague’s have shown that respect helps promote group-oriented behavior, especially when the outcome is not positive for the individuals involved (Tyler, Degoey, & Smith 1996; Tyler & Lind, 1992; Smith & Tyler, 1997). These authors define respect as the value one is shown in the way he or she is treated. Although I believe this captures the essence of respect, it limits respect to a behavior and does not address the accompanying thoughts and feelings. In addition, the effects of this kind of respect are seen in the target of respect (e.g., A shows B respect, the effect is in B’s behavior). Yet respect is often a judgment of another, and these effects will be seen in the giver of respect (A believes B is worthy of respect, and this affects A’s behavior); it is these effects that I seek to examine.

The Oxford English Dictionary defines respect for another as “esteem for the sense of worth or excellence of a person.” The first component of this definition, esteem, refers to a positive evaluation of the target’s characteristics by the observer. The second component, an individual’s sense of worth, refers to a person’s usefulness in terms of instrumental value (e.g., the skills one has, what one can accomplish). The third component, the sense of excellence of a person, refers to the person’s character. Character is comprised of the values and principles exhibited in people’s conduct.

Respect defined this way is an attitude toward of another person, and would lead to behavior consistent with Tyler and Lind’s (1992) definition of respect (showing that person consideration and regard). Respect would also generate thoughts about the innate value of the respected person. In particular, one will believe this person’s ideas to be reasonable or well founded, not foolish or morally corrupt. One will think that a respected person’s beliefs have
some *de facto* merit, regardless of whether one agrees with the belief. In addition to positive thoughts, respect will evoke positive feelings about the respected person.

**Trust**

Trust has had a prominent influence on organizational theory (see Gillespie, 2003; Kramer, 1999; Rousseau, Sitkin, Burt & Camerer, 1998). Trust has been shown to influence cooperative behavior (Gambetta, 1988), conflict reduction (Jehn, 1995), and deference to others (Tyler & Deogey, 1996). Research also shows that trust encourages network relations (Miles & Snow, 1992), decreases transaction costs (Uzzi, 1996, 1997; Williamson, 1993), and facilitates rapid formulation of ad hoc work groups (Meyerson, Weick, & Kramer, 1996). Trust has been defined many different ways (see Mayer, Davis, & Schoorman, 1995), but consensus seems to exist on using Mayer, et al.’s definition of trust as the willingness to be vulnerable to another person in the absence of monitoring (Rousseau, et al., 1998). Mayer, et al.’s definition is, like Tyler & Lind’s definition of respect, centered on behavior toward another. For the same reasons I expanded respect to include thoughts and feelings about another person, trust should be combined with its judgmental correlate, *trustworthiness* (Mayer & Davis, 1999). Trustworthiness is the belief that a person does not intend to deceive the trusting person.

One may question my decision to combine trust and trustworthiness, as some authors (e.g., Gillespie, 2003) argue that trustworthiness is not a proxy for trust because finding a person to be trustworthy involves no risk, vulnerability, or interdependence. I argue that before one engages in trusting behavior, they will make an assessment of trustworthiness, and for this there will not need to be risk, vulnerability, or interdependence. Gillespie (2003) and others also contend that the practical significance of trust is in action. I argue that one does not need trusting behavior to see the practical effect of a trust judgment. A large amount of literature exists on how a source’s perceived trustworthiness affects the way people think about what that source says (see Petty & Wegener, 1998 for a review). Moreover, perceived trustworthiness may guide behavior indirectly. For example, it may affect whether one chooses to begin a relationship with a colleague (i.e., one may put little effort into developing a relationship with a non-trustworthy person).

**Distinguishing respect and trust.** To distinguish respect and trust in one sentence, trust is a judgment about whether your actions are intended to deceive or harm me, while respect is a judgment about whether your actions have value and are worth reflection. Thus one can think of
examples of people who are high on one attribute but low on the other. A person may have an
associate who is a “lackey” – one who is squarely on the person’s side but mostly is trying to
please that person. A lackey may be trusted because the lackey wants to do right by the person,
but is unlikely to be respected because being a sycophant is generally viewed with contempt.
Alternately, a person may have a fierce but principled adversary – one who is out to defeat the
person but will do so only through fair means. An adversary is unlikely to be trusted (for obvious
reasons), but the adversary may be respected as a worthy and honorable opponent.

Although respect and trust can be distinguished, they rarely are. The vast majority of
research examines either trust or respect. More often the two are confounded. In fact, some
scales of trust have items that ask about respect (see McAllister, 1995). The conceptual breadth
in the definition of trust exacerbates this problem. For example, Butler (1991) associates 10
factors with trust. Two of Mayer et al.’s antecedents to trust, integrity and competence, can also
sometimes lead to respect. Integrity in terms of honesty would lead to both trust and respect (as
people value honesty as a trait). People who are highly skilled are likely to be trusted in their
knowledge as well as respected for their worth.

Although trust and respect often co-occur, I have argued that respect and trust each imply
a distinct set of attributes in a person. Trust provides reason and motivation to accept what
another says because a trusted person is thought to be concerned for the trusting person’s
welfare. Thus the trusting person can feel comfortable putting him or herself in a vulnerable
position to the trusted person. Respect, on the other hand, provides reason and motivation to
engage and reflect on what another says because a respected person is believed to have good
reasons for his or her thoughts and actions. The esteem for the respected person will also lead the
respect giver to communicate that esteem when interacting with the respected person. Therefore,
even when trust and respect co-occur, their respective attributes should have different
consequences for interaction in collaborative work. To test this I examined respect and trust in
simulated management teams.

