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Incoterms® Use in Buyer-Seller Relationships: a Mixed Methods Study

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INCOTERMS® USE IN BUYER-SELLER RELATIONSHIPS: A MIXED METHODS STUDY

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A Dissertation Submitted to The Graduate School of the University of Missouri-St. Louis in
partial fulfillment of the requirements for the degree Ph.D. In Business Administration
with an emphasis in Logistics and Supply Chain Management

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DEDICATION

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I'm runnin' down a dream. It never would come to me. Working on a
mystery. Going wherever it leads. Runnin' down a dream.

The dream has finally become a reality, so I would like to thank all of those who played a role in helping me complete my doctoral degree at the University of Missouri-St. Louis (UMSL).

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INCOTERMS® USE IN BUYER-SELLER RELATIONSHIPS: A MIXED METHODS STUDY

BY

THOMAS J. SCHAEFER

(Under the direction of Donald C. Sweeney II)

ABSTRACT

The negotiation and communication of logistics management decisions between buyers and sellers of goods is critical for effective supply chain management. Incoterms® rules, a set of three character acronyms, are often used by buyers and sellers to communicate each party's logistics management responsibilities when transacting goods. Inappropriate application of Incoterms® rules can lead to miscommunication of logistics responsibilities and expose either party to unanticipated costs and risks. This three-part mixed methods research explores the circumstances that contribute to errors in logistics management decision communication within buyer-seller dyads, the consequences of these errors, and methods to improve logistics management decision communication.

Study 1 is a qualitative pilot case study that explores how buyer-seller dyads negotiate and communicate logistics management decisions and the communication errors that occur within a large, anonymous, international corporation. Study 2 conducts multiple qualitative case studies utilizing in-depth semi-structured interviews that explore how buyer-seller dyads negotiate and communicate logistics management decisions and the communication errors that occur within these buyer-seller dyads. Study 3 quantitatively tests hypotheses developed from analysis of the results of Study

2, using a scenario-based experiment deployed via a questionnaire, and seeks to find methods to improve the quality of communication of logistics management decisions in buyer-seller dyads.

The hypotheses tested in Study 3 are H1: Incoterms® training leads to a decrease in miscommunication of logistics decisions; H2: using fully specified and explicit Incoterms® definitions leads to a decrease in miscommunication of logistics decisions; and H3: using both fully specified and explicit Incoterms® definitions and Incoterms® training leads to a further decrease in miscommunication of logistics decisions. Examining the results of the questionnaire, using binary logistic regression and ordinal logistics regression, H1 is supported, H2 is partially supported, and H3 is not supported.

The findings of the research detail the process used in the negotiation and communication of logistics management decisions. While Incoterms® rules appear widely used in goods transactions to communicate logistics decisions, their inappropriate use causes a variety of issues including unanticipated costs and risks. Incoterms® training is shown to have the biggest impact on improving the quality of buyer-seller dyads' communication of logistics management decisions.

INDEX WORDS: Incoterms, Shipping terms, Buyer-seller relationships, Logistics management, Supply chain management, Mixed methods, Case study, Experiment, Binary logistic regression, Ordinal logistic regression

CHAPTER 1

INTRODUCTION

Buyer-seller relationships, logistics, negotiation, purchasing, and supply chain research have not converged to explore the key link among them -- the negotiation and communication of logistics management decisions between buyers and sellers of goods. This study holistically explores that crucial area. Beyond negotiation and communication, this study expands to explore errors, the consequences of these errors, and the ways to improve buyer-seller communication of logistics management decisions.

While not a new concept, the idea of cooperative buyer-seller relationships has taken a long time to gain traction. According to Ramsay,

one may argue that it is possible to discern a narrative in the parts of the purchasing, marketing and supply chain literatures dealing with buyer-seller relationships [...] that describes a change over time from an acceptance of short-term, arms-length, competitive relationships to a focus on long-term co-operation and partnerships. (Ramsay, 2004, p. 219)

As mentioned by Ramsay (2004), the idea of co-operative rather than adversarial buyer-seller relationships, although present 25 years ago, has taken a long time to gain recognition (Farmer & Macmillian, 1978; Ramsay, 1979; Ramsay, 2004).

