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THE IMPACT OF MOTIVATION AND CONFLICT ESCALATION ON THE FIVE  
ZONE MODEL FOR PREFERRED CONFLICT HANDLING AND MANAGERIAL  
DECISION MAKING

BY

DEWEY WILSON TODD

*A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree  
of  
Doctor of Philosophy  
in the J. Mack Robinson College of Business  
of  
Georgia State University*

GEORGIA STATE UNIVERSITY  
ROBINSON COLLEGE OF BUSINESS

2005

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## ACCEPTANCE

This dissertation was prepared under the direction of Dewey Wilson Todd's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the Robinson College of Business of Georgia State University.

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## ABSTRACT

### THE IMPACT OF MOTIVATION AND CONFLICT ESCALATION ON THE FIVE ZONE MODEL FOR PREFERRED CONFLICT HANDLING AND MANAGERIAL DECISION MAKING

BY

DEWEY WILSON TODD

JULY 2005

Committee Chairmen: Dr. Peter Zhang and Dr. Craig Hill

Major Department: Managerial Sciences (Decision Sciences)

The Todd-Cambridge Preferred Conflict-Handling Mode (PCHM) Instrument is an example of a two-dimensional, five zone model, similar to the Thomas-Kilmann Conflict Mode Instrument, used to explain how individuals deal with situations in which their desires are in conflict with another individual or group. The instrument, developed for this research, was based on the Managerial Grid (Van de Vliert & Kabanoff, 1990). The two variables in the PCHM model are Assertiveness and Cooperativeness. Two additional interacting, independent variables (Motivation and Conflict Escalation) were posited to affect a sudden change in subject action under situations wherein there are different views of recommended decisions.

The third variable being explored by this research is “Motivation”. This represents a measure of one’s degree of attachment with respect to a decision. Motivation may originate in compensation, personal regard or an emotional attachment. The primary theory was that while assertiveness and cooperativeness may be statistically uncorrelated, although interdependent for the purposes of categorization (Van de Vliert &

Kabanoff, 1990), motivation creates an interaction effect with the other two variables and can be shown by inserting either a negative or positive motivational vignette between two administrations of the PCHM instrument. In other words, when one is highly motivated on a decision component there will be a predictable change in PCHM. Five of ten hypotheses were supported (null rejected) in investigating the effect of motivation.

The fourth variable explored was “Conflict Escalation” – also introduced in the form of a vignette. The purpose was to determine the effect on PCHM when a normal group decision making environment suddenly intensified in conflict. Individuals are classified according to the five preference categories, with one primary preference generally emerging. The research question here was, “...as conflict escalates, does the dominant preference score of the individual change significantly?” This could potentially affect communication and make participants more disparate. In two of the five hypotheses, this theory was supported.

The conclusion was that, although PCHM has traditionally been considered static, it can be affected suddenly and with a degree of predictability. This can be evidenced through motivation and conflict escalation.

## CHAPTER I - INTRODUCTION

*“[T]he degree of a person's intelligence is directly reflected by the number of conflicting attitudes she can bring to bear on the same topic.”*

*Lisa Alther, Kinflicks, 1975*

There has been much research in the area of conflict management within organizations and within the Information Technology (IT) and Project Management (PM) fields, specifically (Robey, et al., 1993). There has also been research done on the importance and role of motivation in corporate cultures. This dissertation's underlying theory proposed that there is a direct and predictable relationship between changes in the way individuals handle conflict situations and an individual's degree or level of motivation with regard to the decision area. Plus, as conflict intensifies, the individual's reaction would also change predictably. This has been explored to a degree by Tjosvold, et. al. (2001) in a study involving Chinese students. Their research has shown that while conflict may have a positive effect, and while a conflict participant may realize this, they will only be motivated to engage if they feel confident in their own expertise.

This dissertation involves group decision making, as opposed to team decision making. The difference in these decision making formats is that whereas with group decision making the emphasis is on reaching consensus (i.e., making a decision that everyone accepts), in team decision making each “player” is assigned a role and the goal relates to bringing information together in such a way as to make an effective decision (Wærn, 1998)



## Background

The background for this research comes from decision theory and group decision making within the information technology workplace and the effect of varying situations on how individuals react in confrontational events. The study of conflict handling preferences is generally restricted to a two-dimensional perspective (Thomas & Kilmann, 1974) and (Van de Vliert & Kabanoff, 1990), wherein subjects are analyzed with respect to their general reaction to statements involving conflict situations. Similar to other psychometric instruments, psychologists generally accept that by having a subject take the assessment, their typing at that point in time is their natural preference (Michael, 2003). In Chanin & Scheer (1984), there is just such a conclusion – that one will choose his or her preferred conflict handling mode, regardless of influences contained within the conflict situation.

There is, however, evidence to support that many assessments (such as the Myers-Briggs Typing Instrument) have issues of validity for this very reason. Michael (2003) states that, "...using the MBTI becomes at best a simplified process in assessing an individual's personality, and at worst a highly questionable process" (p. 68). The Thomas-Kilmann Instrument (also published by Consulting Psychologists Press) is a similar type forced-choice instrument based on individually selected preferences (Thomas & Kilmann, 1974).

That does not, however, remove the importance of these assessments. "More constructive uses of MBTI will have participants gaining an increase in self-awareness" (Michael, 2003, p. 68). The concept of individuation – "in psychoanalytic theory, the process of becoming an individual who is aware of his or her individuality" (Reber, 1995, p. 366) – means that humans tend to "unchangeably cling" (Michael, 2003, p. 68) to their

preference. But, even as the MBTI shows a normal preference, certain situations demand the correct type, even if different from the preferred.

Theoretically, assessments like MBTI assume that humans are usually unaware of the effect – uninformed about the role preferences play – similar to the choice between using the right hand and the left hand. Rather than choosing to use the right hand this time, and the left next time, people simply go with what is natural – the preference. However, it is normal to arrange one's environment (e.g., desk location, computer mouse location, etc.) to best match one's preference. Likewise, if an outside influence changes an individual's capabilities (e.g., breaking one's preferred arm or being left-handed in a right-handed world), then he or she is "motivated" to use a less preferred alternative – either that or choose inactivity. Obviously, deciding to become opposite-handed and taking years to develop that skill (e.g., a switch-hitter in baseball) is some of the basis of the reigning theory of type-change. But, what about when sudden change is required, as in the example with the broken arm?

There are, undoubtedly, situations wherein unassertive and cooperative people become more assertive and/or less cooperative because of a reaction to the given situation. It is posited that the presence of motivation causes the individual to change from his or her normal preference, as does a sudden escalation in conflict.

### Purpose

The purpose of this study is to enable companies to understand and, potentially, predict manager and employee reactions that differ from the individual's normal reaction when confronted with a conflict situation. By doing so, there should be a positive effect on team structuring, an enhanced understanding of when and why conflict becomes

negative, and more knowledge to help when distributing punishment and rewards in order to produce desirable results.

Richter (1996) has shown that Eastern cultures have long emphasized the importance of achieving consensus. In the Japanese business culture, for example, the group decision making model – requiring consensus – has long been a part of all hierarchical levels. It has been shown that this planned multi-level interaction and consensus is important because, as Haruo Takagi states, “...(I)ts intellectual productivity has a significant effect on the overall efficiency of the business,” (p. 102). Western cultures have been slower to adopt this model of consensus, and it cannot be forced – those who by nature prefer to avoid conflict or accommodate the wishes of others do not achieve true consensus.

There are also interesting hypotheses, such as the one put forth by Harvey (1988), seeking to explain not only why individuals will fail to respond to conflict when they disagree with the other participants, but also why they will seem to agree with the opposing views, even when they do not. He proposes that this occurs due to the individual’s fear of being left out, or not included in the decision. This could also explain the actions of the more cooperative participants (i.e., Accommodator or Collaborator). By identifying and understanding these type differences, one can begin to explore changes that potentially explain these paradoxes.

### Hypotheses

The initial root hypothesis tested is that as a stimulating event is introduced within a given group decision area, the average subject’s assertiveness and cooperativeness will change. As an example, assume that someone’s preference with respect to assertiveness and cooperativeness has been determined using the Thomas-Kilmann, or a similar,

instrument. It seems reasonable that when this individual is highly stimulated – via some form of motivation or conflict escalation - there will be a significant effect (as measured by the scoring technique of the assessment) on his/her level of assertiveness and/or cooperativeness when measured using the same PCHM instrument. This was determined by measuring the change in the Competer (High Assertiveness, Low Cooperativeness), Collaborator (High Assertiveness, High Cooperativeness), Compromiser (Mid-range preference for Assertiveness and Cooperativeness), Avoider (Low Assertiveness, Low Cooperativeness) and Accommodator (Low Assertiveness, High Cooperativeness) scores. Although contrary to the current theory that assessed preferences in the area of personality and cognitive behavior do not change (Agada, 1998), it is supported in Jung's theories of how the environment tends to help establish one's preferences over time (Jung, 1959). Much as the environment and other influences affect one's preferences, the theory of this research was that short-term conditions will also have a significant effect on preference.

The following specific hypotheses were tested using a survey, which included a PCHM tool (see Appendix A). The respondents were each administered the Todd-Cambridge Instrument (TCI) for determining Preferred Conflict Handling Mode (PCHM). The TCI is a metric psychometric assessment instrument designed to measure respondent preference for using assertiveness and cooperativeness in a given conflict situation. Following that, they were subjected to a fictional vignette, then the TCI was administered a second time, with differences being the subject of analysis.

### Hypothesis Set 1

The first set of hypotheses was designed to determine if there were specific, predictable changes to each of the five PCHM categories based on the introduction of a motivational vignette. The first five tests were for Group A (the negative motivation vignette) and the second five were for Group B (the positive motivation vignette). Out of 222 survey respondents, 70 were part of Group A and 76 were part of Group B, with the remaining 76 making up Group C (used in Hypothesis Set 2).

Competitor and Compromiser scores were predicted to increase, representing an increase in Assertiveness, but little or no change in Cooperativeness, while Avoider and Accommodator were posited to decrease for the same reason. Collaborator was predicted to decrease, because this normally “highly Cooperative and Assertive” measurement is more likely to decrease in cooperativeness in order to achieve closure and the desired results of the individual, as opposed to all players. The same set of hypotheses was used for Groups A and B, because even though they were posited to have the same effect, it was probable that the nature of positive versus negative motivation would have a different degree of effect.

H<sub>1A1</sub>: The introduction of a negative motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in an increase in the PCHM score for Competitor.

H<sub>1B1</sub>: The introduction of a negative motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a decrease in the PCHM score for Collaborator.

H<sub>1C1</sub>: The introduction of a negative motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a increase in the PCHM score for Compromiser.

H<sub>1D1</sub>: The introduction of a negative motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a decrease in the PCHM score for Avoider.

H<sub>1E1</sub>: The introduction of a negative motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a decrease in the PCHM score for Accommodator.

H<sub>1A2</sub>: The introduction of a positive motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in an increase in the PCHM score for Competer.

H<sub>1B2</sub>: The introduction of a positive motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a decrease in the PCHM score for Collaborator.

H<sub>1C2</sub>: The introduction of a positive motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a increase in the PCHM score for Compromiser.

H<sub>1D2</sub>: The introduction of a positive motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a decrease in the PCHM score for Avoider.

H<sub>1E2</sub>: The introduction of a positive motivational scenario to an individual previously assessed for Preferred Conflict Handling Mode (PCHM) will result in a decrease in the PCHM score for Accommodator.

## Hypothesis Set 2

A second set of hypotheses tested was that as conflict is intensified in a meeting situation (i.e., conflict escalation), where previously there was little or no conflict, there would be a change on the part of an individual relative to his or her dominant PCHM. It was hypothesized that escalating conflict would cause a decrease in the dominant score for those who prefer higher assertion, and an increase, or intensification, for the three preference categories lower in Assertion (Compromiser, Accommodator and Avoider).

H<sub>2A</sub>: The introduction of an escalating conflict scenario to an individual labeled as a Competer will result in a decrease in the Competer score.

H<sub>2B</sub>: The introduction of an escalating conflict scenario to an individual labeled as a Collaborator will result in a decrease in the Collaborator score.

H<sub>2C</sub>: The introduction of an escalating conflict scenario to an individual labeled as a Compromiser will result in an increase in the Compromiser score.

H<sub>2D</sub>: The introduction of an escalating conflict scenario to an individual labeled as an Avoider will result in an increase in the Avoider score.

H<sub>2E</sub>: The introduction of an escalating conflict scenario to an individual labeled as an Accommodator will result in an increase in the Accommodator score.

All of the proposed hypotheses for this study are shown below in Table 1, along with the expected changes.

Table 1 - Table of Hypotheses

Summary of Hypotheses		
Hypothesis Set 1		
<i>Introduction of a Negative Motivational Scenario</i>		
<u>Hypothesis</u>	<u>Subject</u>	<u>Expected Change</u>
H <sub>1A1</sub>	All	Competer Score: Increase
H <sub>1B1</sub>	All	Collaborator Score: Decrease
H <sub>1C1</sub>	All	Compromiser Score: Increase
H <sub>1D1</sub>	All	Avoider Score: Decrease
H <sub>1E1</sub>	All	Accommodator Score: Decrease
<i>Introduction of a Positive Motivational Scenario</i>		
<u>Hypothesis</u>	<u>Subject</u>	<u>Expected Change</u>
H <sub>1A2</sub>	All	Competer Score: Increase
H <sub>1B2</sub>	All	Collaborator Score: Decrease
H <sub>1C2</sub>	All	Compromiser Score: Increase
H <sub>1D2</sub>	All	Avoider Score: Decrease
H <sub>1E2</sub>	All	Accommodator Score: Decrease
Hypothesis Set 2		
<i>Introduction of an Escalating Conflict Scenario</i>		
H <sub>2A</sub>	Competer	Competer: Decrease
H <sub>2B</sub>	Collaborator	Collaborator: Decrease
H <sub>2C</sub>	Compromiser	Compromiser: Increase
H <sub>2D</sub>	Avoider	Avoider: Increase
H <sub>2E</sub>	Accommodator	Accommodator: Increase

## Definition of Primary Variables

### Preferred Conflict Handling Mode (PCHM)

In the early 1970's, Kenneth W. Thomas, Ph.D., and Ralph H. Kilmann, Ph.D., co-developed an abstraction instrument for measuring preferred conflict mode for managers when faced with situations wherein that individual's preferences, interests or values are in conflict with another individual or a group (Thomas & Kilmann, 1974). The instrument consists of thirty questions and results in a graphing of the individual's profile, with normalization shown against "the scores of the original norm group



composed of managers at middle and upper levels of business and government organizations” (p. 8).

In addition, the individual’s overall preferred mode can be plotted on an X-Y axis chart as shown below (Figure 1):

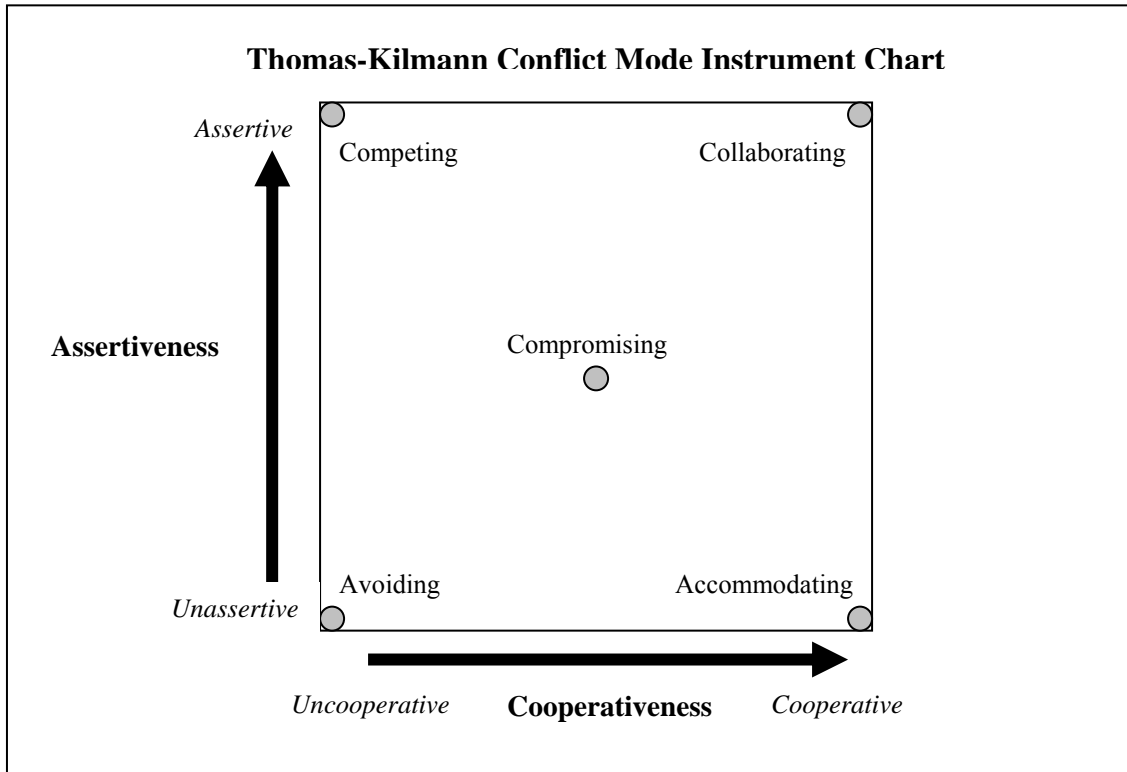


Figure 1 - Five Zone Conflict Model

An individual’s PCHM may differ from one situation to the next (e.g., a person may exhibit one preference when at the office and a different preference when with family or friends). However, within a single context (e.g., in the work environment) the preferred category should theoretically remain constant and should have an effect on how an individual makes decisions, especially decisions involving conflicting choices between themselves and others.

However, the basis of this research was that motivation and escalation would have an effect on what is ordinarily a static measurement, or “an invariant construct” (Agada,

1998). Agada also asserts that types, such as Myers-Briggs and PCHM, tend to be non-changing, while trait theory describes phenomena that exist on a continuum. By definition, PCHM is a type, not a trait of the respondent.

There is, of course, still the need to categorize in order to understand the significance of the subject's situation, but "process research" delves further into the importance of analyzing and understanding the process that individuals go through over a period of time (Smith, 1999).

The fact still remains that people evolve. Most of the research to this point has centered on understanding why individuals, or even groups, evolve over time. Jung discussed the concept of "individuation" (his term) as a process in which the individual is trying to differentiate effectively as the personality is developed over time (Jung, 1959). It is a maturing process that means the individual, who is typed according to a categorical scale, still strengthens the ability to draw on secondary or tertiary traits when the situation calls for it. The word comes from combining the words "individual" and "differentiation".

This current research, though, is not dealing with an individuation process. It is theorized that the personality type registers because "left to his own devices" it is the preferred path that the individual will take. According to Jung (1959), the preference becomes a habit, thus stamping the individual with a specific type. It is possible for an individual's type to change. As an example, after completing a rigorous course of study or transitioning into a new level of employment (i.e., moving from a support position to the position of support manager). However, this generally occurs in individuals who register close to the dividing point between preferences initially. This research, instead, was focused on the momentary movement from one preference to another. Just as the defined "Introvert" mother might suddenly become strongly "Extraverted" when her

child is about to run into the street, so it can be theorized that someone who is typically Cooperative and Unassertive might become less cooperative and more assertive when properly motivated or affected. The theory being tested here was that this is not necessarily a conscious decision, but rather a reaction to the situation.

Figure 1 showed the static Five-Zone model for differentiating conflict handling preference. Figures 2 and 3 below show the effect on this model by the hypotheses tested as part of this research.

Figure 2 shows the hypothesized effect on the model from the introduction of Motivation (Hypotheses  $H_{1A1}$ ,  $H_{1A2}$ ,  $H_{1B1}$ ,  $H_{1B2}$ ,  $H_{1C1}$ ,  $H_{1C2}$ ,  $H_{1D1}$ ,  $H_{1D2}$ ,  $H_{1E1}$ ,  $H_{1E2}$ ). The expectation was that as motivation is introduced via the vignette (whether positive or negative) the respondent would be more likely to be assertive and would strengthen in the preference categories associated with Assertiveness, while decreasing in Cooperativeness for the more extreme case of the Collaborator.

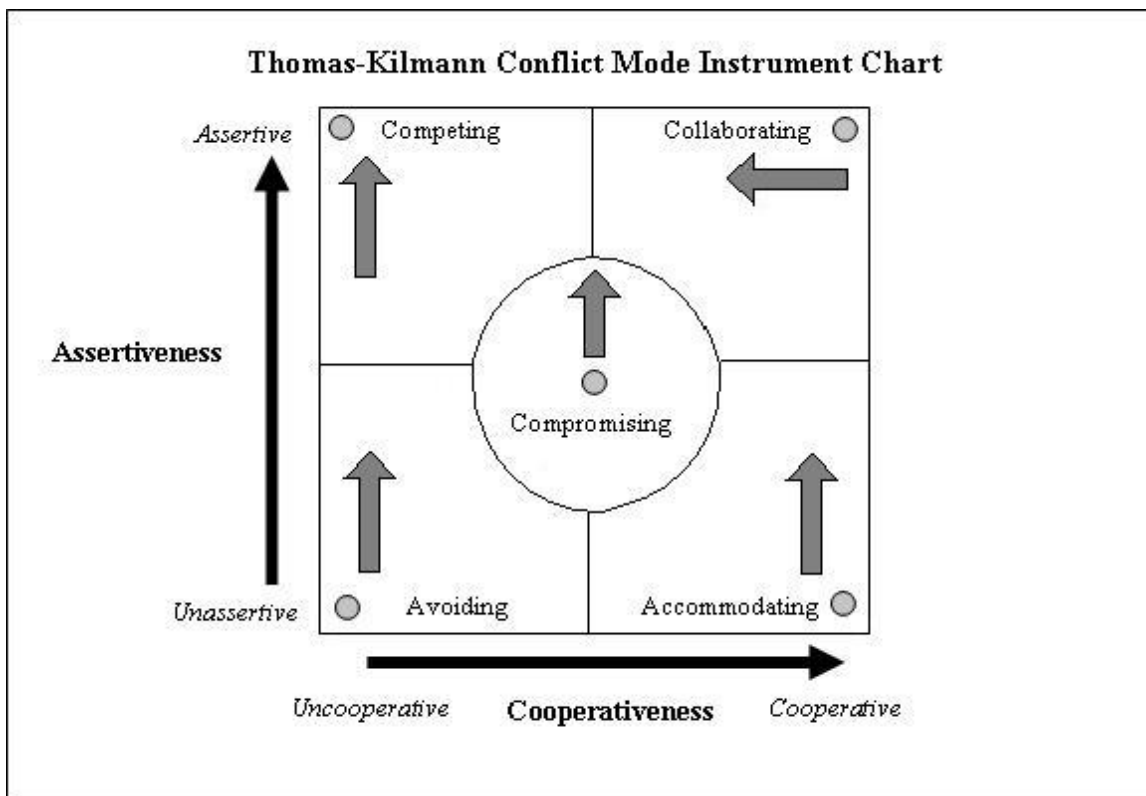


Figure 2 - Five Zone Conflict Model with Motivation

Figure 3 shows the hypothesized effect on the five zone model following the introduction of a stressful, or escalating, conflict situation (Hypotheses H<sub>2A</sub>, H<sub>2B</sub>, H<sub>2C</sub>, H<sub>2D</sub>, H<sub>2E</sub>). It was expected that the intensity of the conflict situation would force a change in how the respondent would rate his/her preferred method for handling conflict with respect to the dominant preference. It was theorized that Competers normally prefer to be assertive and uncooperative, but that these tendencies would decline and this score would decrease due to a desire to deescalate the conflict. Likewise, with the Collaborator, an individual who is typically strongly Assertive and Cooperative, would also reduce this score in an attempt to halt the escalation. Someone primarily scored as a Compromiser is fairly “middle of the road” with respect to Assertiveness and Cooperativeness. However, it was theorized that this individual would increase in the Compromising score in an effort to de-escalate the conflict. The Avoider, who dislikes

conflict and generally deals with it by avoiding it, was hypothesized to increase his/her score in this area as a response. Likewise, the Accommodator, who tends to be highly cooperative and unassertive, was theorized to become even stronger in this preference category (further decrease Assertiveness and Cooperativeness), thereby increasing the Accommodator score in an attempt to deescalate the conflict through agreement.

Theoretically, based on prior research and models, these individuals would remain unchanged, but it seemed logical that in an effort to deal with the escalating situation, individuals would change their characteristics in order to deal with the increased conflict in a way that seems more comfortable and compromising. Unlike the first set of hypotheses, which were confirmatory, this set of hypotheses was exploratory in nature, as there has been very little research done in this area.

