RELATIONSHIP CONFLICT IN CONSTRUCTION MANAGEMENT
AND HOW IT AFFECTS PERFORMANCE AND PROFIT

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Abstract

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The construction industry is a large and complex industry involving multiple stakeholders with divergent interests who often experience conflict that is detrimental to all involved. Interpersonal conflict known as relationship conflict produces outcomes that are detrimental to performance as seen in the project schedule, morale of the management team, and the budget. The construction industry recognizes there is a problem with relationship conflict but little research has examined the topic to understand what construction management professionals experience and the effects on performance. This qualitative grounded theory research examined the effects of relationship conflict on performance and budget in construction management, through 25 interviews with construction management professionals, conducted in 18 northwest construction firms. The professionals interviewed included, three superintendents, 11 project managers, three senior project managers, and eight project executives.

The goal of the study was to understand from the construction industry’s perspective what the antecedents and outcomes of relationship conflict were for the firms and individuals involved. Key antecedents that produced relationship conflict were lack of communication, “old
school” attitude, and lump sum contracts. The primary players who produced relationship conflict were the owner and owner’s representative, subcontractors, and superintendents. Resulting from relationship conflict, the major detrimental outcomes were schedule delays and budget increases, while factors that mitigated relationship conflict were, good communication and trust. Performance was also negatively affected on a personal level as management professionals experienced the effects of relationship conflict through mental, emotional, physical, and family-life disruption.
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CHAPTER ONE
INTRODUCTION

The construction industry in the United States is a large and complex industry involving multiple stakeholders who often hold divergent interests. Stakeholders in the form of owners, contractors, architects, engineers, subcontractors, and suppliers approach a construction project from differing perspectives and often conflicting goals (Gebken & Gibson, 2006; Harmon, 2003; Kassab, Hipel, & Hegazy, 2006; Ning & Ling, 2013). Each project starts with the stakeholders working toward a successful, profitable, and quality project, but many times conflict surfaces to subvert those goals. Due to the complexity of construction and its adversarial environment, many projects experience disputes that brew and sometimes explode over various issues that can result in mediation or litigation (Harmon, 2003).

Within the construction industry disputes resulting from schedule and weather delays, change orders, construction document errors, budget constraints, and other issues often occur leading to mediation or litigation with a significant impact on project schedule, morale, business relationships, and profit (Gardiner & Simmons, 1998; Harmon, 2003; Kassab, Hegazy, & Hipel, 2010). Typically found at the center of these disputes is conflict in the form of interpersonal conflict and also known as relationship conflict, which hampers communication between stakeholders, hinders constructive negotiation, and diminishes the productivity of projects (Brockman, 2013; Harmon, 2003; Ning & Ling, 2013).

Conflict in general has been divided into two major categories with different effects in each. The first, task conflict, refers to conflict associated with the accomplishment of a certain task involving decisions, judgments, viewpoints, ideas and opinions. Task conflict typically has low levels of emotional energy associated with it, and is usually productive for teams. The
second type of conflict, relationship conflict, involves interpersonal tensions, friction, frustration or even animosity and is known to produce a detrimental effect in teams (Amason, 1996; De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn, 1994; Jehn & Bendersky, 2003; Lau & Cobb, 2010). Task conflict is common in construction among management teams and project stakeholders and is fruitful for the progress of a construction project as better and faster means and methods are implemented. In contrast, relationship conflict as studied in management and psychology literature has been proved harmful to performance and innovation (Amason, 1996; De Dreu, 2006; Jehn & Mannix, 2001). Within construction task conflict often transfers into relationship conflict, and conflict that started out as beneficial becomes detrimental.

These two conflict types help explain the differing effects of conflict in construction and how conflict often escalates leading to mediation or litigation and loss of productivity. Examining the topic of relationship conflict in construction management and its effect on performance and profit has beneficial implications both for professional management and leadership personnel in construction and for scholarly pursuits. Within the construction industry, the effects of relationship conflict are experienced and acknowledge by industry professionals, but little is understood about the effects on performance and profit. Clear antecedents and consequences of relationship conflict as they impact performance and profit along with a means to mitigate relationship conflict have not been examined. The construction industry knows there is a problem, but little research exists examining the topic in order to inform the industry what others are doing about it and of possible solutions (Brockman, 2013). Therefore, extending the theory of relationship conflict into construction management and elaborating on its effects will benefit both the construction industry and scholarly literature.
Within scholarly literature no research exists linking the effects of relationship conflict to performance and profit, which are two indicators that are beneficial for the construction industry and scholarly research. The benefit to the construction industry is an understanding in practical terms of the impact relationship conflict has on the industry and in particular construction management professionals, along with possible solutions. For scholarly literature, there exists an opportunity to extend the relationship conflict theory into the construction industry, and contribute to the body of knowledge, both in the conflict literature and in construction management literature.

**Background of the problem**

Construction is a large industry comprising $529.5 billion of the U.S. 2011 Gross Domestic Product (GDP) and employing 5.5 million full-time employees (Bureau of Economic Analysis, 2011). In comparison, the airline and railroad industries’ contribution to the GDP combined were $106.3 billion, the automobile industry was $76.5 billion, and all agricultural industries total were $173.5 billion (BEA, 2011). Construction projects range in cost from tens of thousands to several billion and employ a few dozen workers on small projects to thousands on large projects, and have durations of a few months to several years (Haplin, 2006). The construction industry is divided into four main categories: commercial construction, heavy civil construction, industrial construction, and residential construction which includes single family and multifamily. The typical construction firm will focus their activities in one or maybe two of these categories (Haplin, 2006).

Construction projects envelope a size and complexity that to the casual observer is typically not recognizable. As an example, most view road construction as a necessary annoyance, but to the construction industry, road construction is big business involving complex
scheduled events and highly coordinated construction processes with numerous subcontractors. The $2.44 billion Woodrow Wilson Bridge in Washington D.C. was completed and commissioned in 2006. This project has been heralded as an example of how well a construction project can go, yet required 13 years to complete even while maintaining the original schedule, involved 32 prime contracts and 220 subcontractors, and at its peak a workforce of 1400. The physical length of the project spanned 7.5 miles and required handling 200,000 commuters per day (Anderson & Polkinghorm, 2008; The Washington Post, 5/19/2006). In contrast to the size of the project and the workforce on the Woodrow Wilson bridge, research shows that 92% of construction firms in the United States employed less than 20 workers in 2011 (Associated General Contractors of American, 2013). Though the Woodrow Wilson bridge project is at the higher end of contract price, duration, and complexity, the issues of numerous contracts, scheduling and coordination, multiple stakeholders, and complexity are also found in commercial projects of lesser contract amount and duration.

The interdependency of individual stakeholders’ interests coupled with time and budget pressures create a potential mix for conflict to occur that can be costly and time consuming for all parties involved, as dispute resolution or litigation becomes the avenue to resolve these conflicts (Gebken & Gibson, 2006). Each party views the major aspects of a project, schedule, quality, and money, from different perspectives which can be compounded by weather delays, restricted site access, communication problems, contract drawing errors, change orders, union strikes, size and duration of the project, low profit margins, and governmental regulations (Harmon, 2003; Kassab et al., 2006). The contractor’s primary concerns include making a profit, maintaining a good reputation through producing a quality project, and fair compensation for scope changes. Owners are concerned with staying within the budget, maintaining schedule,
receiving a quality finished project, and paying a minimum for scope changes. Architects want
to ensure their design is built as intended, engineers are concerned with maintaining a high
quality of system design, and subcontractors want good access at the site so they are profitable
(Allen & Ian0, 2009). All these stake-holders view a construction project from differing vantage
points, and consequently out of this complexity of interrelatedness conflict can surface quickly
and foster an adversarial atmosphere with significant impact on a project (Gebken & Gibson,

Conflict can also surface within a construction management team, where experience and
age may devalue youth and education, creating a basis for conflict on the team. Because of
pressures from schedule deadlines, budget monitoring, change orders, experience levels and
responsibility misinterpretation, conflict often emerges in working relationships within a team.
This interpersonal conflict can be difficult to deal with due to the high pressure atmosphere of a
construction project. These and numerous other conditions can combine to create a foundation
for interpersonal conflict on a construction project that results in loss of productivity, time, and

Construction projects typically start well, but problems can lead to delays and conflicts
between the owner and contractor. On July 30th 2013, Seattle Tunnel Partners (STP) started
Department of Transportation (WSDOT) was the owner and had contracted with STP for a
completion date on the project of January 2, 2016 for a cost of $1.44 billion (The Seattle Times,
3/5/14). The update reports on the WSDOT (WSDOT) website and articles in the Seattle Times
were primarily upbeat and favorable until the tunnel machine, known as Bertha, stopped on
December 6, 2013 with 1023 feet out of 9,270 feet of tunnel completed (The Seattle Times,
Bertha is not projected to resume tunneling until March of 2015, talk of damages resulting from the delays have taken the place of the previous excitement, and STP have filed a claim for $190 million that is being denied by the state engineer in charge. This is a very complex project that has resulted in conflict due to significant unanticipated delays and unforeseen underground problems that will most likely end in litigation, with a significant cost to both sides.

**Complexity in construction**

The complexity of the construction industry involving unique project conditions, multiple stakeholders, varied and numerous site conditions, and diverse project management teams can often result in an adversarial climate that can lead to conflict (Haplin, 2006; Harmon, 2003; Kassab, Hipel, & Hegazy, 2006; Ning & Ling, 2013). Stakeholders, such as owners, architects, engineers, contractors, project managers, subcontractors, and suppliers are often working together for the first time on any given construction project. Task interdependency between these stakeholders for a project’s progress is typically high, with the outcome frequently developing into conflict that escalates as the project progresses (Gardiner & Simmon, 1998). This task interdependency between stakeholders becomes quite complex as each party seeks to look out for their own interests with the intent of producing a profit, building a quality product, and maintaining a good reputation.

Baccarini (1996) maintained that construction is the most complex process of any industry, attributing this to differentiation and interdependency. Differentiation refers to the number of varied components in a project, and interdependency involves the interrelatedness of the processes and stakeholders. Depending on the size and duration of the construction project, the number of different components can range from the hundreds to the thousands, creating
significant differentiation. Interdependency to accomplish different phases of a project can be quite intertwined on two levels. First, at the construction and installation of components by the different trades, sequencing and coordination require constant negotiation of access, timing and space. Second, at the management level, contract negotiation, subcontractor crew size, and timely material procurement are interrelated creating an interdependency between stakeholders. Williams (1999) furthers this concept of interdependency with the term, sequential complexity, describing the interrelatedness of sequences in a construction project that must take place simultaneously. Baccarini argues that ultimately, “complexity affects the project objectives of time, cost, and quality” (p. 201).

**Performance in construction**

In order to examine the effects of relationship conflict on performance, an understanding of performance evaluations is necessary. Grant (2008) defines performance as, “the degree to which employees’ behaviors achieve organizational goals” (p.50). Performance related to relationship conflict in extant management and psychology literature has been evaluated as, consensus and quality of strategic team decisions (Amason, 1996), ratings of teams final project (Jehn & Mannix, 2001), solving problems, making decisions, and creative ideas within teams (Pelled, Eisenhardt, & Xin, 1999), innovation on work teams (De Dreu, 2006), and financial performance and decision quality (de Wit, Greer, & Jehn, 2012). These performance evaluative measurements have been used to examine relationship conflicts’ impact on workgroup performance in business settings.

Within the construction industry, performance evaluators comprised of schedule and costs or budget on an activity-by-activity basis and overall view are extensively used to assess the success of a construction project (Gould & Joyce, 2003). The use of schedule to evaluate
performance is based on a comparison between budgeted work hours and actual work hours. If the actual work hours exceeds budgeted, performance based on the schedule is low. Performance based on the budget relies on a comparison between the bid budget and actual expenditures. Again, if the actual costs exceeds the budgeted costs performance is low. This is a basic view of performance indicators and is typically calculated on a monthly or bi-monthly basis.

In their study examining and identifying what project managers consider successful performance factors, Menches & Hanna (2006) maintained there are four key performance indicators. These four indicators, profit from project, good communication between team members, on or ahead of schedule, and within budget, are a synthesis of all factors provided by the project managers. Cox, Issa, and Ahrens (2003) promoted six factors of key performance measures from their research among construction executives and project managers. These six factors, units installed per man hour, cost per unit installed, safety, total cost, on-time completion, and quality control and rework have some overlap with the factors from Menches and Hanna, but provide more detail for a performance evaluation. In view of these studies and general industry standards defined by Gould and Joyce (2003), the performance factors to be used for this research will be schedule, budget, and communication as maintained by Menches and Hanna (2006).

**Statement of the problem**

The problem examined in this research was the perceived effect of relationship conflict in construction management on performance and profit. Prior research has studied relationship conflict on teams in managerial business settings and shown the detrimental effects (De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn, 1997; Lau & Cobb, 2010; Simons & Peterson,
2000), but no research to date has been conducted in the construction industry to study the effects of relationship conflict on performance and profit among construction management professionals. Conflict in construction is pervasive and adversarial resulting in loss of time, money, and productivity (Brockman, 2013; Harmon, 2003; Jones, 2006; Ng, Pena-Mora, & Tamaki, 2007). As a result, there is a need to distinguish between task and relationship conflict and their effects, and examine the issue of relationship conflict within the construction industry and among construction management professionals. If relationship conflict has negative effects on the performance, profit and morale in the construction industry, then there is reason to study the problem. The intent is to understand what factors relationship conflict produces that affect performance and profit in construction, and what can be done to mitigate those factors.

**Purpose and rationale of the study**

The purpose of this qualitative grounded theory study was to examine the effects of relationship conflict in construction management on performance and profit within construction firms, and to extend existing theory to explain this phenomenon. The topic has been studied within business management teams and literature (De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn & Bendersky, 2003; Lau & Cobb, 2010; Simons & Peterson, 2000), but the complexity of the construction industry does not allow the theoretical findings of previous studies to be generalized to construction. Due to the numerous components comprising a construction project, the interdependency and divergent interests of stakeholders, the sequential complexity, and the uniqueness of each project it is difficult to generalize the existing theory to the construction industry (Baccarini, 1996; Williams, 1999). Therefore, it is beneficial to study relationship conflict in the context of construction management in order to examine the effects of relationship conflict on performance and profit.
Research question

The research question used to approach this study was: “How does relationship conflict in construction management affect performance and profit?” The issues of loss of performance by team members, protracted schedules and loss of profit resulting from relationship conflict were examined to adequately address the problem and answer the research question. Previous studies have examined relationship conflict and its theoretical framework in business management team settings, but the theory of relationship conflict with its associated outcomes and detrimental effects have not been applied or studied in construction management. Consequently, there is a gap in construction related literature. Therefore, the research question will be used to …“elaborate and extend existing theory” (Strauss and Corbin, as cited in Groat & Wang, 2013, p. 235) into the construction industry in order to understand the effects of relationship conflict among construction management professionals.

Significance of the study

The significance of conducting the study can be seen in three ways. First, within the construction literature there appears to be just one study examining the effects of interpersonal conflict in construction with a focus on relating this to loss in dollars for a project (Brockman, 2013). While Brockman’s study is a good starting point for the topic of conflict in construction and its effects, it has a different and broader focus than this present research study in that conflict is not identified as task or relationship conflict with their specific effects. Rather conflict is only defined in general terms as interpersonal conflict without any distinction between task conflict and relationship conflict which is an important distinction. Also, the application is toward the
workforce whereas the focus of this present study is the management side. Therefore a gap remains for the study of relationship conflict in construction management and its effects on performance and profit, while maintaining a clear distinction between task and relationship conflict and providing definitive definitions for each.

Second, several studies within the construction literature do state that the construction culture is adversarial and conflict has a detrimental effect (Brockman, 2013; Gebken & Gibson, 2006; Harmon, 2003; Kassab et al., 2010; Ning & Ling, 2013), but no study examines the topic of relationship conflict in construction management and its effects on performance and profit. Finally, numerous studies in management and psychology literature have examined relationship conflict on teams in business settings, but these studies have never been done in construction industry. This study is therefore a good fit within the current literature to provide research in what is seen as a gap in the literature, and through a grounded theory approach provide theory that explains the phenomenon.

**Definition of terms**

The following definitions are particular to this study.

**Commercial construction**: Construction of buildings for commercial use such as schools, universities, hospitals, offices.

**Contract documents**: This is also referred to as contract drawings, and are the drawings and specifications used to construct the building.

**Heavy civil construction**: Construction of highways, bridges, dams, pipelines, airports.

**Industrial construction**: Construction of refineries, heavy manufacturing plants, steel mills.
Lump sum contracts: Contract between owner and contractor or contractor and subcontractor based on lowest bid for work specified in contract. Contract price is paid for completion of project whether it costs the contractor more or less than the contract price to complete. Also known as design-bid-build and hard bid contracts.

Project executive: Oversees several project managers and pursues business relationships with owners for current and future work. Executives of companies including vice presidents and senior vice presidents.

Project manager: Responsible for procurement of materials and equipment, all contract negotiation with subcontractors, change orders, and correspondence with the owner, architect and engineer.

Relationship conflict: Is a perception of interpersonal incompatibility and typically includes tension, feelings of friction, annoyance, frustration, dislike, personality clashes, grudges, and animosity among group members. (Jehn & Mannix, 2001; Simons & Peterson, 2000; Yang & Mossholder, 2004)

Residential construction: Construction of single family and multifamily buildings.

Schedule: Estimated and planned duration of activities and overall project.

Superintendent: Responsible for the jobsite scheduling, organization of labor, and construction of the building.

Task conflict: An awareness of differences in approaching the task at hand, involving the content of decisions, judgments, viewpoints, ideas and opinions. Task conflict can involve a degree of animated discussion and excitement, but typically the conflict is focused on the task at hand and is primarily cognitive in nature (Amason, 1996; Behfar, Peterson, Mannix & Trochim, 2008; De Dreu, 2006; Jehn & Mannix, 2001).
Teams: Workgroups of three or more individuals formed for the purpose of accomplishing organizational goals (De Wit, Greer, & Jehn, 2012; Grant, 2008; Jehn & Mannix, 2001). Within construction, workgroup teams can be solely within a construction firm or collaborative involving stakeholders from several organizations with a common goal (Cheung, Wong, & Lam, 2012; Cox, Issa, & Ahrens, 2003; Kumaraswamy, Ling, Rahman, & Phng, 2005). This will be further defined in the chapter 2.

Limitations and assumptions

The theoretical assumption taken from management and psychology literature is that relationship conflict has detrimental effects on teams (De Dreu, 2006; Jehn & Bendersky, 2003; Simons & Peterson, 2000), though this has not been tested in construction due to its complexity of projects and the multiple stakeholders involved. Commercial construction was the construction genre of the sample pool, with one participant working in a high end custom home construction firm. Though the study will apply to residential new construction and remodels, the focus was on the commercial side as this is where the concept of conflict in management teams could be examined. The sample size is assumed to be appropriate for this grounded theory study. A sample size of 20-30 participants is recommended for a grounded theory study with interviews and the study’s sample of 25 interviewees fits well within this margin (Creswell, 2007; Corbin & Strauss, 2008). It was also assumed that each of the participants would talk and tell their story during the interview, which was the case in each of the interviews.

A limitation of the study was the absence of female participants. This is to be expected considering the male dominated management positions in construction management. Future studies in the area of relationship conflict in construction would benefit from having the female voice among the participants. A second limitation is the geographical location of the firms under
study. All 18 firms of the 25 participants interviewed were northwest based except one with 30 plus offices nationwide. Other regions of the United States may view conflict through a different lens and this would be beneficial to examine. A final limitation is the lack of accurate dollar amounts as to the reduction in profit experienced as a result of relationship conflict. In some cases round dollar numbers were given along with protracted durations of the projects that could be converted to overhead costs, but actual costs of profit made or lost is proprietary information and would be very difficult to obtain. The complexity of a construction project also affects the limitation of hard dollar amounts associated with profit loss from relationship conflict. Factors other than relationship conflict such as inefficiencies of labor, estimating errors, procurement and increased costs of materials after the bid is won, subcontractor availability, and poor management decisions can all affect profit and be interwoven with relationship conflict.

**Nature of study**

The conceptual framework for this study is illustrated in Figure 1 below. The “Construction Project” is shown as the beginning point of either task conflict or relationship conflict. Construction projects, also known as the building, vary in size, complexity and duration, and typically these three variables are interrelated. A large project will typically have a longer duration, increased complexity, and larger in size and cost than a smaller project. Conflict can increase as these factors increase, but it is not always the case. The project itself is not the cause of task conflict or relationship conflict, but is the vehicle were these two conflict types are experienced. The Woodrow Wilson Bridge project in Washington D.C. was extremely large in scope, complexity, and duration. Yet the project was reported as a model for being built on time and with few known conflicts.
The model shows the relationship between task and relationship conflict, and management team performance and project profit. As established by extant literature and theory, task conflict increases performance while relationship conflict decreases performance (Amason, 1996; Behfar, et al., 2008; Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012; Jehn & Mannix, 2001), and the model represents this theoretical framework. Simons and Peterson (2000) theorized that task conflict, though beneficial for performance, can transfer or be misattributed to relationship conflict when protracted or too intense. The arrow leading from task to relationship conflict represents this misattribution. Trust between team members and higher levels of emotional intelligence have been shown to moderate relationship conflict as depicted by the model (Ayoko, Callan, & Hartel, 2008; De Dreu & Weingart, 2003; Jehn & Mannix, 2001; Jordan & Troth, 2004; Korsgaard, Brodt, & Whitener, 2002; Lau & Cobb, 2010; Simons & Peterson, 2000; Sunindijo & Hadikusumo, 2013; Yang & Mossholder, 2004).

This study applied the theoretical framework of relationship conflict to teams in construction management to examine the effects on performance and profit. The factors affecting relationship conflict were the construction industry’s complexity, multiple stakeholders, adversarial climate and other causes particular to the construction industry that were revealed through the data collection and analysis. The results of applying relationship conflict theory to the construction industry to understand what effect there is on performance and profit will be explained in chapter five.
Summary

In the following literature review, conflict in general will be defined and divided into task and relationship conflict with their respective outcomes. This will serve as a basis for the theoretical application of relationship conflict in the construction industry and beneficial for application of the findings in the conclusion.
CHAPTER TWO
LITERATURE REVIEW

Introduction

Within the construction industry in the United States numerous stakeholders with often divergent interests work interdependently to construct building projects. Stakeholders in the form of owners, contractors, architects, engineers, subcontractors, and suppliers approach a construction project from differing perspectives and often conflicting goals, yet they must work together to produce a quality project that stays within budget and on schedule (Gebken & Gibson, 2006; Harmon, 2003; Kassab, Hipel, & Hegazy, 2006; Ning & Ling, 2013). Each project starts with the stakeholders working toward a successful, profitable, and quality project, but many times conflict surfaces to subvert those goals. As a result of construction’s adversarial climate and complexity, projects often experience conflict that escalates to a point of arbitration, mediation, or litigation (Gebken & Gibson, 2006; Harmon, 2003).

During the course of a construction project disputes resulting from schedule and weather delays, change orders, construction document errors, budget constraints, and other issues often occur leading to mediation or litigation with a significant impact on project schedule, morale, business relationships, and profit (Gardiner & Simmons, 1998; Harmon, 2003; Kassab, Hegazy, & Hipel, 2010). These disputes typically involve conflict in the form of interpersonal conflict, also known as relationship conflict, which hinders constructive negotiation, builds walls between
participants, lowers morale, and reduces the productivity of projects (Brockman, 2013; Ning & Ling, 2013).