Differentiating trust and respect in the context of teams.

Much of the theory on respect was developed through observation of cross-functional
design teams at a large auto manufacturer (Cronin, 2003; Cronin, Weingart, Cagan, & Vogel,
2002). This study seeks to validate and extend this theory by measuring respect and trust in

3 Note that a malicious expert would not be trusted, these are just less common.
simulated management teams composed of MBA students enrolled in Carnegie Mellon’s Management Game. Management Game is a realistic business simulation where students act as the top management team of a company, setting the strategy for all aspects of the business and making reports to a “board of directors” composed of local business executives. Management Game is described in detail in the method section.

Management Game simulates the complexity involved in real management through an interactive program with multiple interdependencies between aspects of the markets and the individual businesses. Thus the teams in this setting have a very difficult task, making high level decisions to guide their company’s operation and performance. The information load is high as the teams receive and must integrate detailed data on the various parts of their business (sales, marketing, OR, etc.) with their relative performance in the market. In addition the level of uncertainty is high because of the multiple determinants of any one factor in the business. Time is a scarce resource in this environment. Therefore effective teams must be able to specialize and coordinate their activities so that they can distribute the burden, as well as apply their individual expertise (marketing, finance, etc.) to the appropriate parts of the business.

In this context, decision by committee is likely to fail. Kraut, Fussel, Lerch, & Espinosa (2003) previously studied these simulated management teams and found that becoming coordinated, where the team had a coherent idea about what it should be doing as well as how to distribute information, was the primary factor in team success. Communication was also a factor in success, but it was important for becoming coordinated. Communication had no direct effects on performance. Thus successful teams communicated with each other in an effort to create a proper division of labor and shared understanding, which then led to efficient and effective interdependent work. I expect that both communication and coordination should be affected by trust and respect.

Communication. As argued above, communication enables coordination (Kraut, Fussel, Lerch, & Espinosa, 2003). Communication can also improve idea generation by leading members who hear other’s information to consider multiple perspectives, thereby improving group output (Katz, 1982; Cohen & Levinthal, 1990). In fact, many innovations come from synergistic combinations of information from people with different perspectives (Amabile, 1988; Kanter, 1988; Woodman, Sawyer, & Griffin, 1993), and these tend to result in improved group performance.
Communication takes time, but may sometimes result in a useful new idea. In a team where expertise is distributed and where attention is an especially scarce resource, communication must be used judiciously. Because of this I expect respect and trust to have opposite effects on communication. As argued above, respect engenders the belief that there is value in a person’s perspective. If one thinks what another says will be useful then one will be inclined to seek that value, especially if one is uncertain about a decision. This implies that respect should increase communication as people seek their input (even if it is not required) in the expectation of adding value. Trust, on the other hand, engenders the belief that what people say is not intended to deceive. This should lead to a higher likelihood of information acceptance once it is transmitted, but it is not a reason to seek additional information. In addition, when people are specialized, trust will allow one to feel content that if the trusted person has something one needs to know, the trusted person will tell him or her. Respect, which is not about concern for the respect giver, would not lead to such an assessment. Trust that a person will communicate when needed is adaptive in these groups because it decreases demand for attention and monitoring.

H1a. Respect will increase the amount of communication in management teams.
H1b. Trust will decrease the amount of communication in management teams.

Coordination. Coordination of interests, understandings, and actions is critical for group performance (Gittell, 2001; Lewis, in press, McGrath & Argote, 1999). This is because whenever people are interdependent, they must manage their interdependencies to avoid process loss (Van de Ven, et al., 1976). Coordination is even more critical in groups where the task is such that one person could not perform all of its required functions, or the expertise needed is too great for one person to possess. Upper-management teams are an example of this condition. I expect both trust and respect to increase coordination, but to do so via different mechanisms.

Trust will be an important factor in coordination. One should believe others will perform their tasks as needed and will not act with malfeasance. If one does not believe this, then they are likely to either avoid relinquishing control of a process or increase their monitoring of the non-trusted party (Kruglanski, 1970; Strickland, 1958). Respect should also lead to a coordinated state, but rather than “allowing” coordination to take place (like trust), it should “seek” to make coordination happen. Instead of relinquishing control, respect would motivate a person to engage another in an attempt to find where to best apply his or her value. One would want to assign a
respected person to a task because of he or she would be confident that the job would be done well. In addition, offering a respected person an important task would communicate the regard in which one holds the respected person. Since respect affects coordination through a different mechanism than trust, the increase in coordination due to respect should be in addition to that of trust.

\[ H2a. \text{Trust will increase coordination in management teams.} \]
\[ H2b. \text{Respect will increase coordination in management teams above and beyond what is attributable to trust.} \]

\textbf{Conflict.} In groups that perform complex tasks, especially when individuals approach the problem from different perspectives, conflict is likely (Cronin, et al. 2002). Conflict has been argued to affect group process and performance both positively and negatively. Conflict can sometimes stimulate new ideas and new ways of thinking about a problem (Tjosvold, 1997), and can sometimes provide more information that the group can work with (Deutch, 1973). However, when conflict intensifies, it can become disruptive and interfere with thinking productively (Carnivale & Probst, 1998). Jehn (1995, 1997) discussed two kinds of conflict, relationship and task. Task conflict involves disagreement over what to do to accomplish an objective, whereas relationship conflict is centered on personal issues, such as dislike.