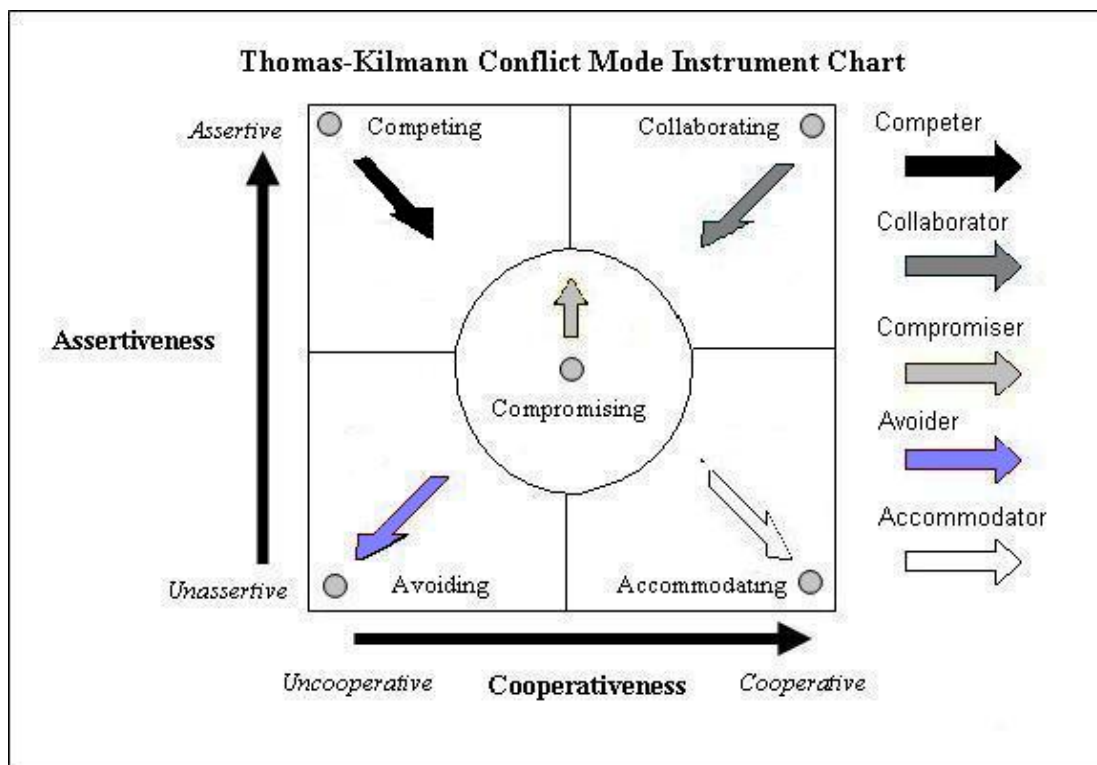


Figure 3 - Five Zone Conflict Model - Under Conflict Escalation

## Motivation

There has been much research done in the area of motivation within the field of psychology, particularly as it pertains to the concept of attachment. Beginning with Sigmund Freud and progressing through prominent psychiatrists such as John Bowlby, attachment behavior has been studied, quantified and qualified in many respects. For the purposes of this research, however, the focus was not so much on the attachment that one individual has for another, but rather on the attachment that one has for a given idea, purpose or goal. This form of attachment was labeled as Motivation. This motivation may be intrinsic (e.g., personal work ethic, self-actualization, etc.) or extrinsic (rewards, special compensation methods, praise, criticism, threats, etc.).

In defining the term motivation, Reber (1995) describes three general types. Two of these are used to describe orientations related to the physiological and the behavioral. The third type, which is the focus of this paper, is referred to as the psychosocial. This "... is oriented toward explanations of complex, learned, human behaviors" (p. 473).

In Figure 1, the five-zone model is shown representing preferred conflict handling modes. The new variable (Motivation) becomes an interacting variable, which theoretically has an effect on a given subject's PCHM. The theory here was that individuals tend to adjust their focus on both specific and general areas of their lives wherein they have higher levels of interest. Almost all of an individual's conscious thought processes are focused on the activities making up his or her life and these interest areas and the make-up of one's life-interests can theoretically be shown as a pie chart, with each interest area being proportionate to the individual's relative amount of time spent on that area (non-exhaustive example in Figure 4 below).

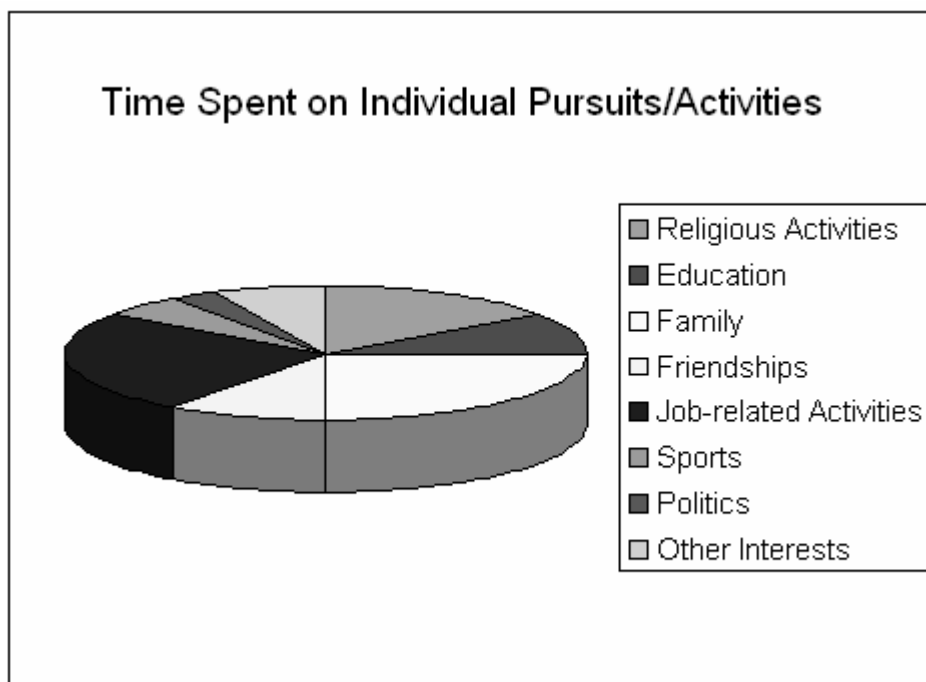


Figure 4 - Individual Pursuits/Activities

Now assume that one slice of this individual's life may be extracted – in this case, “Job-related Activities” (see Figure 5 below).

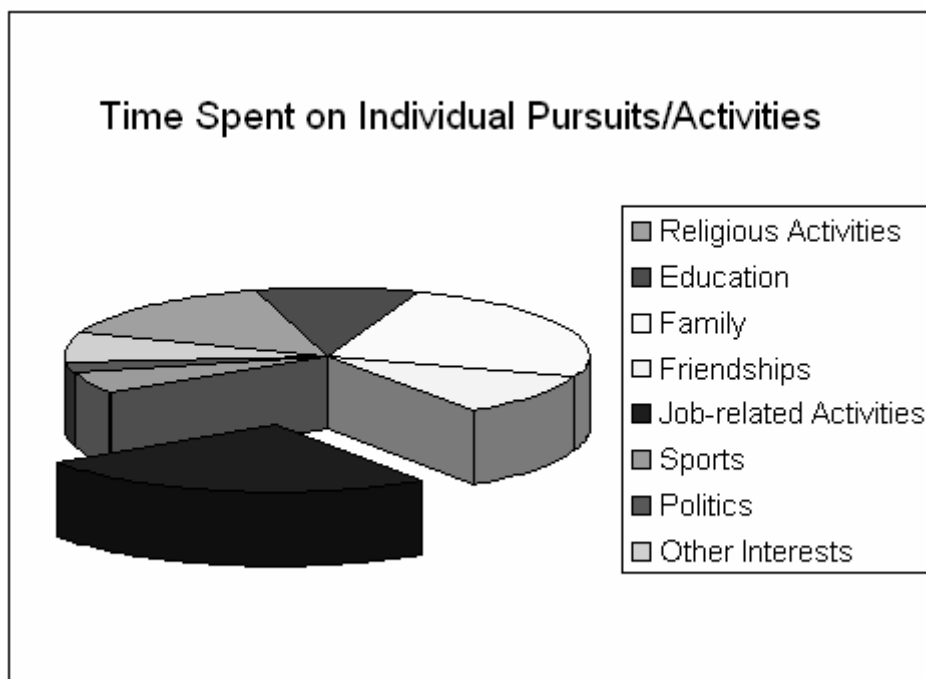


Figure 5 - Individual Pursuits/Activities - Slice

Each area making up the individual's motivational interests (which constitutes how he or she focuses on activities) can be analyzed with respect to that individual's motivation toward that specific or general activity. Below is another diagram (Figure 6) showing this "slice" (Job-related Activities).

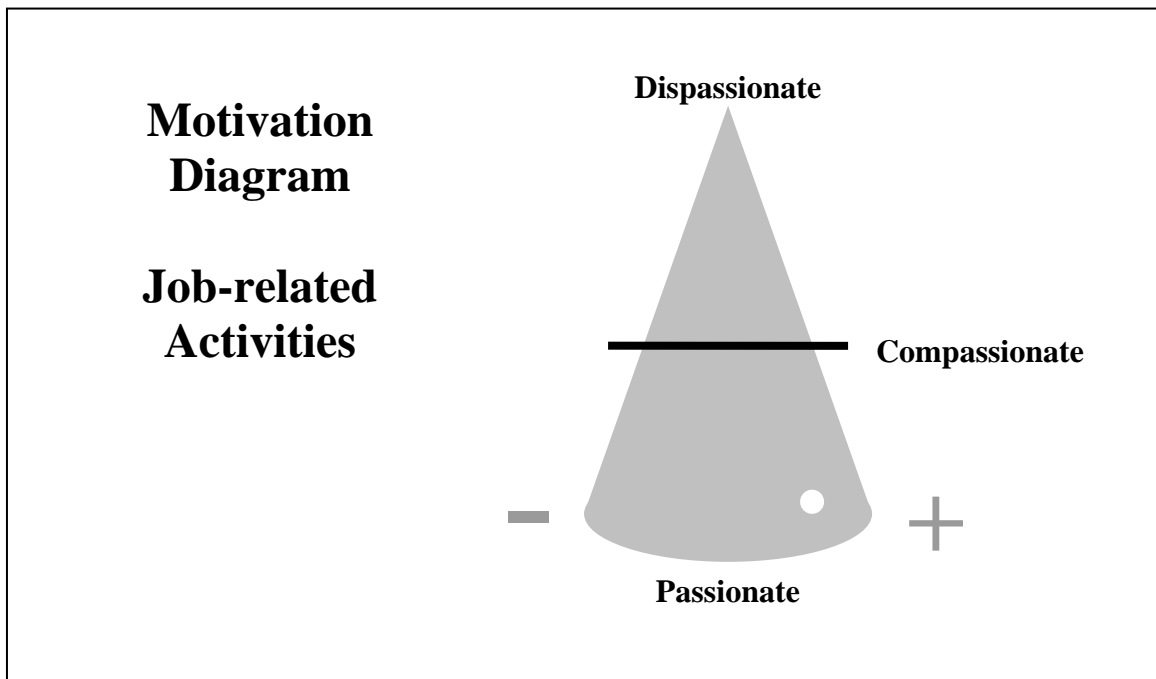


Figure 6 - Motivation Diagram

The cone represents the "slice of life" with respect to what kind of motivation the individual feels toward this aspect of his life. The range goes from "Dispassionate", meaning no interest or motivation, to "Passionate", meaning a high level of interest and motivation, perhaps even to the point of extremism. The theoretical mid-point is "Compassionate" meaning the person has a relatively high degree of interest, but tends to be more compromising with respect to other individuals' levels of interest, and is motivated by the need for compromise. The "plus" and "minus" signs represent the



individual's position on the area of interest. For example, one person could feel a high degree of positive motivational attachment on a specific political issue, while another individual feels a high degree of negative motivational attachment on the same issue – potentially leading to a “passionate” confrontation. Note that as one moves closer to being “Dispassionate” about an issue, the positive or negative aspect becomes irrelevant (sometimes to the frustration of a highly motivated individual who fails to draw in the interest of the other party). The white dot represents a subjective analysis of this individual's motivation with respect to the given issue.

In the example shown above (Figure 6), this individual feels a relatively high and positive degree of motivation with respect to his job-related activities. Assume this individual is tasked with making a decision on a highly ill-structured problem requiring collaboration and then imagine the effect on the decision-making process depending on with whom the individual is partnered. Someone with a similar degree of motivation about the work-related issue working with this individual might result in a very positive, imaginative decision-making process (although it could also result in an impractical decision that would fail to find favor with management). On the other hand, teaming him with a negatively motivated individual could result in either a highly creative, discerning solution or an impasse, depending on other variables at play (e.g., PCHM). Teaming him with a dispassionate individual could result in a high degree of frustration on the part of this individual, as he might feel that he would be better off making the decision alone.

Thus far, Motivation has been defined in relatively general terms. For the purposes of this research, Motivation needs to be defined at a more granular level. In the survey, a very simple vignette was chosen for each treatment. To help understand the scenarios that ultimately may occur in the workplace, a more detailed vignette may be helpful. As an example, imagine that you have the following scenario:

## Conflict Scenario

A certain software implementation project is underway at a relatively large company, using all internal resources. The project was originated by a mid-level manager six months ago. A Project Manager (PM) was identified and helped justify the project and has been managing the project from its initiation. Likewise, a Technical Leader (TL) was also identified and partnered with the PM from the beginning of the project, including justification. Other resources have floated on and off the project as needed (e.g., Business Analysts, Test Analysts, Developers, Technical Writers, etc.), but the PM and TL are the only constant team members. Suddenly, the mid-level manager transfers and a new manager is appointed over the area. The new manager feels the project is not beneficial to the organization and believes it should be terminated. His opinion is supported empirically in several ways (e.g., project is over-budget and off-schedule, user review reactions have been negative, another off-the-shelf product is available for less cost than the remaining expected cost, etc.).

The theory being posited is that the PM and TL will have a relatively high degree of intrinsic motivation because of the ownership they feel. Assuming this, the theory states that the Assertiveness and Cooperativeness of the PM and TL will change with respect to terminating the project and looking at other alternatives, based on their individual PCHM. They will also likely invoke heuristics such as the “Sunk Cost Bias” to justify the project’s continuation.

This is one example and, obviously, the situation could be made additionally complex by introducing other variations (e.g., assigning outside resources to the project). Likewise, the idea of Motivation works in the other direction. Assume in the previous example that the same scenario is true, but instead of considering canceling the project, the new manager offers the PM a bonus if he can get the project back on track and finish

it on budget and with satisfactory user response. In this case, the PM would likely have a Motivation stronger than the TL who did not receive the bonus offer. These examples are similar to the vignettes used in the surveys associated with the current research.

Another example of Motivation can be found in the area of school grades. Students will have their own form of attachment concerning grades. Many students will be very attached to As and Bs, either because of scholarships, grants, and other funding sources that are based on maintaining a minimum average, or because of personal intrinsic motivation. Likewise, other students will be attached to higher grades, because, even though their educational funding comes from personal sources (e.g., parents or other relatives) these sources have made the student's choices clear – no good grades, no money from home. There also exists the group of students who know that they can count on their funding as long as they do not quit or get kicked out of school. Their “attachment” to higher grades will probably not be as strong (evidenced by amount of time spent studying and sleeping versus other dissimilar pursuits). The State of Georgia has affected this paradigm significantly by introducing the Hope Scholarship (a lottery-funded scholarship program that guarantees funding to students maintaining a B average). An interesting empirical study would be to examine the *motivation* of students who are sitting just at or above a B average versus those just below a B and those well below a B.

It was mentioned earlier in this section that the works of prominent psychiatric researchers, such as Freud and Bowlby, were not the basis for Motivation, however it is interesting to note that the documented attachment styles of Bowlby correlate closely with the conflict modes of the PCHM (see Table 2).

Table 2 - Conflict Mode and Attachment Styles

Preferred Conflict Handling Modes	
Competing	Assertive and Uncooperative
Collaborating	Assertive and Cooperative
Compromising	Middle of the road on Assertiveness and Cooperativeness
Avoiding	Unassertive and Uncooperative
Accommodating	Unassertive and Cooperative
Attachment Styles	
Avoidant/Insecure Style	Avoids interaction and intimacy
Secure Style	Seeks and is comfortable with social interaction and intimacy
Ambivalent/Resistant Style	Both seeks and rejects social interaction and intimacy
Disorganized Style	Lack of consistent patterns of social behavior

It could be reasonably argued that the “Avoidant/Insecure Style” is similar in nature to the Unassertive modes, while the “Secure Style” is similar to the Assertive modes.

#### Motivation and the “Phrog Farm”

In his book, “The Abilene Paradox and Other Meditations on Management,” Harvey (1988) creates a metaphorical image of the corporate world as a “Phrog Farm” (pp. 37-45). The idea being that the more formal organizations become, the more they lose sight of their primary business function. Instead, the focus becomes one of ideological pursuits (i.e., maintaining the swamp). As an example, “...in many organizations, it is more important to follow the chain of command than to behave sensibly” (p. 38).

Harvey (1988) argues that it is factors such as time-clocks and doctors’ certificates when someone is ill (both of which insinuate management does not trust the employee) that ultimately lead to feelings of mistrust. This is an attempt on the part of management to force motivation – a self-defeating policy according to Harvey. Instead,

by showing trust, management can conceivably create motivation that emanates from the employee rather than from the top down.

### Motivation and Collaborative Creativity

Ricchiuto (1996), in his book, “Collaborative Creativity,” discusses the benefits of collaborating and the resulting effects on creativity and innovation. Society, through the school systems, begins at an early age teaching children (and future workers) that cheating is bad – therefore all work should be done in isolation. Theoretically, that line of thinking will lead to a failure to understand the importance of “agreement” and will instead lead to ineffective use of conflict. He instead proposes teaching children from an early age to work in a team format, monitor their use of personality strengths, and teach them effective agreement and conflict management, it is then theoretically possible to produce a generation of effective decision makers and team workers.

Collaboration is also one of Harvey’s (1988) recommendations as an alternative to the “Phrog Farm.” “When two or more individuals get paid for working together, it is amazing how much interest they take in helping one another succeed” (pp. 43-44). This appears to be another form of motivation.

### The Role of Commitment

Why does someone choose his or her career? Once there, what is it that keeps that individual there, in spite of set-backs, conflicts and other issues? That is the effect of commitment (Tziner, 1983), another form of motivation. There are, of course, many issues affecting one’s decision to remain with a company and/or career. There are several factors that will affect the decision to stay with a project or position, including adjustment to the work system, the place of work, and its normative expectations (p. 122).

In addition, the age of the employee, family situation, length of time with the employer and other investments affect the level of commitment (Hrebiniak and Alutto, 1972).

### Conflict Escalation

Beyond escalation, the mere presence of unresolved conflict has a tendency to affect business practice (Magasin & Gehlen, 1999). Even when considering the positive aspects of conflict, which "...may serve the purpose of crafting a more refined product, significant or unresolved conflict can effectively serve to delay or scuttle even the most well-planned and well-designed project," (Hignite, et al., 2002, p. 315).

Even so, it is theoretically reasonable to assume that if conflict has a moderating effect on some individuals' ability to effectively participate in group decision making, escalated conflict should have an even greater effect. One of the major purposes of this research was to confirm the increased effect and determine if it is possible to predict it.

### Research Methodology

The initial portion of the research involved developing a conflict mode instrument to measure an individual's conflict mode category under normal decision making scenarios (e.g., a fairly benign decision process and you and the other employee disagree initially about the issue).

Initially, each individual was assessed to determine his or her "default" PCHM. The instrument that was developed, named the Todd Cambridge Instrument, proved to be valid and reliable based on a preliminary face validity pilot and based on a post hoc analysis of the final survey results.

The respondent was then presented with one of three scenarios (vignettes) – expected to create either positive or negative motivation, or a sense of conflict escalation, and then asked to respond to the same PCHM instrument, except considering the scenario they had just been given to see if the PCHM scores changed when exposed to the specific treatment. The theory proposed was that the additional motivation or stimulation would cause the subject to change his or her degree of Assertiveness and/or Cooperativeness.

Following is a World Wide Web link to a similar instrument done by the Mennonite Church (designed for personal conflict situations, but could theoretically be extended to the work place). In this case, the inventory is administered in a pre-test/post-test environment with a single administration. The subject is asked to consider the conflict as the disagreement initially occurs (statements A-J), and then after the disagreement has continued and gotten stronger (statements K-T).

<http://peace.mennolink.org/cgi-bin/conflictstyle/inventory.cgi>. This serves as a similar administration to what was used in the current research.

After submitting the answers to the Mennonite survey, a response is received showing scores comparing preferred modes (styles) from a state of “Calm” to a state of “Storm.” This is very similar to the expected results when administered on a single conflict situation where there is little or no stimulation and subsequently where there is strong motivation or escalation.

Email and the Internet were used to conduct the surveys for this research. There are multiple reasons – cost, speed, reliability, efficiency – and it seems most appropriate for the sample frame. Banks, computer organizations and manufacturing managers (the sources of the research subjects) have almost completely implemented personal systems utilizing email and the internet as primary contact media, thus reducing the chance of coverage errors. According to Dillman (2000), email has also become a widely accepted

forum for conducting surveys and data entry. The survey was also conducted as a “sponsored” survey. A high-ranking individual from each organization included in the sampling provided a list of employees to participate. That individual sent a preliminary email to the potential respondents asking them to participate, since that has been shown to increase response rates by four to six percent.

When the link for the on-line survey was initially sent to the respondents, they were reminded that an individual had provided their contact information and were reminded of the importance of participation. This approach has proven to be successful in survey techniques (Dillman, 2000). Since this survey dealt with an area that some might consider sensitive (conflict), the survey was administered in an anonymous fashion, except the respondents’ email addresses were used in initial tracking in order to make sure no follow-up reminders were sent to individuals who had already responded. The overall response rate ended up being 34.7% for the final surveys in the current research.

Appendix A contains the final instruments. Chapter 3 explains the research design in detail and Chapter 4 contains the results. The primary analysis was conducted using one-tailed t-Tests (Paired Two Sample for Means). A post hoc analysis using Regression and ANOVA was also conducted to determine the effect and predictability based on demographic data collected as part of the survey.

### Pilot Studies

Three pilot studies were utilized as part of this research process. These are described in detail in the following sections. Appendix A contains the results of the first pilot, since it differed from the final survey fairly significantly. The results of the second and third pilots are included in Chapters 3 and 4 along with the other analyses and results.



### First Survey Pilot

A pilot of the proposed complete survey was run using 31 undergraduate business students at Georgia State University (about half were Decision Sciences majors and the rest were Management majors – two were Juniors and the rest were Seniors). The survey did differ in the pilot study from the final version that was used in the actual research. Instead of two groups used to study motivation, as was used in the final research, there were three. One served as a control group, where a specific scenario was used that was not expected to produce a significant level of Motivation between the first and second administration of the conflict mode questions. This was done to evaluate the readability and test/re-test reliability of the instrument.

The pilot version of the survey was administered online using a web-based survey tool. One of the outcomes seemed to indicate that the size and make-up of the survey did not work as well online as it could in a different format or as a written version would. This was based on a post-administration interview with the group of respondents. Therefore, the questions and the survey format were adjusted for the final administration. The post-administration interview also included comments from the control group indicating some second-guessing of the question series. Because the second set of questions (measuring the conflict mode preference) was identical to the first and the specific scenario was benign, some of them interpreted that to mean they were being “tricked” to see if they would answer the questions the same way. That also contributed to the decision not to include a control group in the final administration, as this was deemed unnecessary since test/re-test reliability was evident.

The Pilot group consisted of 31 students, of which 26 responded under the guidelines of the survey. The survey was done in three parts (with the Motivational aspect constituting Part 1 and Escalation in Part 2); however the questions included in

Part 3 related to proper use of decision model steps and use of heuristics and biases. The questions in Part 3 were not used in the final research – these constructs instead are proposed as future research. Group A consisted of 10 respondents, Group B of 9 respondents, and Group C of 7 respondents. The results are tallied and shown in Appendix A. Figure 10 in the appendix shows the relative layout of the scores calculated for each group based on the first series of 15 questions, used to determine the base PCHM for an individual. Since the purposes of the pilot survey were to validate the questions and hypotheses and test the reliability of the survey, individual results were not tabulated. However, for the actual study it was necessary to calculate a score for each conflict preference category and for each individual respondent so that an analysis could be done to determine what movement occurred based on the treatment provided and to determine the additional effects of any of the demographic characteristics.

Since only aggregated scores were available in this pilot, once the total answers for each group were calculated, it then became necessary to use a scoring technique for placing the respondents into a Preferred Conflict Handling Mode. Below (Table 3) is the formula devised for this pilot. For the final research project, the subjects actual response value (from 1 to 7, Very Uncharacteristic to Very Characteristic) was used to calculate an aggregated score for each preference category (made up of three questions per category).

Table 3 - PCHM Scoring Equation

A1	Very Uncharacteristic	Times	-3	=	Score A1
A2	Uncharacteristic	Times	-2	=	Score A2
A3	Slightly Uncharacteristic	Times	-1	=	Score A3
A4	Neutral	Times	0	=	Score A4
A5	Slightly Characteristic	Times	1	=	Score A5
A6	Characteristic	Times	2	=	Score A6
A7	Very Characteristic	Times	3	=	Score A7
A8	Score for this Category				Sum Above

By taking the total score for each set of three questions (from each category) the individual (or group) was assessed with a preferred conflict handling mode. Figure 10 (in Appendix A) shows that the pilot groups were assessed as follows:

- Group A      Dominant – Collaborator (39), Secondary – Competer (21)
- Group B      Dominant – Collaborator (37), Secondary – Competer (33)
- Group C      Dominant – Competer (32), Secondary – Compromiser (18)

In Section 3 of the survey, the PCHM was re-evaluated for the individuals after introducing the treatment (Specific Scenario). Following is a chart (Figure 7) comparing the scored results for each Group and each category.