Conflict in general has been divided into two major categories with different effects in each. The first, task conflict, refers to conflict associated with the accomplishment of a certain task involving decisions, judgments, viewpoints, ideas and opinions. Task conflict typically has low levels of emotional energy associated with it, and is usually productive for teams. The second type of conflict, relationship conflict, involves interpersonal tensions, friction, frustration or even animosity and is known to produce a detrimental effect in teams (Amason, 1996; De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn, 1994; Jehn & Bendersky, 2003; Lau & Cobb, 2010). These two conflict types will be used to explain the differing effects of conflict in construction and how conflict often escalates leading to mediation or litigation and loss of productivity.

In a seminal article by Thomas and Schmidt (1976), it was shown that CEO’s, vice presidents, and middle managers spend on average 20% of their time resolving conflict with and between employees, and that these managers have a keen interest in the prevention of conflict and its management. De Vilbiss & Gilbert (2005) maintained that the most significant hindrance to productivity is conflict between team members, and a core competency of each company should be the tools and learning to grow team members in conflict prevention and resolution (De Vilbiss & Gilbert, 2005). Though Thomas and Schmidt’s research was not conducted in the construction industry, the principles for construction management are relevant. Managers in construction are very aware of the problem of conflict and its outcomes. Conflict in construction is pervasive and adversarial resulting in loss of time, money, and productivity (Gebken & Gibson, 2006; Harmon, 2003; Kassab, Hipel, & Hagazey, 2006). As a result, there is a
tremendous need to examine the issue of conflict within the construction industry beyond the topics of dispute resolution and litigation, mining down into the issues behind the conflict, and discovering what causes and types of conflict are the most beneficial and detrimental to the health of the construction industry.

Conflict Defined

Early conflict theorists grouped all conflict together as one type, yet acknowledge and defined conflict as having differing effects ranging from beneficial to detrimental in social, political and organizational groups (Aubert, 1963; Coser, 1957; Mack & Synder, 1957). These differing effects of conflict produced a variety of outcomes containing conflicting views as to the benefits and detriments of conflict among researchers (Jehn & Bendersky, 2003). Pondy (1967) theorized that conflict is commonly, but not always, viewed in a negative light by organizations, with minor conflict resulting in a move toward resolution and major conflicts ending in a change in the relationship between the conflicting parties. At the same time, Pondy summarized current conflict theory as not necessarily good or bad, but stated that an evaluation process must be applied to establish whether it has organizational and individual benefits, or does it poses dysfunctional characteristics. Pondy also maintained that conflict can be productive if managed properly by the perceptive manager in an organization.

Deutsch (1969) theorized that conflict was divided into two categories: constructive and destructive. Deutsche defined constructive conflict as that in which all participants are satisfied with the results of the conflict and have gained from it, while in destructive conflict each of the parties involved feels as if they lost as a result of the conflict and are now dissatisfied with the final conclusion. Separating what is considered acceptable and unacceptable conflict is important
to understand the role of conflict in organizations and in construction. As research and theorizing progressed, a generally accepted definition of conflict was developed.

Conflict in general terms has been defined as the perception that a party’s interest or goals are being hindered by another party, whether real or perceived, and the level of conflict is directed by the degree to which a party is committed to a goal (Cosier, Dalton, & Taylor, 1991; Deutsch, 1969; Kolb & Putnam, 1992; Thomas, 1992; Wall & Callister, 1995). This commitment to a goal that drives the level of conflict has been defined in terms of a dual concerns framework, where conflict increases or decreases based on a balance or lack of balance between an individual’s concern for their own interests or the other person’s interest (Lewiski, Barry, & Sanders, 2010).

This definition of conflict within the literature has subsequently been developed into two distinct types of conflict within organizations: task conflict with a potential of being constructive, and relationship conflict which is considered destructive (Amason, 1996; Jehn, 1994; Simons & Peterson, 2000). The first, task conflict, refers to conflict associated with the accomplishment of a certain task involving decisions, judgments, viewpoints, ideas and opinions. Task conflict typically has low levels of emotional energy associated with it, and is usually productive for teams. The second type of conflict, relationship conflict, involves interpersonal tensions, friction, frustration or even animosity and is known to produce a detrimental effect in teams (Amason, 1996; De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn, 1994; Jehn & Bendersky, 2003; Lau & Cobb, 2010). Understanding this distinction between task conflict and relationship conflict is vital to the purpose of examining conflict types in construction.

All conflict is not equal or useful in its effects. The value of examining both lies in discovering the distinction between the two types of conflict and their outcomes (Amason,
1996), with task conflict being associated with increased performance when at appropriate levels, and relationship conflict deemed dysfunctional and contributing to lowered performance in work groups (Amason, 1996; Brockman, 2013; De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn, 1994; Lau & Cobb, 2010; Simons & Peterson, 2000). This literature review will examine task and relationship conflict as defined in the literature, how they affect team performance, the subsequent holes within the literature as applied to construction, and the relevant theoretical framework that can be applied to the study of relationship conflict in the construction industry. Table 1 provides an overview of the differences between task and relationship conflict.

Table 1

Key Differences between Task Conflict and Relationship Conflict

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Task Conflict</th>
<th>Relationship Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus of conflict</td>
<td>Focused on task at hand</td>
<td>Focused on interpersonal incompatibilities</td>
</tr>
<tr>
<td>Cognitive or Emotional</td>
<td>Cognitive in nature</td>
<td>Emotional in nature</td>
</tr>
<tr>
<td>Performance</td>
<td>Performance is enhanced at mid-range and lowered at low and high levels of conflict</td>
<td>Performance is diminished at all levels</td>
</tr>
<tr>
<td>Organizational view</td>
<td>Beneficial at appropriate levels</td>
<td>Dysfunctional at all levels</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Increased decision quality, team cohesion, and innovation</td>
<td>Decreased decision quality, group consensus, and commitment to group</td>
</tr>
</tbody>
</table>

Task Conflict

The framing of task conflict versus other types of conflict was identified in a seminal journal article by Pinkley (1990), studying the perspectives by which individuals frame conflict. Pinkley discovered that prior experience combined with the current condition were instrumental
in forming a specific cognitive structure that is used to interpret the current conflict situation. An individual then uses their cognitive structure and divides the current situation into one of three different dimensions of conflict: task versus relationship, emotional versus intellectual, or compromise versus win. Particular to this research are the findings on task versus relationship conflict in which Pinkley maintained that as a disputant enters a conflict circumstance, a framing process leads the individuals involved to frame the encounter as one primarily involving either problems in the relationship or concern over the task at hand. Pinkley’s study and resulting theoretical framework has been foundational in the understanding of an individual’s framing of the conflict situation and their cognitive effort to associate the current conflict as task conflict or relationship conflict. Pinkley’s theoretical framework has been expanded by subsequent empirical studies such as Amason, (1996), Jehn, (1994), Jehn and Bendersky, 2003, Jehn & Mannix, (2001), Wall and Callister, 1995, as these and other researchers continue to define conflict types and their effects within organizations.

**Task conflict defined**

Task conflict is an awareness of differences in approaching the task at hand, involving the content of decisions, judgments, viewpoints, ideas and opinions. Task conflict can involve a degree of animated discussion and excitement, but typically the conflict is focused on the task at hand and is primarily cognitive in nature (Amason, 1996; Behfar, Peterson, Mannix & Trochim, 2008; De Dreu, 2006; Jehn & Mannix, 2001). Task conflict relates to conflict encountered by a team or workgroup of two or more as they endeavor to accomplish the specifics of a particular goal. Managers of teams often encourage task conflict at appropriate times and levels, as a means to promote performance on the team (Behfar, et al., 2008; De Dreu, 2006; Jehn, 1997; Jehn & Mannix, 2001; Simons & Peterson, 2000). Cosier, et al., (1991) from their study on outside
influence as a promoter of conflict to attain team goals, discovered that controlled and deliberate conflict, such as constructive criticism that is kept within appropriate boundaries, gave management teams the necessary cognitive input to solve the goals of the team. Amason (1996) considered task conflict a functional conflict, labeling it cognitive conflict as it was shown to enhance understanding and contribute to the quality of decisions made by a workgroup. In a study of 48 top management teams from small and midsized food-processing firms across the United States, Amason discovered that when cognitive conflict was related to goal accomplishment it was proved beneficial for the achievement of group goals, as appropriate levels of conflict enhanced cognitive functioning in order to facilitate quality decision making.

Tjosvold (1991) empirically studied the use of well managed conflict among engineering teams, management and operations personnel working together with professors in a university setting, and corporate managers. Tjosvold discovered that innovation to solve problems occurred when opposing views were openly discussed and each member of the team was allowed to express their views. This innovation to solve problems was not present when only one view was promoted and differing views were not espoused, as teams failed to make progress and developed solutions that were low in both quality and creativity. In addition, Tjosvold found that poorly managed conflict, in which there was a lack of cooperation and openness to new ideas, resulted in a loss of productivity.

Though the benefits of task conflict in increasing performance of workgroups has been empirically studied and theoretically modeled, there still existed disagreement as to when task conflict is constructive and destructive. As a result, studies have been conducted aimed at discovering those conditions in which task conflict is both beneficial and detrimental. Bradley, Klotz, Postlethwaite, and Brown, (2013) and Bradley, Postlethwaite, Klotz, Hamdani, and
Brown, (2012) maintained that the key determining factors for a workgroup to experience the benefits of increased performance during task conflict are psychological safety, openness, and emotional stability of the team. Bradley, et al. (2012) defined psychological safety as a place of freedom for team members to contribute their ideas and challenge other’s ideas within the framework of a safe team, with the result being improved creativity and decision making quality. In agreement with Tjosvold (1991), Bradley et al., (2013) discovered that openness to experience, and in particular openness to divergent viewpoints, encouraged open debate and helped decisions and strategies have a positive effect on team performance.

Informational diversity has also been shown to improve performance during task conflict, as team members with diverse education, experience and expertise possess varied knowledge bases and through shared diverse knowledge are able to produce effective and high quality decisions when tasks are complex and non-routine (Jehn, Northcraft, & Neale, M. A., 1999). Amason (1996) maintained that cognitive diversity was an important ingredient in fostering increased performance during task conflict, and that those teams with several divergent ideas that were critically examined, weighed and synthesized, produced higher quality decisions and outperformed those teams with less cognitive diversity. This use of diversity, both cognitively and experientially, can be beneficial in reducing the effects of poor decision quality through groupthink (Brockner, 1992), where alternative views are poorly examined due to the highly cohesive nature of the group (Hogg & Terry, 2000). Though cohesion is desired in a group, cohesion without diversity of ideas can hindered quality decision making through a loss of critical thinking combined with open dialogue (Jehn, 1995). Thus, diversity during task conflict has been promoted as essential for workgroups to function at high levels in their decision quality by allowing multiple idea streams to be examined and synthesized.
This goal of researchers and managers to search for fruitful methods to use task conflict for increased performance stems from the tendency of workgroups to stagnate when there is no pressure to produce at a high level (De Dreu, 2006; Deutsch, 1969; Jehn & Bendersky, 2003). Deutsch (1969) maintained that conflict is a means to stimulate workgroups through interest and curiosity, and it can used as an assessment tool for the individual for personal change as team members are exposed to others’ ideas. Without the stimulation of task conflict, workgroups settle for a lower bar as the standard and therefore there exists the need to mitigate complacency through the use of strategic task conflict.

This conflict associated with task is routinely encountered within the construction management team of a firm, and in what is considered the larger team of stakeholders on a project involving the contractor, owner, subcontractors, architect, and engineer (Kumaraswamy, et al., 2005). Though the larger team of stakeholders is loosely formed for a specific project and may have divergent goals, task conflict is experienced through adherence to a schedule of completion and a specific budget on a building project. Without the pressure of the schedule and budget in the form of task conflict, performance and progress would slip to a lesser level. Therefore, this pressure to perform at higher levels through task conflict is essential for the timely completion of a project and to keep a project on budget.

Higher performance resulting from task conflict has been marked by accomplishment of team goals, effective strategic planning, and improved decision quality as members readily accept group decisions resulting in a degree of ownership that translates to a desire to stay in the group and producing a stronger team (Amason, 1996; De Dreu & Weingart, 2003; Jehn, 1995; Jehn & Bendersky, 2003). These higher levels of performance experienced through task conflict have a limit at both the low and high end of task conflict. De Dreu’s (2006) study of self-
managed parcel delivery teams and management teams in the Netherlands proposed that the optimum level of task conflict that produced an increase in innovation (which was the indicator of increased performance) on the team was a mid-level of conflict. De Dreu discovered that when conflict was minimal the team was not challenged, urgency was absent and the team performed low, and when conflict was too high the teams were hampered by heightened levels of tension and reduced information exchange which lead to lower performance. At a mid-range of task conflict, teams performed at their highest level through task interdependence and a collaborative problem solving process.

Task conflict is also limited in increasing performance depending on the type of task being executed. When work involves routine tasks as opposed to complex task and task conflict is encountered, performance is lowered as a result of lowered efficiency in the accomplishment of the task due to interruption of the routine and a sense of being counterproductive and time consuming for the group members (Jehn, 1995). In other words, routine task accomplishment thrives under a minimal or non-existent task conflict environment due to the routine nature of the task which involves smoothness of flow for accomplishment.

When task conflict is protracted or increases to a level of intensity that shifts the conflict from a focus on the task to a focus on interpersonal issues, it can be misinterpreted as a personal attack by some resulting in lowered performance levels in management teams (Amason, 1996; Jehn, 1995). Simons and Peterson (2000) discovered that a misattribution process can emerge where task conflict is defined by some team members as relationship conflict due to an increased intensity level. A key factor in moderating task conflict in order to hinder its migration into relationship conflict is the perceived trust level among team members (Simons & Peterson, 2000). Work group teams with high levels of trust have shown a strong resistance to attributing
the negative effects of relationship conflict to task conflict through a sense making process based on trust between team members. At the same time, teams with low levels of trust attribute relationship conflict to task conflict much more readily as it is difficult to make sense of the conflict other than to attribute it to relationship conflict (Korsgaard, Brodt, & Whitener, 2002; Simons & Peterson, 2000). Keeping task conflict from either transferring to relationship conflict via intensity or protracted circumstances or through misattribution is a key factor in maintaining the performance ingredient of task conflict. Within the construction industry, this appears to be one of the key problems as task conflict transfers to relationship conflict as a result of project intensity and the divergent goals of the different stakeholders.

**Summary of Task Conflict**

Task conflict is an inevitable event as groups and teams work together to accomplish organizational goals and experience conflict based in the accomplishment of specific tasks. At the same, task conflict has the organizational benefit of increased performance in the form of innovation and higher decision quality as the team or group experiences a mid-range level of conflict and promotes diversity of thought, openness to ideas, and synthesizing of those ideas. The increased performance level is not realized at the low and high levels of task conflict, as too low a level can produce complacency and too high a level can transfer task conflict into relationship conflict which is unproductive and dysfunctional. While task conflict has been shown to be useful in preventing stagnation of team workflow and decision quality, it can be detrimental in workgroups when the tasks are routine yet beneficial in groups who encounter complex tasks.

Due to the complexity of construction industry, the unique conditions of each project, and multiple stakeholders often working together for the first time in loosely formed teams with
task interdependency between the stakeholders, task conflict is a very real part of the
construction industry and is often quite adversarial (Gardlner & Simmons, 1998; Ning & Ling,
2013). Yet to date, no study has been done to generalize the benefits of task conflict to the
construction industry in order to discover the low, mid, and high performance outcome benefits
and detriments. It would be advantageous of future research to examine this topic in order to
benefit the construction industry and further the body of knowledge on task conflict and its
theory development.

**Relationship conflict**

**Definition and overview**

Relationship conflict, also termed affective conflict (Amason, 1996) and emotional
conflict (Jehn, 1994; Pinkley, 1990), has been defined as a perception of interpersonal
incompatibility and typically includes tension, feelings of friction, annoyance, frustration,
dislike, personality clashes, grudges, and animosity among group members (Jehn & Mannix,
2001; Simons & Peterson, 2000; Yang & Mossholder, 2004). Rather than focus on the
accomplishment of the goal assigned to the team, those in relationship conflict focus on their
personal incompatibilities and disputes (Amason, 1996), and their difference in personal tastes,
political preferences, and values (De Dreu, 2006). While research demonstrates that appropriate
levels of task conflict can promote increased levels of performance in work group teams
(Amason, 1996; Cosier & Rose, 1977; De Wit, Greer, & Jehn, 2012; Jehn & Mannix, 2001;
Pelled, Eisenhardt, & Xin, 1999; Yang & Mossholder, 2004), relationship conflict has proved to
be dysfunctional and instrumental in diminishing team performance (Amason, 1996; Brockman,
2013; De Dreu, 2006; De Wit, Jehn, & Sheepers, 2013; Jehn, 1994; Lau & Cobb, 2010; Simons
Table 2 identifies the key authors and their contribution to the empirical work and theory building on task and relationship conflict.

Table 2 Key contributions to task and relationship conflict empirical and theoretical work

<table>
<thead>
<tr>
<th>Author</th>
<th>Contribution to conflict theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mack &amp; Synder, 1957</td>
<td>Early theorist stating conflict and its effects in general terms</td>
</tr>
<tr>
<td>Deutsch, 1969</td>
<td>Early theorizer on conflict who developed productive &amp; destructive conflict theory</td>
</tr>
<tr>
<td>Thomas, 1976</td>
<td>Seminal study on the time spent by managers in resolving conflict</td>
</tr>
<tr>
<td>Pinkley, 1990</td>
<td>Defined the perspectives by which people frame conflict based on past and present and divided into cognitive and emotional categories</td>
</tr>
<tr>
<td>Tjosvold, 1991</td>
<td>Field studied of the effects of task conflict on team performance and what increased and decreased performance</td>
</tr>
<tr>
<td>Jehn, 1995</td>
<td>Defined task and relationship conflict. Specified when task and relationship conflict are beneficial and not beneficial to the team</td>
</tr>
<tr>
<td>Amason, 1996</td>
<td>Examined how conflict types can be used to increase performance of top management teams</td>
</tr>
<tr>
<td>Simons &amp; Peterson, 2000</td>
<td>Highly cited study on the moderating effects of trust on task and relationship conflict</td>
</tr>
<tr>
<td>Jehn &amp; Mannix 2001</td>
<td>Highly cited study on the effects of task and relationship conflict on team performance</td>
</tr>
<tr>
<td>De Dreu &amp; Weingart, 2003</td>
<td>Challenged the validity of a difference between task and relationship conflict and their effects on performance, which encouraged further studies to re-establish the validity as to the distinction between the effect of task &amp; relationship conflict</td>
</tr>
<tr>
<td>Jehn &amp; Bendersky, 2003</td>
<td>Survey of conflict types and history of literature; highly cited study on differing effects of task and relationship conflict</td>
</tr>
<tr>
<td>Yang &amp; Mossholder, 2004</td>
<td>Empirical study on the role of EI to moderate task &amp; relationship conflict</td>
</tr>
<tr>
<td>Behfar, Peterson, Mannix, &amp; Trochim, 2008</td>
<td>Empirical study and theory building of the effects of task and relationship conflict on group performance</td>
</tr>
<tr>
<td>Brockman, 2013</td>
<td>First research establishing effects of interpersonal conflict in construction</td>
</tr>
</tbody>
</table>
In a team context, the task or goal of the team is obscured as the interpersonal incompatibility aspects of relationship conflict become increasingly salient, with the results proving harmful to the goals of the team (Behfar, et al., 2008; Jehn & Mannix, 2001). Workgroups and team are required to meet the organizational goals established by the managers, and these goals are typically the measurement of performance. Meeting these performance criterion of an organization is hampered by relationship conflict as team members choose to contribute less to the goals of the group as interpersonal conflict increases (Behfar, et al., 2008). In a study conducted at a large freight transportation firm among management teams and workgroups, Jehn (1995) discovered that relationship conflict caused distress and animosity among team members and encouraged withdrawal from the group and consequently effecting the performance of the group. Interpersonal conflict can result in a process of building relational and communication walls between team members and thereby lower performance based on organizational goals.

Empirical work has been conducted to discover the means by which teams actively mitigate the effects of relationship conflict in order to achieve a higher performance. Behfar, et al (2008) maintained that those teams performing at high levels during relationship conflict experienced an equity among the members where all members were contributing to the goals of the group. Behfar, et al. also found that the isolating effect of interpersonal conflict had been mitigated by those high performing teams through measures aimed at resolving the conflict and giving each member a voice in order accomplish their goal. This action by a team helps to remove the relationship conflict component and move the conflict on the team into a task conflict mode that allows members to focus on the accomplishment of the goal. Simons & Peterson
(2000) also discovered that those teams functioning in a collaborative fashion and that maintained an open-minded atmosphere to new and dissimilar ideas, where able to maximize each person’s contribution to the team and achieve higher performance levels.

Although measurement of performance levels in determining the effects of relationship and task conflict are essential, not all research has agreed that there is a difference between relationship conflict and task conflict performance levels, as some have maintained the two types of conflict are equally detrimental to performance without any distinction (De Dreu & Weingart, 2003; Jehn, 1995; Pelled, et al., 1999). Each of these researchers maintained that task and relationship conflict were equally harmful at lowering performance, De Dreu & Weingart (2003) based on a meta-analysis of previous studies conducted on task and relationship conflict, Jehn (1995) based on empirical work, and Pelled, et al, (1999) also based on empirical work. However, in subsequent empirical research, both De Dreu (2006) and Jehn & Mannix (2001) changed their previous positions and maintained that relationship conflict does hinder team performance, while task conflict at appropriate levels enhances the performance level of the team. Furthering this empirical and theoretical basis concerning the difference in performance effects between task and relationship conflict, a separate meta-analysis of 116 studies was conducted by De Wit et al., (2012). In this study, De Wit et al. maintained that performance is impacted by relationship conflict while task conflict at appropriate levels can prove beneficial to the performance of the team.

Various measurements of performance have been used empirically to evaluate performance loss resulting from relationship conflict. Amason (1996) measured the amount, timeliness, and innovation of strategic decisions and the implementation of these decisions among top managers, while De Dreu (2006) used a measurement of innovation as workgroup
teams were monitored over a one year period to discover how many complex problems were solved and the number of new ideas generated. Master of business administration (MBA) students on teams of three to four students were studied by both Behfar, et al., (2008) and Jehn & Mannix, (2001) for the effects of relationship conflict as they completed semester projects and final grades were given. At various points in the school year, student teams were surveyed to discern the level of relationship conflict in correlation with their team grades for each project and the semester. Both Behfar et al., and Jehn and Mannix found that relationship conflict was higher in those team who performed at lower levels, while relationship conflict was lower among the higher performing teams. These measurements of performance are essential to the discovery process of the real effects of relationship conflict in team performance. Without a measurement, the effects of relationship conflict in team work becomes more heuristic than actual.

Using a monetary measurement of performance, Brockman (2013) in a study examining the effects of interpersonal conflict on construction jobsites among the labor force, measured time spent on conflict and applied this to the associated hourly labor cost for the workforce personnel involved, with a resulting dollar amount of loss related to the interpersonal conflict. Though this study by Brockman was a first work of this nature related to construction, there was no distinction made between task and relationship conflict that provided a clear definition of each. Surprisingly all conflict on the jobsite was deemed interpersonal regardless of the conflict situation. Without a distinction between relationship and task conflict types, the associated effects and outcomes to each of these conflict types becomes difficult to measure accurately at best. Performance loss resulting from relationship conflict is combined with task conflict with its potential increase to the performance level, resulting in a general hypothesis that all conflict combined resulted in some type of performance loss resulting in a dollars loss for the
construction project. For the purpose of management decisions and theory development, the
distinction between relationship conflict and task conflict is essential (Simons & Peterson, 2000).
Had the conflict types been separated and defined in this study, this could have been a much
stronger contribution to the literature in examining the effects of relationship conflict in
construction.