Management teams often have people who represent different departments or functional backgrounds, and the same is true for the simulated management teams. Although Kraut, et al. (2003) did not measure conflict, it is very likely to have occurred. The complexity of the problem and the different perspectives are likely to lead to task conflict. The intensity of the class in terms of workload and time pressure is likely to introduce relationship conflict as well.

I argue that respect should decrease relationship conflict, as was found in Jehn and Mannix (2001). Because respect is based in the evaluation of a person’s character, one who is not respected will be marginalized, and one may feel justified in attacking him or her personally. One would not do this to someone he or she respected because one would want to demonstrate regard for the respected person (Tyler & Lind, 1992). Trust should not have a significant effect on relationship conflict because both high and low trust would lead to fewer opportunities for relationship conflict. One is likely to avoid an individual they do not trust, decreasing the likelihood of relationship conflict. Although one would not avoid a trusted person, believing that the individual has considered your needs decreases the inclination for conflict while you interact.
Trust and respect should bolster each other and have an interactive effect on reducing relationship conflict. It may be easiest to reflect back on the kinds of people who would fit in each cell of a 2 (high-low trust) x 2 (high-low respect) grid. A high trust, high respect person is someone who is likely to be a close associate, such as a mentor (someone to look up to as well as would be vulnerable to). People will develop much stronger relationships with high-trust, high respect people than those who are trusted but not respected (e.g., lackeys) or respected but not trusted (e.g., adversaries). The evaluation of this close associate would be positive beyond the sum of the positive assessments of the lackey and the adversary.

\[ H3a. \text{ The interaction between respect and trust will decrease relationship conflict in management teams.} \]
\[ H3b. \text{ Respect alone will decrease relationship conflict in management teams.} \]

Trust should decrease task conflict. One reason is that trust encourages people to leave others alone to do their work. When people do disagree, trust should lead to a higher probability of acceptance of the other person’s opinion on the disputed issue because trust will remove some of the worry that the trusted person is false in his or her claim. The interaction of respect and trust, on the other hand, should increase task conflict. The value that is assumed to exist in a respected person’s beliefs would compel one to put the effort into fleshing out the argument if he or she disagreed with the respected person (i.e., one would want to know why). However, before one does this, one would need to trust that he or she could believe what the person says. If a person will be duplicitous in his or her argument, there is no point trying to understand it.

\[ H3c. \text{ Trust will decrease task conflict in management teams.} \]
\[ H3d. \text{ The interaction between respect and trust will increase task conflict in management teams.} \]

Method

Participants

Participants were 321 MBA students in 88 five to six person teams. Students ranged in age from 22 to 54, and approximately one quarter were women. The teams were engaged in a realistic business simulation called Management Game (Cohen, Dill, Kuhen & Winters, 1964). Participation in the study earned students a chance to win 6 prizes ranging from $250 - $550.

Setting

The MBA teams act as the top management team (TMT) of a wristwatch company. The simulated companies operate in a virtual world for a virtual three-year period over 14 weeks.
Sixty-seven parameters in the simulation (e.g., demand, competition, cost of labor, stock price, etc.) interactively determine the dynamics of the world, and the worlds evolve over time in partial response to the organizational decisions made by the teams. The teams make decisions about issues such as product positioning, production method, distribution channels, R&D spending, and organizational financing. These decisions are put into the simulation twice a week as moves. Teams also have to deal with exogenous shocks and opportunities that arise in the world such as a class action lawsuit, a labor negotiation, and a new factory purchase. At the end of each year, the teams present a report to their board of directors, local business executives who volunteer to act in the simulation. The presentations last about three hours. During this time, teams justify their decisions, summarize their market position, and present their strategy for the coming year.

The simulation begins in March. The team presidents are selected by the students via popular vote. The rest of the teams are then picked by the presidents in a round-robin draft. The first year ends with a board meeting in April. The simulation is inactive over the summer break. After summer break, the simulation intensifies. The second board meeting is held after the second simulation year ends the third week in September. It was after this meeting that participants completed the first survey. The third year and final board meeting took place in mid October. Participants filled out the second group survey after the third board meeting.

The Management Game simulation presents an attractive hybrid between an experiment and surveying real top management teams. Like an experiment, the teams are evenly matched because of the round-robin draft style for the players and the similarity in terms of participants’ age and work experience. In addition, all companies start from essentially the same place. Similar to real top management teams, the task assigned to teams is incredibly complex, and participants take it seriously. Management game has been Carnegie Mellon’s flagship MBA course since the 1960s. Because of the complexity, realism, and competitive nature of game, the students are highly motivated and put tremendous effort into the course.

Measurements

The data used in the analysis came from a survey that was administered after the second and third board meetings, from board member evaluations, and from the simulation itself. The group survey assessed individual’s perception of team dynamics, in particular, the levels of respect and trust, conflict, communication, and coordination with the team. It also assessed
participant’s general satisfaction. This survey was given twice so that variables at time one could be used to predict levels of other variables at time two. The scale development processes are discussed in the next section; items and reliabilities are given in table 1.