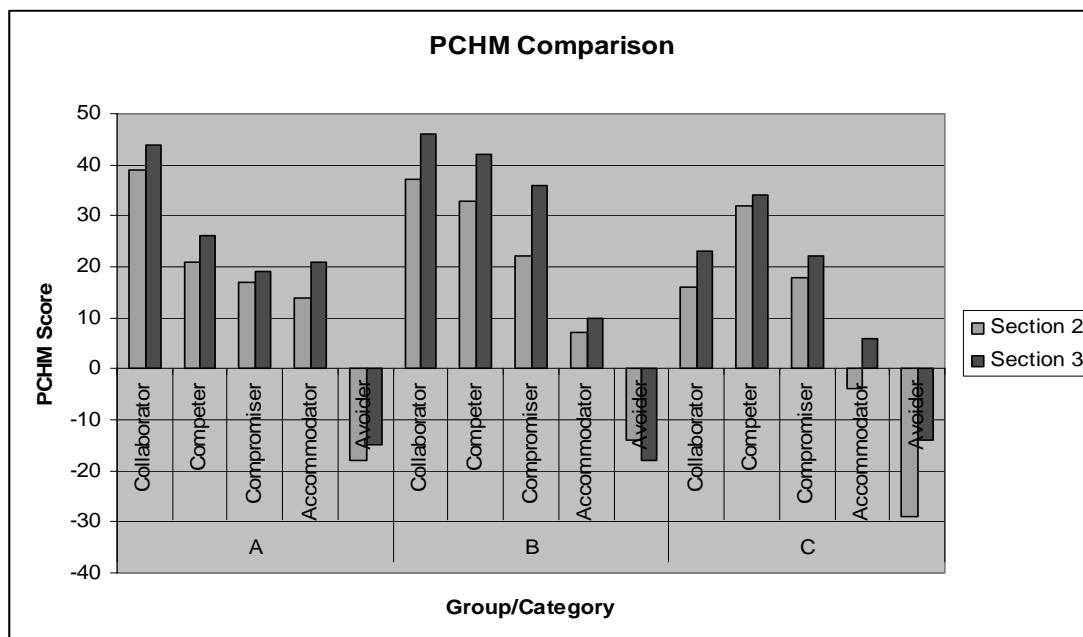


Figure 7 - PCHM Comparison (Sections 2 & 3)

There is evident change when moving from Section 2 to Section 3. This in and of itself is valuable information, since the vignette seems to have affected the members of the group. However, this cannot be determined from this pilot study, since the values are aggregated and may be due only to random changes by the respondents.

### Second Survey Pilot (PCHM Pilot)

A new assessment tool was introduced with this research, which has been named the Todd Cambridge Instrument. This can be found in sections 2 and 3 of the survey instrument in Appendix A. This instrument consists of fifteen questions. The purpose is to identify the conflict handling preference of the respondent. There are other conflict instruments as have already been discussed (e.g., Thomas-Kilmann, ROCI-II). However, it was important to integrate the typing questions into the greater survey.

In doing so, though, it was important to validate the new instrument against one which was already generally accepted as valid. This was done by administering an extraction of the proposed survey (Section 2) to determine PCHM style, followed by an administration of the online version of the Thomas-Kilmann Conflict Mode Instrument (TKI). The results of the TKI were compared to the integrated PCHM tool to verify consistent results. Each individual in the Pilot completed both instruments back-to-back. It was expected that this would produce a consistent categorization between instruments. Prior to administering the pilot, it was decided that if more than 20% of the respondents showed a difference in categorization, then the instrument usage for the final survey would need to be reevaluated.

Each instrument was analyzed in such a way as to produce a Primary and Secondary preference. As long as one preference from each instrument matched, it was considered a successful match. The design and results (covered in detail in Chapters 3 and 4) evidenced a successful validation and reliability test on the Todd Cambridge Instrument, therefore the research using the Todd Cambridge Instrument continued with the administration of the survey and resulting analysis.

### Third Survey Pilot

Since the first survey pilot was based on a survey that varied significantly from the final version, a second full pilot – a “face validity” pilot – was conducted to verify that 1) the final survey was properly structured and understandable, that 2) it was a reasonable way to obtain the needed data and 3) that there seemed to be support for the proposed hypotheses.

This pilot also proved to be successful, in that the pilot group interviews provided support for the overall methodology and the interviews and results showed evidence of validity with respect to the overarching theory and hypotheses. The design and results of the third pilot are included in Chapters 3 and 4.

## Definitions

Accommodator - A classification of Preferred Conflict Handling Mode that indicates low assertiveness and high cooperativeness.

Avoider – A classification of Preferred Conflict Handling Mode that indicates low assertiveness and low cooperativeness.

Bias – An inclination toward a position or conclusion; a prejudice.

Bounded Rationality – The Theory of Bounded Rationality describes individuals as decision-makers who circumscribe the situation by limiting (or “bounding”) the amount of information to be dealt with – often in creative and imaginative ways – and then behaving in a rational fashion with this limited knowledge base.

Bounded Self-Interest – A situation wherein a DM’s concern for others’ well-being will outweigh the importance of the overall best outcome from the decision.

Bounded Will-Power – A situation wherein a DM will tend to allow present concerns to outweigh future concerns in making decisions. Temporary motivations are inconsistent with long-term interests.

Collaborator – A classification of Preferred Conflict Handling Mode that indicates high assertiveness and high cooperativeness.

Competitor – A classification of Preferred Conflict Handling Mode that indicates high assertiveness and low cooperativeness.

Compromiser – A classification of Preferred Conflict Handling Mode that indicates an equal preference for assertiveness and unassertiveness and an equal preference for cooperativeness and uncooperativeness.

Heuristic – A method for discovery, a procedure for solving a problem, a technique that operates as a vehicle for creative formulation. Essentially, a heuristic is any

sophisticated, directed procedure that functions by reducing the range of possible solutions to a problem or the number of possible answers to a question.

Motivation – An intervening process or an internal state of an organism that impels or drives it to action. Three states of motivation are described – two related to the physical and behavioral. The third type, which is the focus of this paper, is called the psychosocial.

PCHM – Preferred Conflict Handling Mode – A classification system determined by a psychometric instrument. The instrument is designed to measure respondent reaction to statements indicating preferences for assertiveness and cooperativeness in a conflict situation. Typically, the instrument classifies or scores the respondent in five categories – Competer, Collaborator, Compromiser, Avoider and Accommodator.

Satisfice – To accept a choice or judgment as one that is good enough, one that satisfies. According to Herb Simon, who coined the term, the tendency to satisfice shows up in many cognitive tasks such as playing games, solving problems, and making financial decisions where people typically do not or cannot search for the optimal solutions.

Todd Cambridge Instrument (TCI) – A psychometric instrument designed to measure respondent preference for assertiveness and cooperativeness in a conflict situation. This is achieved by asking the respondent to rate their characteristics as they relate to statements regarding each of the five combinations of preference categories (includes Compromiser which is a theoretical mid-point for assertiveness and cooperativeness). The result is a set of five scores that are compared to determine the overall dominant preference.

## Importance of the Study

This study is designed to help us understand the roles that motivation and escalation play in conflict situations. Applying motivation appropriately and de-escalating volatile situations has the potential to either improve the benefits of conflict situations or to possibly lessen the probability of their occurrence, if necessary.

The study is also designed to provide evidence of what the typical effect on individuals is when facing a conflict situation and when they have a particular stake in the outcome. It is easy enough to sit by and watch conflict occur, but when an individual's current or future situation may be affected, it is hypothesized that how that individual deals with conflict will change.

Some researchers have spent years analyzing the positive effects of conflict – especially when the environment is controlled (structured conflict). However, some individuals' preferred way of dealing with conflict – whether structured or unstructured – may not be positive, or even desirable (Schwenk, 2002). These aspects of structured conflict will be explored in the Survey of Literature to better understand them, but the ultimate goal is to know what can be expected to happen when conflict arises.



## CHAPTER II – LITERATURE SURVEY

The purpose of this study was to demonstrate how individuals' preferences for dealing with conflict might change based on the amount of motivation they feel toward the area of conflict or based on their reaction to conflict escalation. In other words, would the individual feel enough motivation about the scenario being presented to step out of his/her comfort-zone and change behavior? Likewise, would an intensifying conflict situation affect the way one would typically handle conflict?

It was therefore important to demonstrate four major perspectives from the supporting literature:

1. The use of vignettes as a viable approach for creating enough stimulation to influence the behavior of the subjects.
2. The validity of conflict mode measurement – its background and application (including an analysis of structured conflict).
3. The concept of motivation and how it is expected to affect conflict handling.
4. The role that groups play in influencing individual participation – another form of motivation.

### Vignettes in Survey Approach

This research called for the introduction of a scenario, or vignette, into the survey, to which the respondents were expected to react. The initial set of questions was designed to measure the static, or normal, preference one feels when confronted with a conflict. The vignette, designed to create and control motivation on the part of the respondent or to escalate conflict, was then introduced and the same set of questions was

asked again. To support the theory, the respondents' answers needed to change in a predictable direction.

When researching the use of scenarios (vignettes) in survey research it quickly became apparent that the use of this technique is somewhat limited. However, it should be noted that the instrument itself (measuring PCHM) is basically made up of a series of fictional scenarios from which the respondent's answers determine his/her preferences with regard to conflict. With that being the case, the introduction of the fictional scenario (vignette) designed to produce motivation and change, should have seemed part of the natural research flow to the respondents. Even so, just as a note in Schoenberg & Ravdal (2000) states, "...we assumed the existence of a large body of research that had used the vignette approach. However, we found very few published research articles that have used such a technique, even fewer articles that have used vignettes to investigate awareness and attitudes, and almost none that assessed the utility of the method" (p. 72). That being the case, the challenge became finding substantiation for why use of a vignette was appropriate for supporting the proposed research questions.

The first step included evaluating how other researchers justified using vignettes. Researchers such as Schoenberg and Ravdal (2000) recommended using vignettes when trying to obtain data related to either a respondent's awareness of a situation or attitude toward it. This is due to the opportunity to "...design an instrument uniquely responsive to specific topical foci" and "...depersonalization that encourages an informant to think beyond his or her own circumstances" (p. 63). Since conflict is a common circumstance and one that is often viewed negatively, a specific focus and depersonalization were both desirable goals.

The study done by Svensson (2002) also presented a similar approach. This study, which focused on time and relationship dependencies in supply chain business

relationships, focused on a homogeneous business environment – in this case, the Swedish vehicle industry. The use of scenarios implies the need to have a target subject group with similar backgrounds and experiences. This research was primarily targeted at a homogeneous group – information technology users – although, the final sample of respondents ended up being fairly heterogeneous in terms of the industry, while fairly homogeneous in other characteristics, such as management level. The scenarios used should have been familiar and similarly understood by the respondent group.

The homogeneity of the group was further evidenced by the use of a non-response bias analysis. There was no significant difference discovered between the respondents and the non-respondents. A similar survey approach was used including the use of matched questionnaires. This allowed the author to overcome cultural bias by including two respondents from each company, but using different, but matched surveys/scenarios. The survey also used the same item structure – seven-interval Likert scale questions, which is primarily what was used in this research.

The empirical outcome of Svensson (2002) was that the findings supported the author's theory. There is an indication of a statistical dependency between time and relationship towards suppliers and customers. Although generalization is an issue, the scenario approach succeeded in differentiating the hypothetical dependency and became a launching pad for additional research.

DeSouza & Fansler (2003) also used a survey technique that included hypothetical scenarios in their research into sexual harassment. The study incorporated multiple instruments, including one (utilizing the scenarios) that had been developed and used by other researchers, which demonstrated strong validity. The end result of the research was a statistically significant difference supporting the researchers' hypotheses. In comparing that study, with the current one, it is also important to note that high levels

of motivation are involved in each. The actual response rate on the sexual harassment surveys was very low, most likely due to the highly sensitive and controversial nature of the subject matter (p. 534). The mere nature of the controversy was speculated to be enough motivation to deter response.

Another study utilizing a fictional scenario as part of a survey was Layton & Levine (2003). It studied the public's willingness to bear the costs of ecological effects of climate changes and utilized sets of scenarios related to forestation loss. The surveys did not include a standard instrument, but instead offered surveys containing fictional scenarios developed specifically to represent effects related to the hypotheses. The results included successful analysis of the validity of the measurements obtained using the surveys.

In Finch & Mason (1991), the subject was involvement of kinship in supporting family members in a time of need. As with the current study and others mentioned, it involved a particularly subjective topic that is often difficult to quantify or qualify. Interpretations are often different and by using vignettes, rather than just open-ended questions, the study authors stood a greater chance of controlling responses without dictating them. The authors also came to the conclusion that it is much easier to achieve consensus on what people should do, as opposed to how they should do it. As the authors stated, "The key assumptions are...that obligations and responsibilities...are both commonly and easily recognized and well understood at the normative level. In a given situation, most people will agree upon and recognize relatively easily what is 'the proper thing to do,' even if some people will then try to avoid their responsibilities in practice" (p. 346). This may be one of the weaknesses of the current study, since the purpose was not explicitly stated as normative. The respondent was asked to describe his/her change in attitude based on the occurrence of an event, which leans toward the descriptive. Even

so, the fact that a fictional scenario was used was intended to make the respondent think of the individual involved almost as a third party, rather than themselves. As Finch & Mason (1991) stated, “This vignette technique enabled us to design questions which were situationally specific, yet where the judgments about what is proper need not be tied too closely to respondents’ own circumstances” (p. 348). But, as Finch & Mason (1991) also pointed out, the technique is in a sense making the respondent the researcher’s ally by attempting to match complex, real-life scenarios to what the respondent feels is an appropriate reaction – even if it goes against their normal initial instincts. That is, of course, the primary theory posited.

Another study using scenarios in a survey approach was Kassing (2001). In this study, questionnaires were sent to full-time working adults. These surveys included a fictitious scenario in which the character engaged in some form of dissent – either articulated or latent. The purpose of the study was to determine how dissenters are perceived by their fellow employees. Interestingly, that study introduced a variable not considered in the current study – that of other individuals’ responses to conflict situations. Although not evaluated, it could serve as a valuable extension.

Another research source that proved useful in determining the efficacy of the context in which the vignette has been used in this research is Barter & Renold (1999). The authors evaluated both the general usage of and primary justifications for vignettes in social research. Two of the specific reasons for using vignettes directly supported the use of one in the current research. First, is for “sensitive topics”. As has been mentioned, the area of conflict naturally raises emotional concerns on the part of many. By using a fictional scenario, the respondent could be somewhat removed from what might ultimately be a contraindicative response. Secondly, for the issue of “comparing perceptions of disparate groups”. Although most of the groups were of very similar

business functions, there are a variety of positions (levels) and demographics being surveyed and the addition of a precise vignette helped to provide uniformity to the category.

In addition, they distilled several “guiding principles” for implementing vignettes in social research. Below is a table defining how these principles were employed in the current research.

Table 4 - Vignette Principles of Usage

Implementation Principles	Current Study Implementation
Stories must appear plausible and real to participants	The vignettes used were real-world examples that could be expected in the Information Technology project realm.
Stories need to avoid depicting eccentric characters and disastrous events, and should instead reflect ‘mundane’ occurrences.	While realistic, the utilized vignettes did not involve anything other than ordinary characters in routine situations.
Vignettes need to contain sufficient context for respondents to have an understanding about the situation being depicted, but be vague enough to ‘force’ participants to provide additional factors which influence their decisions.	This was reasonably expected from the target frame.
Participant’s ability to engage with the story may be enhanced if they have personal experience of the situation described.	Since the respondents were provided randomly by the companies there was no way to guarantee this, but it could be reasonably expected.
Vignettes must be presented in an appropriate format.	This is usually an important principle with subjects such as children – not an issue with the current study.
Participants may initially provide socially desirable responses and only after probing will they reveal how they truly believe they would respond to the situation.	This did prove to be a concern with the pilot survey, but changes made for the final survey should have helped minimize or alleviate the need for additional probing.
It is important that the stories presented in the vignettes are readily understood, are internally consistent and not too complex.	These criteria seemed to have been met through piloting and respondent evaluations.
In some circumstances it may be desirable to include a control vignette to see if any significant differences emerge.	A control vignette was used in the pilot, but based on a lack of rejection of the null hypothesis for that group only, did not seem necessary for the final survey.
This list of principles is from Barter & Renold (1999).	

## Conflict Analysis and Instruments

In order to support the hypotheses of the current study, the experiment should have produced a significant and predictable change in the subject's preferred way of handling conflict based on the occurrence of a stimulating experience. It has been theorized that individuals have a preferred way of handling conflict and that Preferred Conflict Handling Mode (PCHM) is static (Michael, 2003, Chanin & Scheer, 1984). The theory proposed by this dissertation was that, while this may be true for most normal situations, an occurrence of a striking or stressful event or situation will cause the PCHM to change. Therefore, it became necessary to do three things – 1) measure the static PCHM, 2) introduce a striking or stressful event (the vignette), and 3) re-measure the PCHM while considering the effect of the vignette.

The instrument used in this study (Todd Cambridge Instrument) was based on prior instruments using the same or similar categories. As always, issues of validity and reliability needed to be resolved. As stated in the introduction the questions and categories are very similar to both the Thomas-Kilmann Instrument and the ROCI-II. The ROCI-II (which uses a similar Likert scale approach) specifically has demonstrated a high degree of reliability and internal consistency (Earnest & McCaslin, 1994). The primary reasons for not using an existing instrument was due to the intent of utilizing within-survey scenarios and to achieve numeric scores that could be analyzed statistically. The numbers of questions and category interpretations were very similar. In order to further validate the conflict mode instrument developed for the current study, the questions used to determine PCHM (Section 2) were extracted from the study survey and administered to a trial group, along with an administration of the Thomas-Kilmann Instrument to see if the results were different. This administration occurred prior to

commencing the full study as an additional pilot, and the results are shown in Chapters 3 and 4.

As always, reliability was vital to prevent confounded results. In Earnest & McCaslin (1994), the researchers compared the ROCI-II to the Meyers-Briggs Typing Instrument (MBTI) in search of a correlation between these two highly used instruments. The results end up showing that there does seem to be some correlation between certain personality types and preferred conflict handling mode (PCHM). However, since the results also indicated the importance of other factors, such as environment and relative position between subordinate and superior, there did not seem to be enough evidence to warrant trying to evaluate the effect of personality type on the current research.

These researchers, among others, also draw on the work of Rahim (1983) in pointing out that even though statistically significant correlations were found between a third of the possible correlations between the five conflict modes of Thomas-Kilmann and the MBTI types, these correlations are still weak and were, therefore, omitted from this research.

Holmes (2002) has also done much research with respect to social interaction and conflict. In his 2002 paper on interpersonal expectations, he specifically explored one of the preference categories within the PCHM model – that of the Competer. It was his view that competitive individuals have a very specific view of the conflict scenario that differs from the other categories. For one, his research exposed evidence to support that competing individuals specifically view the world and others as also being competitive. Every incident of conflict is to be viewed as an opportunity for the other individual to “take advantage of them” (p. 2). Competitive individuals that were involved in his study showed a strong tendency to view their opponents with similar estimates as to their own



behavior. In their minds, any opponent would respond in a similar "...defensive (that is, competitive) way to protect his or her own interests" (p. 2).

### Conflict: Positive or Negative?

*"The harder the conflict, the more glorious the triumph. What we obtain too cheap, we esteem too lightly; it is dearness only that gives everything its value. I love the man that can smile in trouble, that can gather strength from distress and grow brave by reflection. 'Tis the business of little minds to shrink; but he whose heart is firm, and whose conscience approves his conduct, will pursue his principles unto death."*

*Thomas Paine (1737 - 1809)*

The term conflict itself generally evokes images that are negative. Perhaps this is because of the natural discomfort most people feel with what the term defines.

According to the dictionary, the term conflict is identified with synonyms such as "disagreement," "battle" and "be at odds." However, even though these terms, in isolation, evoke negative images, much like the metaphorical picture of salt in a wound, the healing effects of open and honest disagreement may serve a very positive effect in the long run.

Schwenk (2002) explored changing organizations and how they may exercise growth and better decision making. He dedicated a chapter to using conflict in a productive way. Although not a novel concept, viewing conflict positively is still difficult. In particular, he viewed the very specific benefits to the organizational learning process. "Some organizations are able to enrich their knowledge structures by using the diversity of views that exist within them. By encouraging dialogue and conflict between those holding different views, they can avoid the problems associated with simplistic

knowledge structures” (p. 113). It is important to note that Schwenk did not encourage dialogue only. Conflict is specifically recommended as a positive action. The current research was concerned with the effect of a conflict situation on an individual’s response to that conflict, rather than with the implications of either unstructured conflict or structured conflict. However, it is important to note that knowing what the effect of any form of conflict will be on each individual is enlightening. This may help determine whether implementing structured conflict with certain individuals and groups may be beneficial or not.

Schwenk (2002) continued the exploration of structured conflict as a “...general approach to decision-making in organizations.” Specifically, he addressed the importance of structured conflict, or a “devil’s advocate,” mainly because “...we can see biased thinking much more readily in others than in ourselves” (p. 115). He specifically advocated constructive conflict, while disapproving unproductive conflict. This concept of the Devil’s Advocate, which literally dates back to the Canonization Process within the Catholic Church, has been further endorsed and used by researchers such as Schwenk and Irvin Janis. Its importance derives from the natural tendency to swing from one extreme to the other relative to raising negative views. Especially when superiors are involved, it is often difficult for an individual to promote a contradicting view, even though that view may lead to a better decision. Although there are controversies and concerns surrounding the use of devil’s advocacy, the authors stressed the importance of modifying the process, rather than eliminating it, in order to protect the important role of constructive conflict.

In Magasin and Gehlen (1999), the authors studied a California weapons company that underwent a very expensive legal and ethical battle over operations surrounding the disposal of hazardous materials that were a by-product of weapons produced for the United States government. The authors performed a very detailed analysis of the events,

both major and seemingly insignificant, that eventually led to the demise of what was once a very successful company. There were many contributing factors, not the least of which was the effect of multiple managerial biases at work. For the purposes of this research, however, the focus is on company management's ineffective dealing with conflict. Again, it is usually not a case of the wrong type of conflict – it is usually a failure to deal with a situation out of a desire to avoid conflict. As stated by the authors in the abstract, “In some cases, these were not decisions to act, so much as decisions to postpone action due to undesirable alternatives” (p. 47).

The one overriding theme throughout that research was an unwillingness to work with and solve the complaints of the local residents. Since the company in question contributed almost nothing to the local economy, but a great deal of pollution and potential ecological and public safety risks, there were continual complaints and questions that should have been dealt with expediently. But, either through unawareness or discomfort with dealing with the conflict, the company chose to ignore the minor inconveniences and instead allowed it to expand into a general distrust of the company. Later, when community support would have been helpful, the company instead found itself abandoned.

In another example, employees complained about a chemical odor in water that was periodically sprayed to reduce static electricity. A clear warning to management, they instead told the employees to “... either stop complaining or quit” (Magasin and Gehlen, 1999, p. 52). This is yet another example of avoiding conflict rather than dealing with it. Later, when the company was investigated by the Department of Health Services, these employees became accusers rather than defenders of the company's actions. The company was also cited for not having any type of formal grievance process through which employees could raise concerns.

One bias in particular that was repeated by company management was the Status Quo Bias, which is based in a desire to keep things as they are rather than examining the potential benefits of change. This oft-repeated bias clearly overlooked the benefits of conflict. It is often only through disagreement that inefficiency, ineffectiveness, and, sometimes, dangerous actions, are illuminated and potentially corrected.

As the company found itself imbedded in a legal and ethical strife, the inability to deal effectively with conflict led to its undoing. Ironically, as the situation turned dire, and the investigation became a criminal investigation, new conflicts expedited the undoing. The authors stated, “As pressure from the criminal investigation continued, relationships within the once successful company became strained. Confrontations arose almost daily,” and, eventually, the presence of all of the conflicts meant that “... the real work of the company was not getting done” (Magasin and Gehlen, 1999, pp. 55-56).

There are, of course, many ways to avoid conflict, all of them not necessarily negative. In Dessein (2002), the author studied how managers will often choose to delegate decision rights to a better informed subordinate rather than trying to communicate with the agent in order to gain enough knowledge to make the decision him or herself. The one exception is when the difference in preferences between the principal and the agent is judged to be larger than the manager’s uncertainty concerning the environment in which the decision is being made.

In Thomas & Schmidt (1976), the authors conducted a detailed survey of senior managers to uncover what the then prevailing thoughts were surrounding conflict. At the time, these managers viewed conflict management is a “very important part of their organizational life” and indicated “they spend about 20 percent of their time dealing with conflict” (p. 315). One interesting discovery was that these managers felt that the importance of dealing with conflict had increased over the preceding ten years. There is

no reason to believe that the relative importance of conflict management has not remained just as important and perhaps more so. These managers were also equally interested in preventing conflict as much as dealing with it when it occurs.

### Motivation

This study was not merely another attempt at measuring conflict management. Instead, it was theorized that this historically static measurement may not be static when the individual is faced with certain situations. Consider the pyrophobic (one with an unnatural fear of fire) who would never consider running into a burning building. But, if informed that his child was trapped inside, would likely find the necessary strength or adrenaline to overcome his fear. Likewise, when faced with the possibility of losing one's highly desirable job due to a situation, a normally reserved, non-confrontational individual should feel provoked to be less reserved and more confrontational. By definition, for the purposes of this study, that provocation was labeled as either "motivation" or "escalation", depending on the situation.

Grant (2000) and others have long studied the lives of war veterans to determine just what it is that motivates these, often non-violent, individuals to take up arms, even to fight their fellow countrymen. In studying the Civil War, she contrasts the difference between the north and south, where, even though the north possessed greater manpower and resources, the difference in the level of motivation, especially initially, leveled the playing field, so to speak. Others, such as Slocum, et. al., (2002), in studying the importance of understanding and controlling goal conflict by management, acknowledge the effect that motivation has on this important dynamic, and see motivation as "an important issue to managers and researchers" (p. 77).

In evaluating how individuals and groups deal with conflict, personalities play a significant role. In this study, there is an examination of how one's preferred way of dealing with conflict affects his or her reaction under situations involving conflict. As stated, though, the primary focus within the second set of hypotheses was how someone is motivated on a given subject or decision area affects his or her preferred way of dealing with conflict. Did one become more or less assertive and/or more or less cooperative when there is a high degree of attachment to the outcome?

Robey, et al. (1993) performed a detailed analysis of conflict and successful outcomes in information systems development projects. One construct they explored is that of participation. They point out the importance of participation in the decision process and the resulting effect on influence. As was explored below, motivation may originate either from within the individual's own realm of thought (intrinsic motivation) or from the influence of another individual, group or situation (extrinsic motivation).