**Outcomes of Relationship Conflict**

Several researchers have empirically tested various teams and performance criteria to
distinguish and define what the outcomes of relationship conflict are, and how these outcomes
contribute to performance loss on a team (Amason, 1996; De Wit, et al. 2013; Simons &
Peterson, 2000, Yang & Mossholder, 2004). As each of these performance measures
demonstrated a performance loss for the team resulting from relationship conflict, it is beneficial
to discuss what outcomes of relationship conflict are key contributing factors to performance
loss. Each of the outcomes of relationship conflict that will be discussed has a unique ability to
effect team performance through its distinct inhibiting factors. The three primary outcomes of
relationship conflict that effect performance loss are decision quality, lack of consensus, and
lowered commitment to the group (Amason, 1996; De Dreu & Weingart, 2003; De Wit et al.,
2013; Jehn, Greer, Levine, & Szulanski, 2008; Jehn & Mannix, 2001; Lau & Cobb, 2010;
Simons & Peterson, 2000). Decision quality is seen as essential for team success and is
dependent on cognitive functioning which can be effected by relationship conflict (Lau & Cobb,
2010; Simons & Peterson, 2000), consensus in a workgroup is necessary in the formulation of
new ideas and decision making quality (Amason, 1996, Simons & Peterson, 2000), and
commitment to the group is a key ingredient for members’ buy-in and participation in the group
(De Dreu & Weingart, 2003; De Wit et al., 2013, Jehn, et al., 2008). Each of these outcomes
resulting from relationship conflict in a team has been shown to reduce performance on the team and is worth discussing in order to have a more clear understanding of the effects of relationship conflict. As these outcomes of relationship conflict within the extant literature are examined, the goal is to apply this understanding to the construction industry with its strong propensity for adversarial conflict that often leads to relationship conflict, and ultimately discover their effect on performance and profit and provide a contribution to the literature and theory on relationship conflict in construction.

**Decision quality and lack of consensus**

Decision quality is effected by team member’s lowered cognitive functioning during relationship conflict as the cognitive resources needed to make decisions and think creatively is instead used to overcome increased anxiety produced by interpersonal friction (Amason, 1996; Jehn, 1995; Jehn & Mannix, 2001; Lau & Cobb, 2010; Simons & Peterson, 2000). In a study among 48 top management teams from small and mid-sized food processing firms nationwide, Amason (1996) found that managers experiencing relationship conflict had lower decision quality. Amason maintained that the synthesizing process of individuals’ perspectives and skills was diminished as the team encounter relationship conflict which in turn impacted the decision quality. The teams’ decision quality and implementation of their decision was also impacted by the lack of consensus in poor performing teams, since the consensus needed to make timely quality decisions was undermined as team members struggled to agree with one another. Among high performing teams, Amason found that consensus was critical in helping team members form a commitment to the decision made which in turn promoted buy-in and facilitated an effective implementation process of the decisions made. Teams that merely made a decision did not have
the high performance level of teams who achieved quality decisions and experienced consensus to the point of implementation.

Decision quality has been shown to be directly affected by a lack of information sharing in groups. In their study on relationship conflict and information sharing, De Wit et al., (2013) discovered that as team members encounter relationship conflict a rigidity in sharing information pertinent to the group’s goals is developed, and when information is shared it is done in a biased manner. This has a direct effect on the decision quality of the group as information that is necessary for timely, quality decisions is withheld or biased when relationship conflict is present. Mesmer-Magnus and DeChurch, (2009) maintained that through information sharing small groups and teams expand the available pool of information and skills and thereby increase the likelihood of quality decision making. Sharing uniquely held information is directly related to quality decision making and team performance through both the information pool increase and a positive increase in the relational climate of the team (Mesmer-Magnux & DeChurch, 2009).

**Lowered commitment to the group**

Commitment to the group as a result of team member satisfaction is an important attribute for high performing teams and a means to help prevent the costly consequences of employee turnover (O'Connell & Kung, 2007; De Dreu & Weingart, 2003). Although task conflict has been shown to increase group commitment and satisfaction through participation in the decision process (Simons & Peterson, 2000; Jehn & Mannix, 2001), relationship conflict was found to consistently lower commitment to the group, team member satisfaction, and the likelihood of working together again (De Dreu & Weingart, 2003; Jehn, 1995; Jehn & Mannix, 2001; Ren & Gray, 2009; Simons & Peterson, 2000). In a study of an international freight company where 633 employees were formed into 29 management teams and 79 workgroups,
Jehn (1995) discovered that relationship conflict caused distress and animosity among the lower performing groups, and encouraged withdrawal from the group. In a similar study of 100 U.S. hotel CEO’s, Simons and Peterson (2000) found that relationship conflict lowered management team members’ commitment to the group and satisfaction with the group and consequently lowered the teams’ performance level as measured in decision quality.

Relationship conflict’s effect on member satisfaction and commitment to the group is a practical consequence resulting from the relational walls that relationship conflict creates. The interpersonal aspect of relationship conflict has the consequence of eliciting a negative response between team members and creating a barrier of dissatisfaction with the workgroup environment and therefore putting team performance and likelihood of working together again at risk (De Dreu & Weingart, 2003; Jehn & Mannix, 2001). The intensity of the relationship conflict and the participants past experience with relationship conflict, both on the team and prior to the team (Pinkley, 1990), will be a determining factor as to their ability and willingness to stay on the team even though their satisfaction with the team is lowered. Though the relationship conflict outcomes of lowered decision quality, lack of consensus, and lowered commitment to the group are negative and have significant impact on team performance, there are moderators that help mitigate the effects of these outcomes of relationship conflict.

**Moderators to negative outcomes of relationship conflict**

**Trust**

Trust is an essential and foundational bond in relationships, both personal and business relationships, takes time and consistency to build, and is easily torn down when relationships are relatively new. Trust has been defined as the willingness to risk, by placing one’s self in a vulnerable position, with the positive expectation that someone else will do something to fulfill a
beneficial act of commitment (Kramer & Lewicki, 2010). The attribute of trust as posited by Kramer and Lewicki (2010) is a vital ingredient for the health of organizations in conducting transactions and growth, and without trust the disruption to the life of the organization is costly.

Within relationship conflict literature, the issue of trust building has garnered significant attention among researchers as a moderator to relationship conflict due to its substantial effect of building and maintaining cohesion between team members (Lau & Cobb, 2010; De Dreu & Weingart, 2003; Jehn & Mannix, 2001; Korsgaard et al., 2002; Simons & Peterson, 2000). Among examples of trust moderating relationship conflict, Korsgaard et al. (2002) found that as negative relational encounters occur a sense making process is initiated by the disputants to discover the reasons for the other person’s behavior. Korsgaard et al. also found that when trust had been previously established between the team members through open communication and showing concern for others, it serves to lessen the effects of the relationship conflict and help the participants involved make sense of the situation.

In a seminal article examining the moderating effect of trust on task and relationship conflict, Simons and Peterson (2000) maintained that trust moderates the detrimental effects of relationship conflict and was also found to inhibit the misattribution of task conflict as relationship conflict. This misattribution process was reported as team members experienced an escalation of conflict while working on team tasks that resulted in harsh language and intimidating tactics. Simons and Peterson argued that trust is the central component preventing this from happening. In a more recent study aimed at understanding the moderating effects of trust among team members, Lau and Cobb (2010) studied two types of trust among team members, calculus based and relationship based trust. Lau and Cobb found that the former is a functional type trust based on team members’ fulfillment of tasks, while the latter is centered in
interpersonal ties and more likely to resist the effects of relationship conflict. This relationship based trust is the type of trust referred to by Kramer and Lewicki’s (2010) in their assertion that trust is a vital ingredient for the health of organizations, and is also a valuable moderator to help offset the damaging effects of relationship conflict.

**Emotional Intelligence**

Though less studied as a moderator of relationship conflict than trust, emotional intelligence—the ability to manage one’s emotions and effectively manage other’s emotions to facilitate problem solving and decision making (Salovey & Mayer, 1990)—has been examined as a moderator of relationship conflict (Ayoko, Callan, & Hartel, 2008; Jordan & Troth, 2004; Sunindijo & Hadikusumo, 2013; Yang & Mossholder, 2004). Since the managing of one’s emotions is central to emotional intelligence, Yang and Mossholder (2004) suggest that emotional intelligence is a key variable in maintaining strong relational ties within a team environment, and these strong relational ties help build trust which in turn mediates the effects of relationship conflict. Jordan and Troth (2004) maintained that emotional intelligence was instrumental in reducing job related tensions such as anger and anxiousness among associates. They further stated that as a result of high emotional intelligence levels, these associates were more adept at using collaborative problem solving tactics with other team members and therefore reduced relationship conflict related to the task at hand.

In the construction industry, project managers have a significant impact on the flow of a building project and on conflict that arises. Sunindijo and Hadikusumo (2013) in their study of project manager’s emotional intelligence and its effect on conflict resolution discovered that project managers with high levels of emotional intelligence verses project managers with lower levels, were able to more readily adjust their conflict resolution style when conflict was present.
in order to appropriately diffuse potentially damaging situations. This field study of emotional intelligence as a moderator of conflict in construction is a good example of the benefits of emotional intelligence for mitigating the effects of relationship conflict.

As research, theorizing, and application on the topic of emotional intelligence has progressed beyond Salovey and Mayer’s (1990) original definition and theory, debate within the literature has ensued regarding emotional intelligence on three main issues: the soundness of the construct as a valid test of the intelligence of one’s emotions (Conte, 2005; Locke, 2005; Daus & Ashkanasy, 2005), what is a standard measurement of emotional intelligence (Mayer, Caruso, & Salovey, 2000; Daus & Ashkanasy, 2005), and what is an agreed upon definition (Conte, 2005; Locke, 2005; Mayer et al., 2000). Research proponents of emotional intelligence have adequately answered the challenge to the theory, definition, and validity of the construct (Daus & Ashkanasy, 2005; Mayer et al, 2000), and have continued to progress in testing the theory and application of the construct in the business world. These studies have tested emotional intelligence as a key ingredient of good leadership (George, 2000; Jones & George, 2006; Goleman, 2000), of growing as a manager (Carmeli, 2003; Goleman, 1995, Goleman 1999), and being a good team member (Carmeli, 2003), all of which have an impact on the mitigation of relationship conflict.

**Task and Relationship Conflict in Construction Management Literature**

Research involving task and relationship conflict effects and outcomes, definitions and theory building has been highly published in the psychology and management literature. In contrast, construction management literature is extremely sparse on the topic of task and relationship conflict. Though construction is known as a breeding ground for conflict (Anderson & Polkinghorn, 2008) and this conflict is inevitable, frequent, and can be severe (Harmon, 2003;
Kassab et al., 2006; Ock & Han, 2003), the literature examining conflict in construction centers primarily on contractual disputes that lead to mediation, arbitration, or litigation with little discussion about relationship conflict or its outcomes (Anderson & Polkinghorn, 2008; Harmon, 2003; Hinze, 2001; Kassab et al., 2006; Meredith & Mandel, 2006; Ritz, 1994). This focus on contractual disputes and their resolution has resulted from the high cost associated with contractual disputes and the impact they have on schedule, profit, and future business relationships (Harmon, 2003, Ng, Pena-Mora, Tamaki, 2007; Ock & Han, 2003). The cost of litigation and arbitration in the construction industry has been difficult to quantify due to the proprietary nature of the construction industry that maintains a very private intra-firm hold on its financial cost (Gebken & Gibson, 2006). Estimates of litigation for construction claims have been estimated at $10 billion (Harmon, 2003), and costs for alternative dispute resolution (ADR) is estimated at 4% to 51% of contract costs by the American Society of Civil Engineering (Jones, 2006), which has proved to be substantial with many contracts ranging from a few million to billions. These costs have a dramatic impact on the profitability of the construction industry and are the basis for the focus on contractual disputes by the industry. Yet, this focus has created a short sightedness in the construction industry as to the antecedents of these costly contractual disputes as found in relationship conflict (Brockman, 2013).

In construction projects there is often an adversarial relationship that develops between contracting parties (owner, contractor, engineer, subcontractors) resulting in a loss of time, money and quality on a construction project (Anderson & Polkinghorn, 2008; Ning & Ling, 2013). This adversarial relationship between parties most often occurs as a result of disputes over construction document errors, unforeseen site conditions, scope changes, weather delays, material and equipment delays, low profit margins, and poor communication (Anderson &
Polkinghorn, 2008; Harmon, 2003; Kassab et al., 2006). Disputes over these and other issues on a construction project will usually lead to some type of dispute resolution based on stipulations in the contract between the parties (Harmon, 2003).

Most parties involved in disputes will first attempt a resolution through the ADR process using either: negotiation, mediation or arbitration (Harmon, 2003). This allows for binding or non-binding ADR procedure through mediation or arbitration, which can facilitate a significant savings in time and money. Mediation is less formal than arbitration and the first choice to a quick resolution. If at an impasse, the parties can move on to arbitration which is a more formal method of dispute resolution than mediation. If non-binding ADR is chosen, the option is still open for the more costly process of litigation through the court system (Clarkson, Miller, Jentz & Cross 2006). This is and has been the primary method for resolving conflict between parties in construction with little examination of the effects of relationship conflict (Brockman, 2013).

To help mitigate the inherent conflict between contracting parties in construction, relational contracting has been advanced (Jones, 2006; Kumaraswamy, Ling, Rahman, & Phng, 2005; Ning & Ling, 2013) as a means to moderate the effects of adversarial tendencies in construction. Relational contracting promotes trust, open communication, and team work among contracting parties with a reliance on the relationships between the parties in the form of informal agreements as the foundation for the business relationship, rather than merely doing business as contracting parties. This is accomplished by the contracting parties building relationships with each other so that contractual conflicts may be preempted or softened. Though relational contracting may help lessen the inherent adversarial atmosphere and deal with some of the complications resulting from conflict in construction, this process is limited in its application by the relational experience and health of the contracting parties (Ning & Ling, 2013).
Partnering has also been promoted as a means to lessen the adversarial atmosphere among contracting parties that so often leads to litigation and results in loss of time, money and quality (Anderson & Polkinghorn, 2008; Gardiner & Simmons, 1998; Harmon, 2003). The main tenants of partnering centers on a long-term commitment between parties (owner, contractor, architect, engineers, subcontractors) for the purpose of getting the most benefit from each parties contributions to the project (Anderson & Polkinghorn, 2008). This contractual relationship may reduce the inherent conflict in a construction project through open communication and trust that is built over time, yet there are limitations due to the uniqueness of each project and its participants (Harmon, 2003).

Most recently in an article by Brockman (2013), the effects of interpersonal conflict on performance at the jobsite were examined. Jobsite work force were interviewed for conflict episodes and their estimate of how much time the conflict required. A cost per hour was associated with each worker based on their position and skill level. This research contributes to the learning on conflict in construction and how it effects performance and profit, but there are limitations. Though the study showed the financial effects of relationship conflict, there was no clear distinction made between task conflict and relationship conflict. Much of the conflict described in the article by definition would be task conflict and therefore examined differently according to past research. Brockman’s article is a good starting point in the discussion about interpersonal conflict and its effect on costs, but a distinction between conflict types is necessary in order to accurately assess the effect of the conflict under consideration.

Summary

Amason (1996) maintained that there must be a separation between task conflict and relationship conflict, with the former being encouraged in order to promote performance and the
latter discouraged and avoided so that performance is not hindered. While task conflict is beneficial to the group and cognitive in nature, in contrast, relationship conflict is interpersonal and may or may not have any connection to the goal of the team or the cognitive components associated with the task at hand (Pondy, 1967). Relationship conflict has proved to be detrimental to the performance of a team and dysfunction in its effect on relationships within a team. The outcomes of relationship conflict are loss of decision quality, lack of consensus, and lowered commitment to the group and are the tangible measurements of the effects of relationship conflict. Yet trust and emotional intelligence have been studied as moderators to relationship conflict and proved beneficial in mitigating the effects of relationship conflict.

The construction industry has done little to recognize and examine the effects of relationship conflict, but has primarily focused on the end results of conflict which is contractual disputes. These disputes go through either an alternative dispute resolution process (ADR) or to litigation and have been costly for the construction industry. Distinguishing between task and relationship conflict in construction and examining the effects of relationship conflict will be beneficial for the industry and is the goal of this research.
CHAPTER THREE
RESEARCH METHODS

Research Design

Methodology

The research question posed for this study is: “How does relationship conflict in construction management affect performance and profit?” In order to study the complex topic of relationship conflict in construction management and its effect on performance and profit in the construction industry, the qualitative method approach of grounded theory was chosen. Qualitative methods are needed to support the research effort on this topic and are most appropriate when there is a complex topic of study that needs to be understood in its context through the voices of the participants, and is particularly useful when no prior research exist examining the topic (Creswell, 2007; Jones, 2009). Charmaz (1996) promoted the use of grounded theory approach particularly when there are interpersonal relations needing to be studied in conjunction with individual experiences of cooperation and conflict experienced between individuals and social groups. It is also most useful when the researcher has an experiential understanding of the research topic and needs close and direct interaction with the participants as a means to understand and grasp their story within its natural setting (Corbin & Strauss, 2008).

The primary goal of grounded theory is theory development or the extension of existing theory to explain a particular phenomenon or specific aspect of life experienced by a group or population that is grounded in and brought forth from the data itself (Lingard, Albert, & Levinson, 2008; Strauss & Corbin, as cited in Groat & Wang, 2013). This is not merely a
descriptive process, but an explanatory effort aimed at explaining the phenomenon under study through an analysis of the data, as can be seen in the following definition:

In this method, data collection, analysis, and eventual theory stand in close relationship to one another. A researcher does not begin a project with a preconceived theory in mind (unless his or her purpose is to elaborate and extend existing theory). Rather, the researcher begins with an area of study and allows the theory to emerge from the data….Grounded theories, because they are drawn from data, are likely to offer insight, enhance understanding, and provide a meaningful guide to action. Strauss and Corbin (as cited in Groat & Wang, 2013, p. 235).

This process was conducted in an iterative systematic approach that moved back and forth between data collection—which was primarily interviews, memoing, and data analysis to ensure a distinctive cohesion between the research question and theory development through a constant effort of comparison (Charmaz, 1996; Lingard, et al., 2008; Mills, Bonner, & Francis, 2006; Morse, Barrett, Mayan, Olson, & Spiers, 2002). Due to the complex topic, the experience of the researcher with the topic, the systematic iterative process of grounded theory, and lack of prior research explaining the phenomenon, the grounded theory approach was the most appropriate research method for this research topic.

The grounded theory systematic procedures approach of Corbin and Strauss (2008) was used for this study. Grounded theory utilizes a systematic hierarchical coding and categorizing of the interview data in conjunction with memoing, reflection, and analyzing for the purpose of theory development or the extension of existing theory. The process involves coding the transcribed interviews into categories and layers of subcategories and combining the categories through conceptualizing, organizing and making abstract connections, to form an overarching
explanatory concept that theoretically explains the phenomenon being studied (Corbin & Strauss, 2008; Glaser, 2004). Prior theory based in literature is used as an additional data source that is integrated into the coding and categorizing process (Glaser, 2004). This is an iterative process with the aim for this study being elaboration and extension of existing theory that explains the participant’s shared phenomenon of relationship conflict in construction (Corbin & Strauss, 2008; Strauss & Corbin, as cited in Groat & Wang, 2013).

Grounded theory also advocates the benefit of the researcher’s experience with the topic as a tool of sensitivity to better understand the phenomenon within its context (Corbin & Strauss, 2008). At the same time, researcher bias must be guarded against through a maintenance of objectivity when there is prior experience with the topic. This was accomplished by not imposing the researcher’s experience on the data, but using the experience to help consider other possibilities of meaning for the data, rather than a face value consideration. In addition, reflection on interviews were recorded in memos following each interview to help the researcher maintain a degree of distance from what was said. Memos recorded in a journal immediately following each interview included asking questions, making observations, and with a critical eye reflecting on the participant, what was said, and why. This process helped the researcher keep the perspective of an observer and enabled the researcher to maintain distance, think, reflect, and record objectively observations of the recent interview with a minimal degree of bias (Corbin & Strauss, 2008; Mills, et al, 2006). And a final means of reducing researcher bias was through the use of a data analysis program, MAXQDA 11. This program helped identify, group, and connect common themes within the data which was instrumental in forming the categories used in answering the research question and will be explained further in chapter four.
Within the construction industry a grounded theory study was conducted by Loosemore (1999) to examine the topic of crisis management during a construction project. In this study it was revealed that construction projects enter into a crisis mode when what actually transpires is significantly different than what was planned in the course of a construction project. Grounded theory was well utilized to discover how the communication and behavior of the participants effected the efficiency of response to the crises. Within this study, observations, diaries and interviews were used to collect data with theory development resulting from the study that was solidly based in the data (Loosemore, 1999). This is a good and relevant example of grounded theory being used in a construction setting where cooperation and interpersonal conflict are experienced and theory development is produced (Charmaz, 1996).

**Instrument**

To examine the effects of relationship conflict in construction management, the instrument used for data collection was the researcher. This method of data collection is in keeping with qualitative method used for grounded theory research (Charmaz, 1996; Glaser, 2009). To this end, the researcher developed the interview questions, made the initial contact with each of the participants, and conducted and recorded each of the interviews. The researcher’s experiential background consisting of a career in construction helped provide a framework by which to formulate interview questions in keeping with the culture of construction (Corbin & Strauss, 2008). The construction experience of the researcher provided useful in examining the complex issue of relationship conflict in construction. A novice to the construction industry may have a lens that is less biased, but also may have significant shortcomings in the area of under study due to the complexity of the construction industry.
For this topic of research, experience can be used to grasp the significance of what is said by participants and what avenues to pursue during interviews (Corbin & Strauss, 2008). Experience is therefore seen as a unique asset for the purpose of this study on relationship conflict in construction management. At the same time, a vigilance is necessary to guard against assumptions and projecting one’s own experience into the research data, rather than letting the data speak for itself and using the lens of experience to aid in the interpretation process. In this vein, the goal with respect to the researcher’s experience is to recognize bias while maintaining objectivity (Corbin & Strauss, 2008; Mills, Bonner, & Francis, 2006)

**Interview questions**

Interview questions were initially developed (see Appendix B.1, B.2, B.3) to facilitate the participants telling their story in their own words, to encourage them to tell what was important to them, and to help uncover relevant information on the topic (Corbin & Strauss, 2008; Wolcott, 1995). Over the course of the first few interviews, the questions were slightly modified to more accurately encourage the participants to explain their story with relationship conflict. Following each of the first interviews, the researcher reflected on the interview through memo writing concerning the participant’s coverage of the topic and the depth to which it was covered. Some questions were then modified for clarity, others eliminated due to irrelevance to produce fruitful data, or added to help encourage better focus on the topic. These changes to the questions helped to facilitate the participants covering the topic in breadth and depth. This process of question development is essential to help the researcher wisely use the interview time by asking relevant questions and pursuing portions of stories that provide the most accurate information (Corbin & Strauss, 2008; Creswell, 2007; Charmaz, 1996).
Population, sample, and setting

The population for this study was the construction industry’s professionals in positions of leadership and management. To understand the effects of relationship conflict within the population of construction management, a purposeful sample representative of the construction industry’s management and leadership was chosen. This sample consisted of superintendents, project managers, senior project managers, and project executives. Superintendents typically schedule the work processes involving subcontractors, employees and materials at the jobsite, and are ultimately responsible for the construction, quality and scheduling of the project. Project managers conduct what is called buy-out prior to beginning a construction project, which is a process of initiating all contracts with subcontractors and suppliers. This enables them to maintain constant oversight of the budget for a project and continues throughout the duration. They also work closely with the superintendent. Senior project managers typically manage two or more project managers and projects. Project executives are upper level managers of larger companies with responsibility for the success of the company and who oversee project managers, hire mid-level management personnel, and pursue business relationships with owners who are looking to build. Each of these positions represent different aspects of management in the construction industry and are a prime source of information about relationship conflict in construction management.