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Insert Table 1 here

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Respect. The respect scale consisted of 13 items. These items asked participants to evaluate the team members on a five-point scale (strongly disagree to strongly agree). The items could loosely be categorized as reflecting pride, approval, and assumed value for the target persons; these categories all connote esteem for a target according to the definition of respect offered in Cronin (2003). The particular items used had been in development across multiple previous survey iterations used for research with both the large auto manufacturer and integrated product development classes. The final set of items was selected from two pretest samples of 178 and 165 people, respectively. The items selected had the greatest mean difference between participants’ ratings of a respected and non-respected person.

Trust. The trust scale consisted of three items, one general trust item (“I trust my teammates”), an item on vulnerability, and an item on truthfulness. The items were also five-point scales. The scale was purposefully made small and general to capture as much trust variation as possible. At the same time, the items focused attention on the core components of trust, truthfulness and benevolence.

Communication. Communication was measured using items from Kraut, et al. (2003). These were three items that measured communication frequency between the team president, other team members, and other teams on a six-point scale (less than once a week to more than once a day). These items were not combined, as they addressed different kinds of communication. Unfortunately, due to a database problem, there is only data for communication at time 2.

Coordination. The coordination measure was a 16-item scale used previously on management game participants (Kraut, et al. 2003). Twelve items in this scale had been developed by other investigators (Cammann, Fichman, Jenkins & Flesh, 1983; Van de Ven et al., 1976) prior to the Kraut et al. study. This scale was separated into four subscales, two of which were used in this analysis. These scales measured how clear the team’s goals and strategies were
(clarity – 7 items), as well as how much time was wasted by team members (efficiency – 3 items).

**Conflict.** Conflict was measured using four subscales: task conflict, relationship conflict, process conflict, and disruption. Only task and relationship conflict, both taken from Jehn (1995), are used in this analysis. Task conflict consisted of five items, relationship conflict consisted of three items, and both used five-point scales (strongly disagree to strongly agree).

**Satisfaction.** Satisfaction was measured with three, five-point items that asked about team member’s satisfaction with their team, their board, and their products.

**Board ratings.** Each team’s board of directors rated the team’s performance on 12 dimensions (a seven-point scale ranging from unacceptable to outstanding). These ratings were discussed and agreed upon by all members of a board of directors, and counted toward student’s grades.

**Earnings.** Earnings are the gross income of a company minus cost of goods sold and operating expenses (R&D, salaries, marketing, etc.). Earnings were calculated by the simulation.

**Return on investment (ROI).** Each firm had stock that was publicly traded among students from non-competing companies (firms outside their world). Team members began the simulation with equal numbers of shares in all non-competing firms. Team members could invest their own money (from their salaries and bonuses) in other companies’ stock, and, as a team’s stock price fluctuated, people earned a return on their investment. ROI contrasts nicely with earnings because it represents value to the shareholders rather than to the company.

**Analyses**

Data analyses had two phases. The first was a preparation phase in which psychometric properties of the scales were checked and the data was aggregated to the group level, centered and scaled. The second phase was the analysis phase. During this phase, the relationship between variables was tested.

**Scale development and validation.** Most scales were modified in response the actual data collected (e.g., items dropped, subscales created)⁴. The process for creating a scale was as follows. The initial scales (trust, respect, task conflict, etc.), which should have loaded on a single factor, were subject to exploratory factor analyses (EFA). Any item that loaded on another factor or had a communality less than .6 was noted. The scales were then subject to confirmatory analyses.

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⁴ All scale development was performed using the time 1 data. The time 2 data was used for verification (say more)
factor analyses (CFA) using AMOS 5. In all cases, I compared the original scale with the full complement of items to a new version of the scale without the problematic items. If the comparative fit index (CFI) was above .90, which it never was, the sale was left intact. If the CFI was not above .90, the problematic items were removed. In all cases, this led to an acceptable CFI index (> .90) for the new scales (see table 2).

Note that AMOS cannot perform CFA when there is missing data (average percent missing = 0.94%, min = 0%, max = 4.24%). Rather than use the default option in AMOS, I used a technique called multiple imputation (Schafer, 1997) to fill in the missing data. Imputation produces more accurate estimates by using Markov chain Monte-Carlo analysis to create multiple random draws from a given probability distribution (see Gilks, Richardson, & Spiegelhalter, 1996). Even with a fully imputed dataset, the sample size tended to be too small to avoid computational problems such as non-positive definite matrices. To deal with this problem, I used the bootstrapping procedure in AMOS (Byrne, Ch. 9, 2001). I ran 200 bootstrap samples and in not a single case did a sample need to be thrown out because of a singular covariance matrix or because a solution could not be found.