The Council of Supply Chain Management Professionals (CSCMP) defines supply

chain management as,

the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply chain management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance, and information technology (CSCMP, 2016).

This study includes items usually studied in many differentiated fields: purchasing (sourcing and procurement), logistics management, and marketing (coordination and collaboration with channel partners) (Frankel et al. 2008; CSCMP, 2016).

Traditional supply chain management (SCM) has focused on a “survival of the fittest” mentality (Spekman et al., 1998), and firms have used various bidding processes for supplier selection (Stuart, 1993). The SCM function has simply concentrated on minimizing costs (Benton & Maloni, 2005). Historically, companies have tried to squeeze supplier profit margins for unit cost reductions or other favorable terms to improve

short-term profits (Anderson & Katz, 1998). Even within recent years, Anheuser-Busch InBev told suppliers that they must conform to 120-day payment terms (Kesmodel & Vranica, 2009). However, due to the changing business environment, interest has grown in supplier partnerships leading to a more modern SCM, where supplier partnerships consist of the establishment and maintenance of ongoing relationships between “partners” (Stuart, 1993). Modern SCM encourages tight-knit partnerships with compatible objectives both internally and externally (Spekman et al., 1998).

As stated by Flynn and fellow researchers, “When it comes to supply chain management, it’s all about relationships” (Flynn, et al., 2008, p.169). The heart of supply chain management is in procurement and supplier relationships. Wal-Mart, Dell, or even McDonald’s would not be as successful if procurement and supplier relations were not deemed important. Furthering this, Su et al. contend that, “there is an increasing interest in inter-firm relationships, as more firms rely on resources outside their own firm to compete successfully with the trend of globalization and technology transformation” (2008, p.263). Soosay et al. state that,

Organisations in supply chains are compelled to restructure and re-engineer relentlessly to increase their effectiveness and satisfy customers. This realization requires firms to look beyond their organizational boundaries and evaluate how the resources and capabilities of suppliers and customers can be utilized to create exceptional value” (2008, p.160).

From an international SCM perspective, their SCM structure tends to be more complex

than purely domestic supply chains (Meixell & Gargeya, 2005). With this added complexity, managing relationships among supply chain partners is strained further.

Supply chains are full of buyer-seller relationships (Mentzer et al., 2001; Xu & Beamon, 2006; Frankel et al., 2008; Thomas, 2013), and negotiations are a key part of those buyer-seller relationships (Thomas, 2013). Negotiation offers an exceptional vantage point to study inter-organizational linkages in supply chains (Dwyer et al., 1987; Atkin & Rinehart, 2006). Negotiation behavior is a “fundamental phenomenon” for the industrial market inter-firm behavior (Perdue et al., 1986; Atkin & Rinehart 2006), and within the industrial market, buyer-seller interaction plays a key role (Anderson & Narus, 2004; Fang, 2006; Herbst et al., 2011). Negotiation is a dyadic process, meaning that there is an inter-relationship between the buyer and the seller that is supposed to solve problems ending in benefits for both dyadic participants (Rinehart et al., 1988; Atkin & Rinehart, 2006). Most importantly for purchasing or supply management, negotiation is the process by which a buyer and seller come to establish terms in a purchase agreement (Dobler et al., 1984; Atkin & Rinehart, 2006,). As coined by Atkin and Rinehart (2006), “contract formality” is established when the buyer and seller explicitly state actions via a contract (Mohr et al. 1996; Atkin & Rinehart, 2006). As found in Atkin and Rinehart, Fawcett and Magnan (2000) affirm this by stating, “in the absence of trust, an effort is made to legislate cooperation” via a contract (2006, p. 54). There is much research interest on formal and informal agreements within the buyer-seller relationship (Lassar & Zinn, 1995; Frankel et al., 1996; Atkin & Rinehart 2006).