Following approval by the IRB at Washington State University, the participants were contacted through a list provided by the industry sponsored professor at Washington State University, and another list provided by the advisor for this doctoral research. The industry sponsored professor provided more than 50 contacts, while the researcher’s advisor provided eight. Criteria for participants was based on sufficient size of the company to warrant a project
management team, good reputation, and quality of work. As far as the researcher knew, none of the participants had any personal knowledge of the research being conducted prior to being contacted by the researcher, and none had been contacted by anyone doing research from Washington State University.

For this study, 25 interviews were conducted with superintendents, project managers, senior project managers, and project executives of 18 Northwest construction firms. The firms ranged in annual gross contracts from $1 million to $4.5 billion, with mean gross sales for all 18 firms at $556 million, and median gross sales at $90 million. Commercial construction was the primary focus of 13 of the 18 firms, one firm built only high end custom homes, and 4 firms were subcontractors: drywall, HVAC (heating, ventilation & air conditioning), excavation, and tunnels and underground utilities. The firms had offices in Seattle, Portland, and Spokane with the largest firm having more than 30 offices nationwide.

The participants consisted of three superintendents, 11 project managers, three senior project manager, and eight project executives. The interviews were conduct face to face and over the phone, with 20 of the interviews being conducted face to face and five over the phone. All 25 interviewees were male with tenure in their jobs ranging from five years to 41 years and the mean tenure being 20.4 years. The lack of gender mix in the sample group is a short coming of the study. The contacts provided were all male except for one, who initially responded but upon further emails to set up the interview stopped responding. Subsequent research on this topic would benefit from female participants participation in the study.

Of the 25 participants, three had no undergraduate degree and had worked up through the system as first a laborer, then carpenter and superintendents, with all three moving up to project managers. Of the other 22 participants, 20 had undergraduate degrees in construction
management, one in finance, and one in civil engineering. Of the 22 participants with undergraduate degrees, four had started as assistant superintendents and eventually moved to project managers, while 11 had started as project engineers (which is an assistant project manager) and three had moved to the project manager position and eight had moved into the project executive role. (See Table 3)

Table 3

Participant demographics

<table>
<thead>
<tr>
<th>Total Participants: 25</th>
<th>Total Firms: 18</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positions held:</td>
<td>Gross contract value (millions):</td>
<td>Initial contact:</td>
</tr>
<tr>
<td>Superintendent 3</td>
<td>$1 to $80: 9</td>
<td>By phone: 8</td>
</tr>
<tr>
<td>Project Manager 11</td>
<td>$150 to $610: 7</td>
<td>Interview made: 5</td>
</tr>
<tr>
<td>Senior Pr. Manager 3</td>
<td>$2500 to $4500: 2</td>
<td></td>
</tr>
<tr>
<td>Project Executive 8</td>
<td>Average age: 42.2 years</td>
<td></td>
</tr>
<tr>
<td>Average Tenure: 20.4 years</td>
<td>Average annual gross contract:</td>
<td>Initial contact:</td>
</tr>
<tr>
<td>Tenure Range: 5 to 41 years</td>
<td>$556 million</td>
<td>By email: 39</td>
</tr>
<tr>
<td>Gender: male: 25</td>
<td>Type of construction:</td>
<td>Interviews made: 20</td>
</tr>
<tr>
<td>Education:</td>
<td>Commercial: 22</td>
<td>Over phone: 4</td>
</tr>
<tr>
<td>Undergraduate degree: 22</td>
<td>Multi-Family: 2</td>
<td>Face to Face 21</td>
</tr>
<tr>
<td>Entered construction industry:</td>
<td>Residential: 1</td>
<td>Through labor force: 4</td>
</tr>
<tr>
<td></td>
<td>Through management position: 21</td>
<td></td>
</tr>
</tbody>
</table>

The first five participants were contacted by phone and the remainder by email (see Appendix A). In the phone and email invitation, the researcher was identified by his connection to Washington State University and the construction management program. Following this, a description of the research focus was given along with an invitation to participate in a 30-40 minute interview. Eight phone contacts resulted in five phone interviews, and 39 emails were sent resulting in 20 participants responding and setting up appointments for interviews.
Setting

The interviews were conducted in various venues, four were over the phone, and 21 were face to face in private settings. All interviews were conducted privately with no one but the participants and researcher participating. In the initial contact it was stated that the interview would be 30-40 minutes, but only two interviews were in that time range, with the remaining interviews ranging from 40-65 minutes.

Data collection

Data collection was conducted through the interviews with each of the 25 participants which were digitally recorded, transcribed, and entered into MAXQDA 11 for data analysis. The interviews were conducted in an open-ended manner with a minimum of questions asked to allow the participants the most freedom to recall and explain their experience with relationship conflict in construction. Each interview began with permission to digitally record the conversation and an explanation of the topic and consent form, after which the participants were asked to sign. Following the signing of the consent form, each participant was asked to explain their history in construction which typically helped them relax and initiate the cognitive recall process. After each interview memos were written to capture the impressions and thoughts of the researcher regarding what was spoken and unspoken by the participant (Corbin & Strauss, 2008). Reflection on the memos provided insight and ideas to further develop the questions in order to better mine down into the participants recollection of experiences related to relationship conflict in their construction experience. These memos do not add to the data of the interview, but are a reflective and interpretive instrument to help the researcher understand meaning within the interview event in relationship to what was spoken and unspoken by the participants (Corbin & Strauss, 2008).
During the interview appointments, events of relationship conflict were remembered by encouraging the participant to recall a specific instance of relationship conflict in their construction experience, who was involved, and where it happened (Schwarz & Oyserman, 2001). Most participants remembered relationship conflict events quite well, but in those instances where they struggled to recall an episode clearly, mining in with the use of this tactic was beneficial. This made the event more salient as they remembered who was involved, where it happened and what happened.

The researcher had no prior experience conducting interviews for a qualitative grounded theory study. However, extensive past experience in the construction industry was beneficial in relating to the participants answers and mining in to get a fuller and more accurate response to the topic. Also, past experience was useful in observing what was unspoken as participants recalled relationship conflict events.

**Data Analysis**

The qualitative data analysis process used for this study is consistent with established data analysis methods used for grounded theory approach as delineated by Corbin and Strauss (2008). Each of the 25 interviews was transcribed, three by the researcher for experience and due to difficulty resulting from background noise of a coffee shop, and the remaining 21 were transcribed through a contract with Elance, a transcription service. The sample size of 25 interviews fits within the recommended 20-30 interviews typically needed in order to achieve a saturation point with the data (Creswell, 2007; Corbin & Strauss, 2008). Reaching the saturation point results in hearing the same type of story over and over, which provides evidence that there is no more to add to the data on the topic and that the data obtained will provide results that adequately represent the sample (Creswell, 2007; Corbin & Strauss, 2008). After transcription,
each of the 25 interviews were loaded into MAXQDA 11 software for data analysis. This software is recommended by Corbin and Strauss (2008) and was found to be very user friendly for the coding, categorizing, and memoing process.

Data analysis for the grounded theory approach entailed a coding and categorizing process in order to develop a core category and theory extension that explains the shared experience of the participants (Corbin & Strauss, 2008). Coding has three components: open coding, axial coding, and memoing. Open coding involved studying the transcripts line by line, asking questions and reflecting, recognizing comparisons and connections between the data, developing concepts to denote the data, and attributing codes or descriptive phrases to sections, phrases, or sentences that described the concept observed (Charmaz, 1996; Corbin & Strauss, 2008; Mills et al., 2006). Throughout the open coding process memoing took place to record ideas, questions, and reflections on the transcripts which was used to further develop and define concepts within the data (Charmaz, 2006; Corbin & Strauss, 2008).

Axial coding is a process of identifying relationships between the concepts identified in open coding and grouping them into categories. Following open coding, the axial coding process was used to categorize concepts according to identified relationships between the concepts, which resulted in groups of concepts forming into categories (Corbin & Strauss, 2008; Mills, et al., 2006). During axial coding, memos continued to be written as a means of capturing the researcher’s questions, reflections, and ideas about the data and the connections between the concepts. After axial coding, a process of integration was initiated in which the categories formed from the concepts identified in open coding and axial coding were connected together to form one core category (Corbin & Strauss, 2008). This core category with its supporting sub-categories made up of concepts derived from the data was then used in the development of a
theory explaining the phenomenon which will be detailed in the research findings of chapter four.

**Reliability and Validity**

Verification involves the process of applying the use of appropriate research tools to incrementally and iteratively ensure reliability and validity so that there is an assurance of rigor in the study (Morse, et al., 2002). Reliability refers to the trustworthiness of the interview data and process, known as procedural trustworthiness, and validity involves the trustworthiness of the interpretation of the data (Stiles, 1993). To enhance validity, the transcription of each interview was emailed to the participants for their verification as to accuracy. Of the 25 transcripts, 11 participants responded and three of the 11 clarified and added to their transcript.

For this study, the five verification strategies of Morse, et al. (2002) have been followed: methodological coherence, sampling sufficiency, collecting and analyzing data concurrently, thinking theoretically, and theory development. Methodological coherence, which refers to harmony between the research question and methods used, was achieved through the alignment of the research question and the choice of interviews as a means of data collection. This promoted an iterative process for question development that helped produce questions which most accurately allowed participants to tell their story and cover the topic (Corbin & Strauss, 2008; Morse et al., 2002). Sampling sufficiency ensures both an appropriate sample representing those who have knowledge of the topic and that sufficient data has been collected to provide saturation of the categories. The choice of sample (firms of size and quality with project management teams) within the population provided participants who posed a depth and breadth of experience on the topic. The transcribed interviews produced a rich data collection that saturated the categories needed for theory development.
The activity of collecting and analyzing data concurrently was maintained throughout the data collection process. Following each interview a time was devoted to memoing in order to retain those thoughts and ideas that were perceived during the interview. These memos were used to further develop questions over the first few interviews, and also provided interpretive data that was used during the coding and theory development (Corbin & Strauss, 2008; Morse et al., 2002). Thinking theoretically, is a perspective involving a macro-micro view that analyzes data, takes memos, and continually checks and rechecks to assure consistency from the small to big picture so that a firm theoretical foundation is built (Morse, et al., 2002). This framework was adhered to from the start of the literature search, through question development and data collection as the researcher focused on each individual interview and question and then stepped back to see how the small piece fit into the big picture.

The final verification strategy, theory development, is an integrative and interpretive process of moving from micro to macro views using the concepts developed from the raw data, and placing these concepts into a logical explanation of the shared experience of the participants (Corbin & Strauss, 2008). The development and extension of theory will be explained in detail in the discussion of the results.

**Ethical Considerations**

An IRB approval was granted prior to any interview or contact with participants. As each participant was contacted for an interview following IRB approval, the choice to participate was extended to them as the appointment was set up. At the start of each interview, a consent form (see Appendix C) was first explained by the researcher, and in some cases also read by the participant. Each participant signed and dated the consent form. The phone interview participants each gave permission to the researcher to conduct the interview after the consent form was
explained. The researcher explained to each participant that no connection between their name and interview would be identified in any form. The research write up and handling of the data would provide complete anonymity and confidentiality for them.

Each interview was conducted in private both to facilitate freedom of open and honest sharing of their experiences, and to protect the participant’s privacy. At any time during the interview a participant could choose to not answer or stop the interview. The researcher as the instrument communicated clearly at the start and end of each interview appreciation for their time and participation, and that complete confidentiality would be maintained.
This grounded theory research examined the effects of relationship conflict, as distinct from task conflict, on performance and profit in construction management through 25 interviews with construction management professionals conducted in 18 northwest construction firms. The research question under study was: “How does relationship conflict in construction management affect performance and profit?” This chapter will provide a presentation of the data collected through interviews, results from the data analysis and findings of the study.

The researcher’s interest to study this topic results from experience in the construction industry with relationship conflict both on a personal level and by watching and discussing the experiences of others. During a career in construction many events of relationship conflict with varying effects were encountered which has lead the researcher to examine this topic with two main motivations. First, the construction industry is becoming increasingly aware of the negative effects of relationship conflict, yet there are few clear solutions to mitigate the conflict and function at a healthy level. Because of the industry’s awareness of the problem and the lack of clear solutions to mitigate relationship conflict, a pressing need exists to examine the topic and provide relevant insight and solutions to the construction industry. Second, there is no scholarly literature examining the problem of relationship conflict in construction management and its effects on performance and profit, which reveals an opening in the literature that this research will fill.

The researcher’s background in the construction industry was a strength brought to the research study in the way of insight and understanding into the topic and participants’
experiences, and placed the researcher as an insider in relationship to the topic, participants, and culture of construction. Having experienced the topic first hand and viewed others as they experienced it combined with experiential understanding of the construction industry has provided a background from which to examine the topic. At the same time, this experiential background can potentially weaken the objectivity of the researcher due to familiarity with the topic and culture of construction. To help maintain objectivity during the process of data gathering and analysis, a continual effort was made to guard against assumptions based on experience and an effort was made to treat the data with a fresh and clear perspective as described in chapter three (Corbin & Strauss, 2008; Mills, Bonner, & Francis, 2006).

The sections of this chapter will include: a description of the sample, the research methodology applied to the data analysis, a presentation of the data and results of the analysis, and a summary of the answers to the research question.

**Description of sample**

The participants were male construction management professionals of Pacific Northwest construction firms ranging in job tenure from five to 41 years, and in age from 28 to 62 years. The management positions held by the participants were three superintendents, 11 project managers, three senior project managers, and eight project executives, with 22 of the 25 participants holding an undergraduate degree. The least job tenure for any participant was five years with the mean being 20.4 years, and the mean age was 42 years. A superintendent is represented by an S designation, a project manager by a P, and senior project manager who manages more than one project manager is designated by a SP. Project executives manage several project managers, pursue new business development, conduct preconstruction services and project operations, and manage the company at the highest level. These individual are
designated with an E. Table 4 provides demographic information for both the participants and their firms.

Table 4  Participant and firm demographics

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Years in Construction</th>
<th>Management Position</th>
<th>Gross Annual Contracts</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.1</td>
<td>54-62</td>
<td>34</td>
<td>Superintendent</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.1</td>
<td>36-40</td>
<td>16</td>
<td>Project Executive</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.1</td>
<td>45-53</td>
<td>30</td>
<td>Project Manager</td>
<td>Below $5 M</td>
<td>No Degree</td>
</tr>
<tr>
<td>P.2</td>
<td>54-62</td>
<td>36</td>
<td>Project Manager</td>
<td>$8 M-$25 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.3</td>
<td>28-32</td>
<td>9</td>
<td>Project Manager</td>
<td>$50 M - $80 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.2</td>
<td>36-40</td>
<td>18</td>
<td>Project Executive</td>
<td>$8 M-$25 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>S.2</td>
<td>28-32</td>
<td>8</td>
<td>Superintendent</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.3</td>
<td>54-62</td>
<td>35</td>
<td>Project Executive</td>
<td>Above $2 B</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.4</td>
<td>28-32</td>
<td>7</td>
<td>Project Manager</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>SP.1</td>
<td>45-53</td>
<td>23</td>
<td>Project Manager</td>
<td>$8 M-$25 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.5</td>
<td>28-32</td>
<td>7</td>
<td>Project Manager</td>
<td>$100 M – 250 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.6</td>
<td>54-62</td>
<td>34</td>
<td>Project Manager</td>
<td>$50 M - $80 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.4</td>
<td>36-40</td>
<td>18</td>
<td>Project Executive</td>
<td>$100 M – 250 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.7</td>
<td>54-62</td>
<td>36</td>
<td>Project Manager</td>
<td>$50 M - $80 M</td>
<td>No Degree</td>
</tr>
<tr>
<td>P.8</td>
<td>54-62</td>
<td>41</td>
<td>Project Manager</td>
<td>$50 M - $80 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.5</td>
<td>28-32</td>
<td>10</td>
<td>Project Executive</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>P.9</td>
<td>28-32</td>
<td>5</td>
<td>Project Manager</td>
<td>$8 M-$25 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>S.3</td>
<td>36-40</td>
<td>18</td>
<td>Superintendent</td>
<td>$8 M-$25 M</td>
<td>No Degree</td>
</tr>
<tr>
<td>SP.2</td>
<td>36-40</td>
<td>18</td>
<td>Sr. Project Manager</td>
<td>$50 M - $80 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.6</td>
<td>36-40</td>
<td>18</td>
<td>Project Executive</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.7</td>
<td>36-40</td>
<td>18</td>
<td>Project Executive</td>
<td>Above $2 B</td>
<td>4 year degree</td>
</tr>
<tr>
<td>SP.3</td>
<td>45-53</td>
<td>31</td>
<td>Sr. Project Manager</td>
<td>$100 M – 250 M</td>
<td>4 year degree</td>
</tr>
<tr>
<td>E.8</td>
<td>36-40</td>
<td>17</td>
<td>Project Executive</td>
<td>$400 M - 610 M</td>
<td>4 year degree</td>
</tr>
</tbody>
</table>
Because the goal of this study was to understand relationship conflict and its effects in the construction management setting, the labor force was not interviewed. The perspective of the labor force and management would vary widely in relationship to causes, outcomes, and means to mitigate relationship conflict. Also the labor force has very little contact with the owner and architect who are primary stakeholders in any construction project. Therefore, management personnel were selected as participants.

Since the focus of the research question is relationship conflict among construction management professionals, the criteria for inclusion in the study was a management position of at least five years in a construction firm of sufficient size to employ management professionals. Five years in the industry provided enough experience with the different phases of projects and various stakeholders, and to experience different levels of relationship conflict. Average gross annual contracts are an indicator of a firm’s size and indicative of the need for construction management professionals.

The mean gross annual contracts for all 18 construction firms was $556 million and the median $90 million, which provided suitable size for projects and management personnel. All 18 of the construction firms were located in the northwest with seven of the firms building projects both in the northwest and outside the northwest.

It was important for the study that each of the participants had enough experience in their management position to have experienced the difficulty and complexity of construction management over a period of time. This provided a participant pool with adequate age and experience in firms of sufficient size to examine the problem of relationship conflict among
construction management professionals. Therefore, the sample was a purposive sampling to meet the demands of the study (Bowen, 2005; Morse, Barrett, Mayan, Olson, & Spiers, 2002).

**Research methodology applied to the data analysis**

The research methodology used for this study was a grounded theory approach involving data collection through interviews with 25 participants. The interviews were digitally recorded, transcribed and entered into MAXQDA 11 software for data analysis. The data analysis of the transcribed interviews was inductive in nature, “in that the researcher has no preconceived ideas to prove or disprove. Rather, issues of importance to participants emerge from the stories that they tell about an area of interest that they have in common with the researcher” (Mills, Bonner, & Francis, 2006, p. 26). The data analysis process involved open coding, axial coding, memos, constant comparison, in-vivo (verbatim) codes, and theoretical integration in order to extend the existing theory (Corbin & Strauss, 2008). Each of these data analysis tools will be explained.

This inductive process started by conducting an open coding process which involved examining the transcribed interviews line by line in the MAXQDA 11 program and identifying themes which were then given a name or code to represent the concepts identified (Corbin & Strauss, 2008). Once a theme was identified it was highlighted, bracketed with a colored bracket specific to its code, and then pulled and dropped into a code which was previously identified or newly created. These codes were names (such as “communication”, “subcontractor conflict”, “trust”, “old school” found within the transcripts) given to identify phrases, ideas, concepts, and themes in the transcripts. Dozens of codes were created as the transcripts were read through, and often several different codes were connected to a highlighted paragraph as more than one theme was evident. Once all of the minor and major themes had been identified and coded, they were
grouped together with similar themes and studied to find an overarching theme that each theme fell under.

While the coding process was being conducted, memos were written in the form of observations, questions, comparisons between concepts, and ideas in order to capture the researcher’s thoughts. These were used to help form theoretical concepts and connections from one concept to another.

Throughout the open coding process, connections between the initial open coding concepts were made to form hierarchical patterns. This process known as axial coding connected concepts to each other under core concepts as they appear in the data, connecting the smaller pieces to the larger concepts (Corbin & Strauss, 2008). The core concepts which now were categorized under an axial code, were then grouped into categories and the overarching categories were given a code name. This process continued until the concepts that were named by codes were grouped hierarchically with five main categories identified. These higher order categories were the basis for explaining the effects of relationship conflict on performance and profit in construction management based on the data in the transcriptions.

For example, while studying the transcripts in the MAXQDA 11 program, the word trust came out in transcripts of several participants. A code was created and named “Trust”. Each time trust was mentioned, the sentence or paragraph was highlighted and pulled and dropped into the “Trust” code. Following this, each of the highlighted sections of the transcripts was examined for themes within the “Trust” code. Through this examination process, it was discovered that each of the participants valued trust as a central ingredient to mitigate relationship conflict and have good working relationships with other stakeholders. When a similar process was conducted on all phrases containing communication, it became evident that communication was also a key
ingredient for mitigating relationship conflict. Later on in the data analysis process, the two codes “Trust” and “Communication” were grouped under a code “solutions to relationship conflict”, which was later changed to Category 4.

During the process of category development, weight and importance was given to the codes that contained a higher number of participants. In addition, management position and tenure were an indicator of importance as those with more years of experience and a higher management position tended to have a higher level and bigger picture view of the issue. For example, lack of communication and schedule were both identified by the participants as contributors to relationship conflict. Schedule was identified by three project managers with an average of seven years of tenure, while lack of communication had five project managers, three senior project managers, and three project executives with an average 20.5 years of tenure. Because the average management position leaned toward upper management and mean tenure was much higher, a greater importance and weight was given to communication over schedule as a major contributor to relationship.

**Presentation of the data and results of analysis**

The major themes found in the data were developed into five categories that will be used to answer the research question: “How does relationship conflict in construction management affect performance and profit?” Categories 1 and 2 lay a foundation defining of what the major contributing factors to relationship conflict are, and who the primary players in relationship conflict are. These first two categories are then used to explain Category 3, how relationship conflict affected performance and profit in construction management. The interrelatedness of Categories 1 and 2 provide the necessary background and information to effectively answer the research question found in Category 3. Following this, Category 4 describes the participant’s
solutions to mitigate relationship conflict, and Category 5 explains some of the personal effects management professionals experienced as a result of relationship conflict. These final two categories help bring a fuller understanding of relationship conflict in construction management.

Table 5 lists the five categories with their associated sub-categories.

Table 5 Categories and sub-categories resulting from the data analysis

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub-Category</th>
<th>Sub-Category</th>
<th>Sub-Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Biggest contributors to relationship conflict</td>
<td>Lack of communication</td>
<td>“Old school” attitude</td>
<td>Lump sum contracts and a focus on the bottom line</td>
</tr>
<tr>
<td>2.) Primary players in relationship conflict</td>
<td>Owner &amp; owner’s representative</td>
<td>Subcontractor</td>
<td>Superintendent</td>
</tr>
<tr>
<td>3.) How relationship conflict affected performance and profit in construction management</td>
<td>Schedule</td>
<td>Budget</td>
<td></td>
</tr>
<tr>
<td>4.) How construction management professionals mitigated relationship conflict</td>
<td>Communication</td>
<td>Trust</td>
<td></td>
</tr>
<tr>
<td>5.) How relationship conflict affected construction management professionals personally</td>
<td>Communication</td>
<td>Trust</td>
<td></td>
</tr>
</tbody>
</table>

At the start of each interview, the difference between task conflict and relationship conflict was explained to the participants. The researcher then explained that the topic of the interview was to involve relationship conflict and not task conflict. Before moving forward, an affirmative to understanding the difference between the two types of conflict was secured.