There were additional questions regarding the factor structure between certain scales. Once the proper items for each scale/subscale were identified, I compared competing factor structures using a model comparison approach similar to that advocated by Anderson and Gerbing (1990). In this approach, I compare my theoretical model with a competing model and used the one with the better fit. The most important question was whether or not respect and trust actually reflected distinct latent factors. The two-factor model had an acceptable fit (CFI = .923) and it was significantly better that the one factor model ($\chi^2 (1) = 24.40, p < .000$). Kraut et al. (2003) found a two-factor solution for the coordination scale. I tested a similar solution against the four-factor solution implied by the EFA and found the four-factor solution to be superior (time 1: CFI = .941; $\chi^2 (5) = 142.61, p < .000$; time 2: CFI = .910; $\chi^2 (5) = 130.8, p < .000$). Finally, the EFA showed a three-factor solution for the conflict scales. This fit less well than the original four-factor solution, so the original four scales were kept (time 1: CFI = .947; $\chi^2 (2) = 42.23, p < .000$; time 2: CFI = .920; $\chi^2 (2) = 35.28, p < .000$).
Once I had all the scales and subscales finalized, I tested the reliability of these scales at time 1 and time 2 was tested using the unimputed data set. In all cases, reliability was above .70 (see table 1).

I aggregated the individual responses to the group level by taking the average score on each item across team members (team was a significant predictor of all survey based variables for each time period, thus aggregation was warranted). I then took the average of the items to form the score for a scale. The number of people on a team who filled out a survey varied from one to six (M = 2.3). To guard against biased estimates, I tested whether the number of people on a team who filled out a survey affected the score for each of the different variables but found none. After aggregating the scales to the team level, the variables were scaled and centered (ref). This was particularly important, as I would be testing the interaction between trust and respect, which was calculated using the centered, scaled scores.

**Model analyses.** The basic framework used for analysis is a regression equation in which the independent variables are measured at time 1 and are used to predict dependent variables at time 2. As a conservative test, I used the measurement of change advocated by Cohen and Cohen (1983) in which one includes the dependent variable at time 1 as a predictor along with the independent variables. This makes the regression equivalent to examining the change in the dependent variable, and it controls for many statistical artifacts such as regression to the mean or contemporaneous co-variation between outcome and predictor variables.

In addition to this framework, I used a weighted least squares regression. Often, the data had outliers or the errors were heteroscedastic. Because the outliers did not center on a particular observation, eliminating different observations for each analysis seemed to be an inappropriate answer. Instead, observations were weighted by the magnitude of predicted residual\(^5\). Further, for all regression equations, the collinearity diagnostics were examined and always fell within acceptable parameters (SPSS Corp, 2001)\(^6\).

**Results**

Because trust and respect are highly correlated, and because I am arguing that respect and trust have unique effects on group process and outcome variables, I will focus on partial

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\(^5\) The actual procedure was to run OLS on the equation and then save the residuals. Calculate the log of the squared residuals, and use these as the dependent variable in the same OLS equation. Save the predicted values of this second regression. Then use 1/square-root of \(e\) raised to the predicted value as the weight.

\(^6\) As predicted, trust and respect were highly related. Respect predicted trust with an R\(^2\) of .583 at time 1 and .623 at time 2, these were nevertheless below the normal level of concern for multicolinearity (Myers, 1990)
correlation coefficients rather than beta coefficients, as the partial correlation represents a variables contribution above and beyond the other variables in the equation.

*Group processes that affected outcomes*

Before discussing how respect and trust affected the process variables, it is important to test that the process variables were, in fact, related to the outcome variables. In the prediction, equations were the conflict variables (*task, relationship*), the coordination variables (*clarity, efficiency*), and the dependent variable. All of these were at time 1. In addition, I controlled for communication (with *president* and *team members*) at time 2. Because of the program error, I could not test the relationship between communication at time 1 and outcomes. Note that Kraut, et al. (2003) who used these scales on prior data using the same Management Game found no direct effect between communication and outcomes; rather, the effect was mediated by being coordinated.

As with Kraut, et al., I found coordination to be related to outcomes. Curiously, the two factors behaved differently. Being clear about what one was supposed to do (*clarity*) had the greatest effect on the outcome variables. It positively affected *earnings* (partial correlation = .407, t(50) = 3.21 p = .002), *ROI* (partial correlation = .316, t(50) = 2.40 p = .02), and *board evaluation* (partial correlation = .308, t(50) = 2.33 p = .024) affected each except satisfaction, which was only affected by relationship conflict. Curiously, perceived efficiency had a negative effect on *earnings* (partial correlation = -.297, t(50) = -2.24 p = .029) and *ROI* (partial correlation = -.294, t(50) = -2.22 p = .031). The only relationship between conflict and outcomes was relationship conflict, which decreased satisfaction (partial correlation = -.265, t(50) = -3.12 p = .003). A graphical representation of the relations between process and outcome variables is given in figure 2.

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*Insert Figure 2 here*

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*The effect of trust and respect on process variables*

This section uses respect, trust, and the interaction between respect and trust at time 1 to predict conflict (*task, relationship*), coordination variables (*clarity, efficiency*), and communication (*board, team*) at time 2 (controlling for the DV at time 1). All statistics are given in table 2.
Communication frequency. Respect was related to increased communication with both other team members and with the team president. Trust was related to a decrease in communication with both other team members and with the team president. Trust and respect interacted to decrease communication within one’s own team.

Coordination. Coordination factored into two components. The first, clarity, had to do with how well people felt the team understood how it should function. Respect predicted increased clarity at time 2, trust did not. The second, efficiency, had to do with how much time a team perceived itself wasting. Trust predicted increased efficiency, but respect did not.