There was a factor not considered in this study, and that is the reaction that an individual feels when confronted with a situation where he or she feels helpless. The question that immediately comes to mind is this – will someone's motivation be affected if the decision appears destined for an impasse? Dor-Shav & Mikulincer (1989) performed a detailed study on how individuals perform on subsequent problems when they have just encountered an unsolvable problem. They discovered contradictory results from different studies.

The researchers administered an instrument to the study participants to establish yet another set of preference designations based on personality. Respondents were measured on a frustration continuum of "Need Persistence" to "Ego Defensiveness." It was discovered that the belief system of the individual definitely played a part in how they would respond to the next problem. Interestingly, the reactions documented help

classify subject attitudes in a similar dichotomy to the Intrinsic and Extrinsic motivational areas discussed below. “Need Persistent” individuals were either Intrapersistent, meaning they would try to achieve their goal themselves, or Extrapersistent, meaning they would seek assistance from outside sources. The “Ego Defensive” individuals were divided into either Intrapunitiveness (blaming oneself) or Extrapunitiveness (seeking blame on external agents. One of the extensions of this study that would be interesting to pursue is the effect of frustration on motivation.

Interestingly, Kreps (1997) did not use the word “motivation” in conjunction with “extrinsic.” Instead, he refers to “intrinsic motivation” and “extrinsic incentives.” In his research he explores what it is that motivates people to observe norms. In the business world, he points out that one is necessarily dependent on the other. “In most employment situations where intrinsic motivation is meant to be high, the employee usually desires continued employment” (p. 361). In other words, the extrinsic incentive of keeping one’s job is important as well as the employee’s internal work ethic or other motivation.

While Kreps’ work is primarily concerned with worker utility and the specific balancing act of motivation and incentive, suffice it to say that both intrinsic and extrinsic motivation play a key role in the effort that employees put forth to resolve conflict and move forward. In discussing the reengineering of management training and systems, Wartenberg (1996) included motivation and conflict resolution as the number one and four (respectively) mandatory skills that managers must possess for the twenty-first century.

Extrinsic and Intrinsic motivation may be inextricably intertwined in certain situations, as in escalation conditions. It is important, though, to define the differences between the two and how they relate to conflict.

## Intrinsic Motivation

Lillehammer (2000) referred to intrinsic motivation as “the doctrine of internal reasons.” In his paper he refers to a sub-Humean model as follows – “an agent has a reason to act a certain way at some time if and only if acting that way would promote his present desires” (p. 507).

Although, there are other perspectives that should not be overlooked. In Steins (2000), the researcher points out an important interacting element that it is not often considered – the empathetic view (of one’s “opponent”) and whether or not it is present. There is a certain degree of being able to view a situation or interaction from the other person’s perspective that is natural and normal. However, in the study, it was shown that conflict has a countering effect to this other-person perspective. In other words, it appears that one would not feel as intrinsically motivated to help or assist as the level of conflict increases.

In Robey et al. (1993), the authors examined the role of conflict resolution in project success. In the study, they explored the works of other researchers who examined the role one views oneself playing in a project and its ultimate success or failure. By definition, a user considered himself “involved” when the system being developed was deemed to be important and relevant to them personally. That is another description of the concept of intrinsic motivation.

This was the reasoning behind why, in the current study, the vignettes were made personally relevant. By tying the outcome to the respondent’s chosen actions – either implemented or relative inaction – the situation was given over to the potential effect of intrinsic motivation.

Although the survey specifically relied on extrinsic motivation, it is important to understand the role that intrinsic motivation plays. In Tjosvold, et. al. (2001) a study was



conducted involving Chinese students. Their research was very clear in showing that conflict has a positive effect and many conflict participants are aware of this. However, they also determined that the individual will only be motivated to engage if they feel confident in their own expertise. Likewise, Bénabou and Tirole (2002) explored the role of self-confidence and its specific effect on intrinsic motivation. Again, if the individual was not confident in his or her expertise and knowledge of the subject area, their willingness to participate in the conflict diminishes.

### Extrinsic Motivation

Motivation often originates in external sources. The purpose for evaluating group problem solving pathologies in the next section was that the occurrence of these common pathologies (e.g., groupthink) is viewed as a prominent problem in either escalating or defusing conflict situations – sometimes prematurely or unnecessarily. Research has exposed the effect that group pressures have on both silence and consent. In Chapter 10 (Lessons Learned) of Vaughan (1996), the Challenger Space Shuttle disaster was evaluated with respect to a conference call that occurred prior to the flight that could have potentially prevented the disaster had information held by certain parties been accepted and acted upon.

The subtle motivations associated with group dynamics makes speaking out in negative ways difficult at best. As the author stated, “Perhaps most alarming is the way that production pressures and bureaupathology became institutionalized and taken-for-granted, having a profound impact on the proceedings” (Vaughn, 1996, p. 404).

The environment and organization, through subtle changes over time, began to pressure deviations into becoming the norm. The motivation became “following the

rules” rather than doing what one perceived to be the correct action. “It displays the forces in culture and social structure that simultaneously set limits to and present possibilities for rationality in human affairs” (Vaughn, 1996, p. 405). Interestingly, the study found that one’s position played a key role in how much that person could exert motivational pressure, by shaping opinions and outcomes. Therefore, the vignettes used in the current study also implemented outside pressures to form extrinsic motivation in order to create pressure hypothesized to influence the conflict decision. The survey also contained demographic questions, such as position and level within the company, in order to be able to stratify and determine how much, if any, this played in motivational movement.

### Conflict Escalation

Outside of core requirements classes, Thompson and Leonardelli (2004) have determined that business schools offer more courses on negotiation than anything else. The reason, according to their research, comes from the desire to avoid conflict escalation. Researchers have even gone to great lengths to understand the role that humor plays in trying to affect or deter escalation due to the discomfort aroused by the conflict itself (Bippus, 2003).

What causes conflict escalation? “(M)ost people go into negotiations hell-bent on looking after their own interests, only to find that the other party, lo and behold, is doing exactly the same thing. The unfortunate result is mutual escalation of conflict” (Bippus, 2003, p. 1).

Whether conflict escalation is the cause or outcome of the situation was not relevant to the current research. Instead, this research was focused on how the

individuals in the room reacted when the escalation occurred. As was pointed out in Kriesberg (1998), there is a natural desire to eliminate conflict when it arises. His book however, explored all of the basics of conflict and recommended not eliminating conflict, but structuring, or “transforming,” it into a useful tool for problem solving. The purpose of the current research was to show that when conflict arises and it is intensive and unanticipated conflict, the result would be a change on the part of most individuals, but not a change that led to structured or beneficial conflict. Instead, it was hypothesized that it would lead to a desire to eliminate conflict at a cost, rather than profiting from the potential discourse.

## Group Decision Making

### Groupthink – A Group Problem Solving Pathology

Many studies have been done to determine the ultimate effect that the phenomenon labeled as “Groupthink” has had on some of society’s most significant decisions (e.g., Bay of Pigs, Cuban Missile Crisis). The purpose for exploring it here was because it is apparent that some of the more negative aspects of Groupthink have the potential of providing additional negative pressure on those who would choose to dissent – or create or propagate conflict. Theoretically, in a situation involving the occurrence of Groupthink, an individual who is normally uncomfortable with asserting a dissenting opinion would be even less likely to do so. This study does not try to introduce Groupthink, however it is important to be aware of it when applying the results.

The group problem solving pathology known as Groupthink was identified by Irving Janis in the early 1970s. The principal at work is that certain antecedent conditions contribute to the failure of a group to make an effective decision and achieve a

favorable outcome. “Janis clearly argues that certain structural preconditions are likely to set the stage for defective decision making,” (Schafer & Crichlow, 1996, p. 417).

There were ten antecedents identified in Janis’ research. Of those, it can be theorized that while they may affect the information processing of group decision making, an individual’s PCHM would most certainly affect the presence of the antecedent (see Table 5 below).

Table 5 - Antecedents of Groupthink & Conflict

Antecedent	Proposed Effect
Group Insulation	It would seem reasonable that insulation is a protective factor supported by cooperativeness.
Lack of Tradition of Impartial Leadership	Competitiveness, founded in a “win at any cost” mentality, limits impartiality.
Lack of Tradition of Methodical Procedures	A trait of compromising, but not of uncooperativeness.
Group Homogeneity	Homogeneous conflict modes can be easily counter-productive (e.g., when there are two Competers involved).
Short Time Constraint	This works in the favor of Competers and Accommodators, but against Collaborators.
Recent Failure	The demand for success stifles opportunities for collaboration.
High Personal Stress	Has a tendency to further repress input from Unassertive individuals.
Overestimation of the Group	Assertiveness is not always an indicator of capabilities and knowledge.
Closed Mindedness	This is certainly an issue with Competers and Avoiders.
Pressures Toward Uniformity	A factor between Assertiveness and Unassertiveness.
This list of Antecedents is from Schafer & Crichlow, p. 418.	

Many researchers have not only evaluated the occurrence of Groupthink, but also the avoidance of it through effective techniques. For example, the “Eisenhower administration...conducted foreign policy in a manner that successfully avoided the antecedents of groupthink, holding careful deliberations and considering a variety of options,” (Schafer & Crichlow, 1996, p. 422). While seemingly intuitive and obvious,

these two techniques may in and of themselves be adverse to the nature of Competers, Avoiders and Accommodators.

One interesting finding of Schafer and Crichlow (1996) was evidence supporting a variation on the traditional antecedent/groupthink model. Their results indicated that management can make policies that will correct deficient decision-making practices, a positive step toward eliminating unfavorable outcomes. At the same time, situational variables, which management may not be able to control, seemed to have little or no effect. In other words, if management focuses on antecedent conditions, including group structure and conflict management, then Groupthink becomes less of a risk to decision making.

In discussing limitations of their work, these researchers point out that their cases were limited to crisis decision making situations. This, too, is one of the primary points of this current research – crisis in and of itself creates a form of attachment and, most likely, escalation. Considering the Challenger Space Shuttle disaster, the concern on the part of the NASA researcher who discovered the potential problem with the O-rings was intensified due to the impending take-off date and the fact that several lives were at stake. Otherwise, the discovering scientist probably would not have said anything at all (Vaughan, 1996).

Sims (1992) has focused on the effect of Groupthink on unethical decision behavior. He asked the question, “what happens to ordinarily ethical individuals when exposed to group decision processes wherein the predecessors to Groupthink exist?” (p. 652). He has also postulated that there were factors at work within group dynamics, based largely on cohesiveness and the dedication to a common goal, that drove group members to agree in ways they might not ordinarily do in order to preserve the group and deliver the desired outcome. As he stated in the paper, “... commitment to the group then

is not simply a loyalty to a group. Rather, it is an ongoing process through which group members express their concern for the group and its continued success and well-being even to the extent of committing unethical actions” (p. 654).

In his review and analysis of the symptoms of Groupthink, he identified how groups suffering from Groupthink suppress dissent from other group members by pressuring them to be loyal to the group. He described the affronted members’ reactions as, “Group members hesitate to express any arguments against any of the group’s stereotypes, illusions or commitments” (p. 655). Doing so would violate the comfortable position of those whose preference is being unassertive. In addition, accounts, such as the one studying the actions of the decision makers involved in the Challenger launch decision, demonstrated the effect that Groupthink has on suppressing opposition from someone, even when strong motivation would be expected. In a chapter of the book discussing lessons learned from the disastrous event, the authors explained how common understandings with regard to accountability, bureaucracy and political pressure silenced people who had knowledge of problems with the O-rings in the Challenger space shuttle when operating at low temperatures. The fact that the shuttle launched anyway, in spite of these warnings, demonstrated the power of a group operating with a shared illusion concerning the evaluations of risk (Vaughan, 1996). Likewise, there is a tendency on the part of initiators (of negative information) to “... display their discontent with weak signals, mixed signals, and signals that become routine” (p. 413).

Vaughan (1996) also looked at the problem not just from the perspective of a highly visible decision-making environment, such as NASA, but also in the microcosm of a small, family-type organization. She discussed the mixed signals that are sent as partners experience discontent with the other partner. Individuals will vacillate between negative and positive signals due to uncertainty and discomfort with conflict itself. The

author points out that there will eventually emerge a "...commitment to a line of action that is difficult to reverse" (p. 414), not because it is deemed to be the best line of action, but because of the cultural expectations about what should happen.

For a Competer, admitting mistakes can be difficult. However, in the Groupthink model it becomes more so as, "Arrogance is the illegitimate child of confidence and pride found in groups experiencing groupthink. Arrogance is the idea that not only can you never make a mistake, but no one else can ever be right" (Sims, 1992, p. 658).

Combining this arrogance with a highly assertive and/or uncooperative nature means the unassertive and/or cooperative individual will be even less likely to bring up issues contradictory to the opinions of the group. As the author says, loyalty is important, but not if it stems from an unwillingness to confront that which is wrong.

How does a group avoid getting into this trap? Again, according to Sims (1992), adding a "devils advocate" to critique the decisions of the group can be very effective – even more so if everyone assumes this role. In addition, it is important to program conflict into the meeting, so that when conflict arises it is not unexpected and less likely to be taken as a personal attack. Doubts and objections must be raised openly in order to challenge the direction the group has taken. This is further validated by the researcher in addressing the issue of recognizing Groupthink after it has already occurred. When confronted with the vulnerability of bad decisions, hindsight truly becomes twenty-twenty. While, at the time the decision is being made, these same criticisms would be unlikely to receive serious consideration. Unanimity, instead of being an objective throughout, becomes a more natural result. Instead of pursuing total agreement, the group should pursue the correct answer to the problem, with the best answer eventually surfacing.

### Jury Selection Process

When evaluating the group decision making process, one of the important factors mentioned in the future research portion of this paper is the presence of bias. Bias as a heuristic can be a valuable time-saver and promulgator of idea generation. However, certain biases can negatively affect the ability of the group to produce effective and correct decisions.

An extreme, but important, analogy to the meeting room where group decisions are made, is with juries in deciding court case outcomes. A specific interpretation of constitutional due process has to do with decisions being made by a jury of one's peers. Specifically, though, this jury must be made up of people who possess the necessary heuristics to understand the process of law, principals of fairness and justice and the ability to reason guilt versus innocence.

There are additional guiding principals designed to prevent the unfair effect of biases in this important decision making event. As stated in Alvarez (2001), "Why? Because the attorney may end up with a biased juror or one who has prejudices against his/her client, the nature of the case, or litigation in general" (p. 403). There is a specific justification as to why jurors must be carefully and dutifully selected in order to specifically guaranty that prior prejudices and events will not have a negative effect. The voir dire process that opposing attorneys go through with potential jurors is critical, though, in not only eliminating jurors with potential negative biases, but also in building a jury that guarantees a legitimate, due process of law.

This is not guaranteed, nor probably even common, in the business meeting rooms where many decisions are made. Certainly it would be the desire of most to have a decision making group made up of individuals who have strong heuristics backgrounds in the decision area, while possessing minimal negative biases based on issues other than



the decision at hand. However, this is only true if management is truly looking for valid, innovative decisions, as opposed to “rubber stamp” approval of a decision already made.

One lesson that can be applied to the business decision making process from the process that attorneys use in selecting juries, is the fact that “(t)he voir dire process requires a high level of concentration and organization” (p. 405). In studying this research, the process that the attorney should go through just in preparing for the juror interrogation is an intensive, multi-step process. Likewise, it is apparent that a company could also benefit from taking a careful, concentrated and organized approach to selecting the decision makers based not so much on the position of the decision makers themselves, but on their specific knowledge, heuristics and biases with respect to the decision being made.

### CHAPTER III –RESEARCH METHODOLOGY

This research was conducted using an online survey technique. The survey underwent multiple pilots to verify validity and reliability. Post hoc analysis was also performed to confirm validity and reliability. The final survey results were then used to test the proposed hypotheses, as well as to perform some post hoc exploratory analysis.

Table 6 is the research process that was performed as part of this dissertation.

Table 6 - Analytical Process

Instrument	Analysis
Initial Survey	Confirm study validity (Pilot 1)
Todd Cambridge Instrument	Confirm validity and reliability (Pilot 2)
Final Survey	Confirm face validity (Pilot 3)
Final Survey	Confirm instrument validity (Confirmatory Factor Analysis)
Final Survey	Confirm instrument reliability (Cronbach's Alpha)
Final Survey	Hypothesis Set 1 (t-Test on initial PCHM score for each type and PCHM following treatment for Group A and then separately for Group B).
Final Survey	Hypothesis Set 2 (t-Test on initial PCHM score for each type and PCHM following treatment for each type individually for Group C).
Final Survey	Initial Relationship Analysis (Regression Analysis with ANOVA for each demographic variable against initial PCHM scores)
Final Survey	Delta Relationship Analysis (Regression Analysis with ANOVA for each demographic variable against delta between initial and post-treatment PCHM scores)

### Confirm Study Validity

Prior to commencing the final study, the planned survey was developed and tested using a small group of Georgia State University business students. This portion of the study was intended to: 1) confirm the validity of the overarching hypothesis (i.e., PCHM can be affected by stimulating events), 2) confirm the wording and readability of the survey, and 3) verify the use of an online survey tool as an effective way to obtain results.

NOTE: A summary of the results of the initial pilot can be found in Chapter 4 and the complete results of the initial pilot can be found in the appendix of this document. This was done to separate this more disparate survey from the one actually used to test the hypotheses.

### Validate Todd Cambridge Instrument

A second pilot was designed using just Section 2 of the proposed final survey (the Todd Cambridge Instrument), along with an immediate administration of the Thomas-Kilmann Instrument (TKI), to see if the results would be the same. The TKI is a strongly validated PCHM instrument that has been in continuous use since the mid-1970s.

This was not a statistical analysis, but a comparative analysis. The purpose of both instruments is to demonstrate a preference for how an individual deals with conflict. However, even though the end result, or goal, was the same, the psychometric process is different. The TKI is an instrument consisting of 30 pairs of statements and the respondent was asked to select which of the two statements is most appealing, from each pair. Thirty items consisting of two statements produces twelve statements associated with each preference (Competitor, Collaborator, Compromiser, Avoider, and Accommodator). It is only possible to score a zero on one preference at most. Therefore,

the assignment of the dominant preference is based on selecting the most statements associated with that preference. In the end, the subject will have selected statements from at least four of the preference categories, but usually only one or two will emerge as dominant.

The Todd Cambridge Instrument (TCI), on the other hand, is a seven-point Likert-scale selection instrument, where each of the five categories is represented by three separate statements. In random order, the respondent was asked to indicate their association with each type of conflict response with a value from one to seven (Very Uncharacteristic to Very Characteristic). A score of 21 would indicate that an individual considered a conflict response type to be very characteristic of him/herself, while a minimum score of three would indicate very uncharacteristic.

There are obvious differences between the instruments. For one, the TKI sometimes forces a respondent to accept a characteristic with which the respondent truly does not identify. As an example, if someone strongly identified with being a Competer, and he or she is then presented with two statements forcing a choice of preferring either Avoider or Accommodator tendencies, he or she will most likely select the Avoider choice, since it is also associated with Uncooperativeness, rather than the Accommodator which is neither Assertive nor Uncooperative. This would also be expected to affect the choices of a dominant Collaborator. But, the TKI does force the decision one way or the other. The TCI, on the other hand, separated each of the five preference categories and allowed the respondent to associate him or herself at will to each of the five preferences.

A second important difference, for the purposes of this research project, was the measurement of degree of association. By using a Likert scale, the respondent was asked to associate their preference with a scale choice associating the characteristics of the statement with their own characteristic behavior. The result was a score that could be

analyzed mathematically. The TKI is a series of pairs of choices that are purely nominal in nature and which results in a categorization of the respondent. Therefore, it was important to determine if the TCI did an adequate job of categorizing the respondent prior to determining if there was a significant change in the characteristic values.

In order to determine this capability of the assessment, the minimum match rate parameter was set to 80% - meaning that if the TCI categorized individuals with at least 80% accuracy relative to the TKI, it would be considered valid.

### Face Validity Pilot

The purpose of this pilot was to accomplish three things: 1) validate that the survey was reasonable and understandable, 2) validate that the entire survey process would work in an acceptable fashion (i.e., the survey tool worked, the email links worked, etc.). and 3) to gain honest feedback from a sample of respondents about the hypotheses and the instrument itself.

A very small sample was chosen (19 subjects) and all respondents were acquaintances of the researcher so that one-on-one interviews could be conducted following the administration of the survey.

This pilot survey was administered using exactly the same process as the final survey. As will be shown in the results section, the Pilot proved to be valuable and did support the research process and hypotheses.

### Instrument Validity Confirmation

After the survey was closed to additional respondents, SPSS was used for appropriate statistical analysis. This included performing a validity test of the PCHM

instrument itself by using Confirmatory Factor Analysis to determine if the loadings were appropriately applied to the five factors, or PCHM categories, as hypothesized by the instrument.

Each respondent ended up with 15 data points in each of two administrations of the Todd Cambridge Instrument – one before the treatment and one after. For the purposes of validation, the pre-test and post-test responses were treated as two different individuals, since, even though a respondent's degree of association might change based on the vignette, his or her overall reaction to each of the five prior factors (PCHM preferences) should not. That effectively doubled the number of respondents to be included in the Factor Analysis – in this case 444 data sets.

#### Instrument Reliability Confirmation

After completing the survey, the results were downloaded into SPSS for appropriate statistical analysis. This included performing a reliability test of the PCHM instrument itself using Cronbach's Alpha to determine if the Todd Cambridge Instrument demonstrated an acceptable level of reliability. The Thomas-Kilmann Instrument (TKI) has been shown to have a Cronbach's alpha reliability measurement ranging from .43 to .71, which Rahim has judged to be highly reliable (Hignite, et al., 2002).

#### Research Hypotheses

The foundation for this research was that while prevailing wisdom says that an individual's preference for conflict is fixed, it seemed reasonable to suspect it may be affected by a stimulating event, possibly even causing the individual's normal dominant preference to change. In order to test this, a series of hypotheses was established to

determine if the introduction of a stimulating event following an initial PCHM assessment resulted in a significant change in the average score for each category (or the dominant preference category in the case of Hypothesis Set 2) in a follow-up assessment.

The score on each category had the potential to range from 3 (Very Uncharacteristic) to 21 (Very Characteristic). Most individuals have one category surface as their dominant preference, but scores were tabulated for each of the five preference categories for every respondent and all five categories were used for Hypothesis Set 1.

### Hypothesis Set 1

In order to determine if PCHM did indeed change as a result of a stimulating event, a test of Group A (n=70, Negative Motivation) and Group B (n=76, Positive Motivation) was performed specifically to determine if a Negative Motivating event and/or a Positive Motivating event had a predictable and significant effect on PCHM. This was determined using a one-tailed t-Test, since each hypothesis is predicting a specific direction of change.

Regardless of the individual's primary PCHM, the theory was that introducing a specific source of motivation would result in a predictable, but significant, change to each of the preference categories, as shown in Table 7 below.

The hypotheses for negative motivation and positive motivation were identical, however they were tested separately. The reason for two sets of hypothesis tests was even though theoretically the response was expected to be the same, it was reasonable to suspect that the degree of effect would be different, possibly resulting in statistically significant results on one set, but not the other. Plus, the sample population was divided into two groups (for testing motivation), with half receiving the positive motivational

vignette and half receiving the negative vignette and, since the sample sizes were large enough, it was possible to treat the samples with separate statistical analysis.

Table 7 - Map of Hypothesized Results - Set 1

<u>Hyp.</u>	<u>Subject</u>	<u>Change</u>	<u>Null Hypothesis</u>	<u>Reject if</u>
Introduction of a Negative Motivational Scenario				
H <sub>1A1</sub>	All	Increase in Competer Score	Competer score change $\leq 0$	Increase in Competer score
H <sub>1B1</sub>	All	Decrease in Collaborator Score	Collaborator score change $\geq 0$	Decrease in Collaborator score
H <sub>1C1</sub>	All	Increase in Compromiser Score	Compromiser score change $\leq 0$	Increase in Compromiser score
H <sub>1D1</sub>	All	Decrease in Avoider Score	Avoider score change $\geq 0$	Decrease in Avoider score
H <sub>1E1</sub>	All	Decrease in Accommodator Score	Accommodator score change $\geq 0$	Decrease in Accommodator
Introduction of a Positive Motivational Scenario				
H <sub>1A2</sub>	All	Increase in Competer Score	Competer score change $\leq 0$	Increase in Competer score
H <sub>1B2</sub>	All	Decrease in Collaborator Score	Collaborator score change $\geq 0$	Decrease in Collaborator score
H <sub>1C2</sub>	All	Increase in Compromiser Score	Compromiser score change $\leq 0$	Increase in Compromiser score
H <sub>1D2</sub>	All	Decrease in Avoider Score	Avoider score change $\geq 0$	Decrease in Avoider score
H <sub>1E2</sub>	All	Decrease in Accommodator Score	Accommodator score change $\geq 0$	Decrease in Accommodator

### Hypothesis Set 2

Group C (n=76) of the sample was given the same instrument as Groups A and B, except the vignette, rather than specifically providing motivation to encourage achieving consensus, instead introduced escalating conflict to the environment. The subject was placed in a meeting situation that began normally, but quickly escalated in terms of conflict. This was intended to create a feeling of discomfort, to which the subject must respond in some fashion. The expectation was that this change would be measurable through predictable changes to the subject's PCHM.



As with Hypothesis Set 1, the analysis was conducted as a one-tailed t-Test looking for significant changes between the initial PCHM administration and the follow-up administration, after introducing the treatment. The sample comparison was done for each of the five preference categories. However, different from the first set of hypotheses, this time only the dominant category for each individual was evaluated for a significant change. There may well be other changes to the structure of the individual's preferences, but the primary interest was to determine if the dominant trait was affected. Table 8 shows the hypothesized results.