During the interviews an effort was made by the researcher to keep the focus on relationship conflict through the questions asked and refocusing efforts. It became apparent during the data analysis that some of the relationship conflict described may actually be conflict in general or task conflict. At other times, participants began describing a scenario that was task conflict, but through the course of the example it changed to relationship conflict due to the circumstances. This transfer of task conflict to relationship conflict is in keeping with research by Simon and
Peterson (2000) were they discovered a transfer or misattribution of task to relationship conflict when the conflict was protracted or intense. This process of transferring from task to relationship conflict is inherent in the construction industry and was evidenced in the participant’s examples. There were times though when the lines became blurred as to whether a participant was describing task or relationship conflict, and an effort was made to separate these instances of general conflict and task conflict from relationship conflict during the coding process. This is a limitation of the study and will be discussed further in chapter five.

During the interviews each of the participants talked about their experiences with relationship conflict in construction, what they saw as the most significant contributors to relationship conflict, who relationship conflict was centered around, what affect relationship conflict had on performance and profit, what were some of the ways relationship conflict was mitigated in their management positions, and what were some of the personal effects of relationship conflict in their lives.

The interviews revealed a clear understanding by the participants that the construction industry was endemic with relationship conflict, the consequences resulting from relationship conflict can be severe, and no one wanted it. The participants understood their industry, enjoyed their work, and at the same time detested relationship conflict and were actively looking for ways to mitigate it. A senior project manager summed up what was commonly voiced by the participants about relationship conflict in construction, “First off, in our industry, we’ve got to understand that there is conflict. That’s a huge part of it. And so, one thing I think people, while I don’t completely embrace it, you’ve got to understand that it’s there” (SP.2). This understanding of the problem by the participants and their embracing of the construction culture was an important foundation to build from for the interviews and data analysis. Without this
understanding of the problem and their embracing of the construction culture, the participants would be distant viewers rather than integral players in the industry and the topic under study. Though several of the participants went through extreme relationship conflict events, once through it they still enjoyed construction and their jobs.

**Category 1: Biggest Contributors to Relationship Conflict in Construction**

During the interviews the participants were asked what they considered to be the major contributors to relationship conflict in construction management. The responses to the question revealed three major sub-categories under Category 1. These sub-categories are presented in a descending order based on importance and weight resulting from the number of responses identifying the category and the tenure and position of the participants. The biggest contributors to relationship conflict as identified by the participants were, lack of communication, “old school” attitude, and lump sum contracts and a focus on the bottom line.

*Lack of communication* and “old school” attitude were rated as the most significant contributors to relationship conflict receiving 12 and eight responses respectively, while lump sum contracts had five responses. Though not carrying the weight of the three main categories of biggest contributor, schedule and bad drawings had three and two responses respectively and will be discussed following the major categories of biggest contributors. Each of the sub-categories of the biggest contributors to relationship conflict will be defined and discussed in terms of commonalities of participants, definition of category, and participant quotes with explanations to identify what the construction management professionals in the industry are saying about the topic.
**Lack of communication.**

The mix of participants who identified lack of communication as the top contributor to relationship conflict was evenly spread among positions, tenure and age. The participants ranged in tenure from seven years to 36 years with a mean of 20.5 years, a mean age of 42.6 years, and included all management positions. All three of the senior project managers, five of the 11 project managers, three out of the eight project executives, and one of the superintendents identified lack of communication as the primary cause of relationship conflict. This was a very homogeneous group with a solid representation of the management personnel positions, tenure, and age.

*Lack of communication* in construction was described as the central factor leading to relationship conflict. Each of the participants who expressed this view about lack of communication being the primary factor in relationship conflict, had definite and strong reasons for designating this as the number one contributor to relationship conflict. A project executive expressed this about communication, “I think what I see for us, probably the biggest reason for relationship conflict, is bad communication to start with, as far as what the requirements (project scope) are” (E.2). Stated by another participant, “without a doubt, communication is number one, that or lack of communication, I should say (SP.1)”. This was the case both on management teams within firms such as project manager to superintendent, and between firms such as general contractor to subcontractor, as poor communication affected working relationships and the project itself. At times projects experienced a reciprocal effect of low communication that produced conflict which in turn fostered less communication and led to relationship conflict and even less communication, all of which had a negative impact on the project. As a project
manager was explaining the effects of poor communication on a project, the researcher asked if poor communication affected the progress of the project.

Oh, yeah. It was definitely affected. I mean, it was painful. That’s when we were kicking off a new project, you know, excavation, pilings. No one wanted to talk to each other.

Nobody was communicating with each other, and you know that communication at that point in a project is huge (P.4).

This lack of communication or unwillingness to communicate led to relationship conflict that affected the progress of the project as a result of a reciprocal effect. Communication was low and relationship conflict was present, communication lessened and relationship conflict increase, which lessened communication even more and increased relationship conflict. Once this process began, it progressed into a cycle that alienated management personnel from one another in the form of relational barriers that were built between people so that communication was diminished and performance negatively affected.

Contributing to the lack of communication was what participants described as barriers that developed between parties as a result of relationship conflict. Communication digressed to the point that barriers between parties developed and further produced a lack of communication. This was often a result of a team members’ unwillingness to communicate with another team member, or one stakeholder unwilling to communicate with another stakeholder, and thereby creating a barrier between the parties. Without a willingness to communicate, conflict increased and barriers between sides increased, as described by a project executive, “And, partly because in order to resolve conflict, you have to have two willing participants. It’s not all one-sided” (E.1). This breakdown of communication resulting in barriers that further contributed to a lack of communication was a key ingredient in the escalation of relationship conflict and produced an
increase of alienation between the stakeholders. This was not just a lack of communication between parties, but a barrier or wall put up by one or both parties that hindered and in some cases stopped communication. A participant described a scenario where conflict between the owner, architect and his firm led to a lack of communication in the form of barriers that resisted communication efforts, “And, it just got to be, you know, we were arguing and writing letters. And, it just turned into a big, big mess. And, it was heading for where no one wants to go, which was some sort of litigation” (E.1). This process of letter writing was a means for the stakeholders to protect their interest in case of litigation because of their depth of conflict and lack of communication. They were not communicating so barriers go up which reduces communication even more. Face to face communication may have resolved some of the intensity of the relationship conflict, but at that time all parties were resistant to communication efforts. The result was an increase in the barriers between the parties, lowered communication and an increase of relationship conflict.

This description of communication breakdown resulting from barriers between stakeholders was indicative of inter-firm conflicts between stakeholders. Within firms, this same process of developing barriers that hindered communication between management personnel was also experienced, resulting in a communication breakdown that affected the progress on projects. A senior project manager described a relational barrier between a superintendent and a project manager that hindered communication, escalated relationship conflict between them and impacted the project:

It was a mess. He (superintendent) was blaming our project manager for not helping him enough, not giving him enough information, not getting the information that he wanted, that he was asking for. The PM was blaming the superintendent for not being organized,
not scheduling people, not being involved on the job and knowing the details, and not trying to drive the job (SP.1).

This within firm relationship conflict started as a communication problem, moved into a relational barrier being built between management personnel which led to a significant lack of communication, and resulted in relationship conflict that had alienated the superintendent from the project manager not allowing them to work well together. This was a recurring theme voiced by project managers concerning problems with communication between superintendents and subcontractors and other management personnel. “As soon as conflict arises, if that superintendent and that project manager are not communicating daily on what their plans are, you will have conflict, which we all know inevitably will make for a bad project” (P.4). If this issue of communication breakdown was not dealt with expeditiously, the result was a progressive breakdown of communication that resulted in relationship conflict and a negative impact to the project.

*Communication and technology.*

Though technology such as cell phones, iPhones, text messages, and email were viewed as useful tools for communication in construction, management professionals voiced a qualifier in using these technological tools with respect to communication and relationship conflict. In particular, management professionals discovered that the use of these communication tools, can become a substitute for clear face to face communication when conflict needs to be resolved. Rather than facilitate communication, technology hindered communication and promoted conflict by unintentionally miscommunicating intentions. This led to either an initiation or escalation of conflict, rather than face to face communication which managers believed would have prevented or resolved the relationship conflict.
A project executive who viewed communication technology as a useful tool when combined with discretion maintained that communication technology must be used wisely. He understood the value of the communication tools in construction, but also saw how their misuse combined with misunderstanding between communicants promoted relationship conflict. The participant found this true particularly with his younger project managers in their use of communication technology, as they used the technology as a shortcut to resolving relationship conflict.

…their idea of conflict resolution is shooting out a text of acronyms to somebody about what their expectations are, not sitting face to face and having a discussion, and looking at them eye to eye, and talking about those expectations, and what the conflict is, and what are the possible resolutions. I’ve had to go unplug one of our young folk’s computers more times than not, or take the cell phone out of their hands, lock it in my desk, and say, Come and see me when you get back from that subcontractor’s office across town and you’ve got it resolved, and tell me what you guys came up with. Had to do it dozens of times (E.6).

Other managers had learned to be strategic in the use of technology for communication so that they were not venting their frustration or exposing themselves to being misunderstood and therefore contributing to conflict through their communication. Their learning process with respect to the use of technology in communication had been experienced through conflict they themselves had caused as a result of using emailing, “You know, email is a very poor way of communicating unless you’re just trying to send a fact. It’s Tuesday. Email is a great way to say, it’s Tuesday (P.5)”. This project manager and two project executives described their experiences with initiating relationship conflict with team members and other stakeholders as a result of miscommunication in email. This led them to a reflective process and a subsequent change in how they communicated with the use of technology.
“Old school” attitude.

The second biggest contributor to relationship conflict as described by the participants was an “old school” attitude. This sub-category was identified by one superintendent, four project managers, and all three senior project managers. The tenure and age range were spread evenly in comparison to the population means with a mean of 21 years tenure and 43 years of age. Though project executives talked about the “old school” attitude, they were the only management position that did not identify the “old school” attitude as a contributor to relationship conflict. Since the superintendent was identified as the primary player in management teams to have an “old school” attitude and with who there is relationship conflict, it stands to reason that the project executives would not see the old school attitude as a major contributor to relationship conflict. Though the project executives knew what the old school attitude was, they were more removed from the front line of the project management team where the superintendent functions, and would therefore have much less contact with the superintendents. The project executives were also those who could execute the most change in a firm to eliminate the old school attitude and consequently saw this as less of an issue. This “old school” attitude is especially seen in the superintendent who will be discussed in Category 2, the primary players in relationship conflict.

The old school attitude was described by the participants as a prevalent and historic attitude within construction and typifies the construction culture of the last generations. One project executive who was working to change the culture of his company described the old school attitude in this way, “So, our company has shifted 180 degrees. And it’s not been easy because you’ve got old-school superintendents that are seeing, fist-pounding, yelling-and-screaming kind of guys. Well, that doesn’t get you anywhere anymore” (E.1). A project
manager of a construction company who did work on a large project as a concrete subcontractor described the conflict between his superintendent and the general contractor’s superintendent that was produced by the old school attitude, “our superintendent and that superintendent didn’t get along at all. Our superintendent was a very old school superintendent, too, so they were just conflict right off the bat. Yelling, screaming, literally almost coming to blows in the field quite often” (P.11). Because of the old school attitude that both of these superintendents functioned in, the project became very difficult for the project manager, as he experienced an extreme amount of relationship conflict with the general contractor’s management personnel. As a result, his company finished the project behind schedule and suffered a financial loss.

This “old school” attitude has an attitude of “my way or the highway” described by one superintendent who personally did not function in the old school attitude, “The way they resolve it—my way or the high way—still a few of those guys” (S.1). This “old school” attitude has little patience to teach younger personnel or share tacit knowledge with them as described by the participant, “And I was up and coming and wanted to soak things in like a sponge…. But he was old school, if you had questions he would basically say figure it out” (S.1). Those with the “old school” attitude tend to confront even when it is not necessary, enjoy being combative, and typically want everyone around them to know they are in charge. A senior project manager described an older superintendent that displayed this “old school” attitude in this way:

Like, if they are an older superintendent, and we have one of those right now. When you go to a meeting, he has to immediately, the way he talks to the other people, subcontractors, suppliers, even the owner or architect, it’s like he’s making sure everybody knows that he knows what he’s doing, and don’t question him, and don’t bring
anything up because he’s got it. And, it’s just that kind of attitude, I guess, that causes a lot of conflict (SP.1).

This “old school” attitude was described as one that doesn’t work as a team player and typically enjoys promoting their own personal agenda—often at the expense of the management teams’ performance. “And the senior superintendent thrived around causing conflict in the office. His ultimate goal was to separate the office and the field, and everything that had to go out in the field had to go through him” (P.4). The project manager went on to describe a communication barrier created by the senior superintendent that ultimately alienated him from the rest of the construction management team, and brought a negative effect onto the team and project.

All of the participants who discussed this “old school” attitude talked about its impact in promoting relationship conflict, and at the same time described how those with this attitude are slowly retiring and a change in the industry needs to happen and is taking place. Though this attitude is engrained within the construction culture and history, each of these professionals viewed a cultural change away from the “old school” attitude as essential for the construction industry.

**Lump sum contracts and a focus on the bottom line.**

The sub-category of lump sum contracts was identified as a major contributor to relationship conflict by five of the participants. Three additional management professionals discussed this category as a factor in having experienced strong relationship conflict, but did not see it as the biggest contributor. The mean tenure and age for the participants identifying lump sum contracts as the biggest contributor to relationship conflict was 25.2 years and 47 years respectively. This is five years above the mean for the population group for both tenure and age, yet is reflective of the management positions. One superintendent, two project managers, one
senior project manager, and one project executive identified this category. And though the positions identifying this category are representative of the population group, their age and tenure average reflect an upper management position perspective based on more management experience than the population group and responsibility for oversight and wellbeing of the whole firm.

Lump sum contracts, also known as design-bid-build and hard bid, involve an owner contracting with a designer to develop the design of a building and produce a set of drawings and specifications for the building. Once the drawings are complete, the project is put out to bid where typically three to 10 general contractors bid on the project. In a traditional lump sum competitive bid process, the lowest bidder wins and secures the contract with the owner to build the building. Any changes must be negotiated between the owner and contractor with the architect functioning as an agent of the owner. Discrepancies in the drawings due to omissions by the architect or constructability issues become possible points of contention. The owner enters into a lump sum contract expecting to pay only the contract price with the exception of change orders. The owner has low risk in this type of contract, while the contractor has the highest potential risk in a lump sum contract verses other types of contracts (CMAA, 2012).

A senior project manager whose firm did a mix of lump sum contracts and negotiated contracts summed up what each of the construction management professionals voiced about lump sum contracts, “When you’re dealing with a hard-bid scenario, you are going to have conflict, way more conflict than you ever want to have. It’s a different mentality” (SP.2). The participants experienced conflict as a result of several different scenarios that are common to lump sum contracts. Most often, conflict arose when participants had to charge for and explain change orders and extras that were unforeseen on the plan at the time of the bid. This included
unclear items on the drawings that in the owners’ and architects’ view should be covered by the contractor. But from the contractor’s side they were not clearly specified on the drawings, not included in the original bid, and therefore they are an extra. A senior project manager explained this problem:

Part of the thing that has always bothered me in our industry is the way that it is set up, and unfortunately, the lump-sum market is that way. I mean, it is ripe to set up for conflict and battle because, you know, here’s a set of drawings. This is what we bid on. We didn’t interpret it the way you thought it was, therefore we think this is extra. This isn’t something we were supposed to do, and the gloves come on and you start fighting (SP.3).

Relationship conflict connected with lump sum contracts were centered on the contractual relationship between the owner and contractor, were the owner became the primary player in relationship conflict, which will be discussed further in Category 2. The primary cause behind the relationship conflict in lump sum contracts is the owner’s expectations that the bid price is what they will pay and no more. Many owners do not understand the complexity of the construction process and the inherent difficulty architects face in the design process to cover every detail in a large complex building while trying to accurately portray constructability of the building. A contractor does not want to include anything in their bid that is not on the plans or they may not win the bid, while the owner expects everything to be covered. This sets up a situation with the owner focused on the bottom line and not wanting to pay more for their building, while the contractor is struggling to get every dollar they can in order to cover costs. “Now, there are contractors that are very good at it (lump sum contracts), and they’ve got it dialed in, but it’s a hard row to hoe. It will put years off your life, because you’re really fighting
for every single last dollar” (SP.2). This is why the participants viewed this as one of the biggest contributor to relationship conflict. The lump sum contract became a continuous struggle over money that was approached from completely different perspectives that led to heightened stress for the construction management professionals and relationship conflict with the owners.

**Schedule and bad drawings**

Lack of communication, old school attitude, and lump sum contracts were the most salient contributors to relationship conflict by the participants. There remains two additional contributors that were identified by the participants with less impactful to the overall population, but still contributed to relationship conflict. The two contributors to relationship conflict with lesser impact were schedule and bad drawings.

The schedule category was identified by three participants all with seven years tenure or less, 28 years of age, and at the project manager position. Each of the participants had experienced significant relationship conflict with a subcontractor, superintendent, or other management personnel due to the schedule. As one of the project managers stated, “Most conflicts arise or at the heart of it, most issues seem to stem from scheduling” (P.9). These managers explained a typical scenario where schedule caused relationship conflict. While managing subcontractors on a building project, the project manager asks for a schedule for completion of specific milestones from the subcontractor, and if they do not get a schedule they produce it themselves. The conflict arises when either the subcontractor does not keep the schedule they created, or they disregard the schedule the project manager designed. Schedule delays have associated costs in either increased overhead for the firm or through liquidated damages due the owner as dictated by the contract. This causes significant conflict between the subcontractor and the project manager and other subcontractors impacted by the schedule. The demographics of this category reveals this
issue to be somewhat related to experience. As the project manager increases in experience in working with scheduling subcontractors, this may become less of a poignant issue.

The demographics of the bad drawings category show tenure and age to be at the higher end of the population group as the mean tenure was 25 years and the mean age 47 years. One senior project manager and one project executive identified this category as the biggest contributor to relationship conflict. Though this is a small group, it is worth discussing. These professionals manage managers and have responsibility at a high level in their firms. A superintendent will find numerous problems in the drawings and just do their best to work it out. But the high level managers understand the costs associated with error or omissions to the plan and what that can lead to, and therefore see this as a significant contributor to relationship conflict between their firm and the owner.

Drawings are the paper version of the building the designer has designed. As professionals, architects strive to include everything pertaining to the construction of the building from a design and constructability perspective. Great detail is taken to thoroughly explain the building and its construction on paper. But at times important details are unclear, items of explanation are left out, or a detail is drawn that is not constructible. One project executive explained, “When there’s incomplete drawings, it just opens the door for conflict because the owner thinks they’ve bought something that’s in their head but isn’t necessarily reflected on paper” (E.7). The project executive went on to explain how the problems encountered in the drawings led to conflict over schedule and money. Basically, now that a problem in the drawings is discovered, the schedule which the owner wants maintained may have to be adjusted and the building will cost more. This can result in significant relationship conflict depending on the size of the problem encountered and the willingness of the owner and contractor to negotiate through it.
Category 2: Primary players in relationship conflict

During the interviews, each of the participants discussed their most difficult relationship conflict experience. Within each of their stories certain individuals surfaced that relationship conflict was centered around. This translated into four main categories of primary players with whom construction management professionals experienced relationship conflict. The players were the owner or owner’s representative, subcontractors, construction management team personnel, and the architect. Each category of the primary players in relationship conflict will be discussed from the perspective of an explanation of working relationship with the respective player, demographics of management professional, and conflict scenarios. Traditionally, construction culture has placed the architect near the top of a list of players in conflict with construction management professionals. But the data from the interviews shows a change in perspective among construction management professionals in their attitude toward the architect. This will be discussed at the end of this category.

Owner.

The owner and the owner’s representative were identified as the primary players whom construction management professionals experienced relationship conflict. The management positions identifying this category did not include any superintendents, and was distributed among the other management positions fairly evenly. The participants identifying the owner as the primary player with whom relationship conflict was experienced were five project managers, one senior project manager, and four project executives. The tenure and age were above the population mean for each with 24 years of tenure and 46 years of age. This represented a higher level of experience for the management professionals who identified the owner as the primary
player in relationship conflict. This stands to reason in that as a management professional grows in their position there will be more contact with the owner, for both current and future work.

The owner and the owner’s representative were the two groups who make up the owner category. The owner is the major holder of financial interest in the building under construction. The owner’s representative is a hired individual or firm who represents the owner as a contact and decision person. The primary goals of the owner and owner’s representative is to ensure that the bid amount is adhered to, change orders are kept to a minimum, the schedule of completion is maintained, and that quality standards according to the specifications are met. Unlike contractors who must possess a certain level of experience and competence in order to participate in the bid process, the owner can initiate a building project with little experience as long as they have sufficient financial backing.

The owner maintains the privilege of coming to the job at any time to view progress and ask questions. But this can turn into a time consuming event as described by a project manager, “I felt like I was spending at least three hours a day doing nothing but answering his myriad of miniscule questions, and basically wasting about three hours of my day when it should have been done in about 30 minutes” (P.2). This developed into significant relationship conflict between the owner and project manager as he continued to describe the conflict, “Yeah, nothing was ever good enough, picked at this, picked at that…That was probably one of the worst experience” (P.2). The project manager went on to explain that the relationship conflict progressed to a point between him and the owner that he resigned from the project.

The most prominent relationship conflict between construction management professionals and owners was centered on a difference in attitudes and perspectives toward the building project. Because the owner is most focused on the costs and minimizing any changes that
increase the cost and the contractor wants to be paid a fair price, relationship conflict can
develop from these two divergent views of the project. A project executive described this
difference in perspectives that affected the entire project his firm was building.

The culture of the developer was, get the most out of the contractor that we can. Get the most
for the least price, and that obviously creates a contentious atmosphere. So, they’re trying to
get the most out of us for the least amount of price, and were trying to cover our costs and
make our fee, while still delivering a good product and hopefully maintaining a good
relationship, but sometimes those two just don’t mix. So, there’s a cultural difference of
(project executives’ firm) trying to please and build a good relationship, a good long-term
relationship, and then there’s the developers culture of, Beat the crap out of the contractor to
get as much project as we can for the lowest cost (E.7).

This was a common theme expressed in different words from each of the participants who
identified the owner as the individual with whom relationship conflict developed. Some owners
were more extreme than others in their aggressiveness toward the contractor, but there was still
the attitude of get the most out of the contractor for the least amount of money. This type of
attitude fostered contention and relationship conflict as the contractor sought to provide a quality
product for a fair price and the owner pursued a course focused on getting the most for the least
paid. This was particularly the case when the contract between the owner and contractor was a
lump sum contract.

**Subcontractor.**

The second most mentioned player around whom relationship conflict revolved was the
subcontractor. The participants who identified the subcontractor as the primary player in
relationship conflict had a slightly lower mean tenure and age than the population group. Tenure
mean was 18 years and age mean was 40.2 years, with one superintendent, three project managers, one senior project manager, and one project executive. Though the tenure and age were lower than the population mean, the management positions were solidly representative of the population group. The reason for the lower mean tenure age is that two of the project managers had five and eight years of experience in construction management.