Conflict. The interaction between trust and respect reduced both task and relationship conflict. Respect alone had an additional marginal effect over and above the interaction effect on relationship conflict. Trust by itself was related to neither.

Relation of respect and trust to outcome variables.

Although not hypothesized, I wanted to test whether respect or trust had any relationship to the outcome variables, either via mediation or directly. When testing for direct effects, respect was positively associated with both satisfaction (partial correlation = -.265, t(50) = -3.12 p = .003) and board evaluation (partial correlation = -.265, t(50) = -3.12 p = .003). Trust was negatively associated with both satisfaction and board evaluation. I then tested whether clarity and efficiency mediated the influence of respect and trust (respectively) on board evaluation. This was the case (see table 3). For satisfaction, however, relationship conflict mediated the effect of respect, but trust had a direct negative relationship (see table 3).

Discussion

Overall, the results clearly demonstrated that respect and trust have important and differentiable effects on group performance and outcomes. Some of these effects were as hypothesized. Respect increased communication (H1a), while trust decreased it (H1b). Respect reduced relationship conflict (H3a), as did the interaction of respect and trust (H3b). Other effects were different than expected. Respect increased one part of coordination, clarity as to
what one was supposed to do (H2a) while trust increased a different part of coordination, the belief that the team was efficient (H2b). Both of these effects were in the general spirit of what was argued in the introduction. However, I did not anticipate that respect would have no relationship to efficiency or that trust would have no relationship to clarity. Finally, the negative relationship between the respect x trust interaction and task conflict was unexpected (H3d), as was the absence of a relationship between trust and task conflict (H3c). Also unexpected was the finding that trust and respect interacted to decrease communication within one’s own team. Possibly the most surprising finding was trust’s direct negative effect on satisfaction and mediated negative effect on board evaluation.

The main objective of this study was to distinguish trust and respect empirically using simulated management teams. It that regard, I believe this study has succeeded. Trust and respect showed different effects across variables (e.g., respect affected clarity while trust affected efficiency) and within variables (e.g., trust and respect had opposite effects on communication). Trust and respect also affected outcome variables through different mediating mechanisms. If respect always had an effect while trust never did, one might argue that what I called “respect” was, in fact, a more accurate measure of trust. This was not the case. If respect and trust always had the same effects on the dependent variables, one might argue that respect and trust were separable factors of the same construct. This was also not the case. Overall, respect and trust seem to engage different processes and affect groups differently across different factors.

The fact that trust did not have a universally positive, or even that strongly a positive, overall effect on performance lends credence to the idea that, in prior research, trust was subject to omitted variable bias. That is, trust’s effect was bolstered by other non-measured variables, of which respect was probably one. There is further evidence of this statement in the large differences between the zero order correlations and the partial correlation that were found in the regression equations. These results were not presented, but they are available from the author upon request. It is important to note that trust’s subdued effects in this context should NOT diminish the importance of trust in organizational processes. Rather, the point is that along with sharpening the theoretical definition (e.g., Mayer, et al. 1995) and the measurement (e.g., Gillespie, 2003) of trust, we must also sharpen its empirical effects by measuring it along with other related but distinct concepts.
Rather than interpret why some hypotheses were supported while others were not, and then speculating on the implications for group process and performance, I believe it is more prudent to simply assert that respect and trust affect critical group processes differently. This is the first study of its kind (in terms of contrasting trust and respect this way) and so the specific behavior of respect and trust could be idiosyncratic to this task or population. Note also that the hypotheses were supported by theory describing why respect and trust should act the way they did. However, the tests of the hypotheses did not test the actual mechanisms claimed. Such tests are better suited for a more controlled setting.

Next steps

As this paper is part of a dissertation, it is worthwhile to note the next steps that will be undertaken in completion of this work before going on to describe future research. One of the first issues to pursue will be examining how trust and respect affect the feelings, thoughts, and behavior of individuals in this context. I will be able to do this because I collected additional data via a separate survey from these Management Game participants on the respect, trust, and associated feelings, thoughts, and behaviors they had toward their best and worst team members. These data should corroborate the descriptions of respect and trust given in the introduction, and shed some light on the plausibility of the mechanisms claimed to be responsible for the hypotheses.

A second set of questions relates to McGrath and Argote’s (1999) third main function of group process: information processing. This study looked at the first two functions, managing conflict/consensus, and coordinating member actions. My next set of studies will look in depth at information processing. These will be a set of focused and controlled laboratory studies that examine how the cognition behind information processing is affected by one’s respect and trust for the source of the information. In particular, I will examine if trust and respect affect the effort put into thinking (e.g., Chaiken, Liberman, & Eagly, 1989), the flexibility of ones thinking (e.g., Isen & Baron, 1991), and the way people represent the problems they are trying to solve (Newell & Simon, 1972). This should build on the current research because although communication frequency, coordination, and conflict all affect the content and amount of information shared, it still remains to be seen what people do with the information once it is received. These next studies will examine the processing that communication undergoes once it is received.