In the context of a buyer-seller dyad, logistics management requirements influence the buyer's purchasing and the associated logistics management choices (Wagner, 1987). According to the CSCMP's definition, logistics management is

that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements. (CSCMP, 2016).

In addition, the CSCMP considers that logistics management activities typically include

inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management, supply/demand planning, and management of third party logistics services providers. To varying degrees, the logistics function also includes sourcing and procurement, production planning and scheduling, packaging and assembly, and customer service. It is involved in all levels of planning and execution --strategic, operational and tactical. Logistics management is an integrating function, which coordinates and optimizes all logistics activities, as well as integrates logistics activities with other functions including marketing, sales manufacturing, finance, and information technology. (CSCMP, 2016).

This study will use the above definition of logistics management.

Stronger buyer's logistic management needs increase the importance of logistics

management, and possibly, the logistics management cost component (Wagner 1987). Within logistics management, distribution plays a significant role in securing proper transportation arrangements (Wagner, 1987). Another dimension of logistics management is that it is included in the transaction negotiation, which includes the purchasing of goods (Novack et al., 1992). The buyer and/or supplier ownership or control of various logistics management components can alter the total purchase cost (Wagner, 1987). Appropriate understanding and analysis of the logistics management component of an overall purchase is critical to keeping costs competitive (Wagner, 1987). Buyers are looking for any opportunity to secure lower logistics management costs (Wagner, 1987). Rinehart et al. (1988) examined the conceptual foundations of the negotiation process used by shippers and carriers to arrive at contractual agreements for contracts of carriage. However, while a plethora of negotiation and buyer-seller relationship research exists, researchers have not focused on the buyer-seller negotiation of logistics management services between firms transferring goods. Little is known of this negotiation process. Buyer-seller relationships and negotiation research has focused on the purchase price of goods. The negotiation research has left out an important total cost component: logistics cost. This is illustrated in Figure 1.

Figure 1.1: Total Cost Components



The total landed cost of product incorporates all costs incurred within the supply chain in order to make a product available for consumption. Any change to total landed cost components has a major impact. Logistics management costs should be considered in any supply chain management purchase. Otherwise, the firm is leaving money on the table in a negotiation.

Logistics management is critical in the overall supply chain's success (Stank & Goldsby, 2000). In 1997, logistics management costs accounted for 57% of U.S. firms' supply chain costs (Berg, 1998; Stank & Goldsby, 2000). As noted in Stank & Goldsby (2000), Bowersox and Closs (1996) found that one in seven jobs in the U.S. is logistics management related. However, many shippers use pre-1980s logic to make logistics management decisions (Stank & Goldsby, 2000) leading to poor performance as supply chain management progresses (Moultrie, 1998; Stank & Goldsby 2000). Expectations of logistics management have changed over time from low cost and high service criteria to cutting-edge technology to meet increasingly stringent service requirements and steadily lowering costs (Stank & Goldsby, 2000). The overall supply chain is only as strong as the weakest component and unfortunately, logistics management is one of the supply chain's weakest components (Stank & Goldsby, 2000).

While the importance that communication has on collaboration is of recent scholarly interest, simplifying and standardizing communication among buyers and sellers is not new. Business-to-business (B2B) transactions, whether domestic or international, require an agreement between buyers and suppliers. These, often

intermediate, transactions involve some agreement for monetary exchange to provide goods or services. Beyond price, especially when contracting for goods, the parties need to agree upon the responsibility, handling, and costs related to transportation, risks, insurance, customs formalities, and other associated items. While these agreements are often taken for granted, considerable care is required. Often times, the buyer and seller do not speak the same language, literally in some cases, so the consistency and predictability of B2B transactions can be affected.

Sheu et al. (2006) conclude that collaboration is crucial for prosperous supply chain and organizational performance. Collaboration also has a positive effect on buyer performance with trust and dependence playing an important role in the supplier relationship (Corsten & Felde, 2005).