Not every building project had a subcontractor that caused relationship conflict. But when a subcontractor was at the center of relationship conflict issues, they were problematic, required an inordinate amount of management effort and at times affected either the morale of the management team, the whole project, or both. The conflict with the subcontractor that produced relationship conflict ranged from, a company culture that worked independently and not as a team player, to those who were labeled “old school” in their attitude and therefore contentious, to those who didn’t want to communicate and just did it their own way on the jobsite.

A superintendent described a project where a subcontractor expected him (the superintendent) to figure the plans out for him (the subcontractor) and basically hold his hand through the project. The result was conflict that escalated and affected the whole project as explained by the superintendent:

And, what it turned out was that then after we had our horns locked for a while, rather than just settle down and say, I’m going to just do my planning, prep, research and engage and try to help resolve conflict, he spent most of his time figuring out a way to screw the project over. Get more money or make mistakes and not tell anyone, just bury them. It turned out to be a mess (S.1).
The superintendent went on to explain how this one subcontractor affected the morale of the whole project, the schedule was delayed by a month, and they lost money on the project due to the conflict experienced with the subcontractor.

A senior project manager talked about a recent experience with a subcontractor that was one of the most difficult conflict experiences he encountered in construction. The subcontractor’s attitude to not work collaboratively in any form affected the entire project. The relationship conflict with the subcontractor caused burnout to a team member on the contraction management team, affected their relationship with other subcontractors because it appeared they were more lenient to the problem subcontractor, and caused the owner to question their ability to lead the project and control the subcontractor. The senior project manager summed up the explanation of relationship conflict with this subcontractor like this, “We finally got through it, and it’s done, but that’s an example of this firm (the subcontractor) being such a cancer in the project that it really affected everything” (SP.3).

Because of these types of experiences, the participants described a collaborative effort that they seek to foster among the project team of subcontractors so as to avoid the negative effects of relationship conflict. Whenever possible, participants hire subcontractors that want to work as a team and who respect the construction management’s leadership and management on the project. The participants explained the difference between having a subcontractor that relationship conflict centers on, and a group of subcontractors who work collaboratively as a team. The difference is experienced through building the project and enjoying working with the subcontractors, with the end result of completing the project on schedule, within budget and without the stress of relationship conflict.
Construction management team members.

Construction management team members were the third most talked about players in relationship conflict. The tenure and age of the participants for this category were 18.4 years and 40.5 years respectively, with the mix of management professionals more weighted to the mid-range. The group consisted of two superintendents, five project managers, one senior project manager, and one project executive. With only one out of eight project executives identifying construction management team members as key player in relationship conflict, the participants were tightly grouped at the mid-range of management positions for the population group. The reason for this relates to the job responsibilities of the project executive verses a project manager. The project manager is at the center of the management team for a project, while the project executive leads and manages the project managers and maintains relationship with owners for current and future work.

Relationship conflict on construction management teams centered primarily on the superintendent and some on the project manager, with no mention of senior project managers or project executives. When a superintendent was the primary player with whom relationship conflict was experienced, it was typically a senior superintendent or a superintendent with an “old school” attitude. The relationship conflict transpired either between the superintendent and the project manager or senior project manager. Project executives discussed conflict surrounding some of the superintendents, but only one identified the superintendent as a primary player around whom relationship conflict exists.

Of those individuals on the construction management team, the superintendent was the most identified as a player in relationship conflict. A project manager gave an example from a recent completed project with several superintendents and three project managers, in which the senior
superintendent was at the center of conflict on their project team. “And the senior superintendent thrived around causing conflict in the office. His ultimate goal was to separate the office and the field, and everything that had to go out in the field had to go through him” (P.4). The project manager went on to describe how the senior superintendent was very negative toward the field office staff and thrived on causing conflict within the office staff to the point that no one would talk with him. This produced a counterproductive atmosphere of relationship conflict that centered on one individual.

A project executive who managed project managers and superintendents for his firm described a similar scenario with a superintendent. This project executive spent 10 percent of his time resolving conflict between management personnel and subcontractors. Of this 10 percent, 90 percent of his time was spent with one superintendent in particular dealing with what he called relationship issues and people issues. “So, 90-plus percent of my time spent on those sorts of issues are with a small group of individuals that tend to repeatedly have relationship conflict issues” (E.2). The project executive went on to state that because of the time this superintendent required from him and the relationship conflict surrounding him, he will be let go, “We happen to have one that is probably at the very top of the list that I bet I spend most of my time dealing with. This person is probably not long for this world at (name of firm)” (E.2).

In the first example the project manager and the management team had to endure the superintendent’s attitude and the negative effects of relationship conflict with him. In the second example, the project executive had the authority to fire the superintendent after realizing how much time and energy he required. In each case, relationship conflict centered on the superintendent and was detrimental to the management team.
There was some mention of conflict with project managers, as experienced between project managers and from a superintendent to a project manager. This was evident, yet minimal. The strongest example was a superintendent’s description of a senior project manager who he considered as only interested in benefiting his own career, and unwilling to encourage or help anyone else, as he described, “And it was a senior level PM who spent more time trying to keep the rising stars down here (low) and take credit for it while they did the work” (S.1). This was the superintendent’s first experience with relationship conflict and it lasted for several years. The result was a lower performance on the superintendent’s part as he did less in order to not make the project manager look good, “So I probably, rather than see him get the credit, I kind of went half speed. I did my job and nothing more” (S.1). The relationship conflict between the superintendent and the project manager lowered their collective performance and made for a less than ideal working relationship. Though there were few examples of project managers as key players in relationship conflict, it did occur.

The architect has traditionally been viewed as a key player in conflict among construction management professionals. But the data from the interviews of the participants paints a different view as a shift in the industry to work collaboratively with the architect and not view them in an adversarial role is taking place. Among the participants who talked about the architect, there was admittedly conflict but the architect was not a primary player in relationship conflict and the conflict encountered was considered more of a task conflict. The project executives in particular discussed the shift in the industry from an adversarial relationship with the architect to more of a collaborative working relationship were the architect and contractor are on the same team. A project executive explained the change of attitude in this way:
I think owners are becoming more educated on the benefits of not putting the architect against the contractor. For a long time, it was the architect who was hired early, designs a project, and the contractor is brought on board at the CD, when the construction documents are about done, and the owner sits in the middle and kind of fights that tension between the two, because he’s got the architect beating up on the contractor, so the contractor’s claims or change orders are challenged and hopefully go away. So, that was kind of the old school model. And now, I think the clients are seeing the benefit of the architect and the contractor joined together, teamed together, and working to solve the problems of the project (E.7).

This is a change in the construction culture to work collaboratively as a team with the architect. And though this change is not universal in the construction industry, it is a process that is taking place.

**Category 3: How relationship conflict affected performance and profit in construction management**

Category 1, biggest contributors to relationship conflict, and Category 2, primary players in relationship conflict have significant bearing on performance as seen in schedule delays and the budget. Categories 1 and 2 help provide an understanding of what produced relationship conflict so that now in Category 3 the effects of relationship conflict can be explained. As participants experienced one or both of the biggest contributors to relationship conflict and the primary players in relationship conflict, the result was a negative impact on schedule or budget or both. Examples from the participants describing how relationship conflict affected schedule and budget will be given along with explanations. A fuller interpretation of the data for this category as it relates to answering the research question will be discussed in chapter five.
As relationship conflict was encountered it is important to discover the effects it had on performance and profit from the perspective of the participants. The two primary factors affected by relationship conflict as stated by the participants were schedule and budget. The schedule affects performance when it is protracted and a project becomes delayed. This hinders the management team from meeting the organizational goals of maintaining the schedule in order to mitigate additional overhead costs and from moving on to the next project. Actual profit numbers were not available since all but one of the participants worked in private firms and the information was proprietary. In some cases, the budget was discussed and what impact relationship conflict had on it, which is an indirect effect on profit. Since actual hard dollars associated with profit were not available and participants talked only in terms of the budget, this limitation will be discussed further in chapter five.

**Schedule.**

As participants experienced relationship conflict the schedule was affected which in turn affected performance. A scenario was described by a superintendent involving a subcontractor whose attitude and lack of cooperation was affecting the project and other subcontractors. As communication broke down and the building increased in complexity, hostilities increased with the resulting relationship conflict affecting the schedule of the project. The experienced relationship conflict hindered communication and cooperation between the superintendent and subcontractor which caused timely and accurate decisions connected with the schedule to be diminished. These decisions now out of sync with the project and of lesser quality as a result of relationship conflict produced a detrimental effect on the schedule. The superintendent describes the impact of the relationship conflict with the subcontractor, “As far as productivity, we were ahead of schedule until we got to the complicated stuff. We burned up about a month of float,
and finished about a month late. And then the rest of the subcontractors, their productivity suffered” (S.1). The subcontractor had been difficult to work with, not communicated well with the superintendent, and was actively trying to “screw the project over” in the words of the participant. Though finishing a project a month late is not descriptive of a performance or dollar loss, it is understood within the construction industry that a protracted schedule affects both performance and budget. Overhead costs associated with an extra month on a project have dollar amounts associated with them that are dependent on the size of the project, and a protracted schedule affects performance based on the firm’s goal to finish by a specified time in order to start the next project.

A project executive described an example of a two year project adding two new sections of building onto a hospital. Conflict developed between the owner, architect and contractor that progressed to relationship conflict where relational barriers developed between stakeholders and communication broke down. The lack of communication and relationship conflict became so severe that an independent consultant was hired to help resolve the impasse. At this point the project executive realized they would not complete the building according to the 18 month schedule as he states, “And, what ultimately turned out to be, I think it was an 18-month project, after we got partway into it, turned into a 24-month project” (E.1). The participant attributed this protraction of the schedule to the relationship conflict experienced between the owner, architect, and his firm. The increased schedule duration can be linked to a significant increase in overhead costs and lower performance according to organization goals of completing within 18 months.

These two examples which are descriptive of other participant’s stories, link relationship conflict to schedule delays. Not all relationship conflict causes a schedule delay, but when it is sufficiently severe and protracted, relationship conflict affects the schedule as construction
management professionals spend time battling issues with primary players that would typically not surface when relationship conflict is not present. A project executive gave an example where as a result of relationship conflict any type of collaboration between stakeholders had vanished, “That totally went out the door to where we just threw things over the fence. They threw things back over to us, and we mostly argued, because they were protecting themselves” (E.4). Because relationship conflict had become severe and communication had broken down, rather than discuss issues as they arose, each party merely wrote letters and sent emails in place of face to face or over the phone communication, which greatly impacted the schedule.

**Budget.**

In addition to relationship conflict affecting the schedule, the budget was also impacted. Relationship conflict can affect the budget in different ways such as, schedule protraction, nonpayment for change orders, poor sequencing between subcontractor and general contractor, no collaboration on constructability issues, and more. In most instances the participants talked in general terms of how relationship conflict affected the budget, rather than exact dollar amounts which is a limitation for this study. Some of the examples had dollars associated with the relationship conflict, at other times it was a statement describing the effects of relationship conflict on costs in a general sense. A senior project manager described the effects of relationship conflict on costs, “Because, when you have conflict, it costs money. The two words go hand in hand. Conflict costs money. There’s just no doubt about it. And, it’s not a good working environment. It’s not fun to work with conflict” (SP.2). Though this statement had no dollar amount associated with relationship conflict, the participant knew it cost money and affected the budget, and it was his primary motivation for discussing the topic with the researcher.
Two examples of actual dollar amounts were given by participants as to the cost of relationship conflict. The first was a project executive who experienced a sharp conflict with a subcontractor over the scheduling of the project. Because of their difference of opinion on the schedule, communication broke down in a way that affected the project for several weeks and produced an inefficiency of labor, “And so, ultimately that relationship conflict lead to the erosion of, I don’t know, probably $40,000 in inefficient labor” (E.5). This dollar amount is an example of the effect of relationship conflict on the budget of a project and ultimately the profit. Though $40,000 in inefficient labor does not translate directly to lost profit, there was a financial impact.

A second example is a project executive who experience protracted relationship conflict with an owner’s agent on a project. Communication became very strained and involved letter writing, changes were argued at length, and there was no collaboration. The participant tried to work relationally with the owner’s representative, but it produced no effect and the relationship conflict only increased to the point that each side operated solely by the contract and letter writing. In the end, there was significant loss for their firm, “The only thing I have left is the contract side to protect our risk. I mean, we’re a medium sized company, but $10 million hurts no matter who you are” (E.4). This again is a dollar amount associated with relationship conflict, though the total amount would need to be divided into categories of specific causes for the loss. A portion will relate to relationship conflict, and also other factors such as inefficiencies, bad drawings, inaccurate estimating and more. The effect of relationship conflict on the budget is identified in the data as a perceived affect by the participants, but it is general and not specific in terms of hard dollar amounts. This will be discussed further in chapter five along with associated limitations.
Category 4: How construction management professionals mitigated relationship conflict

Through the examination of biggest contributors, primary players, and the effects of relationship conflict on performance and profit, the participants discussed their experiences with causes, players, and the effects of relationship conflict. There were two primary categories describing business and management practices conducted by participants to mitigate relationship conflict, communication and trust. These two factors represent what construction management professionals consider the solutions to relationship and will be examined using quotes from the participants with explanations.

Communication.

As lack of communication was the biggest contributor to relationship conflict, good communication was the primary means to ameliorate relationship conflict. From both ends, as a contributor and as a means to mitigate, communication was identified as the primary factor in relationship conflict.

The group of participants who identified communication as a means to mitigate relationship conflict included one superintendent, four project managers, one senior project manager, and six project executives. The mean tenure and age for the group was 14 years and 36 years respectively. This group was lower than the population mean in tenure and age, but higher as a group in management positions than the population mean. The superintendent, project manager and senior project manager had an average representation, but the project executive included six out of the eight in this group. This indicates a younger section of upper management professionals who recognize communication as the primary means to mitigate relationship conflict.
The construction management professionals were very animate about the value of communication to mitigate relationship conflict as seen in this project executives’ response, “Communication is, the factor by ten, the biggest. I couldn’t even tell you, (researcher’s name), I can’t think of anything that doesn’t just go back to communication” (E.6). The participant strongly emphasized how central good communication was to mitigating relationship conflict. This viewpoint was common in all management positions as seen in a superintendent’s response, “I think it all comes down to communication. You know, if the communication is poor, and the people are not on the same page, it instantly creates conflict…. So, I think open and clear communication definitely mitigates conflict” (S.2). Also found in a project manager’s response, “Just to help solve relationship conflict, it’s communication and getting people to talk to each other and understanding that everybody has a point that should be listened to, if it’s right or it’s wrong, but there should be discussion” (P.4). And in a senior project manager’s explanation of the most effective means to mitigate relationship conflict, “So, from my perspective, the best way I can avoid conflict is to provide very clear communication on what my expectations are, to whoever it is I’m working with, whether it be my client, my staff, or subcontractors” (SP.1). These descriptive comments based on the experiences of the participants emphasize the importance of communication as the primary factor to mitigate relationship conflict in construction management. Each of them experienced relationship conflict as a result of a lack of communication and now realize how central communication is to mitigate relationship conflict.

The vehicle used to cultivate good communication was different for each participant. Some just learned to communicate and listen well in the business setting, “Be empathetic towards others. Period! Understand what drives other people and what’s important to them, and
who they are” (E.5). Others spent time outside of work with business colleges in an effort to build relationship with them as a means to communicate better.

Trust.

Following closely behind communication as a means to mitigate relationship conflict was trust and the building of trust. The participants identifying trust as a means to mitigate relationship conflict were at the higher end of management positions with one project manager, one senior project manager, and four project executives. Their mean tenure and age were 21.2 years and 43.3 years respectively making this a seasoned group of management professionals primarily in the upper level of construction management.

A project executive explained how severe conflict on a project cost his firm time and money, and from that experience the lessons he learned have been applied to his management style. This involved working collaboratively with the owner and architect and not pointing out all the problems in the drawings, but working as a team. This translated into building trust between the key players of a project as the participant explained:

So, and all of that, to me, helps build the trust. I mean, that’s the baseline. If there’s a breakdown of trust on your team, you’ve got a long road in front of you to get to the end. And unfortunately, it doesn’t take much to violate trust (E.1).

Another project executive explained his philosophy of trust building as centered on the building and maintaining relationships:

I think, for me, it’s having relationships already in place with clients. I think in order to avoid conflict on projects, there needs to be a high level of trust. The client needs to trust the contractor. The contractor needs to trust the client. And, that only comes with a relationship being in place (E.7).
Most of this project executive’s work was based in negotiated projects with owners they had previously worked with. Though working with previous clients is not always possible, the idea of building and maintaining relationships so that there is a foundation of trust can still be achieved.

A senior project manager described a conflict filled experience with a subcontractor and in hindsight the value of having trust built between stakeholders of a project. This project turned into a horrific relationship conflict experience that took a significant toll on their staff through stress and burnout while working with this subcontractor. The participant described their first meeting with the subcontractor prior to commencing the building project, “And the best way I can describe it is, and maybe this is the way they look at everybody, which I kind of think is so, but maybe especially with us, they just had zero trust, zero idea of collaboration” (SP.3). The participant explained that because there was no trust, conflict abounded, whereas with the other subcontractors, the trust had been established. The participants firm maintained a high level of trust between them and their main subcontractors that served to mitigate relationship conflict. But with this new subcontractor, their lack of trust for the participant’s firm led to protracted and significant relationship conflict that was costly to them in personnel and financially.

**Category 5: How relationship conflict affected construction management professionals personally**

Relationship conflict affected not only the participant’s firms through performance loss and profit loss, but also in personal ways which ultimately led to performance loss on the job. The effect to the participants on a personal level involved mental, emotional, physical, and relational consequences to relationship conflict.

A good cross section of the management positions were represented in the category with three project managers, two senior project managers, and three project executives discussing how
relationship conflict affected them personally. The mean tenure and age were also representative of the mean population with 21 years and 43 years respectively. The effects the participants discussed that affected them personally as they experienced relationship conflict were, stress, burnout, mental strain, and effect on the family.

A project manager described the effects of relationship conflict on him personally, “So, I’m sure it probably shaved a couple years off my life in stress because it’s just a stressful thing when you have that sort of conflict every single day, and you know it’s coming” (P.11). The relationship conflict the participant experienced was protracted and even had an effect on his home life as he described how it ruined a 10 day vacation when he read an email related to the project. This issue of the home life being affected by relationship conflict in construction management was identified by other participants also. A project executive told how he still does not like driving through the town where the project was, and how it affected his family life, “I still hate going to (location of project). You know, it impacts your family. I don’t want to go home and talk about it. My wife didn’t really know what was going on. Yeah, it’s just a crappy deal all around” (E.1). The emotional drain felt by the participants as a result of the relationship conflict on the project was evident in their experiences.

Another project executive talked about the personal impact resulting from relationship conflict, “It leaves a bad taste in your mouth, and there’s a major burnout factor, and it takes years to get over the broken relationships that can come out of a job like that” (E.4). This project was a two year project were relationship conflict with the owner’s representative lasted throughout most of it. Because of the toll relationship conflict caused for this participant, one of his goals is to make sure the project managers he leads do not experience this. While discussing
this with the participant and the importance of the topic within construction management, the participant made these comments:

At the end of the day, you want to come to work in an environment that’s enjoyable and not full of conflict. And so, it’s really important for me to not have that stressor constantly around me, because it affects performance, it affects quality of life, it affects every aspect of what you’re doing, and so finding ways to be better at solving those types of issues is really important (E.4).

His statements of how relationship conflict affected performance, quality of life, and everything one is doing are indicative of what other participants expressed concerning the effects of relationship conflict on a personal level. Performance and motivation at work are affected as well as life at home. A project manager described his performance level when he was in relationship conflict on a project, “Oh, it goes way down. And, the worst part about it is, my love for the job, it fades” (P.5). Taken together, the participants described detrimental personal impact from the relationship conflict they experienced in construction management, and how it affected their performance and family life.

Summary

An examination of the participant’s interview data has revealed specific categories and sub-categories which identified ways relationship conflict affected performance and indirectly profit in construction management. The five categories identified were, Category 1, the biggest contributors to relationship conflict in construction management, Category 2, the primary players in relationship conflict, Category 3, how relationship conflict affected performance and profit, Category 4, how construction management professionals mitigated relationship conflict, and
Category 5, how relationship conflict affected construction management professional personally. See table 5.

Within the category of the biggest contributors to relationship conflict, lack of communication, “old school” attitude, and lump sum contractors were the major factors. The primary players in relationship conflict were the owner and owner’s agent, subcontractors, and superintendent on the management team. These two categories were the factors that caused reduced performance and profit on the projects that experienced relationship conflict.

To help solve and mitigate relationship conflict on projects, participants maintained that communication and trust between stakeholders were the key factors. Communication was a factor as both a biggest contributor to relationship conflict when there was a lack of communication, and it was a key factor to preventing or attenuating relationship conflict when there was good communication. Last, the effects of relationship conflict to the participants personally was discussed. The participants expressed a detrimental effect on them personally resulting from relationship conflict, and this ultimately affected their performance on the job and their family life.

In chapter five, the results of the data analysis will be discussed in detail and interpreted in light of the existing literature and the research question. This will involve applying existing conflict theory to the results of the data, extending it into the construction industry, and bringing a clear and concise answers to the research question.
CHAPTER FIVE
CONCLUSIONS, DISCUSSIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

Introduction

The construction industry is a large and complex industry tasked with constructing the built environment. To accomplish this, multiple stakeholders are brought together with often differing interests in which they work to design and construct a building project. These differing and diverse interest of stakeholders combined with unforeseen circumstances such as weather and site conditions, and changes during the construction process can foster a rapid increase of conflict. Within the construction industry, this conflict is understood to be a regular occurrence with consequences that can be costly in time, money, and relationships (Harmon, 2003; Kassab et al., 2010). Conflict has been separated into two types, task conflict and relationship conflict with each possessing different characteristics and outcomes. If it is task conflict relating to the organization and execution of work activities on a construction project, it can be beneficial for all stakeholders. If it relationship conflict, it is detrimental for those involved as it lowers their performance, affects the schedule and impacts the budget.

The purpose of this chapter is to discuss, interpret and apply the results of the study found in the data and presented in chapter four. The research data will be used in conjunction with the theoretical framework of relationship conflict as established in the scholarly literature and extended into the context of the construction industry to explain and interpret relationship conflict in construction management. The purpose will be to provide understanding and insight for the construction industry and add to the body of knowledge in the scholarly literature. In addition, limitations of the study will be discussed and recommendations for further research will
be given. The sections for this chapter will consist of, a summary of the results, discussion of the results, implications of the study results, recommendations for further study, and a conclusion.

Summary of the results

Research has defined conflict into two distinct categories, task conflict and relationship conflict, each with differing effects. Task conflict is a regular occurrence when people work together to accomplish a particular task and is primarily cognitive in nature. Task conflict can be experienced in dyads or teams and consists of differing views in approaching the task at hand and may involve ideas, opinions, judgments, and even animated discussions but it is low in emotional content. Research has shown task conflict at mid-range levels to be beneficial for enhancing performance of groups (Amason, 1996; Behfar, Peterson, Mannix & Trochim, 2008; De Dreu, 2006; Jehn & Mannix, 2001).

Relationship conflict is based in interpersonal conflict and can involve tension, feelings of friction, annoyance, frustration and animosity. The goal of accomplishing the task at hand becomes obscured as relationship conflict surfaces, decision quality lowers, and performance is diminished (Amason, 1996; De Dreu, 2006; Jehn & Mannix, 2001; Yang & Mossholder, 2004). Research reveals that task conflict must be separated from relationship conflict in order to promote performance in the former, and find a means to discourage and avoid the latter so that team performance is not hindered (Amason, 1996). This distinction between task conflict and relationship conflict and their outcomes is the theoretical foundation from which the study was conducted and by which the results were interpreted.