Future research
As stated earlier, there are many questions about how respect and trust affected communication, coordination, and conflict in the simulated management teams. In addition, it may be fruitful to examine the interactions among these processes. This could be in terms of moderation (e.g., test whether respect moderates the effect of communication on coordination) or mediation (e.g., test whether respect mediates the effect of task conflict on performance). Some of these questions may be answered with a reanalysis of the current data while others will need to be tested with new instruments and data. For example, communication may mediate the effect of respect on coordination, but one cannot know from these data because of the lack of communication measures at time 1. Nevertheless, there are many potential relationships of interest.

Of particular interest to me is the following. I speculate that the presence or absence of respect is what makes task conflict positive or negative. This may explain the finding that task conflict is consistently not beneficial, as uncovered by De Dreu & Weingart (in press). It may be that even though task conflict is alleged to be devoid of personal feelings a lack of respect in a relationship may alter the meaning attributed to the same words spoken. For example, “Can anything go wrong?” may be seen as a legitimate question or an unprovoked challenge depending on the level of respect between the individuals communicating. Since conflict did not play an especially central role in these data, future tests of this conjecture may be better suited to a different context.

Finally, as stated in the introduction, trust and respect can be both inputs and outputs of group process. If respect and trust are important, then understanding how these develop in groups would be useful. Moreover, authors like Jackson (2003) have argued how group process is self-reinforcing, and so future studies should examine how respect and trust develop over time, and the feedback processes involved.

**Limitations**

In this study, trust and respect are measured, not manipulated, so one cannot infer causality. The fact that the independent variables were measured at time 1 and the dependent variables were measured at time 2 makes it unlikely that the direction of influence could be reversed. However, other unmeasured variables may still be responsible for the effect I found. One could use my own argument about omitted interpersonal variables to ask why respect and trust should be the only interpersonal variables measured in this setting. I can only reply that I
also measured liking, a general positive evaluation of others, but found it never significantly increased the predictiveness of a model (hence its absence from the paper). These three factors (trust, respect, and liking) came from theory derived from field observation (Cronin, et al., 2002), and represented what we believed to be a complete set of the important interpersonal variables. This is not to say that there are no other important factors out there, just that we have not found them in our particular research setting.

The fact that teams filled out their survey after they knew (or had a sense of) how they did in their board meetings is another issue that may have biased the evaluations of team process in the direction of their performance. While I cannot say whether this happened, I can say that there was some control for it in using the prior level of a variable (at t-1). In addition, teams always had a general idea of how they were doing, as stock price, earnings, and the group dynamics were experienced by the teams in real time (as is the case in real life), so most outcome variables were not likely to add new information to the group. In addition, there was not evidence of a general positive bias on the process variables; otherwise there would have been a more uniform positive relationship to the outcome variables.\(^7\)

The measure of trust could probably have been improved. Using an existing measure was not an option because of the core problem addressed by this paper, that current measures often include respect-sensitive items. It would have been beneficial psychometrically to have more items in the scale, but space came at a premium and at the same time I wanted to get a measure of trust that was open as possible within the confines of trust's core definition. Note also that this measure had been used multiple times previously by the author for measuring trust in integrated product development teams and had always shown appropriate reliability and factor loading, as it did in this sample.

**Conclusion**

Although it is unclear if respect operates as argued in this paper, it is clear that respect deserves to be added to the list of interpersonal factors that affect collaborative work. Respect as a construct is in its infancy, and so much work needs to be done identifying the exact nature of the construct (e.g., Cronin, 2003) as well as how it operates, and how it comes about. This study was primarily intended to generate an empirical reason to study respect in addition to trust. In

\(^7\) As stated in the method section, there are an additional four measurements (two for coordination, two for conflict) that were not reported in this paper. These had few, if any, effects on outcomes. You would expect more significant effects if people were rating everything positively in a non-discriminating fashion.
that regard I believe it succeeded. Note that “in addition to trust” implies trust and respect are not at odds. It is critical to understand how respect and trust interact as that will sharpen conceptualizations of both.

Respect became salient for me while observing teams because of the “I believe you, but I don’t care” response that seemed so frequent between people of different functions. There are likely to be other issues factors that affect group process as well. For example, a general feeling of liking may increase the desire to interact in the first place, and this may be important for promoting collaboration between people who are less constrained in who they need to interact with. Overall, I believe that interpersonal relationships play a much bigger role in productive work relationships than previously recognized. Researchers should consider whether or not there are other interpersonal factors missing from the research agenda.
References


McGrath & Argote, 1999


Myers, R. H. (1990) *Classical and modern regression with applications (2nd Ed)* Boston : PWS-KENT.