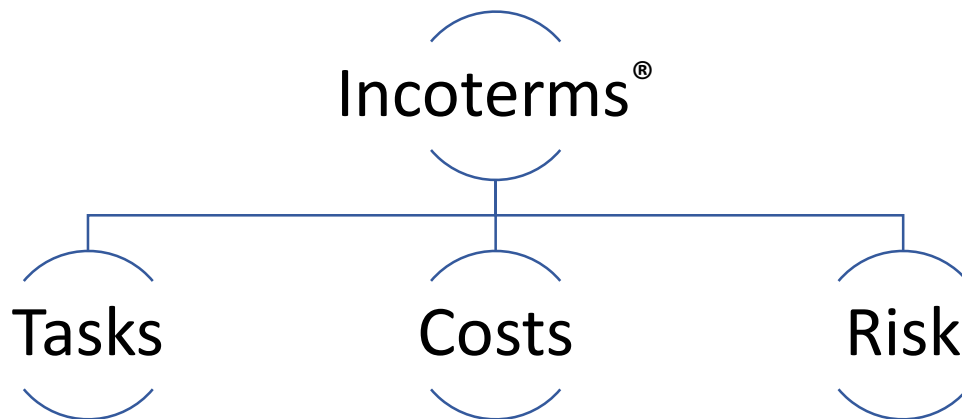
Nevertheless, Wilding and Humphries remark that “closely collaborative, long-term supply chain relationships inevitably” suffer strains due to constraints on their freedom of action due to unavoidable compromise. However, they can reduce sources of frustration that generate negative behaviors by taking joint actions to seek innovative ways of dealing with “environmental” issues like “old products, obsolescence, staff and organisational upheavals, poor end-customer visibility and lack of investment in modern procedures and systems” (Wilding & Humphries (2006, p.14)

According to Peng, “a basic enabler for tight supply chain collaboration is inter-organizational communication” (2011, p.17). Many scholars have expressed that communication is the key to holding supply chain partners together (Mohr & Nevin,

1990; Lamming, 1996; Stuart & McCutcheon, 1996; Lee & Whang, 2000; Min et al., 2005; Sheu et al., 2006; Chopra & Meindl, 2007; Peng, 2011). Effective and efficient communication is also significant to these inter-firm relationships (Paulraj et al., 2008). Conversely, the main cause of collaboration failures is communication difficulty (Peng, 2011). Misunderstandings and conflicts can occur among supply chain partners when miscommunication occurs (Paulraj et al., 2008; Cao et al., 2010; Peng, 2011).

According to the International Chamber of Commerce (ICC), as the volume and complexity of business increases especially globally, so too do the possibilities for supply chain partners' disputes or misunderstandings (2010). A set of trade terms called Incoterms® rules was designed to standardize B2B practice when contracting for goods by the ICC. These Incoterms® rules came into existence to tackle interpretation problems among trading partners and to define dyadic buyer-seller responsibilities (Stapleton et al., 2014b). When incorporated into a contract of sale, Incoterms® rules, of which the latest version is 2010, designate the responsibilities for tasks, costs, and risks involved in the delivery of goods from sellers to buyers through three character acronyms, as shown in the following graphic (ICC, 2010).

Figure 1.2: Incoterms® rules Responsibilities



Hence, these Incoterms® rules define dyadic responsibilities between buyers and sellers (Stapleton et al., 2014b). In essence, they attempt to provide very detailed operational definitions by using only three character acronyms. Operational definitions are defined by Mundy as putting “communicable meaning into a concept [...] that people can do business with [and which] has the same meaning to supplier and customer” (Mundy, 1997, p. 2). Mundy noted also that it is important for both the buyer and seller to have a common understanding of what is meant by a concept, and it is important for both the buyer and seller to have a valid measurement instrument (Mundy, 1997).