Table 8 - Map of Hypothesized Results - Set 2

<u>Hyp.</u>	<u>Subject</u>	<u>Change</u>	<u>Null Hypothesis</u>	<u>Reject if</u>
Introduction of an Escalating Conflict Scenario				
H <sub>2A</sub>	Competer	Decrease in Competer Score	Competer score change $\geq 0$	Decrease in Competer score
H <sub>2B</sub>	Collaborator	Decrease in Collaborator Score	Collaborator score change $\geq 0$	Decrease in Collaborator score
H <sub>2C</sub>	Compromiser	Increase in Compromiser Score	Compromiser score change $\leq 0$	Increase in Compromiser score
H <sub>2D</sub>	Avoider	Increase in Avoider Score	Avoider score change $\leq 0$	Increase in Avoider score
H <sub>2E</sub>	Accommodator	Increase in Accommodator Score	Accommodator score change $\leq 0$	Increase in Accommodator score

### Exploratory Analysis – Demographic Relationships

This portion of the research and analysis was designed to be an exploratory study, since there were no preliminary hypotheses offered as to the PCHM categorizations. It made theoretical sense that the demographic properties collected in the survey would have an effect on preferred conflict handling styles. This test was designed to determine what that effect was based on the sample of 222 respondents.

Each of the five preference category values for all of the respondents was tested against the coded values for each demographic variable (organization type, years in position, years with employer, position, employees managed, age group and sex). The test was a Regression Analysis, Alpha Level of Significance of .05, with an ANOVA analysis of the results to determine statistical significance.

The Regression was performed against the PCHM in two steps. The first was to test the delta (change in PCHM from before the treatment and after the treatment). This was done to see if the change in conflict mode preference could be predicted based on the demographic data. The second test used the original PCHM score for each category regressed against the demographic data. The reason for this test was to determine if there is a relationship between conflict preference and demographic variables.

#### Exploratory Analysis – PCHM Change

This was also an exploratory study, since there were no preliminary hypotheses offered with respect to changes in PCHM categorizations due to motivation or conflict escalation. The conventional theory on Preferred Conflict style is that it is a static mode that reflects personal preference in the event of any conflict situation. This analysis was designed to determine what the effect would be on the dominant style of the individual based on the sample of 222 respondents.

Each of the five preference category scores (from the initial administration) was rank-ordered by dominance and the same process was applied to the post-treatment scores. It then became a manual comparison process to determine if there had been a change in the dominant preference. Previous tests had been run to verify significance of changes in PCHM scores. This was a categorical analysis only to determine if there were

changes in dominant type. In other words, if someone previously scored 17 on “Competitor” and that was his/her dominant type, but in the post-treatment assessment that individual scored a 21 in “Competitor”, with it remaining the dominant type, that response would not be of interest in this analysis. Instead the significance of the change would have been evaluated in the hypothesis tests.

Many of the respondents were assessed to have multiple dominant preferences (i.e., the high score was the same on two or more categories). In the case of those individuals, a change in the multiple dominant categories was still considered a change in dominance, even if the change was only that one of the original dominant “ties” was no longer tied in the post-treatment assessment. All of the respondents were coded based on whether there was a change in dominance. A chi-square test for independence was then run against the dominance change value and the coded values for each demographic variable (organization type, years in position, years with employer, position, employees managed, age group and sex) to determine if there was a possible relationship in the population between these differentiating factors and a likelihood of changing dominance.

## CHAPTER IV – RESEARCH RESULTS

Within this dissertation study a new psychometric instrument for measuring Preferred Conflict Handling Mode (PCHM) was developed and validated. A long-standing belief that personality assessments such as PCHM are static or, at best, subject to long-term evolutionary change, was challenged and brought into question. And, it was shown that specific types of stimulation are perhaps better at forcing individuals out of their comfort zone of dealing with conflict than others.

### Study Validity Confirmed

The first pilot was very informative. Initially, this study was intended to include a section in the survey for the purpose of judging conflict style relative to proper decision making and problem solving. However, the first pilot showed that this made the overall scope of the survey too large, possibly reducing the validity of the results and reducing response rate.

The first pilot also included the Group C responses as a section of the survey that all respondents (Groups A and B) would take in addition to the motivational vignettes. Again, post-survey interviews and analysis revealed the probability that this would further reduce validity and response rate. And, finally, this pilot revealed some of the weaknesses of online surveys, which were addressed in the final survey. For example, in the pilot all questions were on separate pages. In the final survey it was determined that having the questions on one page along with the instructions was helpful.

The pilot also included a Control Group, which was helpful in determining the overall reliability of the Todd Cambridge Instrument, but this was only determinable from a post survey interview. Administering the same instrument twice in subsequent sections, with no apparent reason for doing so seemed to create suspicion on the part of

the respondents and distorted the results. For this reason, the control group was omitted from the final study.

### Validation of Todd Cambridge Instrument

A randomly selected group of 74 individuals from a variety of professions were sent an invitation to participate in a pilot survey to validate the Todd Cambridge Instrument. The survey was administered using Advanced Survey© (<http://www.advancedsurvey.com/>), web survey tool licensed for the purposes of performing the research for this dissertation. Sixty-three individuals responded – a response rate of 85%.

After administering the TCI and TKI in the same setting, there was a match of 81% (a synopsis of the individual responses may be seen below in Table 9). This exceeded the set threshold of 80% and therefore the pilot was considered a success and research proceeded for the dissertation.

Table 9 - Todd Cambridge Instrument Validation Results

Number in initial sample frame	74
Number of respondents	63
Response rate	85%
Number of full matches (Dominant and Secondary	24
Number of partial matches (Dominant or Secondary)	27
Non-Matches	12
No Response	11

In analyzing these responses, it helps to view the results graphically. In Figures 8 and 9 below, the full matches are not shown - there were 48 full matches across opportunities (24 from TCI, 24 from TKI). The dark bar represents partial matches – meaning that 54 primary or secondary preference opportunities on the TKI and TCI achieved a match, while only 24 opportunities achieved no match. This may be interpreted this way – of the 24 that did not match, two showed up as a Competer on the

TKI, while the TCI revealed six Competers that did not match. That is, eight individuals showed up as a Competer on one instrument or the other, but showed up with a different Dominant or Secondary preference on the other instrument.

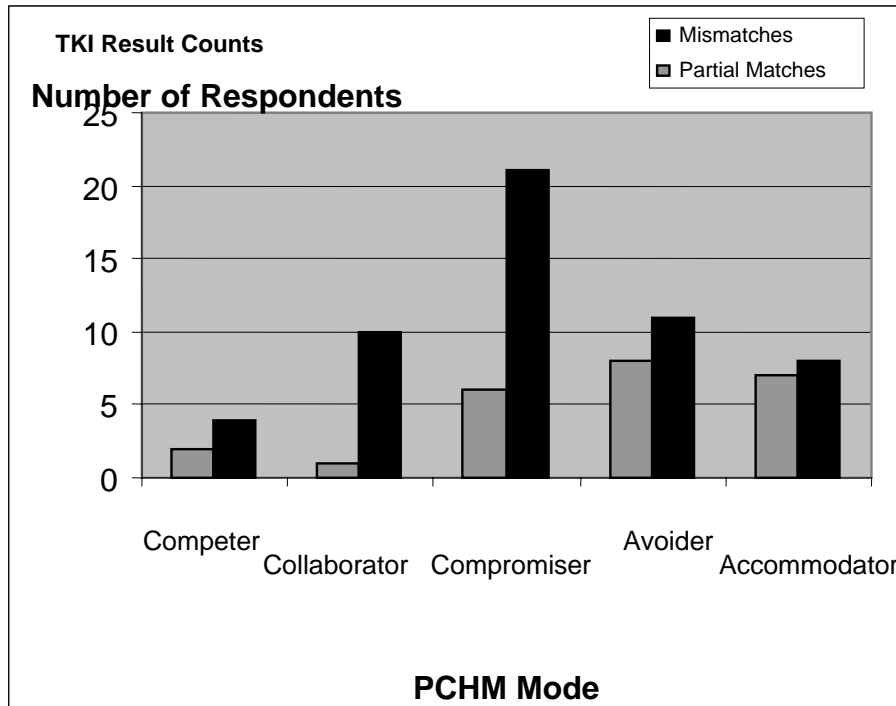


Figure 8 - TKI Match Counts

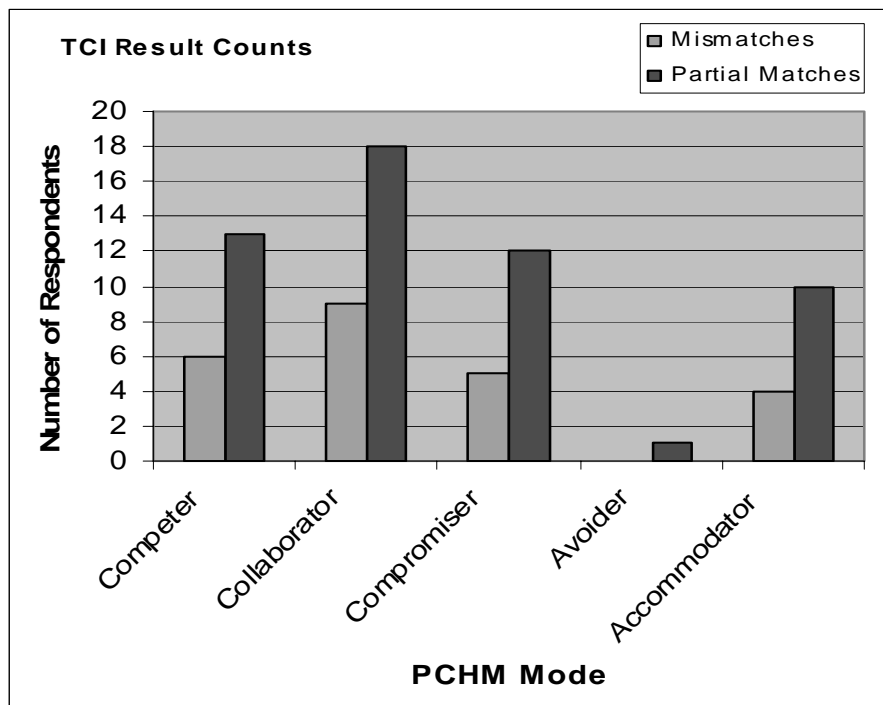


Figure 9 - TCI Match Counts

The primary point of concern surrounded the Avoider category. While the TKI identified two individuals with a primary preference of Avoider, the TCI did not identify any respondents with this preference. There were three probable causes for this. One, as mentioned earlier in Chapter III, the Thomas-Kilmann Instrument forced a respondent at times to choose between two “undesirable” selections. Choosing one over the other may very well have been a “last resort” choice. However, that alone did not explain why one instrument would identify a dominant Avoider while the other does not.

Instead, after evaluating the statements between the two instruments, it appeared that the answer might lay in the wording of the statements themselves. Since the “Avoider” category, in the context of group problem solving and decision making, is probably the least desirable, it is theoretically probable that the statements could produce a demand effect. This could occur if the respondent read the question and thought in terms of a normative response (i.e., “how should I respond?”) rather than descriptively (i.e., “does this adequately describe my natural preference for dealing with conflict?”). Much research has been done with respect to demand effect (Freedman, 2001; Guerin, 1989; Martel, et.al., 1995) and while it is possible to eliminate much of the effect in certain situations (Martel, et.al., 1995, p. 191) it would be difficult to do any more than was done with the current research, except with the instrument itself and perhaps the instructions. Most of the concerns surrounding demand effect obviously occur when the researcher has the opportunity to interact with the respondent(s), or even to simply be present (Guerin, 1989). In studying experiments related to video games and violence, Freedman (2001) concluded that demand is especially pronounced when dealing with behaviors or issues frowned upon or not allowed. Conflict may certainly be construed in this way, but also conflict avoidance may be viewed even more so. However, with respect to isolated treatments such as the current one, a viable theory is that in viewing

the word “avoid” in association with conflict, this demand effect may exist and may justify seeking an alternative form of wording in the instrument. As Freedman (2001) states, “(t)hose who design experimental research know that there is always the possibility, indeed probability, that elements of the procedure will give the subject the impression that a particular response is expected or desired or allowed, and that this will affect how the subjects behave,” (p. 1).

Another possible explanation is nonresponse bias. Since only a little over one-third of the sample frame responded, it is possible that respondents higher in Assertiveness were more likely to respond than those lower in Assertiveness.

In reading the statements in question, the TKI seemed to be more evasive in using a term as strong as “avoid”, while the TCI used the term directly. Even so, the decision was made to leave the questions alone, rather than changing them and running a new pilot, since the match rate was sufficient. This will, however, serve as a future point of study with the instrument, possibly leading to changes to these statements.

### Face Validity Confirmed

The full survey was administered to a small group of selected individuals in order to confirm that the process flowed smoothly, the responses were appropriately calculated and to test the validity of the constructs. Of the nineteen sent an invitation to participate, twelve responded to the survey and were then asked to conduct an interview with the researcher. An additional 16 subjects were provided by a dissertation committee member as a class assignment for his students. As with the others, the choice to participate was purely voluntary and no pressures were applied to require them to do so. A total of 28



individuals ended up responding to the survey – a response rate of 80%. Of the 28, ten participated in a one-on-one interview regarding the survey and research project.

There was an opportunity to interview ten of the respondents (3 “A”, 4 “B” and 3 “C” respondents). Table 10 contains the questions asked and a compilation of their responses, as well as the action taken as a result of their input.

Table 10 - Third Pilot Interview Results

Question	Compilation of Responses	Planned Action
How long did the survey take you (in minutes)?	5 – 10 minutes (in all but two cases). One said 15 minutes, one said 20.	In the introductory email to participants, a participation time of 20 to 30 minutes was stated –that can be reduced.
Were the instructions clear?	Yes (in all cases).	None
Did you go back and change any answers before submitting?	No (in all cases).	None (supports the survey design of all questions on one page).
If the first 2 sections were one email link and the third part a second link, would that bother you?	Mixed – seven said “No”, but a few were concerned about forgetting or the annoyance.	None – this was proposed in case people routinely went back and changed answers – does not seem to be an issue.
Did the vignette make sense to you?	Yes (in all cases) – one Vignette “C” individual suggested that the escalation vignette was not confrontational enough to really change his answers.	Vignette C was reevaluated based on this and the actual results, but it was decided no change was necessary just because of one respondent.
Did the vignette cause you to change some of your previous answers?	Half said “yes” or “probably”. One said “not sure” (it actually did not). One “B” respondent said “no” (it actually did and in accordance with the hypotheses).	None.
Does it seem reasonable to change the way you deal with conflict under different circumstances?	All said “yes” except one. She said “no” and her results were identical between Section 2 and 3. (See Note below).	None – supports the hypotheses.
Did the scale choices fit your expectation of how your preferences of choosing a response to conflict should be measured?	Yes (in all cases) – a couple commented that it certainly should not be more than seven choices, but probably more than five.	Since seven were used (same as other similar instruments), no changes.
Did you find anything frustrating or confusing?	No (in all cases).	None.

Question	Compilation of Responses	Planned Action
Other individual comments	“At the end, it took me back to the ‘Advanced Surveys’ page – I wasn’t sure what to do at that point.” (Two respondents)	Added additional instructions that when it takes the respondent back to the main page, they should simply close the window – they are done.
	“When I answered the first set of questions, I essentially had a similar scenario in mind – probably needs to be a more intensive scenario.”	Did not seem to be the case for the others and this person did change his answers. No change.
	“Immediate feedback would be nice – I would like to know what my PCHM type is.”	Since this is being done using “Advanced Surveys”, this is not possible. Future possibility using a web-site.
	One of Dr. Barrett’s students commented that the instructions going into Section 3 encouraged the taker to feel free to go back and change answers in Section 2.	After reviewing, it was apparent that the instruction could be ambiguous. Therefore the wording on the instruction was changed appropriately.

**Note:** When asked if it seemed reasonable to change the way you deal with conflict based on a different “scenario”, one respondent in the pilot said “no”. Not surprisingly, her answers to the fifteen questions were identical before and after the vignette was introduced. The following facts about this individual were deemed important:

1. She was older (80 years old).
2. She was a retired public elementary school principal.
3. She was a very independent widow (living alone for two decades).
4. She was a very active leader in her church and community (not just with senior adults – with all age groups).

The reason these were considered important was that the research was targeted to a homogeneous population (business workers, mostly professionals, primarily banking and/or IT). It seemed her position in life dictated a different perspective. She indicated that she readily makes her opinions known and usually does not change them. People seem to naturally have respect for her and deference for her opinions. She also indicated a

very “moral” opinion about conflict – “speak the truth and don’t change it” was one of her comments.

### Changes Based on Interviews

Based on the interviews, therefore, it only seemed important to make the following changes before sending out the final surveys:

1. In the introductory email, state that the survey should only take about 5 to 10 minutes.
2. Modify the ending instruction to add this statement: At this point you are finished! After clicking "Complete Survey", you will return to the Advanced Surveys homepage. At that point, simply close the Browser window.
3. Modify the instructions between Sections 2 and 3.

The original instruction read: It is acceptable to change your response from the original set if you feel differently based on the scenario.

The new instruction read: It is acceptable to answer differently in this section than you did in Section 2 if you feel differently based on the scenario.

### Pilot Survey Results

The results for Groups A and B were indicative of a response to the stimulant, but not always in the direction of the hypotheses and not always significant. However, the presence of change itself was considered significant and supports the general hypotheses (see Table 11 below).

Table 11 - Pilot 3 Results - Groups A and B

<u>Hypotheses for A&amp;B</u>	<u>Successful</u>	<u>Unsuccessful</u>	
		<u>Stayed the same</u>	<u>Opposite</u>
Increase in Competer Score	8	5	5
Decrease in Collaborator Score	11	3	4
Increase in Compromiser Score	7	5	6
Decrease in Avoider Score	9	4	5
Decrease in Accommodator Score	9	5	4
Totals	44	22	24

A third of the respondents were surveyed as Group C. The results of that survey response are shown in Table 12. In this case, the results do correspond to the hypotheses for Group C and lent support to keeping that portion of the research intact.

Table 12 - Pilot 3 Results - Group C

<u>Hypotheses for C</u>	<u>Successful</u>	<u>Unsuccessful</u>	
		<u>Stayed the same</u>	<u>Opposite</u>
Appropriate Change in Dominant Score	6	2	2

### Demographic Results

An analysis of the response data was also performed based on demographic information and the following determinations were made:

1. Organization Type – Did not seem to have an effect.
2. Years in Current Position – Did seem to have an effect. All of the ones who matched the hypotheses were in their current positions less than three years. The longer in their position, the less likely they were to be affected according to the hypotheses (usually still affected, but in the opposite way).
3. Years with the Current Employer – Same result as in Years in Current Position.

4. Current Position – There did seem to be a difference. The ones who matched the hypotheses were Supervisors, Technical/Professional, or Other, while Middle Managers did not. However, the sample was too small to make that determination statistically.
5. Number of Employees Managed – Most of the Group A and B respondents managed zero (0) employees, and there did not appear to be a pattern.
6. Age Group – There did seem to be a pattern here, similar to Years in Position (obviously a multicollinearity issue), but it would be interesting to see if the tendency is due to “age” or “tenure” – in the pilot, there were no older subjects who had been in their position a short period of time.
7. Sex – Did not appear to have an effect.

#### Other Interesting Pilot Results

1. For Groups A and B, most of the respondents (67%) changed their Dominant PCHM. It did not seem to matter whether the previous scores were close (with types) or not.
2. For Group C, almost all of the respondents (90%) changed their Dominant PCHM structure. It also did not seem to matter whether the previous scores were close or not.
3. There did not seem to be a clear pattern as to who moved where. For example, dominant Collaboratives did not always have a corresponding increase in Competer if their Collaborative score decreased, etc. This is, of course, based on visual analysis of the results only. This is why another multivariate technique (Factor Analysis) was determined to be important to the final analysis.

### Instrument Validity Confirmed

The research ended up containing 222 responses, all of which were loaded into SPSS for Factor Analysis. As stated in the Research Methodology (Chapter 3), it was decided to include the post-test responses of the respondents with the pre-test responses effectively doubling the number of subjects. This was appropriate because, while the introduction of the treatment may (and should) affect how the respondent characterizes him or herself with respect to a given conflict mode, it should not have affected the way the individual viewed each of the three characteristic statements associated with a given preference category in an individual way. The purpose of having three statements per category was to overcome issues of abstraction, without reducing validity and reliability. However, in order to verify that there would be no demonstrable difference, a Factor Analysis was performed first on each of the 222 responses, then on all 444 combined, and the difference was found to be negligible, thereby supporting the decision to include all 444 response sets.

The fifteen responses per respondent were loaded into SPSS and a Factor Analysis utilizing Principal Component Analysis as the extraction method was used. The results were then rotated in the component matrix via Varimax with Kaiser normalization. The result was a component transformation matrix with four components, as shown below in Table 13.

Table 13 - Component Transformation Matrix

Component	1	2	3	4
1	.764	.459	.436	-.124
2	.031	.657	-.628	.417
3	-.534	.387	.640	.394
4	.361	-.456	.079	.810

The four components identified, were:

1. Accommodation
2. Compromising
3. Avoiding
4. Competing

The fifth preference category of the PCHM instrument not extracted fully was Collaborating, which loaded partially with Accommodation and partially with Compromising. Upon evaluating the specific questions related to Collaborator, it was evident that issues of interpretation were nearly unavoidable. The statement loading on Accommodation related to working out differences, and the two loading on Compromising similarly related to the “give and take” aspects important to both. While Compromising is somewhat Uncooperative and somewhat Unassertive (as compared to Collaboration), both have as an objective a “win-win” outcome. It appeared that the most difficult two types to segregate were Collaboration and Compromise, while Collaboration was probably more closely related to Accommodation than Competing. The outcome seemed to make ideological sense. Below, in Table 14, is the Principal Component Analysis with Varimax Rotation. The Collaborator statements (variables) are shown in **bold print** to show how the loadings matched primarily on Component 2 (Compromiser) and partially on Component 1 (Accommodator).

Table 14 - Rotated Component Matrix

		Component			
* Variable	Category	1	2	3	4
14	Accommodator	.829			.120
9	Accommodator	.778	.222	.146	-.110
<b>10</b>	<b>Collaborator</b>	<b>.557</b>	<b>.452</b>		
6	Accommodator	.538	.112	.185	
15	Compromiser	.494	.456	.148	-.193
<b>1</b>	<b>Collaborator</b>		<b>.687</b>	<b>-.172</b>	
8	Compromiser	.185	.684		
3	Compromiser	.168	.649	.252	
<b>5</b>	<b>Collaborator</b>	<b>.193</b>	<b>.509</b>	<b>-.160</b>	<b>.294</b>
13	Avoider	.168		.817	
7	Avoider	.205		.744	.220
11	Avoider	.218		.635	-.295
12	Competer	.161	.129	-.593	.314
4	Competer			-.108	.854
2	Competer	-.367	.390		.588

\* NOTE: This is directly related to the PCHM Statements (1 – 15) found in Appendix A.

The conclusion was that while the statements may probably be susceptible to refinement at some point in the future to further differentiate the desired five components, the loadings sufficiently confirmed the validity of the Todd Cambridge Instrument for use in this research.

#### Instrument Reliability Confirmed

Our survey items are, by design, not uni-dimensional, however, within factor loadings uni-dimensionality is expected. Therefore, Cronbach's alpha was used for testing instrument reliability. As stated in the Research Methodology (Chapter 3), other researchers have used the Thomas-Kilmann Instrument extensively and have performed very detailed analysis on their results. Since the TKI was the baseline used for validating the Todd Cambridge Instrument, the instrument's reliability was compared to the findings with TKI. TKI has historically returned a Cronbach's alpha between .61 and .68 on test-retest formats and .43 to .71 using Cronbach's alpha (p. 317).



The results of the current research, running the Factor Analysis through SPSS, returned a Cronbach's alpha of .651. Rahim (2002) has indicated that the Cronbach's alpha of .43 to .71 represents a highly reliable instrument, in the case of TKI, therefore a reliability of .651 was considered acceptable.

### Hypothesis Set 1 Results

The first set of hypotheses were tested using a one-tailed t-Test (Paired Two Sample for Means), since the hypothesized direction of change based on the treatments was specific. Table 15 is a synopsis of the hypothesis changes for both the negative and positive motivational vignettes.

For the five alternative hypotheses put forth for the negative motivational vignette, two were supported (Competitor and Accommodator), while the results for the other three were not strong enough to reject the null. The changes in Collaborator and Avoider were a decrease, while Compromiser increased (all in accordance with the hypotheses), but not enough to reject the null hypotheses at the  $\alpha=.05$  level of significance. It may be that the vignette wording is not strong enough to force a significant change in these three categories, while the Competitor and Accommodator, both extreme in opposite directions, were more responsive to the vignette.

For the five alternative hypotheses put forth for the positive motivational vignette, three were supported (Competitor, Collaborator and Accommodator), while the results for the other two did not allow rejecting the null. The mean change to Compromiser was an increase and Avoider decreased, but none of the changes was enough to reject.