The research question that served as the foundation for this study was: “How does relationship conflict in construction management affect performance and profit?” The significance of this topic can be seen in two distinct areas. First, there is no existing research
examining the effects of relationship conflict on performance and profit in construction management. This study fills a void by answering the research question and extending the existing theory on relationship conflict into the construction industry and literature. This study fills a void by answering the research question concerning performance as found in the schedule. The profit aspect of the research question was answered in theory but not actual numbers, which will be discussed in this chapter. Second, suggestions for the construction industry concerning the causes of relationship conflict in construction management, avenues to mitigate relationship conflict, and its effects on performance and profit.

The research methodology used for this study was a qualitative grounded theory approach. Grounded theory is most beneficial when there is a complex topic that needs to be understood in the voices of the participants, and is particularly useful when no prior research exist examining the topic (Creswell, 2007; Jones, 2009). The goal of the grounded theory approach for this study is theory extension based in the data of the participant’s interviews and drawing from the existing theory on relationship conflict.

The findings drawn from the data of the participant’s interviews consisted of five main categories that serve as a foundation to answer the research question found in Category 3. The five main categories were, Category 1, the biggest contributors to relationship conflict with subcategories of, lack of communication, “old school” attitude, and lump sum contracts and a focus on the bottom line. Category 2, primary players in relationship conflict which involved the owner and owner’s representative, subcontractors, and superintendents. Results of Category 1 and Category 2 provide data and support to answer the research question found in Category 3, how relationship conflict affected performance and profit in construction management. Category 3 included two subcategories, schedule and budget, that were the key factors affected by
relationship conflict. Next, Category 4, described how construction management professionals mitigated relationship conflict, and Category 5 explained how relationship conflict affected construction management professionals personally. Each of the categories and subcategories fit under Category 3, how relationship conflict affected performance and profit in construction management, and Category 3 served as the primary category that was used to answer the research question.

**Discussion of the results**

The research question examined the effect of relationship conflict on performance and profit in construction management. Data was collected from face-to-face and over the phone interviews with construction management professionals. From the data analysis, five main categories and 10 sub-categories emerged as key factors in answering the research question. Table 5 provided here as found in chapter four, contains the categories and sub-categories derived from the data analysis.

**Table 5 Categories and sub-categories resulting from the data analysis**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub-Category</th>
<th>Sub-Category</th>
<th>Sub-Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.) Biggest contributors to relationship conflict</td>
<td>Lack of communication</td>
<td>“Old school” attitude</td>
<td>Lump sum contracts and a focus on the bottom line</td>
</tr>
<tr>
<td>7.) Primary players in relationship conflict</td>
<td>Owner &amp; owner’s representative</td>
<td>Subcontractor</td>
<td>Superintendent</td>
</tr>
<tr>
<td>8.) How relationship conflict affected performance and profit in construction management</td>
<td>Schedule</td>
<td>Budget</td>
<td></td>
</tr>
<tr>
<td>9.) How construction management professionals mitigated relationship conflict</td>
<td>Communication</td>
<td>Trust</td>
<td></td>
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<tr>
<td>10.) How relationship conflict affected construction management professionals personally</td>
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In order to answer the research question found in Category 3, the factors impacting relationship conflict and subsequently affecting performance and profit will first be addressed. The two factors or categories impacting relationship conflict so that performance and profit were negatively affected are, Category 1, biggest contributors to relationship conflict and Category 2, primary players in relationship conflict. Figure 2 illustrates how these two categories along with their sub-categories impact relationship conflict as antecedents, which then causes relationship conflict to affect performance, profit as found in the budget, and participants personally.

Figure 2 Conceptual model of the results
As a result of the study the model has changed. The factors producing relationship conflict which were previous not discovered are now described in the model, and factors mitigating relationship conflict have changed. Emotional intelligence was a moderating factor found in the literature, but was not evident in this study. In the participant’s examples and stories, emotional intelligence was not evident as a mitigating factor in reducing relationship conflict. Instead, trust and communication were the construction management professional’s solutions to mitigate relationship conflict.

Category 1, biggest contributors to relationship conflict with it sub-categories will be discussed first, followed by Category 2, primary players in relationship conflict and the significance of their interrelatedness.

**Category 1: Biggest Contributors to Relationship Conflict**

The category of biggest contributors to relationship conflict is comprised of three sub-categories that explain the participants’ understanding of what factors contribute to relationship conflict in construction management. The sub-categories were, *lack of communication*, “*old school*” attitude, and *lump sum contracts and a focus on the bottom line*. As three distinct contributing factors, each of these sub-categories functioned as an initiator of relationship conflict.

**Lack of communication.**

Lack of communication was identified among participants as the number one contributor to relationship conflict, “without a doubt, communication is number one, that or lack of communication, I should say” (SP.1). As communication among stakeholders in construction management encountered problems, relationship conflict increased. Communication problems
typically resulted from a lack of communication between stakeholders. For example, the owner and contractor can become adversarial over changes to the scope of work or errors in the plans. A problem such as this mandates a need for increased communication in order to solve the conflict between parties, but instead the research data revealed that communication often decreased. The lack of communication between the parties initiated relationship conflict between them which in turn diminished communication even further. In the process, salient issues that initiated the conflict become heightened and emotional charged leading to relationship conflict.

With good communication many of the issues encountered by the participants would have been resolved without relationship conflict and its detrimental effects. But instead, a lack of communication led to increased frustration, friction, and at times animosity which are the makings of relationship conflict. As communication diminished, relationship conflict increased which led to even less communication because of the friction between stakeholders. This cycle spiraled away from the communication necessary to effectively execute the construction of the building project, and instead produced relationship conflict between stakeholders as the cycle perpetuated, with the result being a diminished performance level of the construction management professionals.

Communication is key for the sharing of important information that is necessary for decision making. As communication diminishes so does information sharing and consequently decision making quality (De Wit et al., 2013; Mesmer-Magnus & DeChurch, 2009). Therefore, lack of communication has a reciprocal affect. As communication is lessened, relationship conflict increases which causes even less communication and the information sharing that is necessary for quality and timely decision making. As decisions become less timely and quality as a result of this process and relationship conflict, in the end performance is ultimately lowered.
Within the construction industry, communication has been identified as a key component in mitigating conflict. Communication is also identified in construction literature as a key performance indicator, and good communication is considered one of the hallmarks of achieving high performance on a construction project (Harmon, 2003; Jones, 2006; Menches & Hanna, 2006). What this current relationship conflict research reveals is the significant impact of communication on relationship conflict in particular, with its detrimental effects and not just conflict in general.

“Old school” attitude.

The “old school” attitude as identified by the participants was the number two contributor to relationship conflict, and was typically found among, but not limited to, older superintendents on a management team and at the jobsite. The “old school” attitude was well known by the participants and involved promoting one’s own personal agenda at the expense of the management teams performance, communicating covertly and overtly that they are in charge and do not challenge that, at times yelling, screaming, and fist pounding, and a “my way or the highway attitude”. In some instances, the “old school” attitude created barriers between the individual displaying the attitude and other management personnel as they took the posture of a non-team player.

Relationship conflict is defined as interpersonal incompatibility which typically includes tension, feelings of friction, annoyance, frustration, dislike, personality clashes, and grudges (Jehn & Mannix, 2001; Simons & Peterson, 2000; Yang & Mossholder, 2004). The “old school” attitude described by the participant’s functions in a manner that produces the results of this definition in those around them. Rather than a collaborative environment that is open and receptive to other ideas and ways of doing things, the “old school” attitude has a narrow view
and there is only one way, their way, to do things. This creates tension, friction, frustration, and personality clashes between individuals with this attitude and management personnel and subcontractors. Typically these individuals have a high degree of tacit knowledge, but it is often left untapped due to their unwillingness to give away what they have stored up inside them.

This attitude created an atmosphere among management teams that lessened cohesion, increased relationship conflict and lowered performance. Senior management professionals spent more time in negotiation and conflict resolution with team members operating in the “old school” attitude, than any other team member. Relationship conflict between these team members and subcontractors and other management personnel was experienced as a regular occurrence. This resulted in an increase of relationship conflict and loss of time, energy, and performance as a result of the “old school” attitude. The “old school” attitude was not limited to older superintendents, but was evidenced in younger management professionals as well through their personal examples. A project manager and a project executive described how in their earlier years as project managers they were the ones who initiated relationship conflict. Their attitudes were hard driving, they did not communicate well with anyone, and they were not willing to work things out with the owners. Both of these professionals went through a personal evaluation time were they chose to change how they did business. As a result, they were strong proponents of building trust and relationships among stakeholders, communicating well, and working collaboratively. From the examples of these younger project managers it is evident that waiting until the older superintendents retire to solve the problem of “old school” attitude may not be the answer. The culture of construction has a tendency to breed this attitude and future research is needed to examine this.
Lump sum contracts and a focus on the bottom line.

Lump sum contracts were described by construction management professionals as inherent with conflict between the owner and contractor. Owners chose this type of contract to maintain control on the bottom line and protect their interests, but this type of contract often leads to relationship conflict with its effects. Lump sum contracts (also known as design-bid-build and hard bid) account for 60% of all contracts between owners and contractors in the construction industry (CMAA, 2012), yet most construction management professionals have experienced them as intensely conflict laden and a means for relationship conflict.

The relationship conflict experienced between the owner and contractor centered in the lump sum contract as it facilitated the owner’s focus on the bottom line. The differing perspectives of the stakeholders led to relationship conflict over money—the owner did not want to spend more on changes or errors in the plans and the contractor wanted to be fairly compensated for both. The lump sum contract then becomes what some see as a breeding ground for relationship conflict, “So, the design-bid-build process itself breeds that conflict just in its simplicity” (P.5). The opposing views of the stakeholders around the execution of the lump sum contract pertaining to money issues become contention points that often lead to relationship conflict.

Within the construction literature, lump sum contracts are understood to be a source of conflict as a result of the differing perspectives of the stakeholders. The owner is concerned with maintaining the original contract price and minimizing costs associated with changes, while the contractor wants fair compensation for changes, errors in the plans, and differing site conditions (Gebken & Gibson, 2006; Gould & Joyce, 2006; Harmon, 2003; Ning & Ling, 2013). These
differing perspectives become the framework for relationship conflict in a lump sum contract environment

A key issue with lump sum contracts is the category of negotiation in which it resides. The fundamental nature of a lump sum contract establishes a negotiation practice in respect to change orders, plan errors, or any increase to the contract amount, as a distributive negotiation process involving a win-lose atmosphere. Each of the stakeholders’ interests are in direct opposition to the other creating a conflict laden situation from the start (Lewicki, et al, 2010). The goal in negotiation between the owner and contractor should be to move to an integrative negotiation position were the value of each party’s position is understood by the other party and each side believes there is a win for them in negotiating. As Fisher, Ury, and Patton (2011) state, “Behind opposed positions lie shared and compatible interests, as well as conflicting ones” (p. 44). These “shared and compatible interests” must be understood by each side for negotiation to take place and relationship conflict with its outcomes reduced or eliminated. Within the lump sum contract environment this is difficult to do and requires a willingness on the part of the owner to more fully understand the interests of the contractor.

Because of the conflicts associated with lump sum contracts, both owners and contractors are actively pursuing avenues to lessen the inherent conflict. The research data revealed that change is occurring as more owners are switching to design-build contracts that provide more of a collaborative contractual relationship and help reduce conflict that is associated with the lump sum contract.

**Category 2: Primary players in relationship conflict**

The primary players or individuals with whom relationship conflict was experienced were identified by the participants as the owner and owner’s representative (for the sake of
discussion, owner and owner’s representative will be referred to as to as owner), subcontractor, superintendent, and architect. The owner, subcontractor, and architect are stakeholders and the superintendent is a construction management professional.

**Owner.**

With respect to primary players in relationship conflict, the research revealed that owners where twice as likely to cause relationship conflict as subcontractors as the primary player in relationship conflict. Within the construction industry and literature, an adversarial relationship between the owner and contractor is the norm as their conflict centers on disputes over the contract. What is surprising in this research, is the degree of relationship conflict between the owner and contractor and how it affects performance. Further research is needed to definitively define the effects of relationship conflict between the owner and contractor on performance.

The relationship conflict between the owner and construction management professionals centered on differing perspectives with relationship to the contract, and in particular additional money for changes and errors on the plan. This is interrelated with the lump sum contract sub-category as the owner becomes adversarial over increases to the budget, yet wanting to get the most out of the contractor as described in the research data.

As revealed in the data from chapter four, the conflict between the owner and contractor can lead to a basis of communication that involves letter writing, emails, and protecting each sides’ position in case litigation occurs. Rather than conduct business in a relational manner, all communication is recorded in some way in case it needs to be used to protect a party’s position. This type of communication between the owner and contractor varies in severity when there is relationship conflict and requires an inordinate amount of time and energy to communicate. The result when there was relationship conflict between the owner and contractor was lowered
performance, loss of time, personal stress on management personnel, and stress on the management team.

Within construction management literature there is support for this finding. The contractor’s relationship with the owner has traditionally been adversarial to some degree as the interests of both stakeholders arise from opposing views (Harmon, 2003; Gebken & Gibson, 2006). The owner is concerned with maintaining the original contract price and minimizing costs associated with changes, while the contractor wants fair compensation for changes and any errors in the plans (Harmon, 2003; Gebken & Gibson, 2006; Gould, 2006). Within these differing perspectives, relationship conflict can develop rapidly. It is unknown how many of the participants who identified the owner as a primary player in relationship conflict were doing so from a lump sum contract perspective or a different contract type. This will be discussed further in the limitations.

**Subcontractor.**

The subcontractor was the second most identified player with whom relationship conflict occurred. Construction management professionals described scenarios with specific subcontractors as being difficult to work with on construction projects. It was typically one subcontractor out of dozens who didn’t communicate, wouldn’t adhere to the project schedule, fought with the management team over small and insignificant items, and basically didn’t work as a team player with the contractor or other subcontractors. This produced relationship conflict between the management team and the subcontractor which affected other subcontractors and in some cases the relationship between the owner and contractor. The result of this relationship conflict with the subcontractor was loss of time by the contractor as their management team
worked with the subcontractor, and a decrease in performance as a disproportionate amount of energy, time and focus was spent working with one particular subcontractor.

Because the subcontractor is an independent entity from the general contractor, control over them is limited. There is financial leverage, but it is limited to the specifics in the contract. When a subcontractor has an attitude and business practice that promotes relationship conflict, a building project can seem to last a long time and the subcontractor’s attitude can have an impact on the entire project.

In existing construction literature, the contractual relationship between the contractor and subcontractor has been identified as inherently adversarial due to an imbalance of power between the two parties (Jin, X.H., Zhang, G., Xia, B. Feng, Y., 2013). Contracts between the contractor and subcontractor are lump sum agreements, and similar to the owner and contractor lump sum contracts. Like the owner, the contractor holds the power as they will or will not pay the subcontractor. Therefore, conflict is understandable in view of the conflicting perspectives with which project scope changes are viewed. But the degree of relationship conflict experienced by the construction management professionals with respect to the subcontractor invites more examination. While existing literature identifies conflict between contractors and subcontractors, it is primarily contractual, and the distinction of relationship conflict is absent.

**Superintendent.**

The superintendent as identified by the participants is the one primary player in relationship conflict who stands apart from the owner and subcontractor. As described in chapter four in the research data, the superintendent was the only management team member around whom relationship conflict centered. The superintendent is considered a member of the management team and not contractually bound with the contractor to the project like the owner.
and subcontractor. Therefore as a member of the management team the superintendent affects personnel and relationship conflict from inside the management team. Those most affected by the superintendent were project managers and senior project managers through the course of a construction project. Not all superintendents were initiators of relationship conflict, but when they were there was an evident attitude that was divisive, argumentative, and conflict prone.

The primary reason for relationship conflict with the superintendent was an “old school” attitude in which they managed the project. Each scenario of relationship conflict described by other management team members involved this attitude and its negative effects. This interrelatedness of the sub-category of “old school” attitude and the superintendent as a primary player in relationship conflict was significant. The “old school” attitude combined with the role of superintendent put a key management team member at the center of the construction project as an initiator of relationship conflict. The relationship conflict produced by the superintendents created a negative atmosphere on the management teams, relationship conflict between project managers of contractors and subcontractors, and consumed inordinate amounts of time for upper management to resolve conflicts between the superintendent and subcontractors. The result was a loss of time and performance for the management team, and the introduction of a negative atmosphere.

The superintendent is an essential management component for the scheduling, managing, and construction of a project. Years of practical building experience is a typical requirement for a good superintendent along with the ability to manage numerous subcontractors and employees. The tacit knowledge of these individuals is indispensable to the construction project and management of subcontractors and the labor force. It is a unique position central to a building
project. At the same time, the “old school” attitude resident in some superintendents has a significant impact in initiating relationship conflict and its detrimental effects.

**Architect.**

Though the architect has traditionally been viewed as a key player in conflict among construction management professionals, the data from the interviews of the participants reveals a shifting perspective among construction management professionals. The architect was identified as a primary player in relationship conflict, but to a much lesser degree than the owner, subcontractor or superintendent. This is attributed to an attitude and practice shift in the construction industry as construction management professionals endeavor to work collaboratively with the architect and not view them within an adversarial role.

Among the participants who talked about the architect, there was admittedly conflict but the architect was not a primary player in relationship conflict and the conflict encountered was considered more of a task conflict. The project executives in particular discussed the shift in the industry from an adversarial relationship with the architect to more of a collaborative working relationship where the architect and contractor are on the same team. Though this change is not universal in the construction industry, the process is taking place as evidenced in the interview data of the participants.

**Category 3: How relationship conflict affected performance and profit**

This category provides answers to the research question and will explain how relationship conflict affected performance primarily through a protraction of the schedule. In a general sense, there was also an effect of relationship conflict on the budget as some participants identified general costs associated with relationship conflict. The effect of relationship conflict on the
schedule and budget generally translate to a loss of profit, but actual hard dollar amounts could not be specifically associated with relationship conflict and present a limitation for this study.

Category 1 and Category 2, biggest contributors to relationship conflict and primary players in relationship conflict respectively, were factors that produced relationship conflict for construction management professionals. Relationship conflict needed initiators for the outcomes to carry sufficient force to produce a negative effect on performance and profit. It was discovered that combinations of both categories 1 and 2 worked together to initiate and increase relationship conflict with a subsequent detrimental effect on performance and profit. Each of the category 2, primary players in relationship conflict, either functioned in one of the factors from category 1, or a combination of the factors.

Relationship conflict was typically encountered with owners when lump sum contracts were the project delivery method. Subcontractors who produced relationship conflict communicated poorly, didn’t work as team players, and at times operated in a contentious “old school” attitude. When superintendents were the agent of relationship conflict, an “old school” attitude and low communication were prevalent. There was not any one single factor that produced relationship conflict, but an interrelatedness between different factors that accentuated relationship conflict.

Once relationship conflict was initiated through combinations of these factors, the effects were seen in two main areas, schedule and budget. Schedule and budget along with communication are the three main performance indicators for construction projects as maintained by Menches & Hanna (2006) and described in chapter one. Therefore, resulting from the data analysis, schedule and budget which are performance indicators within the construction industry,
were identified as outcomes of relationship conflict among construction management professional.

**Schedule.**

As relationship conflict entered the construction management environment in some combination of Category 1 and 2, its effect on schedule resulted in a protraction of the schedule. Relationship conflict consumed sufficient time and energy so as to slow the building project and thereby negatively affect the schedule. The three primary players in relationship conflict, owner, subcontractor, and superintendent were all involved in various scenarios with construction management professionals in ways that produced relationship conflict and thereby a schedule delays. These primary players in relationship conflict combined in various scenarios with *lack of communication, “old school” attitude, and lump sum contracts* produced adequate relationship conflict to slow progress, affect performance on the management team, and impact the schedule.

The schedule delays described by the participants ranged from 11 days to 6 months and involved associated overhead costs. This was a clear indicator of performance loss as seen in the schedule duration increase that resulted from relationship conflict. The impact on schedule duration is assumed to result in a profit decrease due to increased overhead costs associated with a schedule duration increase without an increase to the contract price (Gould & Joyce, 2006).

Schedule delays resulting from relationship conflict occurred as a result of several factors related to the effects of relationship conflict. Participants described scenarios of communication breakdowns resulting from relationship conflict that left stakeholders in a letter writing and email communication process rather than face to face or over the phone. Participants referred to this as “throw it over the fence” or “throw it over the wall”, meaning their communication with other stakeholders became very defensive, protective, and adversarial. This produced a lowered
information sharing environment that slowed the decision process and protracted the schedule.

Rather than look for collaborative ways to solve the problems in front of them, each party pulled back into their respective camp, communicated in calculated slow methods, and thereby protracted the schedule.

Another example found a superintendent and project manager arguing and blaming each other over issues on a project as a result of relationship conflict. The arguing and blaming distanced them from each other, made them defensive about each other’s ideas, and decreased communication and collaboration needed to accurately schedule the project. The result was poor management of the project, a dysfunctional environment and a duration increase to the schedule. In a separate instance, a superintendent experiencing relationship conflict with a subcontractor found the subcontractor purposely slowed the project down. The subcontractor chose to work slower and not staff the project adequately as a result of the relationship conflict with the superintendent. This had a significant impact on the project due to the subcontractor’s central position in the work activity sequencing. The other subcontractors needed his work to be complete or the majority complete for their work to commence. The result was a one month protraction of the schedule, which impacted not only the general contractor but also several of the other subcontractors.

Existing literature confirms this finding of performance loss and provides insight into how this performance loss affects the schedule. During relationship conflict team member’s cognitive functioning is lowered as cognitive resources necessary for decision making and creative thinking are used to overcome increased anxiety produced by relationship conflict. In addition, the synthesizing of individuals’ perspectives and skills is diminished as the consensus needed for timely decisions is undermined as a result of relationship conflict (Amason, 1996;
These decision making skills and creative thinking necessary for the fast pace and complexity of a construction project become diminished as a result of relationship conflict. The consequence is a delay in the crucial aspect of any construction project, the schedule. For example, a project executive described a building project that was estimated to be 18 months in duration, but actually took 24 months to complete. Some of the schedule delay was due to changes to the scope of work, but a large percentage was associated with relationship conflict. The participant described poor decisions with sequencing of work on the project that resulted in schedule delays.

The collective cognitive resources necessary on a complex project for quality decision making with respect to sequencing of work was lowered as a result of relationship conflict among the stakeholders.

In addition to lowered cognitive function and lack of consensus resulting from relationship conflict, decision quality is directly affected by lack of information sharing resulting from a rigidity to share information and when it is shared it is often in a biased manner (De Wit et al., 2013). This has a direct impact on a construction management team as the available information pool necessary for quality and timely decisions is lessened by relationship conflict (Mesmer-Magnus & DeChurch, 2009). A project manager gave an example of a project were the management team encountered significant relationship conflict in the first few months. The result was a low sharing of important information, lowered decision quality and an increase in the schedule of 11 days. This increase was not related to changes in the scope of work, but specifically tied to the management team’s lack of communication and information sharing that resulted from relationship conflict between the team members and particularly the management team and the superintendent.
Sharing information that is uniquely held directly affects the quality of decision making and performance through an increase in the information pool and positive increase in the relational climate of the project stakeholders (Mesmer-Magnus & DeChurch, 2009). When relationship conflict was encountered between project managers of two different firms on a project, communication was reduced to a minimum for several months. Information held by each project manager was not shared and when it was it was not shared in timely manner. This produced an increase to the schedule duration for the participant’s firm that he estimated cost $40,000 in additional overhead costs.