Woodman, Sawyer, & Griffin, 1993


Figure 1. General model to be examined

- **Input**: Trust, Respect
- **Process**: Communication, Conflict, Coordination
- **Output**: Board Eval, Earnings, ROI, Satisfaction
<table>
<thead>
<tr>
<th>Scale</th>
<th>Time 1 reliability</th>
<th>Time 2 reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUST</td>
<td>0.81</td>
<td>0.71</td>
</tr>
<tr>
<td>I trust my teammates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have little faith that my teammates will consider my needs when making decisions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe my teammates are truthful and honest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESPECT</td>
<td>0.95</td>
<td>0.95</td>
</tr>
<tr>
<td>I think highly of my teammates character</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This team sets a good example</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our team does things the right way</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This team deserves my consideration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I admire my teammates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am proud to be part of this team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think my teammates have useful perspectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teammates usually have good reasons for their beliefs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People on this team have well founded ideas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I hold the team in high regard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think highly of my team members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our team has a reason to be proud</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I respect my team members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELATIONSHIP CONFLICT</td>
<td>0.87</td>
<td>0.91</td>
</tr>
<tr>
<td>There is a lot of tension in your team caused by one or more members trying to take control of work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There a lot of tension in your team caused by member(s) not completing their assignment(s) on time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is often tension in your team caused by member(s) not performing as well as expected?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TASK CONFLICT</td>
<td>0.86</td>
<td>0.85</td>
</tr>
<tr>
<td>How frequently do members of your committee engage in debate about different opinions or ideas?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To what extent does your team debate different ideas when solving a problem?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do your team members discuss evidence for alternative viewpoints?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To what extent does your team argue the pros and cons of different opinions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team members often challenge each other's viewpoints or opinions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLARITY (COORDINATION)</td>
<td>0.88</td>
<td>0.88</td>
</tr>
<tr>
<td>Members of my team do their jobs without getting in each others' way.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My team has a clear idea of what our financial strategy should be.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My team has a clear idea of what our marketing strategy should be.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My team has a clear idea of what our production strategy should be.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members of my team have a clear idea of our team's goals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My team knows exactly what to do in order to succeed in Game</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members of my team fully understand how competitors' actions will impact our performance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFFICIENCY (COORDINATION)</td>
<td>0.7</td>
<td>0.75</td>
</tr>
<tr>
<td>Members of my team often disagree about who should be doing what task.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My team wastes a lot of time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members of my team often duplicate each others' work.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: Bold items are reverse scored</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. The effect of respect and trust on communication, coordination, and conflict

<table>
<thead>
<tr>
<th></th>
<th>communication</th>
<th>coordination</th>
<th>conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Team President</td>
<td>Clarity Efficiency</td>
<td>Task Relationship</td>
</tr>
<tr>
<td>Respect</td>
<td>partial corr</td>
<td>0.36** 0.33**</td>
<td>0.27** -0.18</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>0.977 0.873</td>
<td>0.429 -0.331</td>
</tr>
<tr>
<td></td>
<td>s.e.</td>
<td>0.323 0.331</td>
<td>0.199 0.231</td>
</tr>
<tr>
<td>Trust</td>
<td>partial corr</td>
<td>-0.34** -0.24</td>
<td>-0.19 0.27**</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>-0.930 -0.594</td>
<td>-0.272 0.445</td>
</tr>
<tr>
<td></td>
<td>s.e.</td>
<td>0.337 0.319</td>
<td>0.186 0.211</td>
</tr>
<tr>
<td>TxR</td>
<td>partial corr</td>
<td>-0.23* -0.20</td>
<td>-0.02 0.02</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>-4.364 -4.138</td>
<td>-0.318 0.179</td>
</tr>
<tr>
<td></td>
<td>s.e.</td>
<td>2.362 2.602</td>
<td>1.724 1.602</td>
</tr>
<tr>
<td>Model</td>
<td>Df</td>
<td>60 59</td>
<td>59 59</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>0.188 0.176</td>
<td>0.368 0.351</td>
</tr>
</tbody>
</table>

Note: ** p <.05, *p<.10
Figure 2. Process variables effect on outcomes

- Clarity → Board Eval
- Efficiency → Board Eval
- Efficiency → Earnings
- Efficiency → ROI
- Relationship → ROI
- Task → Satisfaction

Correlation coefficients: .31**, .41**, .32**, -.25**, -.27**
<table>
<thead>
<tr>
<th></th>
<th>Board Evaluation</th>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Respect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>partial corr</td>
<td><strong>0.27</strong></td>
<td>0.15</td>
</tr>
<tr>
<td>Beta</td>
<td>0.380</td>
<td>0.253</td>
</tr>
<tr>
<td>s.e.</td>
<td>0.162</td>
<td>0.194</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>partial corr</td>
<td><strong>-0.26</strong></td>
<td><strong>-0.19</strong></td>
</tr>
<tr>
<td>Beta</td>
<td>-0.327</td>
<td>-0.262</td>
</tr>
<tr>
<td>s.e.</td>
<td>0.146</td>
<td>0.160</td>
</tr>
<tr>
<td>TxR</td>
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<tr>
<td>partial corr</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Beta</td>
<td>0.831</td>
<td>1.072</td>
</tr>
<tr>
<td>s.e.</td>
<td>1.132</td>
<td>1.206</td>
</tr>
<tr>
<td>Clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>partial corr</td>
<td></td>
<td><strong>0.27</strong></td>
</tr>
<tr>
<td>Beta</td>
<td></td>
<td>0.308</td>
</tr>
<tr>
<td>s.e.</td>
<td></td>
<td>0.133</td>
</tr>
<tr>
<td>Efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>partial corr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td></td>
<td>-0.208</td>
</tr>
<tr>
<td>s.e.</td>
<td></td>
<td>0.110</td>
</tr>
<tr>
<td>Relationship Conflict</td>
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<td></td>
</tr>
<tr>
<td>partial corr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
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<td></td>
</tr>
<tr>
<td>df</td>
<td>72</td>
<td>70</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.373</td>
<td>0.450</td>
</tr>
</tbody>
</table>

Note: ** p <.05, *p<.10