Table 15 - Table of Hypothesis Results - Set 1

Introduction of a Negative Motivational Scenario				
n = 70, $\alpha = .05$				
<u>Hyp.</u>	<u>Subject</u>	<u>Change</u>	<u>Null Hypothesis</u>	<u>Result</u>
H <sub>1A1</sub>	All	Increase in Competer Score	Competer score change $\leq 0$	Reject the null
H <sub>1B1</sub>	All	Decrease in Collaborator Score	Collaborator score change $\geq 0$	Fail to reject
H <sub>1C1</sub>	All	Increase in Compromiser Score	Compromiser score change $\leq 0$	Fail to reject
H <sub>1D1</sub>	All	Decrease in Avoider Score	Avoider score change $\geq 0$	Fail to reject
H <sub>1E1</sub>	All	Decrease in Accommodator Score	Accommodator score change $\geq 0$	Reject the null
Introduction of a Positive Motivational Scenario				
n = 76, $\alpha = .05$				
<u>Hyp.</u>	<u>Subject</u>	<u>Change</u>	<u>Null Hypothesis</u>	<u>Result</u>
H <sub>1A2</sub>	All	Increase in Competer Score	Competer score change $\leq 0$	Reject the null
H <sub>1B2</sub>	All	Decrease in Collaborator Score	Collaborator score change $\geq 0$	Reject the null
H <sub>1C2</sub>	All	Increase in Compromiser Score	Compromiser score change $\leq 0$	Fail to reject
H <sub>1D2</sub>	All	Decrease in Avoider Score	Avoider score change $\geq 0$	Fail to reject
H <sub>1E2</sub>	All	Decrease in Accommodator Score	Accommodator score change $\geq 0$	Reject the null

The end results of the Set 1 hypotheses (Introducing a Negative or Positive Motivating event will create a significant, predictable change in PCHM) were mixed.

For the Negative Motivational scenario set, the null hypothesis of increase or no change on the Competer category was rejected and the null hypothesis of decrease or no change on the Accommodator category was also rejected, the null hypotheses on Collaborator, Compromiser and Avoider were not rejected (all three tests showed the correct direction of change per the hypotheses, but the changes were not significant at  $\alpha=.05$ ).

For the Positive Motivational scenario set, the null hypothesis of decrease or no change on the Competer, Collaborator and Accommodator categories were rejected, but

the null could not be rejected on Compromiser or Avoider (again, both tests showed the correct direction of change per the hypotheses, but the changes were not significant at  $\alpha=.05$ ).

It is possible that the nature of a fictional scenario is not as intimidating or encouraging as a real-life situation would be. Even though not significant at the given alpha level, the mean did shift in the hypothesized direction in all cases. Below (Tables 16 through 25) are the detailed results of each of the ten t-Tests.

Table 16 - Negative Motivation t-Test - Competer

Competer t-Test: Paired Two Sample for Means		
	<i>Group A- Before</i>	<i>Group A- After</i>
Mean	14.72857143	16.57142857
Variance	12.28757764	8.944099379
Observations	70	70
Pearson Correlation	-0.134295152	
Hypothesized Mean Difference	0	
Df	69	
t Stat	-3.14417361	
P(T<=t) one-tail	0.001228189	
t Critical one-tail	1.667238549	
P(T<=t) two-tail	0.002456379	
t Critical two-tail	1.99494539	

Table 17 - Negative Motivation t-Test - Collaborator

Collaborator t-Test: Paired Two Sample for Means		
	<i>Group A- Before</i>	<i>Group A- After</i>
Mean	17.42857143	17.32857143
Variance	4.915113872	3.702070393
Observations	70	70
Pearson Correlation	0.605243584	
Hypothesized Mean Difference	0	
df	69	
t Stat	0.450206275	
P(T<=t) one-tail	0.326986534	
t Critical one-tail	1.667238549	
P(T<=t) two-tail	0.653973068	
t Critical two-tail	1.99494539	

Table 18 - Negative Motivation t-Test - Compromiser

Compromiser  
t-Test: Paired Two Sample for Means

	<i>Group A- Before</i>	<i>Group A- After</i>
Mean	15.58571429	15.9
Variance	5.289648033	5.250724638
Observations	70	70
Pearson Correlation	-0.126223607	
Hypothesized Mean Difference	0	
df	69	
t Stat	-0.76319151	
P(T<=t) one-tail	0.223975373	
t Critical one-tail	1.667238549	
P(T<=t) two-tail	0.447950745	
t Critical two-tail	1.99494539	

Table 19 - Negative Motivation t-Test - Avoider

Avoider  
t-Test: Paired Two Sample for Means

	<i>Group A- Before</i>	<i>Group A- After</i>
Mean	11	10.17142857
Variance	17.88405797	17.21656315
Observations	70	70
Pearson Correlation	0.123063968	
Hypothesized Mean Difference	0	
df	69	
t Stat	1.249488044	
P(T<=t) one-tail	0.107854246	
t Critical one-tail	1.667238549	
P(T<=t) two-tail	0.215708491	
t Critical two-tail	1.99494539	

Table 20 - Negative Motivation t-Test - Accommodator

Accommodator		
t-Test: Paired Two Sample for Means		
	<i>Group A- Before</i>	<i>Group A- After</i>
Mean	16.64285714	14.97142857
Variance	6.435817805	8.375983437
Observations	70	70
Pearson Correlation	0.211774191	
Hypothesized Mean Difference	0	
df	69	
t Stat	4.087949184	
P(T<=t) one-tail	5.79414E-05	
t Critical one-tail	1.667238549	
P(T<=t) two-tail	0.000115883	
t Critical two-tail	1.99494539	

Table 21 - Positive Motivation t-Test - Competer

Competer		
t-Test: Paired Two Sample for Means		
	<i>Group B- Before</i>	<i>Group B- After</i>
Mean	14.71052632	15.5
Variance	11.86175439	10.17333333
Observations	76	76
Pearson Correlation	0.634796209	
Hypothesized Mean Difference	0	
df	75	
t Stat	-2.419984469	
P(T<=t) one-tail	0.008971548	
t Critical one-tail	1.665425374	
P(T<=t) two-tail	0.017943097	
t Critical two-tail	1.992102124	

Table 22 - Positive Motivation t-Test - Collaborator

Collaborator		
t-Test: Paired Two Sample for Means		
	<i>Group B- Before</i>	<i>Group B- After</i>
Mean	17.35526316	16.60526316
Variance	4.152105263	5.86877193
Observations	76	76
Pearson Correlation	0.687841045	
Hypothesized Mean Difference	0	
df	75	
t Stat	3.638034376	
P(T<=t) one-tail	0.000250891	
t Critical one-tail	1.665425374	
P(T<=t) two-tail	0.000501782	
t Critical two-tail	1.992102124	

Table 23 - Positive Motivation t-Test - Compromiser

Compromiser		
t-Test: Paired Two Sample for Means		
	<i>Group B- Before</i>	<i>Group B- After</i>
Mean	15.5	15.77631579
Variance	5.186666667	7.002631579
Observations	76	76
Pearson Correlation	0.525445337	
Hypothesized Mean Difference	0	
df	75	
t Stat	-0.995435823	
P(T<=t) one-tail	0.161362582	
t Critical one-tail	1.665425374	
P(T<=t) two-tail	0.322725164	
t Critical two-tail	1.992102124	

Table 24 - Positive Motivation t-Test - Avoider

Avoider

t-Test: Paired Two Sample for Means

	<i>Group B- Before</i>	<i>Group B- After</i>
Mean	11.07894737	11.02631579
Variance	17.78035088	19.89263158
Observations	76	76
Pearson Correlation	0.754931712	
Hypothesized Mean Difference	0	
df	75	
t Stat	0.150641593	
P(T<=t) one-tail	0.440331435	
t Critical one-tail	1.665425374	
P(T<=t) two-tail	0.88066287	
t Critical two-tail	1.992102124	

Table 25 - Positive Motivation t-Test - Accommodator

Accommodator

t-Test: Paired Two Sample for Means

	<i>Group B- Before</i>	<i>Group B- After</i>
Mean	16.47368421	15.21052632
Variance	7.132631579	9.715087719
Observations	76	76
Pearson Correlation	0.66859762	
Hypothesized Mean Difference	0	
df	75	
t Stat	4.605742634	
P(T<=t) one-tail	8.23591E-06	
t Critical one-tail	1.665425374	
P(T<=t) two-tail	1.64718E-05	
t Critical two-tail	1.992102124	

### Hypothesis Set 2 Results

The second set of hypotheses were tested using a one-tailed t-Test, since the hypothesized direction of change based on the treatments is specific. Below (Table 26) contains a synopsis of the hypothesized changes.

For the five alternative hypotheses put forth, two were supported (Collaborator and Compromiser). The mean changes for Competer and Accommodator, while in the hypothesized direction, were not strong enough to reject the null hypothesis. The hypothesis for a dominant Avoider could not be tested since there were no dominant Avoiders in the sample. The issue with Competer and Accommodator may have been, like the Avoider, due to the sample size.

Table 26 - Table of Hypothesized Results - Set 2

Introduction of Escalating Conflict					
$\alpha = .05$					
Hyp.	Subject	n	Change	Null Hypothesis	Result
H <sub>2A</sub>	Competer	10	Decrease in Competer Score	Competer score change $\geq 0$	Fail to reject
H <sub>2B</sub>	Collaborator	48	Decrease in Collaborator Score	Collaborator score change $\geq 0$	Reject the null
H <sub>2C</sub>	Compromiser	9	Increase in Compromiser Score	Compromiser score change $\leq 0$	Reject the null
H <sub>2D</sub>	Avoider	0	Increase in Avoider Score	Avoider score change $\leq 0$	Cannot test
H <sub>2E</sub>	Accommodator	9	Increase in Accommodator Score	Accommodator Score change $\leq 0$	Fail to reject

The end results of the second set of hypotheses (Introducing Conflict Escalation will create a significant change in dominant PCHM) were mixed. The null hypothesis of an increase or no change on the *Collaborator* category was rejected and the null hypothesis of a decrease or no change on the *Compromiser* category was also rejected. However, the null could not be rejected on *Competer* and *Accommodator*, even though the change in mean PCHM was in the right direction. This may be due to the small sample size and indicates a need for additional testing. The *Avoider* category could not be tested, since there were no dominant Avoiders in the sample. Within the complete sample set of 222 respondents, only 2 individuals assessed as a dominant Avoider (none



in Group C). It is possible that the minimal number of Avoiders is due to non-response bias. Since the nature of these individuals is to avoid conflict, there could also be other avoidance tendencies, such as not submitting a response. No nonresponse bias analysis was conducted.

Below (Tables 27 through 30) are the detailed results of each of the four t-Tests (excludes Avoider since there were no observations).

Table 27 - Conflict Escalation t-Test - Competer

Competer

t-Test: Paired Two Sample for Means

	<i>Pre-Test</i>	<i>After Treatment</i>
Mean	16.5	16.4
Variance	3.388888889	4.488888889
Observations	10	10
Pearson Correlation	-0.028487832	
Hypothesized Mean Difference	0	
df	9	
t Stat	0.111111111	
P(T<=t) one-tail	0.456983338	
t Critical one-tail	1.833112923	
P(T<=t) two-tail	0.913966677	
t Critical two-tail	2.262157158	

Table 28 - Conflict Escalation t-Test - Collaborator

Collaborator

t-Test: Paired Two Sample for Means

	<i>Pre-Test</i>	<i>After Treatment</i>
Mean	18.20833333	17.0625
Variance	2.721631206	5.506648936
Observations	48	48
Pearson Correlation	0.557153261	
Hypothesized Mean Difference	0	
df	47	
t Stat	4.012422675	
P(T<=t) one-tail	0.00010713	
t Critical one-tail	1.677926722	
P(T<=t) two-tail	0.000214259	
t Critical two-tail	2.01174048	

Table 29 - Conflict Escalation t-Test - Compromiser

Compromiser

t-Test: Paired Two Sample for Means

	<i>Pre-Test</i>	<i>After Treatment</i>
Mean	15.88888889	18.11111111
Variance	7.861111111	6.111111111
Observations	9	9
Pearson Correlation	0.434835688	
Hypothesized Mean Difference	0	
df	8	
t Stat	-2.365249584	
P(T<=t) one-tail	0.022791583	
t Critical one-tail	1.859548033	
P(T<=t) two-tail	0.045583166	
t Critical two-tail	2.306004133	

Table 30 - Conflict Escalation t-Test - Accommodator

Accommodator

t-Test: Paired Two Sample for Means

	<i>Pre-Test</i>	<i>After Treatment</i>
Mean	15.44444444	16.22222222
Variance	2.027777778	5.944444444
Observations	9	9
Pearson Correlation	0.436041862	
Hypothesized Mean Difference	0	
df	8	
t Stat	-1.049344365	
P(T<=t) one-tail	0.162341582	
t Critical one-tail	1.859548033	
P(T<=t) two-tail	0.324683163	
t Critical two-tail	2.306004133	

## Exploratory Results – Demographic Relationships

There were no hypotheses associated with this exploratory analysis. Instead, a Regression Analysis with ANOVA test of significance was performed between the delta (change in PCHM preference scores) and the demographic information obtained in the surveys. A second test was conducted between the original PCHM scores and the demographic responses. The purpose was to 1) determine if the change in PCHM may be related to these factors and 2) if PCHM classification in general was related to these factors.

### Part 1 – Delta Regression

This test involved running a regression of the delta between the PCHM preference categories against each of the coded variable sets of each demographic question from the survey. Between each of the PCHM categories and each of the demographic variables, only one category and one demographic variable showed a significant relationship – it was the relationship between the Change in Avoider PCHM and Years in Current Position. The ANOVA results for this regression are shown below in Table 31.

Table 31 - Regression ANOVA results - Avoider x Years in Position

Avoider x Years in Position  
SUMMARY OUTPUT

<i>Regression Statistics</i>					
Multiple R		0.314708			
R Square		0.099041			
Adjusted R Square		0.078186			
Standard Error		3.730155			
Observations		222			

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	330.3843	66.07685	4.748929	0.000388137
Residual	216	3005.436	13.91405		
Total	221	3335.82			

Table 32 contains the valid selections for each of the demographic questions and the corresponding coded values used in the Regression Analysis.

Table 32 - Demographic Variables for Regression

Demographic Variable	Options	Coded Values
Organization Type	Distribution	ax1
	Financial Services	ax2
	Information Technology	ax3
	Manufacturing	ax4
	Other	ax5
	Professional/Consulting	ax6
	Sales/Marketing	bx7
Years in Current Position	Less than 1 year	xb1
	1 year to less than 3 years	bx2
	3 years to less than 8 years	bx3
	8 years to less than 15 years	bx4
	15 years to less than 25 years	bx5
	25 years or more	bx6
Years with Current Employer	Less than 1 year	cx1
	1 year to less than 3 years	cx2
	3 years to less than 8 years	cx3
	8 years to less than 15 years	cx4
	15 years to less than 25 years	cx5
	25 years or more	cx6
Current Position	Executive	dx1
	Middle Management	dx2
	Senior Manager	dx3
	Supervisor	dx4
	Technical/Specialist	dx5
	Other	dx6
No. of Employees Managed	0	ex1
	1 to 5	ex2
	6 to 10	ex3
	11 to 20	ex4
	21 or more	ex5
Age Group	Under 25	fx1
	26 to 35	fx2
	36 to 45	fx3
	46 to 55	fx4
	56 or older	fx5
Sex	Female	gx1
	Male	gx2

Following, in Table 33, are the Regression ANOVA results (in terms of the significance value) for each test performed. All tests were evaluated at the  $\alpha = .05$  level and  $n=222$ .

Table 33 - Results of PCHM Delta Regression

Y-Value	X-Values	Significance F	Significant Relationship?
Competer	Organization Type	0.894	No
	Years in Position	0.439	No
	Years with Employer	0.610	No
	Current Position	0.889	No
	No. of Employees Managed	0.232	No
	Age Group	0.874	No
	Sex	0.977	No
Collaborator	Organization Type	0.632	No
	Years in Position	0.439	No
	Years with Employer	0.562	No
	Current Position	0.394	No
	No. of Employees Managed	0.598	No
	Age Group	0.605	No
	Sex	0.199	No
Compromiser	Organization Type	0.454	No
	Years in Position	0.846	No
	Years with Employer	0.673	No
	Current Position	0.377	No
	No. of Employees Managed	0.283	No
	Age Group	0.875	No
	Sex	0.278	No
Accommodator	Organization Type	0.335	No
	Years in Position	0.326	No
	Years with Employer	0.693	No
	Current Position	0.270	No
	No. of Employees Managed	0.744	No
	Age Group	0.804	No
	Sex	0.471	No
Avoider	Organization Type	0.156	No
	Years in Position	0.0003	Yes
	Years with Employer	0.200	No
	Current Position	0.444	No
	No. of Employees Managed	0.445	No
	Age Group	0.528	No
	Sex	0.393	No

## Part 2 – Original PCHM Regression

This series of tests involved running a regression of the original PCHM preference category scores against each of the coded variable sets of each demographic question from the survey. Between each of the PCHM categories and each of the demographic variables, three of the five categories and seven demographic variables showed a significant relationship. The ANOVA results for these regressions are shown below in Tables 34 through 40.

Table 34 - Regression ANOVA results - Collaborator x Years in Position

Collaborator x Years in Position SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.235286				
R Square	0.05536				
Adjusted R Square	0.033493				
Standard Error	2.073068				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	54.40116	10.88023	2.531694	0.029862172
Residual	216	928.2835	4.297609		
Total	221	982.6847			

Table 35 - Regression ANOVA results - Collaborator x Years with Employer

Collaborator x Years with Employer SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.228472				
R Square	0.0522				
Adjusted R Square	0.03026				
Standard Error	2.076532				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	51.29582	10.25916	2.37922	0.039756952
Residual	216	931.3889	4.311985		
Total	221	982.6847			

Table 36 - Regression ANOVA results - Collaborator x # Employees Managed

Collaborator x Number of Employees Managed					
SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.214247				
R Square	0.045902				
Adjusted R Square	0.028315				
Standard Error	2.078614				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	45.10705	11.27676	2.609979	0.036523515
Residual	217	937.5776	4.320634		
Total	221	982.6847			

Table 37 - Regression ANOVA results - Compromiser x Years with Employer

Compromiser x Years with Employer					
SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.288852				
R Square	0.083436				
Adjusted R Square	0.062219				
Standard Error	2.367002				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	110.164	22.03279	3.932532	0.00196552
Residual	216	1210.183	5.602699		
Total	221	1320.347			

Table 38 - Regression ANOVA results - Accommodator x Years in Position

Accommodator x Years in Position					
SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.225026				
R Square	0.050637				
Adjusted R Square	0.028661				
Standard Error	2.667113				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	81.95392	16.39078	2.304182	0.045718005
Residual	216	1536.515	7.113493		
Total	221	1618.468			

Table 39 - Regression ANOVA results - Accommodator x Years with Employer

Accommodator x Years with Employer					
SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.258206				
R Square	0.06667				
Adjusted R Square	0.045065				
Standard Error	2.644496				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	107.9035	21.58069	3.085884	0.010337257
Residual	216	1510.565	6.993357		
Total	221	1618.468			

Table 40 - Regression ANOVA results - Accommodator x # Employees Managed

Accommodator x Number of Employees Managed					
SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.231937				
R Square	0.053795				
Adjusted R Square	0.036353				
Standard Error	2.656531				
Observations	222				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	87.06501	21.76625	3.08428	0.016953596
Residual	217	1531.403	7.057159		
Total	221	1618.468			

Following, in Table 41, are all of the Regression ANOVA results (in terms of the significance value) for each test performed on the original PCHM data scores. All tests were evaluated at the  $\alpha = .05$  level and  $n=222$ .



Table 41 - Results of Original PCHM Regression

Y-Value	X-Values	Significance F	Significant Relationship?
Competitor	Organization Type	0.741	No
	Years in Position	0.374	No
	Years with Employer	0.341	No
	Current Position	0.309	No
	No. of Employees Managed	0.525	No
	Age Group	0.146	No
	Sex	0.472	No
Collaborator	Organization Type	0.226	No
	Years in Position	0.029	Yes
	Years with Employer	0.039	Yes
	Current Position	0.100	No
	No. of Employees Managed	0.036	Yes
	Age Group	0.510	No
	Sex	0.469	No
Compromiser	Organization Type	0.774	No
	Years in Position	0.117	No
	Years with Employer	0.002	Yes
	Current Position	0.635	No
	No. of Employees Managed	0.216	No
	Age Group	0.779	No
	Sex	0.815	No
Accommodator	Organization Type	0.152	No
	Years in Position	0.045	Yes
	Years with Employer	0.010	Yes
	Current Position	0.553	No
	No. of Employees Managed	0.017	Yes
	Age Group	0.300	No
	Sex	0.663	No
Avoider	Organization Type	0.457	No
	Years in Position	0.064	No
	Years with Employer	0.273	No
	Current Position	0.866	No
	No. of Employees Managed	0.576	No
	Age Group	0.289	No
	Sex	0.823	No

## Exploratory Analysis Results – PCHM Change

As stated previously, this is also an exploratory study, since there are no preliminary hypotheses offered with respect to changes in PCHM categorizations due to motivation or conflict escalation. This analysis is designed to determine what the effect is on the dominant style of the individual based on the sample of 222 respondents and to determine if the demographic factors gathered as part of the survey are related to the occurrence of changed dominance.

### Part 1 – Dominance Change Analysis

First, the results of the change analysis. Scores were calculated for each PCHM category per respondent and assigned a priority ranking order based on the strength of these scores. The same process was then followed on the post-test assessment (following the treatment, or vignette). The 222 respondents were then coded as either Change or No Change (with respect to dominance). The results of the dominance change analysis are below in Tables 42 (n=222) and 43 (by Group – A:n=70, B:n=76, C:n=76).

Table 42 - Dominant PCHM Change Results

Coded Outcome	Count
Change in Dominance	121
No Change	101

Table 43 - Dominant PCHM Change Results by Group

Group	Coded Outcome	Count
A (Negative Motivation)	Change in Dominance	51
	No Change	19
B (Positive Motivation)	Change in Dominance	39
	No Change	37
C (Conflict Escalation)	Change in Dominance	31
	No Change	45

Note: Many of the respondents were typed with multiple dominant preferences (i.e., the high score was the same on two or more categories). In the case of those individuals, a change in the multiple dominant categories is still considered a change in dominance, even if the change is only that one of the original dominant “ties” is no longer tied in the post-treatment assessment.

As can be seen from the raw numbers, many more respondents subjected to negative motivation changed their dominant preference for handling conflict than did not change, while those subjected to positive motivation were about as likely to change as to not change. Those participating in the vignette subjecting them to conflict escalation were more likely to retain the same dominant preference than to change. A Chi-Square test of significance was run using Group and Change/No Change values and a significance test value of .0004 indicates that, using an  $\alpha=.05$  value, it is very likely that in the population negative motivation is likely to cause a change in dominance, as opposed to the other stimulants.

In all, more respondents changed their dominant preference based on the stimulating event than did not. This is certainly an area of interest that needs to be pursued as an area of additional research. It is important to note, though, that this could possibly be due to measurement error. There was no specific research or analysis done with respect to how significant the changes were. The only statistical analysis that was performed was to determine if there was a significant difference in the change based on treatment group.

An additional post hoc analysis (Table 44) was done to determine potential patterns for change, in order to see if 1) individuals of a certain initial preference were

more likely to change and 2) when the respondent did change, what preference category they were more likely to change to (versus random or non-specific changes).

Table 44 - Breakdown of Dominant Mode Change

Initial Dominant Type	Did not change				Changed			
Group	A	B	C	Total	A	B	C	Total
Competer (n=41)	7	11	7	25	8	5	3	16
Collaborator (n=128)	11	21	30	62	25	23	18	66
Compromiser (n=21)	0	2	4	6	8	2	5	15
Accommodator (n=31)	1	3	4	8	9	9	5	23
Avoider (n=1)	0	0	0	0	1	0	0	1

There does appear to be an effect of interest relative to which types are more likely to change and there may also be an effect by type of stimulation (i.e., Group C seems to evidence a different pattern from Groups A and B). In the given sample, Compromisers and Accommodators seem more likely to change in the face of stimulation than do Collaborators or Competers. However, this needs to be studied statistically to determine possible significance, and the size and disparity (i.e., most of the respondents come from the same dominant style, while three have few or none) in the current sample makes that pursuit unrealistic within this research project.

The next analysis of interest was whether there existed a pattern to which new dominant category or categories individuals moved to when they did change their dominant preference. Below (Table 45) are the numbers showing how the 121 individuals who moved indicated their new preferences with their scores.

Table 45 - Movement of Dominant Types

Moved to this dominant type	Group A	Group B	Group C	Total
Competer	19	10	9	38
Collaborator	16	6	11	33
Compromiser	8	11	8	27
Accommodator	8	7	2	17
Avoider	0	5	1	6

Again, this proved to be very interesting information, as the largest movement was to the Competer category, even though, by far, most of the respondents initially scored as a Collaborator. Again, though, the limited scope and excessive breadth within the data dictates that the sample was too small to make a statistical determination. However, it is important to note that 55% of the respondents changed their dominant preference as the result of a stimulating event – something which current research does typically address.

### Part 2 – Demographic Change Analysis

The next step was to run a chi-square test for independence against the dominance change code and the coded values for each demographic variable (organization type, years in position, years with employer, position, employees managed, age group and sex) to determine if there was a possible relationship in the population between these differentiating factors and a likelihood of changing dominance. In other words, did an individual in their position less than 1 year show a statistically stronger likelihood of changing his/her preference than someone in their position 25 years or more?

The results of the separate Chi-square tests for independence showed that it was highly unlikely that any of the demographic variables had any effect on whether or not an individual was likely to change his or her preferred dominant mode based on any of the

characteristics obtained through the survey. None of the Chi-square tests showed significance ( $\alpha = .05$ ) as is shown in the following tables (Tables 46 - 52).