**Budget.**

Directly related to the schedule is budget as an increase in the schedule duration negatively affects the budget. The budget represents the initial estimate of costs to construction the project, and schedule delays increase overhead costs, such as management salaries, insurance, and rentals associated with the project. These increased overhead costs decrease impact the budget and consequently profits associated with the project. The exact correlation between relationship conflict and hard dollar amounts of profit lost is beyond the scope of this study and represents a limitation and an opportunity for further research which will be discussed later in the chapter.

Financial loss resulting from adversarial conflict between contracting parties has been identified within construction management literature (Harmon, 2003; Ning & Ling, 2013). This loss is typically associated with contractual conflicts that led to arbitration, mediation, or litigation and research has studied what percentage of the project price is spent on one of these forms of Alternative Dispute Resolution (ADR) (Gebken & Gibson, 2006). However, specific
dollar amounts of financial loss associated with relationship conflict among construction management professionals has not yet been studied or identified.

The following examples of loss on a project taken from the data are not a definitive research finding, but a beginning place and the participant’s perceived effect of financial loss associated with relationship conflict. One project executive described a ten million dollar loss on a project that he associated with relationship conflict with the owner over change orders and problems with the drawings, and with increased costs for materials. The breakdown of the ten million dollar loss on that stated project as to what was attributed to relationship conflict and what was loss due to material increase was not available. Another project executive explained how relationship conflict with a project manager of another firm produced delays and inefficiencies with an estimated $40,000 loss on the project. A third project executive described how communication barriers between his firm, the owner, and the architect, poor management decisions and relationship conflict resulted in approximately a $500,000 loss on the project.

The findings under in this subcategory present an overview of financial loss resulting from relationship conflict which is not tied to specific dollar loss on a project. Further research is necessary to link relationship conflict to profit loss in exact dollars. For this study, loss associated with relationship conflict occurs through schedule protraction and examples of participants that describe general dollar amounts. To be discussed further in the limitations, the loss may have many factors associated with it besides relationship conflict and this would need to be examined in further research.

**Category 4: How construction management professionals mitigated relationship conflict**

Communication and trust were identified by industry professionals as the most common and valuable solutions to mitigate relationship conflict. This stands to reason as lack of
communication was the biggest contributor to relationship conflict, good communication and trust are now the primary means to mitigate relationship conflict.

The significance of understanding how construction management professionals mitigated relationship conflict resides in the fullness of explanation it brings to the topic. For example, lack of communication is the biggest contributor to relationship conflict and good communication mitigates relationship conflict. Without an examination of the practices by management professionals to mitigate relationship conflict, this would not be known.

**Communication.**

Upper management professionals in particular identified communication as key to mitigate relationship conflict, as five of the eight project executives and two out of three senior project managers had this opinion. Their view was twofold, both in who they are managing such as project managers and subcontractors, and in who their client is, as in the owner. Their experience with the lack of communication in Category 1 had shown them the usefulness of good communication to mitigate and resolve relationship conflict. The consequences of a lack of communication in working with either the owner, a project manager, or a subcontractor had emphasized to the construction management professionals that clear and concise communication on a regular basis was needed. “So, from my perspective, the best way I can avoid conflict is to provide very clear communication on what my expectations are, to whoever it is I’m working with, whether it be my client, my staff, or subcontractors” (SP.1).

This is a high level understanding in the use of communication as a means to mitigate relationship conflict. These executives, along with the project managers and senior project managers who identified communication as a key factor to mitigate relationship conflict, had experienced the value of good communication in mitigating relationship conflict. This insight
into the importance of communication in mitigating relationship conflict emphasizes the negative effects of poor communication as lack of communication was shown to be the biggest contributor to relationship conflict. These two factors, lack of communication and good communication, are two opposing sides of communication that either negatively or positively affect relationship conflict.

These findings are supported in scholarly literature. Good communication in the form of collaboration and open mindedness about new ideas has been shown to mitigate relationship conflict in higher performing teams (Simons & Peterson, 2000). Communication has also been emphasized in construction literature as essential for preventing conflict and solving issues that could escalate and lead to lengthy delays and increased costs (Anderson & Polkinghorn, 2008; Harmon, 2003; Gebken & Gibson, 2006). Though communication is central as both a contributor to relationship conflict and a help in mitigating relationship conflict, further research is needed to discover what specific aspects of communication mitigates relationship conflict in the construction environment.

**Trust.**

Though not identified with as much significance as communication, trust was a key factor for management professionals in mitigating relationship conflict. As with communication, trust was identified by upper management professionals and those with greater years of tenure. This reflected a seasoned view that taught these professionals the value of trust to mitigate conflict. Each of the professional’s views on trust was preceded with a story of extreme relationship conflict when there was no trust or very little trust between stakeholders.

These professionals explained that trust was not automatic, but had to be built and maintained. Their opinion was that without trust there was going to be conflict, but with trust
between themselves and stakeholders it would be softened or eliminated. This is consistent with the existing scholarly literature. When teams encounter relationship conflict, research has shown that trust moderates the detrimental effects of relationship conflict and was also found to inhibit the misattribution of task conflict as relationship conflict (Simons & Peterson, 2000). Trust has also been found to moderate relationship conflict as a result of its ability to build and maintain cohesion among team members (Lau & Cobb, 2010; De Dreu & Weingart, 2003; Jehn & Mannix, 2001; Korsgaard et al., 2002; Simons & Peterson, 2000). Korsgaard et al. (2002) also found that when trust had been previously established between the team members through open communication and showing concern for others, it serves to lessen the effects of the relationship conflict and help the parties involved make sense of the situation.

Construction management literature maintains that trust and open communication between stakeholders is a crucial component for the prevention of costly conflicts (Anderson & Polkinghorn, 2008; Harmon, 2003; Kumaraswamy et al., 2005). A few items were mentioned by the participants that helped build trust among stakeholders in construction, such as a meal after work, a beer together, or golfing. Further research is needed to discover the best practices among construction professionals for building trust with stakeholders so as to mitigate relationship conflict.

Category 5: How relationship conflict affected construction management professionals personally

An examination into the effects of relationship conflict on management professionals personally is useful for understanding how some of the more obscure effects ultimately affect the performance of management personnel. Though these effects are personal and usually hidden and not discussed openly, there is a real impact to the individual and their performance at work.
The effect of relationship conflict to the participants on a personal level involved mental, emotional, physical, and relational consequences. Some of the effects were more internal and personal, while other effects were more outward as experienced in their family life. Some of the professionals discussed their loss of joy for their work, and others mentioned the stress level and actual lowering of their life span as a result of the stress. The actual drop in performance with respect to relationship conflict experienced was not examined. But the impact on each participant personally was explained in terms of mental and emotional stress as they felt joy for their work lowered, performance affected, and their families impacted.

**Implications of the study results**

Implications for scholarly literature and practical construction industry application will be discussed in this section. The findings provide researchers with an extension of existing relationship conflict theory concerning antecedents and outcomes of relationship conflict in a construction management setting. For the construction industry, there is practical application that explains what construction management professionals have experienced, what are the causes of relationship conflict, what is being done to mitigate relationship conflict, and how it affects performance and profit.

**Implications for scholarly literature**

A goal of this study in answering the research question was to extend the existing relationship conflict theory into the construction industry. Existing relationship conflict theory begins with a distinction between task conflict and relationship conflict and includes the contributing factors of tension, feelings of friction, annoyance, frustration, dislike, personality clashes, grudges, and animosity (Jehn & Mannix, 2001; Simons & Peterson, 2000; Yang & Mossholder, 2004). The outcomes or relationship conflict within existing literature were lowered
performance as evidenced in lowered decision quality, lowered commitment to the group, and lack of consensus (Amason, 1996; De Dreu & Weingart, 2003; De Wit et al., 2013; Jehn, Greer, Levine, & Szulanski, 2008; Jehn & Mannix, 2001; Lau & Cobb, 2010; Simons & Peterson, 2000).

This study extends the existing relationship conflict theory by identifying additional antecedents and outcomes of relationship conflict within the construction industry. Antecedents of relationship conflict were identified as “old school” attitude and primary players as seen in the subcontractor and superintendent. Outcomes of relationship conflict within the construction industry were identified as protracted schedule and increased budget costs. These outcomes have been previously identified but not directly linked to relationship conflict. In addition, communication has been understood to affect conflict in construction, but the differentiation of task and relationship conflict has not been identified in regards to communication’s effect on relationship conflict in both contributing to it and mitigating it.

Construction literature describes the rough nature of the industry, but the “old school” attitude with its associated contributing factors to relationship conflict has not been studied. This study has identified the “old school” attitude, explained it, and shown the affect it has on promoting relationship conflict with its detrimental outcomes.

Primary players were identified as key contributors to relationship conflict and its outcomes. While the subcontractor has previously been identified in construction literature as adversarial and dispute prone in a contractual relationship with the general contractor, the issue of a subcontractor’s contribution to relationship conflict and its affects has not been studied. This study has identified the subcontractor as a primary player in relationship conflict with its resulting effect on schedule and budget. The participants maintained that the relationship conflict
was not dispute oriented as a result of the contract, but a result from the subcontractor’s negative and combative attitude which affected the project.

The superintendent previously had not been identified in construction literature as a primary player in the cause of relationship conflict. Conflict has been known to be around them, but their prominence in the promotion of relationship conflict has not been identified and studied. This is significant because of the central role a superintendent occupies at the project jobsite and on the construction management team.

**Implications for the construction industry**

Relationship conflict has detrimental effects on performance in construction management. The primary findings from this study indicate that schedule is protracted as a result of relationship conflict which has financial implications. Basically, a project just takes longer to complete when there is relationship conflict.

Second, a lack of communication can lead to relationship conflict which leads to lowered communication and in turn leads to further relationship conflict. This cycle of communication breakdown and relationship conflict needs attention in the construction industry. Feathers get ruffled easily when there is conflict in construction and sincere effort is needed among management professionals to actively promote good communication. Good communication is essential to diminish and prevent relationship conflict’s negative effects.

Third, primary players in relationship conflict have significant impact on the outcomes of protracted schedule and budget. The owner has been understood as a key player in relationship conflict but the subcontractor and superintendent have not. Their roles in initiating relationship conflict with its effects need attention. Subcontractors who do not work as team players on a
project and maintain an adversarial attitude can impact the project. Whenever possible, subcontractor choice on a project is critical to prevent the effects of relationship conflict.

Superintendents with their tacit knowledge of the construction process are essential to the management at the project site. But their “old school” attitude is detrimental to the project and produces relationship conflict that hinders the management process. The options in the industry are to ignore the issue and continue as before with relationship conflict generated by the superintendent with an “old school” attitude. Second, is to replace those with this attitude which would have a significant impact on construction projects because of their experience level and tacit knowledge that is needed to manage a building project. And third, some type of training, management, and leadership by upper management could be enacted to help change this attitude within the superintendents. This is not an easy endeavor, but any movement or change in the direction of lessening the effects of the “old school” attitude will help lower the relationship conflict associated with these individuals.

Since the “old school” attitude was not limited to older superintendents, but was evidenced in younger management professionals as well, waiting until the older superintendents retire may not solve the problem or be the answer. The culture of construction has a tendency to breed this attitude and future research is needed to examine this. Can this “old school” attitude be changed in current superintendents and other with this attitude?

**Limitations**

A limitation to the study was an exact determination of profit loss from the effects of relationship conflict. The qualitative nature of the study lead to a discovery of a perceived effect of relationship conflict on profit by the participants, but it was not quantified. Participants discussed dollar amounts associated with loss resulting from relationship conflict, but it was in
general terms and loss of profit was not tied directly to relationship conflict. Because of the complexity of a construction project, lowered profit could have multiple factors associated with it. In the midst of relationship conflict between stakeholders and unrelated to it, a key subcontractor could experience bankruptcy, a specialty piece of equipment could be delayed and protract the schedule, or the management team could make decisions about sequencing of work that increased costs. Dozens of other scenarios could play out effecting profit on a project, and separating these factors from relationship conflict are essential in order to find the actual dollar amount attributed to relationship conflict.

A second limitation in this study was the lack of female construction management professionals. The construction industry is male dominated, but there are female construction management professionals. Anecdotal evidence indicates that women make better project managers with less conflict. Their perspective is needed to fully understand the antecedents and outcomes of relationship conflict in the construction industry.

A third limitation is the connection between lump sum contracts and the relationship conflict experienced with the owner. Some of the participants identified the lump sum contract in conjunction with the relationship conflict experience with the owner, but others did not. Since lump sum contracts were identified as a contributor to relationship conflict as well as the owner, a distinction needs to be made between lump sum contracts and the owner as initiators of relationship conflict. Does relationship conflict only occur when these two are connected, or is relationship conflict produced equally when there is an owner and a different contract type?

A fourth limitation is the participants understanding of task conflict verses relationship conflict. Though a definition of each was explained at the start of each interview and questions were asked specifically about relationship conflict only, a clear distinction between the two by
the participants would enhance the study. It is possible that some of the examples may have been task conflict, and some type of questionnaire in future research would need to be used to accurately define between the two types of conflict.

**Recommendations for further research**

Because of the complexity of the construction industry, separating unnecessary factors effecting profit from relationship conflict is difficult. Yet this must be accomplished in order to determine an amount of profit loss associated to relationship conflict. To simplify the complexity aspect, a study of relationship conflict’s effects on profit among subcontractor management teams would be beneficial. A subcontractor typically is responsible for one aspect of a building project, such as HVAC (heating ventilation and air conditioning). They typically have fewer suppliers, and subcontractors than the general contractors, and their interface at the project is significantly less complex than a general contractor. Relationship conflict studied within a subgroup such as an HVAC subcontractor may prove beneficial in order to generalize the findings to general contractors.

In addition the contractors studied for this research where predominately commercial contractors who were privately owned. The heavy construction sector of the construction industry have fewer subcontractors and the owners associated with these projects are more public such as states, counties or municipalities. This would allow access to accounting records to verify hard dollars associated with loss resulting from relationship conflict.

The owner was most often identified as the primary player who produced relationship conflict. Future research could discover which of the primary players in relationship conflict produce the most relationship conflict, and which one of them affects schedule the most.
Participants experienced relationship conflict on projects of various sizes and complexity. Is there project size and complexity that produces more relationship conflict than others? What combinations of project size and type contribute to relationship conflict with different primary players?

Some of the management professionals identified personal consequences of relationship conflict. Future research could examine the actual performance loss resulting from relationship conflict at a personal level as schedule and budget are affected.

The schedule is a primary performance indicator for construction, and a protracted duration in the schedule has financial implications for a construction project. Future research needs to be conducted as to which primary player and which biggest contributor to relationship conflict affect schedule the most. Also, which combination of these two has the most impact on schedule?

**Conclusion**

The construction industry is a large and complex industry impacted by an adversarial culture that affects its performance and profitability. Relationship conflict has been separated from task conflict, defined as interpersonal conflict between individuals, and identified as a significant contributor to lowered performance on construction management teams. Contributors to relationship conflict in construction management have been identified as lack of communication, “old school” attitude, and lump sum contracts. Primary players in relationship conflict were shown to be the owner, subcontractors, and superintendent. Both the contributors and player in relationship conflict combine to produce outcomes that affect performance in the construction industry.
The primary affect relationship conflict enacted on performance in construction was found to be on the schedule. The schedule is not only a performance indicator, but also has direct impact on the budget. Protracted schedules increase costs on a construction project, which impacts budget and ultimately profit. Relationship conflict is a real and active element in the construction industry today with detrimental consequences. Research and action to discover more clearly its affects and means to mitigate it are evident from this research.
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Appendix A

Interviews on Relationship conflict in Construction
Email Draft

Hello, my name is Jim Vaux. I teach in the Construction Management Department at Washington State University. I am presently doing research on relationship conflict in construction and how it affects productivity and profit. I am setting up interviews with project managers and superintendents with the goal of hearing their story about relationship conflict in construction. I hope to find insight into the effects of relationship conflict in construction and means to resolve and prevent it.

Would you allow me to interview you? This interview will take 30-40 minutes and will be completely confidential with names removed. The responses will be accumulated to identify trends on the topic.

I will be in the Seattle area next week (Tuesday through Friday) and the week of July 8th. If you have time for the interview, please let me know by responding to this email or calling my cell phone.

Thank you for your time.
Jim

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Appendix B.1

Relationship Conflict in Construction
Research Interview Questions

1. How long have you worked in the construction industry and at what roles?
2. What type of conflict have you experienced while working in construction (task, relationship)?
3. What is the typical cause of the conflict and how often does it escalate?
   a. Resource allocation
   b. Construction process
   c. Interpersonal tension, friction, annoyance or frustration (relationship conflict)
4. What do you believe is the major cause of relationship conflict in construction?
5. In your opinion, how does relationship conflict affect your ability to perform your job?
6. Have you experienced a personal “shutting down” emotionally due to conflict and how did this affect your performance and those around you?
7. Does relationship conflict affect the profitability of a project and/or company? How?
8. Task conflict typically involves disagreement over the task at hand which can be resource allocation, the construction process at hand, labor assignments, or subcontractor scheduling.
   a. How often do you experience this type of conflict and what effect does it have on your work and relationships?
9. Relationship conflict involves interpersonal (between individuals) incompatibility and can include: tension, friction, annoyance, frustration, dislike, or animosity.
   a. How often do you experience this type of conflict and how does it affect your performance at work?
   b. How does it affect workplace environment?
   c. Does it affect profitability?
10. What is one of the most difficult relationship conflict experiences you have had while working in construction? What was the impact on you and those around you?
Appendix B.2

Relationship Conflict in Construction
Research Interview Questions
Revised 6.20.13

Give a brief history of your work experience in construction, what roles you’ve had and how you got to where you are today.

1. What has been your experience with relationship conflict (differentiate between contract, task and relationship conflict) in construction and how has it affected your job performance, that of others, profit?
2. What is one of the most difficult relationship conflict experiences you have had while working in construction? What was the impact on you and those around you?
3. What do you believe is the major cause of relationship conflict in construction?
4. Why does this topic interest you? Is there a problem in construction around this topic?
5. Each industry has its own culture. How does the culture of construction affect relationship conflict?
6. What role does leadership play in mitigating conflict?

7. What impact does relationship conflict have on workplace health, morale, productivity?
8. Have you observed relationship conflict between others and what was the effect it had on them?
9. How much time do you spend dealing with relationship conflict between:
   a. Yourself and others
   b. Between others
10. On a scale of 1-7, how much relationship conflict do you experience in a week/month?
Appendix B.3

Relationship Conflict in Construction
Research Interview Questions

Give a brief history of your work experience in construction, what roles you’ve had and how you got to where you are today.

1. What has been your experience with relationship conflict (interpersonal/between individuals, can involve friction, annoyance, frustration or animosity) in construction and how has it affected your job performance, the performance of those around you and the project? This could with an owner, architect, within your company, or with a subcontractor.

2. What is one of the most difficult relationship conflict experiences you have had while working in construction? What was the impact on you and those around you?

3. What do you believe is the major cause of relationship conflict in construction?

4. Do you believe there is value discussing this topic for those in construction? Why? Is there a problem in construction around this topic?

5. Each industry has its own culture. How does the culture of construction affect relationship conflict?

6. What role does leadership play in mitigating conflict?

7. What impact does relationship conflict have on workplace health, morale, productivity?

8. Have you observed relationship conflict between others and what was the effect it had on them?

9. How much time do you spend dealing with relationship conflict between:
   a. Yourself and others
   b. Between others
Appendix C

WASHINGTON STATE UNIVERSITY
Research Study Consent Form

Study Title: Relationship Conflict in Construction

Researchers:

W. Max Kirk  Principle Investigator, Assistant Director  Construction
Management Department 509-335-5074

Jim Vaux  Co-Investigator, Instructor,  Construction
Management Department 509-335-7583

You are being asked to take part in a research study carried out by W. Max Kirk and Jim Vaux. This form explains the research study and your part in it if you decide to join the study. Please read the form carefully, taking as much time as you need. Ask the researcher to explain anything you don’t understand. You can decide not to join the study. If you join the study, you can change your mind later or quit at any time.

What is this study about?

This research study is being done to study and understand relationship conflict in construction and how it affects performance and profit.

You are being asked to take part because of your role as a manager, superintendent, or leader in construction. Taking part in the study will take about 30-40 minutes.

What will I be asked to do if I am in this study?

If you take part in the study, you will be asked to respond to interview questions which will take about 30-40 minutes. The interview will focus on aspects of construction and how employees, management and subcontractors experience and deal with relationship conflict in the course of a construction project. An example of the most personal question to be asked is: “what is one of the most difficult relationship conflict experiences you have had while working in construction”. The interview will be voice recorded, transcribed, and converted to data along with other interviews and questionnaire responses. You may refuse to answer any question and stop the interview or questionnaire at any time. Your responses will be kept confidential, and there will be no connection by name between you or your company and the responses you provide. If you chose, the final results of the study will be made available to you.
Are there any benefits to me if I am in this study?

There is no direct benefit to you from being in this study. There may be industry benefits as the study identifies the effects of relationship conflict and possible means of reducing this conflict.

Are there any risks to me if I am in this study?

The potential risks from taking part in this study are possible distress or discomfort resulting from questions or discussion about previous relationship conflict experiences in construction. Care will be taken to minimize any possible distress or discomfort.

Will my information be kept private?

The data for this study will be kept confidential to the extent allowed by federal and state law. No published results will identify you, and your name will not be associated with the findings. Under certain circumstances, information that identifies you may be released for internal and external reviews of this project. Interviews will be transcribed and coded for data analysis, but data will be maintained separate from interviews in a locked office and coded in a way to maintain anonymity for all participants. In addition each interview will be independent of other interviews with complete anonymity maintained. Access to the data will include: W. Max Kirk, Jim Vaux, and Institutional Review Board (IRB).

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous.

The data for this study will be kept for a minimum of three years as required by WSU, but in an anonymous format.

Are there any costs or payments for being in this study?

There will be no costs to you for taking part in this study.
Who can I talk to if I have questions?

If you have questions about this study or the information in this form, please contact the researcher: W. Max Kirk, PO Box 642220, Pullman, WA 99164. mkirk@acm.wsu.edu  509-335-5074 or Jim Vaux, PO Box 642220, Pullman, WA 99164. jvaux@acm.wsu.edu  509-335-7583

What are my rights as a research study volunteer?

Your participation in this research study is completely voluntary. You may choose not to be a part of this study. There will be no penalty to you if you choose not to take part. You may choose not to answer specific questions or to stop participating at any time.

What does my signature on this consent form mean?

Your signature on this form means that:

- You understand the information given to you in this form
- You have been able to ask the researcher questions and state any concerns
- The researcher has responded to your questions and concerns
- You believe you understand the research study and the potential benefits and risks that are involved.

__________________________________  _____________________  
Signature of Participant      Date

__________________________________  
Printed Name of Participant

Statement of Consent

I give my voluntary consent to take part in this study. I will be given a copy of this consent document for my records.

__________________________________  _____________________  
Signature of Participant      Date

____________________________  
Printed Name of Participant

Statement of Person Obtaining Informed Consent
I have carefully explained to the person taking part in the study what he or she can expect.

I certify that when this person signs this form, to the best of my knowledge, he or she understands the purpose, procedures, potential benefits, and potential risks of participation.

I also certify that he or she:

- Speaks the language used to explain this research
- Reads well enough to understand this form or, if not, this person is able to hear and understand when the form is read to him or her
- Does not have any problems that could make it hard to understand what it means to take part in this research.

__________________________________  _________________________
Signature of Person Obtaining Consent   Date

__________________________________  _________________________
Printed Name of Person Obtaining Consent  Role in the Research Study