Table 46 - Chi-Square Results - Organization Type

Org Type	Change	No Change	Total
Distribution	2	3	5
Financial Services	26	19	45
Information Technology	11	2	13
Manufacturing	56	51	107
Other	16	17	33
Professional/Consulting	4	3	7
Sales/Marketing	6	6	12
	121	101	222
Chi-Square	0.4038991		

Table 47 - Chi-Square Results - Years in Current Position

Yrs in Position	Change	No Change	Total
Less than 1 year	15	8	23
1 year to less than 3 years	17	22	39
3 years to less than 8 years	42	32	74
8 years to less than 15 years	20	16	36
15 years to less than 25 years	18	15	33
25 years or more	9	8	17
	121	101	222
Chi-Square	0.68113		

Table 48 - Chi-Square Results - Years with Employer

Yrs with Empl.	Change	No Change	Total
Less than 1 year	5	4	9
1 year to less than 3 years	12	11	23
3 years to less than 8 years	34	25	59
8 years to less than 15 years	20	18	38
15 years to less than 25 years	30	28	58
25 years or more	20	15	35
	121	101	222
Chi-Square	0.9871069		

Table 49 - Chi-Square Results - Current Position

Position	Change	No Change	Total
Executive	4	8	12
Middle Management	27	28	55
Senior Manager	14	10	24
Supervisor	12	6	18
Technical/Specialist	35	24	59
Other	29	25	54
	121	101	222
Chi-Square	0.4665025		

Table 50 - Chi-Square Results - No. of Employees Managed

Employees Managed	Change	No Change	Total
0	48	38	86
1 to 5	30	30	60
6 to 10	15	10	25
11 to 20	11	7	18
21 or more	17	16	33
	121	101	222
Chi-Square	0.8629589		

Table 51 - Chi-Square Results - Age Group

Age Group	Change	No Change	Total
Under 25	3	2	5
26 to 35	21	19	40
36 to 45	45	40	85
46 to 55	38	30	68
56 or older	14	10	24
	121	101	222
Chi-Square	0.9821948		

Table 52 - Chi-Square Results - Sex

Sex	Change	No Change	Total
Female	58	54	112
Male	63	47	110
	121	101	222
Chi-Square	0.411731		

## CHAPTER V – SUMMARY, LIMITATIONS, FUTURE RESEARCH

Although the results are generally supportive of the proposed hypotheses and the instrument that was developed demonstrated a high degree of validity and reliability, there are still limitations to the generalizability of the research. Limitations related to sample size alone demonstrate that additional knowledge stands to be gained by extending the study, or portions of it, to a larger sample of respondents.

In addition, the results are somewhat limited based on the sample frame. However, opening the sampling to both manufacturing, finance and information technology, industries that stand to benefit greatly from more understanding of the role conflict plays, is beneficial in itself.

There are also several extensions to this research that are outlined in the following sections that may prove beneficial to organizations and managers. Each of these areas alone has lengthy streams of research, but a stream of research tying them together specifically with conflict management seems both valuable and underutilized at the present time. How these may be tied together is described in detail following the summary of results.

### Summary of Research Results

The final survey was sent to 640 individuals (Group A = 214, Group B = 213, Group C = 213). A total of 222 responded (Group A = 70, Group B = 76, Group C = 76). This resulted in a 34.7% response rate (Group A = 32.7%, Group B = 35.7%, Group C = 35.7%).

The results indicated that the general nature of this research proved to be of value. One of the primary constructs being explored was whether or not Preferred Conflict



Handling Mode (PCHM), as measured with a valid and reliable conflict mode instrument, could be significantly affected. By introducing negative motivation, positive motivation and conflict escalation, support could be demonstrated for the theory that PCHM could be (at least) temporarily and significantly affected by a stimulating event. It was also demonstrated that an element of predictability can be provided as to what the specific direction of change will be for each PCHM preference category, based on the type of stimulation. And, finally, exploratory support was provided for the theory that tenure and number of employees managed seem to have a relationship to the size of the change in PCHM score, for at least two of the PCHM categories. Table 53 contains a summarization of all research performed as part of this dissertation.

Table 53 - Summary of Research Results

First Pilot – study validity confirmed through trial version of survey and post-survey interviews with subjects.
Second Pilot – the Todd Cambridge Instrument was validated and found to be reliable through a comparison to the Thomas-Kilmann Instrument. There was an 81% match rate with respect to primary and secondary PCHM.
Third Pilot – Face Validity of full survey confirmed. Some minor changes were made to the final survey and plan as a result of the interviews and feedback.
Instrument Validity – Factor Analysis – SPSS produced four primary factors, but loadings clearly reflected a tendency for the other three PCHM measures to load together. The four factors did reflect four of the preferred modes with the correct loadings. Instrument Validity was confirmed.
Instrument Reliability – Cronbach’s alpha – SPSS returned a value of .651. This was determined to be sufficient for this instrument and research.
Hypothesis Set 1 – t-Test to determine if a change in each of the five PCHM scores as a result of either a Negative or Positive Motivation Scenario was significant at an $\alpha = .05$ level.
Negative Motivation Results: Competer and Accommodator showed significance, Collaborator, Compromiser and Avoider did not.
Positive Motivation Results: Competer, Collaborator and Accommodator showed significance, Compromiser and Avoider did not.
Hypothesis Set 2 – t-Test to determine if a change in each of the five PCHM scores as a result of a Conflict Escalation Scenario was significant at an $\alpha = .05$ level.
Results: Collaborator and Accommodator showed significance, Competer, Compromiser and Avoider did not.

Exploratory Results – Use of Regression and ANOVA at .05 level of significance to determine if a relationship exists between any of the demographic factors and the PCHM changes and values.

Part 1: (PCHM Score Changes)

Results: Significant relationship found between *Avoider* category and *Years in Current Position*.

Part 2: (Original PCHM Scores)

Results: Significant relationship found between

*Collaborator* category and *Years in Current Position*

*Collaborator* category and *Years with Employer*

*Collaborator* category and *No. of Employees Managed*

*Compromiser* category and *Years with Employer*

*Accommodator* category and *Years in Current Position*

*Accommodator* category and *Years with Employer*

*Accommodator* category and *No. of Employees Managed*

Exploratory Results – Use of analysis and Chi-square testing to try and determine if a 1) Dominant PCHM could be changed by a stimulating event and 2) if a pattern exists with respect to which individuals experienced a change.

Part 1: (PCHM Dominant Mode Changes)

Results: 54.5% (121) of the 222 respondents experienced a change in dominant PCHM due to the treatment. This is contrary to conventional theory on the static nature of PCHM. Plus, a Chi-square test of independence showed that the Group is related to the percentage of change, indicating that negative motivation is a strong factor in producing a change in dominant mode.

Part 2: (Dominance Change related to demographics)

Results: Chi-square tests of independence (testing at an  $\alpha = .05$  level) revealed that none of the demographic factors collected during the survey appeared to be related to likelihood of the subject changing dominant modes. All null hypotheses failed to be rejected.

### Primary Limiting Factor

In evaluating the failed hypotheses (i.e., the null hypotheses that could not be rejected), it is interesting to note that the changes were without exception in the right direction, just not significant enough to reject the null. Although the over all sample size (222 respondents) is fairly large, the number of divisions within the sample (i.e., three groups of 70, 76 and 76; further divided into five preference categories) reduced the number too low in some cases to make a valid statistical inference.

The main limiting factor to be overcome in future related research is to obtain much larger sample sizes or to limit the research to fewer groups. When evaluating a multidimensional tool such as PCHM, larger samples applied to a single test increase the chance of achieving significance or of more confidently failing to reject the null.

### Potential Future Research

There were three areas not specifically explored with this research that are proposed extensions of the topic: Conflict as it relates to Decision Making, Heuristics and the effect on Conflict and Motivational Metrics.

### Normative Decision Making Processes

The field of Decision Sciences involves the analysis of various Decision Making Models, both Descriptive and Normative. For the purposes of future research, a normative model should be analyzed within decision making processes. The PrOACT model was developed and documented by Hammond, Keeney & Raifa (1999) in their book, “Smart Choices: A Practical Guide to Making Better Decisions.” This model prescribes five specific phases for effective decision-making. In addition, they prescribe three additional processes that can be used when dealing with particularly ill-structured problems. The model and the described phases are shown in Table 54 below.

Table 54 - The PrOACT Model

PrOACT Model by Hammond, Keeney & Raifa (1999)	
Phase	Description
(Primary Phases)	
Problem	Work on the right decision problem.
Objectives	Specify your objectives.
Alternatives	Create imaginative alternatives.
Consequences	Understand the consequences.
Tradeoffs	Grapple with your tradeoffs.
(Additional Phases for Ill-Structured Problem Solving)	
Uncertainty	Clarify your uncertainties.
Risk Tolerance	Think hard about your risk tolerance.
Linked Decisions	Consider linked decisions.

Hammond, et al. (1999) make it clear that this model is normative, and they carefully describe the consequences of both following and not following the model. Other researchers, including Herbert Simon, have also created normative models, such as Simon's Three-Phase Model for Decision Making (Brightman, 1980). The Hammond Model, though, is slightly more complex, is contemporary, and has strong acceptance in the Decision Theory field. Other equally complex models, such as developed by Carroll and Johnson (1990), could also be used. This model includes seven stages: Recognition, Formulation, Alternative Generation, Information Search, Judgment or Choice, Action and Feedback. Although an effective model, the Hammond Model seems better suited to ill-structured problems specifically.

The proposition here is that while most phases of this model will be invoked (even if it is done implicitly) under "normal" decision making settings, if the decision maker is motivationally attached to the decision, they will be more likely to short-cut (limit) or eliminate these steps altogether – either due to stress-avoidance or unethical, elected ignorance.

Another future research possibility is to determine the normative effects of enlightenment. When an individual prefers a particular category for dealing with

conflict, does the awareness of the limiting factors and understanding of the prevalence of decision making pathologies associated with the preferred category serve as sufficient motivation to change one's cooperativeness and/or assertiveness in and of itself? In other words, does just the knowledge that an individual is an Avoider, understanding the implications of avoiding conflict and the predisposition of many people to avoid conflict, provide the impetus to speak out in times of disagreement?

### Heuristics and Biases

Managerial decision-making requires the use of heuristics (rules of thumb). That is, to some degree, what managers do (use their experience and instincts to make decisions). Oftentimes this can be beneficial, in that time constraints often do not allow the luxury of full research. However, it is important that the heuristical knowledge be true and accurate in order to validate its usage. This tendency of human decision makers to go beyond the information given is successful as long as the initial knowledge is accurate and the subjective inferences are based on this knowledge (Fiedler, et al., 1996). If not, the heuristic becomes a negative bias producing, sometimes, undesirable and even disastrous results.

Several common heuristics have been identified by multiple researchers (Bazerman), (Mikulincer, 2001), (Heath, et. al., 1994) and (Gilovich, et al.). The focus here was on some of the negative aspects of using heuristics and biases in the decision-making process and how they might influence the decision maker to make an acceptable solution when a better alternative is available or to even make a wrong decision when a good decision was possible had a proper decision-making model or process been utilized.

Biases are not always conscious, which may add to the difficulties of using them in a positive fashion. This may very well confound the decision-maker's ability to willfully understand how the heuristic plays a part in the decision process. As stated by Carroll and Johnson (1990), "...the fact remains that subjects often cannot recall accurately or are unwilling to exert the effort necessary to recall" (p. 34). Failure to understand the role the heuristic or bias plays in the decision process does not, however, preclude its usage.

Looking at the works of Bazerman (2002), Simon (Brightman, 1980), Simon (1975) and Thaler (Bazerman, 2002), one can see that there are constructs that play a significant role in the decision-making process. These are described in the definitions section, but here they are listed:

Satisficing

Bounded Rationality

Bounded Will-Power

Bounded Self-Interest

### Availability Heuristic

This stems from a tendency to use information most readily available to the DM, rather than searching for new or additional information. Following are some common biases that have been identified as being associated with this heuristic. (All definitions below from Bazerman, 2002, pp. 38-39).

Ease of Recall – “Individuals judge events that are more easily recalled from memory, based on vividness or recency, to be more numerous than events of equal frequency whose instances are less easily recalled.”

Retrievability – “Individuals are biased in their assessments of the frequency of events based on how their memory structures affect the search process.”

Presumed Associations – “Individuals tend to over-estimate the probability of two events co-occurring based on the number of similar associations they can easily recall, whether from experience or social influence.” In their research, Carroll and Johnson (1990), found that when presented with research findings that are in agreement with one’s view, the subject’s beliefs in that position grows stronger, which is reasonably expected. However, if presented with legitimate research findings which are in disagreement with the subject’s views, the subject tends to criticize the research methodology and disbelieve the results. In other words, “research cannot be viewed as neutral, and the interpretation of research cannot be counted on to remain neutral or objective” (Carroll & Johnson, 1990, p. 110).

### Representativeness Heuristic

This stems from the tendency to make judgments on situations that correspond to previous stereotypes. While using this heuristic can lead to faster decisions it may also lead to discrimination if used improperly. (All definitions below from Bazerman, 2002, pp. 38-39).

Insensitivity to Base-Rates – “When assessing the likelihood of events, individuals tend to ignore base rates if any other descriptive information is provided – even if it is irrelevant.”

Insensitivity to Sample Size – “When assessing the reliability of sample information, individuals frequently fail to appreciate the role of sample size.”

Misconceptions of Chance – “Individuals expect that a sequence of data generated by a random process will look “random,” even when the sequence is too short for those expectations to be statistically valid.”

Regression to the Mean – “Individuals tend to ignore the fact that extreme events tend to regress to the mean on subsequent trials.”

The Conjunction Fallacy – “Individuals falsely judge that conjunctions (two events co-occurring) are more probable than a more global set of occurrences of which the conjunction is a subset.”

### Anchoring and Adjustment Heuristic

Individuals will have a tendency to start the decision process with an initial value (usually stemming from history or preconceived notions) and then adjust their response from that anchoring point. (All definitions below from Bazerman, 2002, pp. 38-39).



Insufficient Anchor Adjustment – “Individuals make estimates for values based upon an initial value (derived from past events, random assignment, or whatever information is available) and typically make insufficient adjustments from that anchor when establishing a final value.”

Conjunctive and Disjunctive Events – “Individuals exhibit a bias toward over-estimating the probability of conjunctive events and under-estimating the probability of disjunctive events.”

Overconfidence – “Individuals tend to be overconfident of the infallibility of their judgments when answering moderately to extremely difficult questions.”

#### Additional Biases

Bazerman also posits two additional biases not associated with one of the above heuristics. (Definitions below from Bazerman, 2002, pp. 38-39).

The Confirmation Trap – “Individuals tend to seek confirmatory information for what they think is true and fail to search for disconfirmatory evidence.”

Hindsight and the Curse of Knowledge – “After finding out whether or not an event occurred, individuals tend to overestimate the degree to which they would have predicted the correct outcome. Furthermore, individuals fail to ignore information they possess that others do not when predicting others’ behavior.”

### Proposed Bias Effects

Here are some proposed situations within the IT industry that may be explored with respect to misuse of heuristics and biases.

1. Multiple consecutive projects involving separate systems/applications, but judged to have similar characteristics (Ease of Recall Bias).
2. Application engineers designing a program according to their most recent/salient experiences with the environment, not necessarily by what makes the most sense currently (Retrievability Bias).
3. Banks associating the fact that tellers typically move from retail store environments to bank teller positions as an indication that those tellers will require simpler systems because they will be less smart and trainable (Presumed Associations Bias).
4. People with longer histories in banking operations being judged as better in all project roles related to banking applications (Insensitivity to Base Rates Bias).
5. Judgments about system performance and effect being based on insufficient numbers of tester input evaluations (Insensitivity to Sample Size Bias).
6. Highly successful or highly unsuccessful projects leading managers to believe that future project success/failure will be the same (Regression to the Mean Bias).
7. Associating previous employee performance with other characteristics (e.g., training, experience) to determine future performance on projects (The Conjunction Fallacy Bias).
8. Using previous ROMs (Rough Order of Magnitude plans) to build new ROMs when proven plans are unavailable (Insufficient Anchor Adjustment Bias).

9. The tendency on the part of project organizations to under-estimate the end delivery date of a project that consists of several dependent or partially dependent processes and over-estimate the end delivery date of a project that consists of one independent process (Conjunctive and Disjunctive Events Bias).
10. Estimating participants typically under-estimating efforts on tasks for which they have less familiarity and tending to over-estimate efforts on tasks for which they have more familiarity. Better estimates done by a group, while still tending to be over-confident about the estimates (Overconfidence Bias).
11. Individuals involved in estimating and/or designing project deliverables seeking and retaining information that supports their position, while failing to seek out disconfirming information (The Confirmation Trap Bias).
12. Peripheral stakeholders overestimating their confidence in the decision they *would* have made following the actual outcome. If the project fails, crediting themselves by stating that “they would not have done it that way.” Likewise, if the project is successful, readily accepting (and over-crediting) their contribution to the success (Hindsight and the Curse of Knowledge Bias).

### Motivational Metrics

One key aspect of this research project was the effect on PCHM by introducing Motivation. This research makes an assumption, however, with respect to Motivation as being created by one of two specific scenarios. The assumption was that all respondents would react to the scenarios in the same way, which is a limiting factor. In order to

extend this study, it would be necessary to analyze and develop a methodology for measuring Motivation. Here are three proposed analyses:

1. If a decision maker (DM) is dispassionate (unmotivated) about an area requiring a decision, he will be more likely to defer or perhaps not even make the decision.
2. If a DM is compassionate (partially motivated) about an area requiring a decision, he will be more likely to seek a solution, but will be likely to satisfice with respect to a best solution, especially if other alternatives may result in conflict.
3. If a DM is passionate (highly motivated) about an area requiring a decision, he will be more likely to pursue multiple alternatives in search of the best solution and will defend that solution, even if conflict is involved.

#### Additional Conflict Study

In Kassing (2001), the author addresses an additional area related to conflict – that of reactions to dissent. In the study, subjects are exposed to dissent through survey scenarios. By exposing the subjects to either articulated dissent (dissent openly expressed to audiences who have the potential to affect changes) or latent dissent (contradictory opinions and disagreements being made to others who are not in a position to effect change), the author studies the reaction of the other employees exposed to this dissent.

This could certainly be a worthwhile extension to the current study. It would be interesting to see if individuals with certain conflict preferences react differently than their colleagues with different PCHMs.

An additional aspect of the role that personality plays in decision making would be how the make-up of the group itself affects the occurrence and management of conflict. In Wigley (1995), the researcher evaluated the role that personality plays in the selection (and rejection) of juries in felony trials. Wigley discovered that there is a direct and predictable relationship between a potential juror's personality and whether or not they were chosen for a jury panel or excused from serving. As an example, individual study participants (all of whom voluntarily submitted to a personality instrument) that were categorized with a high degree of "Willingness to Communicate" were significantly more likely to be chosen than participants categorized with a low degree of that variable. Similar findings were reported for "Level of Disclosiveness", "Positive Disclosiveness" and "Apprehension about Communicating" (p. 345).

It would be of interest to determine if groups are formed and participants selected (or rejected) based on their personality and/or PCHM, leading to less diverse groups. This factor was not considered in the current study.

Rhoades, et. al. (2001) have explored an area related to conflict that also bears additional research as it relates to conflict style and measurable changes. They have explored the effect of affective traits and states on an individual's motivation and behavior when conflict occurs. In their study involving working business students, they discovered that there appeared to be a link between affective trait and/or state (i.e., positive versus negative attitude and mood) and general approach to conflict. A more positive outlook or mood was linked with cooperative and collaborative behavior during conflict. Likewise, negative affective states lead to competitive behavior and conflict strategies. This is not an area researched as a part of the current study, but it certainly is worthy of additional research. This could explain some of the more intensive changes in PCHM scores for certain categories.

## CONCLUSION

This research has produced new and insightful information regarding how an individual's preference for conflict might be affected by the introduction of motivation and/or conflict escalation in a group decision making environment. While not unanimous in rejecting all null hypotheses, enough were rejected and enough evidence was provided to demonstrate that the previous theory of preferred conflict handling mode (PCHM) being static was challenged.

The Todd Cambridge Instrument (a new PCHM tool validated through this research) was administered to 222 respondents to determine their preference scores along the dual dimensions of Assertiveness and Cooperativeness and arrived at a priority ranking of category of preference (Competitor, Collaborator, Compromiser, Avoider or Accommodator) for each of them. This was followed by the introduction of a fictional vignette. One third of the respondents received a negative motivational vignette to bring the group to a decision, in spite of evidential conflict. Likewise, one third received a vignette including positive motivation. The final third received a vignette that indicated a meeting they have been participating in suddenly escalated in the amount of conflict. The PCHM instrument was then administered a second time, but with asking the respondent to consider the fictional vignette they just read and how it might affect their characteristic response to the questions included in the PCHM instrument.

The results were then analyzed in multiple ways. First, the changes in each category score for Group A (negative motivation) and Group B (positive motivation) were compared with an expected direction of movement for each. The null for Competitor and Accommodator for Group A and Competitor, Collaborator and Accommodator for Group B were rejected. Although unable to reject the null for the other five hypotheses,

the changes with these one-tailed, directional t-Tests ( $\alpha = .05$ ) were in the hypothesized direction.

The second test was to evaluate the before and after scores of Group C (conflict escalation) to look for specific directional changes in scores. The null for the Collaborator and Compromiser were rejected. Again, while unable to reject the null for the Competer and Accommodator, the changes were in the right direction. This was very likely affected by sample size. In the case of Avoider, there was an insufficient number of Avoider dominant subjects to conduct the test.

Evaluating the hypothesis results, the research indicates that there is a relationship between the introduction of motivation or conflict escalation and resulting changes in PCHM.

Some exploratory analysis of the results was also performed and it was discovered that while certain demographic variables (e.g., years of service with company, years in position and number of employees managed) were significant in a relationship to PCHM preferences, there was little or no relationship in the likelihood of one changing one's preference scores based on demographic values. There was evidence to support that the introduction of a negative motivation to an individual was likely to produce a change in one's dominant PCHM category.

In conclusion, there seems to be sufficient evidence to support refuting the traditional stream of research that claimed PCHM is static. While it was supported that an individual's PCHM will remain static over long periods of time, it was not supported that the individual PCHM will remain static during times of conflict escalation. Plus, it was possible to manipulate an individual's Preferred Conflict Handling Mode through motivation.

## APPENDIX A – Surveys & Initial Pilot Results

Following is the survey methodology that was used for this research. Three separate surveys were administered to a sample of employees (executives, middle managers and project leaders and participants). There were a total of 42 questions (43 for Group C, due to an additional instruction).

### Survey – Groups A, B & C

The subjects making up the research respondent groups received the following survey:

---

Thank you for participating in this very important research project. Your answers to the following survey questions will be used to help us understand better the role that motivation and conflict play in the decision making and problem solving process. Please answer all questions honestly and, generally, we ask that you answer with your first impulse.

All responses will be aggregated for research purposes and will not be provided to participating companies except in their aggregated form.

Thank you again for your participation!

Dewey W. Todd  
Doctoral Candidate  
Georgia State University  
Atlanta, Georgia

1.1 Which of the following best describes your organization? (If you are part of a subsidiary, please identify what best describes your subsidiary)

- ☐ Financial Services
- ☐ Information Technology
- ☐ Sales/Marketing
- ☐ Professional/Consulting
- ☐ Manufacturing
- ☐ Distribution
- ☐ Other



1.2 How many years have you been in your current job position?

- ☐ Less than 1 year
- ☐ 1 year to less than 3 years
- ☐ 3 years to less than 8 years
- ☐ 8 years to less than 15 years
- ☐ 15 years to less than 25 years
- ☐ 25 years or more

1.3 How many years of experience do you have with your current employer?

- ☐ Less than 1 year
- ☐ 1 year to less than 3 years
- ☐ 3 years to less than 8 years
- ☐ 8 years to less than 15 years
- ☐ 15 years to less than 25 years
- ☐ 25 years or more

1.4 What is your current position? (Select closest)

- ☐ Executive
- ☐ Senior Manager
- ☐ Middle Management
- ☐ Supervisor
- ☐ Technical/Specialist
- ☐ Other - Describe: \_\_\_\_\_

1.5 How many employees do you manage (directly and indirectly) in the normal course of your job?

- ☐ 0
- ☐ 1 - 5
- ☐ 6 - 10
- ☐ 11 - 20
- ☐ 21 or more

1.6 Which of the following categories describes your age group?

- ☐ Under 25
- ☐ 26 to 35
- ☐ 36 to 45
- ☐ 46 to 55
- ☐ 56 or older

1.7 What is your sex?

- ☐ Female
- ☐ Male

## Section 2

The following 15 questions are designed to create a profile of how you would react in situations where your wishes are in disagreement with another person or group of people.

There are no "right or wrong" answers – it is more important to accurately reflect your true opinion of how you would react when placed in the situation.

Examine the following statements and answer them, using your initial impulse.

2.1 I make sure that all views are out in the open and treated with equal consideration, even if there seems to be substantial disagreement, in order to resolve disputes in the best possible way.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.2 I devote more attention to making sure others understand the logic and benefits of my position than I do to pleasing them.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.3 I make my needs known, but I tone them down and put forward solutions somewhere in the middle in order to break deadlocks.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.4 I argue my case with others in order to show the advantages of my position.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.5 I trade important information with the other decision makers so that the problem can be solved jointly.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.6 I usually accept the recommendations of others readily.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.7 Whenever possible, I try to avoid being singled out or standing alone on an issue.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.8 I will negotiate in order to reach a compromise.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.9 I try to accommodate the wishes of others whenever possible.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.10 I try to investigate issues with others in order to find solutions that satisfy everyone's desires.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.11 I avoid discussing my differences with others.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.12 I will stand by my solutions to problems, even under pressure.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.13 I generally avoid creating hard feelings on the part of others by keeping my opinions to myself.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.14 I attempt to meet others' expectations whenever I can.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

2.15 I give some on issues in an effort to bring others' solutions out so we may reach a compromise.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

---

### Section 3

The same 15 questions from Section 2 are shown below. However, this time please read the following fictional scenario, then examine and respond to the following statements using your initial impulse. It is acceptable to change your response from the original set if you feel differently based on the scenario.

---

Scenario A (Given to one third of participants, randomly selected) – You began a project for your company 6 months ago. You justified the project and convinced company management to proceed. The project is now over budget and behind schedule. You have been called into a meeting with other team members to discuss the project's continuation. The others feel the project should be terminated, but you feel strongly the project should continue. Consider your actions as you and the others discuss the project.

Scenario B (Given to one third of participants, randomly selected) – You began a project for your company 6 months ago. You justified the project and convinced company management to proceed. The project has now gained popularity with senior management. They have told you that if you can adjust the timeline and complete the project early, you will receive a bonus equal to 10% of your annual salary. You have now been called into a meeting with other members of your team to discuss the project. The other team-members feel there is no way it can be accelerated and want to leave the project plan as it is.”

Scenario C (Given to one third of participants, randomly selected) – You are participating in a meeting in which an important, long-term project is being discussed. Your company has undertaken this project, but it is now behind schedule and over budget. The purpose of this meeting is to try and determine what action should be taken with respect to the project (e.g., re-baseline the project plan, terminate the project, replace the project manager, etc.).

Although initially the meeting ran smoothly with calm discussion among the participants, that has now changed dramatically. The group is clearly divided and tempers are beginning to flare.

Rather than discuss things quietly and peaceably, several members have resorted to raised voices and personal attacks. As of now, it does not appear that the conflict is going to be

easily resolved. Quite the contrary – the conflict continues to escalate and less vocal members are clearly withdrawing. The meeting members, including yourself, are all at about the same level of management.

Read the following statements and respond with an indication of how characteristic each response would be of your own expected behavior in this situation.

3.1 I make sure that all views are out in the open and treated with equal consideration, even if there seems to be substantial disagreement, in order to resolve disputes in the best possible way.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.2 I devote more attention to making sure others understand the logic and benefits of my position than I do to pleasing them.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.3 I make my needs known, but I tone them down and put forward solutions somewhere in the middle in order to break deadlocks.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.4 I argue my case with others in order to show the advantages of my position.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.5 I trade important information with the other decision makers so that the problem can be solved jointly.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.6 I usually accept the recommendations of others readily.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.7 Whenever possible, I try to avoid being singled out or standing alone on an issue.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.8 I will negotiate in order to reach a compromise.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.9 I try to accommodate the wishes of others whenever possible.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.10 I try to investigate issues with others in order to find solutions that satisfy everyone's desires.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.11 I avoid discussing my differences with others.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.12 I will stand by my solutions to problems, even under pressure.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.13 I generally avoid creating hard feelings on the part of others by keeping my opinions to myself.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.14 I attempt to meet others' expectations whenever I can.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

3.15 I give some on issues in an effort to bring others' solutions out so we may reach a compromise.

☐ ☐ ☐ ☐ ☐ ☐ ☐  
Very Uncharacteristic Neutral Very Characteristic

*(NOTE: Some of these questions and the selection methodology are based on the "Peace and Justice Support Network of Mennonite Church USA Adult Personal Conflict Style Inventory" (<http://peace.mennolink.org/cgi-bin/conflictstyle/inventory.cgi>), as well as from Professor Karen E. Hamilton's educational web-site (<http://webhome.idirect.com/~kehamilt/ipsyconstyle.html>). There are a total of 15 questions used to measure and describe Preferred Conflict Handling Mode.*

Below is a table (Table 55) showing what aspect/category is represented by each of the questions:

Table 55 - Survey Summary & Definition

Question	Aspect	Category
1.1	Demographic	Industry
1.2	Demographic	Tenure in job/position
1.3	Demographic	Tenure with company
1.4	Demographic	Current position
1.5	Demographic	Supervision bandwidth
1.6	Demographic	Age group
1.7	Demographic	Sex
2.1	Preferred Conflict Handling Mode	Collaborator
2.2	Preferred Conflict Handling Mode	Competer
2.3	Preferred Conflict Handling Mode	Compromiser
2.4	Preferred Conflict Handling Mode	Competer
2.5	Preferred Conflict Handling Mode	Collaborator
2.6	Preferred Conflict Handling Mode	Accommodator
2.7	Preferred Conflict Handling Mode	Avoider
2.8	Preferred Conflict Handling Mode	Compromiser
2.9	Preferred Conflict Handling Mode	Accommodator
2.10	Preferred Conflict Handling Mode	Collaborator
2.11	Preferred Conflict Handling Mode	Avoider
2.12	Preferred Conflict Handling Mode	Competer
2.13	Preferred Conflict Handling Mode	Avoider
2.14	Preferred Conflict Handling Mode	Accommodator
2.15	Preferred Conflict Handling Mode	Compromiser
3.1	Preferred Conflict Handling Mode	Collaborator
3.2	Preferred Conflict Handling Mode	Competer
3.3	Preferred Conflict Handling Mode	Compromiser
3.4	Preferred Conflict Handling Mode	Competer
3.5	Preferred Conflict Handling Mode	Collaborator
3.6	Preferred Conflict Handling Mode	Accommodator
3.7	Preferred Conflict Handling Mode	Avoider
3.8	Preferred Conflict Handling Mode	Compromiser
3.9	Preferred Conflict Handling Mode	Accommodator
3.10	Preferred Conflict Handling Mode	Collaborator
3.11	Preferred Conflict Handling Mode	Avoider
3.12	Preferred Conflict Handling Mode	Competer
3.13	Preferred Conflict Handling Mode	Avoider
3.14	Preferred Conflict Handling Mode	Accommodator
3.15	Preferred Conflict Handling Mode	Compromiser

## Survey – Analysis

The primary outcome of the instrument was two sets of conflict mode scores. The first set was for normal low-intensity or nonexistent disagreement where little or no additional motivation was expected nor conflict escalation involved. The second one provided an outcome based on the intervening variables – either Motivation or Escalation (via the introduced scenario). For Group A, there was a disagreement situation where Motivation would be reasonably predicted and the subject was in a negative situation (i.e., DM predicted to be somewhat defensive). Group B was a disagreement situation where the subject has a positive influence expected to create Motivation. Group C was a conflict situation where the conflict escalates rapidly and wherein a reaction would be expected with respect to the respondent's attitude. A comparative analysis using t-Tests was then performed to see if the sample of individual respondents had a significant change in PCHM after introducing the specific scenario (see Chapters 3 and 4).

### Initial Pilot Survey Results

Below (Tables 56 and 57) are the results of the first pilot administration:

Table 56 - Pilot Survey Respondent Breakdown

<b>Survey Respondent Information</b>	
Total Number of Survey Recipients	<b>31</b>
Group A (Control Group)	11
Group B (Negative Motivation)	10
Group C (Positive Motivation)	10
Total Number of Respondents	<b>26</b>
Group A (Control Group)	10
Group B (Negative Motivation)	9
Group C (Positive Motivation)	7



Table 57 - Pilot Survey Respondent Demographics

Respondent Demographic Information							
Question # / Group	(Aggregated results)						
Demographic							
	Work Sector						
1.1	Financial Services	Information Technology	Sales/ Marketing	Other Service	Professional /Consulting	Manufacturing	Other
Group A	1	1	2	3	2	0	1
Group B	2	0	1	0	3	1	2
Group C	1	1	1	2	0	0	2
	Tenure in current position						
1.2	< 1 Year	1 to less than 3 Years	3 to less than 8 Years	8 to less than 15 Years	15 to less than 25 Years	25 Years or more	
Group A	4	3	2	1	0	0	
Group B	1	4	3	1	0	0	
Group C	3	4	0	0	0	0	
	Tenure with organization						
1.3	< 1 Year	1 to less than 3 Years	3 to less than 8 Years	8 to less than 15 Years	15 to less than 25 Years	25 Years or more	
Group A	3	5	2	0	0	0	
Group B	1	3	4	0	0	1	
Group C	2	4	0	1	0	0	
	Current Position						
1.4	Executive	Senior Manager	Middle Mgmt	Supervisor	Other		
Group A	0	0	0	0	10		
Group B	0	0	1	3	5		
Group C	0	0	1	0	6		
	Number of Employees Managed						
1.5	0	1 to 5	6 to 10	11 to 20	21 or more		
Group A	8	2	0	0	0		
Group B	4	4	1	0	0		
Group C	6	1	0	0	0		
	Age Group						
1.6	Under 25	26 to 35	36 to 45	46 to 55	56 or more		
Group A	4	4	2	0	0		
Group B	3	2	2	2	0		
Group C	5	2	0	0	0		
	Sex						
1.7	Female	Male					
Group A	6	4					
Group B	7	2					
Group C	3	4					

For the next series of questions, it was necessary to do a final sort based on associated category of PCHM. Therefore, the questions are shown out of numerical order, but in order of their respective relevance to calculating PCHM (Table 58).

Table 58 - Pilot Survey Results - Section 2

Question # / Group	(Aggregated results)						
	PCHM -	Collaborator					
	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
2.1							
Group A	0	0	2	3	3	2	0
Group B	0	0	1	0	6	1	1
Group C	0	1	0	2	2	2	0
2.5							
Group A	0	0	0	1	3	2	4
Group B	0	0	0	3	1	3	2
Group C	0	0	1	0	4	1	1
2.10							
Group A	0	0	1	0	3	5	1
Group B	0	0	0	2	1	5	1
Group C	0	0	1	2	3	1	0
Sum							
Group A	0	0	3	4	9	9	5
Group B	0	0	1	5	8	9	4
Group C	0	1	2	4	9	4	1
Total	0	1	6	13	26	22	10
	PCHM -	Competer					
	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
2.2							
Group A	1	2	0	0	2	3	2
Group B	0	0	1	1	2	4	1
Group C	0	0	1	0	1	4	1
2.4							
Group A	1	1	2	0	2	2	2
Group B	0	1	2	0	0	3	3
Group C	0	0	0	2	2	2	1
2.12							
Group A	0	0	2	2	1	5	0
Group B	0	0	1	2	3	1	2
Group C	0	0	0	0	3	3	1
Sum							
Group A	2	3	4	2	5	10	4
Group B	0	1	4	3	5	8	6
Group C	0	0	1	2	6	9	3
Total	2	4	9	7	16	27	13

Question # / Group	(Aggregated results)						
		Compromiser					
	PCHM -						
2.3	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	1	2	1	0	4	1	1
Group B	0	0	0	4	4	1	0
Group C	0	0	0	1	3	3	0
2.8							
Group A	0	0	2	2	3	1	2
Group B	0	0	0	1	5	2	1
Group C	0	0	1	1	3	2	0
2.15							
Group A	0	0	1	3	4	2	0
Group B	1	0	0	4	1	3	0
Group C	0	0	2	1	3	1	0
Sum							
Group A	1	2	4	5	11	4	3
Group B	1	0	0	9	10	6	1
Group C	0	0	3	3	9	6	0
Total	2	2	7	17	30	16	4
		Accommodator					
	PCHM -						
2.6	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	0	0	2	3	2	1	2
Group B	0	0	4	0	3	1	1
Group C	0	1	2	1	2	1	0
2.9							
Group A	2	2	2	2	0	2	0
Group B	2	1	2	2	2	0	0
Group C	1	3	2	0	1	0	0
2.14							
Group A	0	0	1	1	3	3	2
Group B	1	0	0	1	1	5	1
Group C	0	1	0	1	2	3	0
Sum							
Group A	2	2	5	6	5	6	4
Group B	3	1	6	3	6	6	2
Group C	1	5	4	2	5	4	0
Total	6	8	15	11	16	16	6
		Avoider					
	PCHM -						
2.7	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	3	0	2	2	1	2	0
Group B	1	2	0	1	3	1	1
Group C	2	2	0	2	1	0	0
2.11							

Question # / Group	(Aggregated results)						
Group A	2	1	3	1	2	1	0
Group B	3	1	2	1	2	0	0
Group C	1	2	3	1	0	0	0
2.13							
Group A	1	4	1	1	0	2	1
Group B	1	1	3	1	2	1	0
Group C	1	3	1	2	0	0	0
Sum							
Group A	6	5	6	4	3	5	1
Group B	5	4	5	3	7	2	1
Group C	4	7	4	5	1	0	0
Total	15	16	15	12	11	7	2

Once the total answers for each group were calculated, it then became necessary to use a scoring technique for placing the respondents into a Preferred Conflict Handling Mode.

Below (Table 59) is the formula used in the pilot study.

Table 59 - PCHM Scoring Equation

A1	Very Uncharacteristic	Times	-3	=	Score A1
A2	Uncharacteristic	Times	-2	=	Score A2
A3	Slightly Uncharacteristic	Times	-1	=	Score A3
A4	Neutral	Times	0	=	Score A4
A5	Slightly Characteristic	Times	1	=	Score A5
A6	Characteristic	Times	2	=	Score A6
A7	Very Characteristic	Times	3	=	Score A7
A8	Score for this Category				Sum Above

In the pilot survey, the formula was calculated on the total for each Group (A, B and C) for each PCHM category (3 questions summed). This produced an aggregated score for each group and allowed us to demonstrate the average weightings for each PCHM. Below is a Figure (Figure 10) that shows the relative layout of the scored results within a PCHM chart.

### Preliminary PCHM Results

<b>Competer</b>  <b>Group A 21</b> <b>Group B 33</b> <b>Group C 32</b>	<b>Collaborator</b>  <b>Group A 39</b> <b>Group B 37</b> <b>Group C 16</b>
<div> <b>Compromiser</b>   <b>Group A 17</b>  <b>Group B 22</b>  <b>Group C 18</b> </div>	
<b>Group A -18</b> <b>Group B -14</b> <b>Group C -29</b>  <b>Avoider</b>	<b>Group A 14</b> <b>Group B 7</b> <b>Group C -4</b>  <b>Accommodator</b>

Figure 10 - Preliminary PCHM Results

It is readily evident that none of the groups identified with being a conflict avoider and very few with being an accommodator (both of which would evidence low assertiveness). If the results were being individualized, the person representing Group A would be classified as a “Collaborator,” as would the individual representing Group B, while the person representing Group C would be classified as a “Competer”.

The next step was to perform the same analysis on the next 15 questions (Section 3), which represented PCHM components after providing the respondents with the specific scenario for their group (Table 60).

Table 60 - Pilot Survey Results - Section 3

Question # / Group	(Aggregated results)						
	PCHM - Collaborator						
3.1	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	0	1	0	2	3	1	3
Group B	0	0	0	1	3	5	0
Group C	0	0	0	1	4	2	0
3.5							
Group A	0	0	0	3	3	1	3
Group B	0	0	0	1	1	5	2
Group C	0	0	1	1	1	3	1
3.10							
Group A	0	0	0	0	4	4	2
Group B	0	0	1	0	2	3	3
Group C	0	0	2	0	3	1	1
Sum							
Group A	0	1	0	5	10	6	8
Group B	0	0	1	2	6	13	5
Group C	0	0	3	2	8	6	2
Total	0	1	4	9	24	25	15
	PCHM - Competer						
3.2	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	0	1	0	2	4	1	2
Group B	0	0	0	1	1	4	3
Group C	0	0	0	0	3	3	1
3.4							
Group A	1	1	1	1	2	2	2
Group B	0	0	2	0	4	0	3
Group C	0	0	0	0	1	3	3
3.12							
Group A	0	0	2	1	4	1	2
Group B	0	0	1	0	4	2	2
Group C	1	0	0	1	2	2	1
Sum							
Group A	1	2	3	4	10	4	6
Group B	0	0	3	1	9	6	8
Group C	1	0	0	1	6	8	5
Total	2	2	6	6	25	18	19
	PCHM - Compromiser						
3.3	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	1	1	1	3	3	0	1

Question # / Group	(Aggregated results)						
Group B	0	0	1	1	4	3	0
Group C	0	0	2	1	1	2	1
3.8							
Group A	0	0	1	2	3	2	2
Group B	0	0	0	1	3	3	2
Group C	0	0	0	0	6	0	1
3.15							
Group A	0	0	1	5	1	2	1
Group B	0	0	0	1	5	2	1
Group C	0	0	0	2	4	0	1
Sum							
Group A	1	1	3	10	7	4	4
Group B	0	0	1	3	12	8	3
Group C	0	0	2	3	11	2	3
Total	1	1	6	16	30	14	10
	PCHM - Accommodator						
3.6	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	1	0	1	4	2	2	0
Group B	0	1	1	3	3	0	1
Group C	0	1	3	0	2	0	1
3.9							
Group A	0	0	1	3	1	4	1
Group B	0	2	3	0	1	3	0
Group C	0	2	0	2	2	0	1
3.14							
Group A	1	0	1	1	3	3	1
Group B	1	1	0	0	3	3	1
Group C	0	0	2	1	2	1	1
Sum							
Group A	2	0	3	8	6	9	2
Group B	1	4	4	3	7	6	2
Group C	0	3	5	3	6	1	3
Total	3	7	12	14	19	16	7
	PCHM - Avoider						
3.7	Very Uncharacteristic	Uncharacteristic	Slightly Uncharacteristic	Neutral	Slightly Characteristic	Characteristic	Very Characteristic
Group A	2	1	2	2	1	2	0
Group B	1	2	1	1	4	0	0
Group C	1	2	0	3	0	0	1
3.11							
Group A	3	1	2	1	1	2	0
Group B	3	1	1	0	4	0	0
Group C	0	4	0	2	0	0	1

Question # / Group	(Aggregated results)						
3.13							
Group A	1	2	3	0	1	2	1
Group B	2	1	2	1	2	1	0
Group C	0	3	2	1	0	0	1
Sum							
Group A	6	4	7	3	3	6	1
Group B	6	4	4	2	10	1	0
Group C	1	9	2	6	0	0	3
Total	13	17	13	11	13	7	4

Below (Figure 11) is a PCHM diagram after adding the results for Section 3. By comparing the numbers between Section 2 and Section 3 (after adding the treatments), one can see that the numbers did indeed change. In the actual study, a t-Test was run on the numbers to see if the change was statistically significant and in-line with the hypotheses. For the purposes of the pilot, however, it was only necessary to try to determine the efficacy of the instrument for its use in testing the hypotheses, not in actually testing the hypotheses for the indicated changes.

### Preliminary PCHM Results

Competer			Collaborator		
	(Sec. 2)	(Sec. 3)		(Sec. 2)	(Sec. 3)
Group A	21	26	Group A	39	44
Group B	33	42	Group B	37	46
Group C	32	34	Group C	16	23
<div>Compromiser</div> <div>(Sec. 2) (Sec. 3)</div> <div>Group A 17 19</div> <div>Group B 22 36</div> <div>Group C 18 22</div>					
	(Sec. 2)	(Sec. 3)		(Sec. 2)	(Sec. 3)
Group A	-18	-15	Group A	14	21
Group B	-14	-18	Group B	7	10
Group C	-29	-14	Group C	-4	6
Avoider			Accommodator		

Figure 11 - Preliminary PCHM Results (Sections 2 & 3)



The data, for the most part, seemed valid and the respondents indicated full understanding of the measurement process and agreed with the results. Therefore, it seemed reasonable that a full survey, with individualized results and analysis would prove to either support or disprove the hypotheses. Following is another chart (Figure 12) showing in graphic form the aggregated results differences between the pre-test survey and the post-treatment survey.

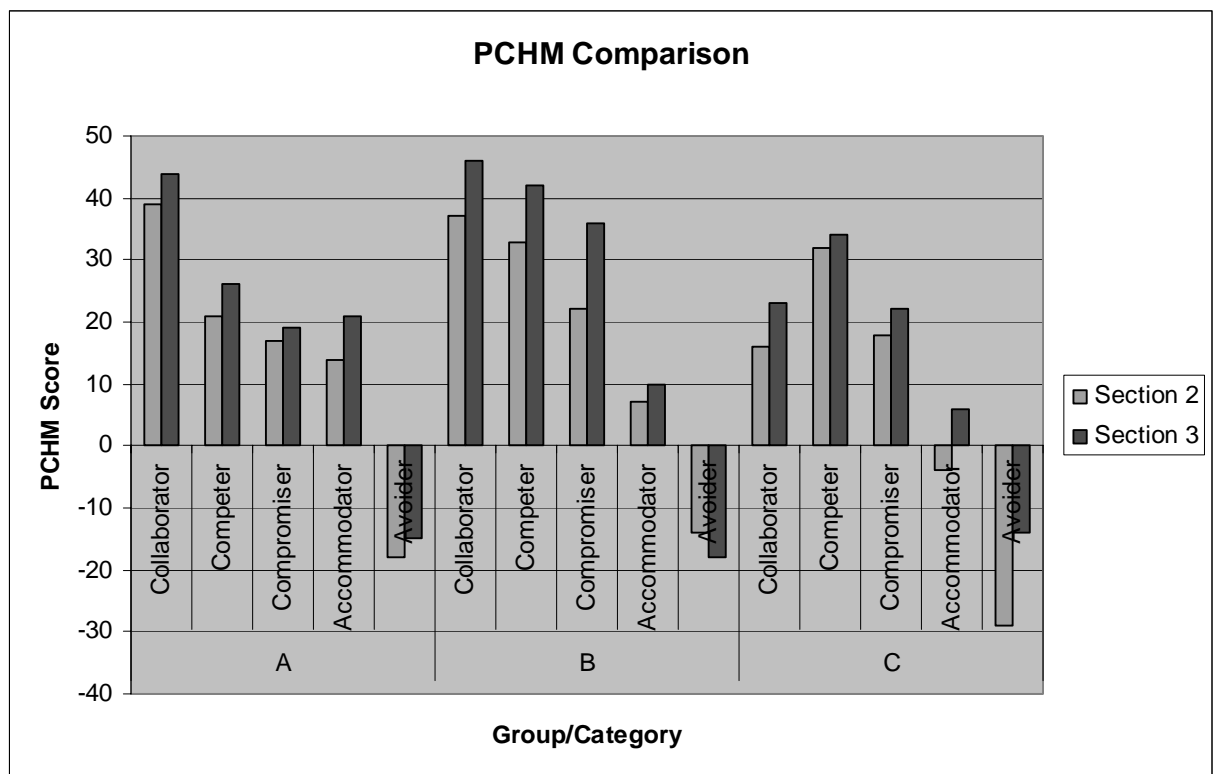


Figure 12 - PCHM Results (Sections 2 & 3)

The results show an immediate difference in the first administration of the survey and the second administration. The difference in Group A (the control group) is less than in Group B (the negative motivation group). The difference in Group C (the positive motivation group) is slightly less than Group B for Collaborator, Competer and Compromiser, but more significant between the Accommodator and Avoider results. The final research process included an individual analysis (broken down and tracked by individual respondent) to be

analyzed for significant changes in PCHM score following the treatment. The results did, however, indicate that a possible treatment effect due to Motivation was obtainable in a generalized administration of the survey.

Figure 13 represents the delta in the two sets of scores for each group.

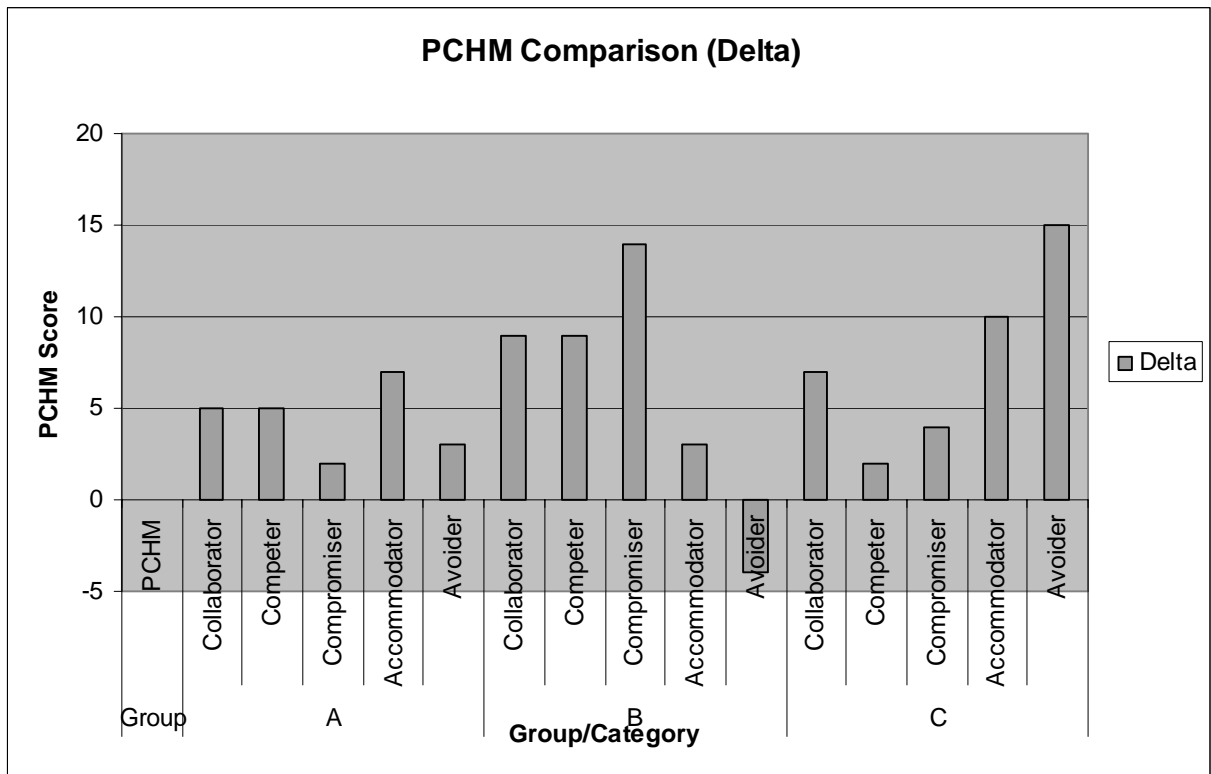


Figure 13 - PCHM Comparison (Delta)

Once again, the results seemed to provide support for testing the theory. The delta for Group A (hypothesized to be minimal or nonexistent) was fairly flat. The deltas for Groups B and C showed more variation in this pilot.

Section 4 of the planned survey was not included in the Pilot administration. Section 4 in the Pilot consisted of questions related to proper use of normative decision making phases (e.g., Hammond, et al.'s ProACT model) and effect on use of heuristics and biases when motivation was introduced. The complexity of trying to measure these changes resulted in a

survey that became lengthy and complex, which possibly would have confounded the results. Therefore, those questions were dropped.

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