Typical delivery perils are risk of loss or risk of damage (Yao-Hua & Thoen, 2000). Risk does not include other shipment risks, such as delays or non-fulfillment (Yao-Hua & Thoen, 2000). Incoterms® are the trademarked product of the ICC and clearly define seller and buyer obligations thus reducing the parties’ legal risks (ICC, 2010). As stated best by Roos:

Trust between buyer and seller is of course very important. It’s even more

important that the parties involved (sales and shipping departments) possess the knowledge they need: an understanding of the rules of the game of international trade and how to apply them. It might also be mentioned that many people in logistics support services need to pay a great deal more attention to the correct application of Incoterms. (Roos, 2011, p.5)

According to the ICC, Incoterms® rules are intended to be self-explanatory (ICC, 2010). However, researchers have found Incoterms® usage errors (Stapleton & Saulnier, 2001; Reynolds, 2010; Bergami, 2011; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Roos, 2011; Bergami, 2012; Bergami, 2013; Stapleton, 2014; Stapleton et al., 2014a; Stapleton et al., 2014b). These usage errors can lead to misunderstandings (Reynolds, 2010). Reynolds considers where most commercial problems start: misunderstanding! Such misunderstanding occurs between sellers and buyers, between sellers and their own factories, and between either party and carriers. “For international transactions, add the potential for misunderstanding between exporters and their freight forwarders, importers and their customs brokers, banks and everyone else, and failure to observe applicable government regulations” (Reynolds, 2010, p.17).

Stapleton et al. (2014a) suggest that shippers may use less-than-optimal Incoterms® strategies created through a lack of knowledge of vulnerabilities and sloppy implementations. They also mention that traders are “creatures of habit” and many times repeatedly make the same Incoterms® usage errors leading to preventable risk. Bergami offers a similar sentiment noting that “there are significant problems in getting traders to change from the established routines to more appropriate and correct use of

Incoterms” (2012, p.37). Stapleton et al. (2014a, 2014b) provide nine common usage errors:

1. Using FOB (free on board) or other sea and inland waterway Incoterms® for containerized transport.
2. Using Incoterms® rules without clearly specifying a geographic place.
3. Not adopting a recent Incoterms® rule version, such as Incoterms® 2000 or 2010.
4. Believing that using Incoterms® rules leads to a legal contract of sale.
5. Misunderstanding the delivery and risk points when using CFR (cost and freight).
6. Misunderstanding loopholes in the 1936 Carriage of Goods by Sea Act (COGSA).
7. Eliminating Ship’s rail” as a transfer point in Incoterms 2010.
8. Problematically using FOB with documentary letters of credit (DLC).
9. Requiring differing duties of shippers by banking institutions.

Stapleton (2014) and Stapleton et al. (2014b) also go into more details beyond what has already been mentioned about FOB’s inappropriate use. For example, they cite the widespread “naked” FOB (i.e. not followed by a port name) use on Alibaba.com.

Additionally, they mention the distinction between FCA’s (free carrier) “loading,” which is consistent with containerized or truck freight, and “placing” of the goods, which is consistent with break-bulk freight. Bergami (2013) found that banking practices may place requirements upon sellers that are contrary to the Incoterms® rules. Supporting this finding, Roos (2011) found that banks place secondary importance on Incoterms®, and U.S. Customs does not recognize them. Glitz reviewed court cases in Brazil and

found that courts may “end up giving the customary interpretation” of the shipping and delivery terms used by traders, as Brazilian doctrine and jurisprudence may be unfamiliar with Incoterms® rules (2011).

Researchers provide detailed examples as evidence of Incoterms® errors. Stapleton and Saulnier (1999, 2001) provide an example where a U.S. Midwestern firm was shipping full containers of pens and other items worth \$125,000 USD that they procured from Asia suppliers, who engraved corporate logos and then resold to clients globally. The firm negotiated and used the Incoterms® FOB Singapore, but the seller was willing to take on more risk and tasks (i.e. C or D Incoterms® rules). FOB requires that the buyer contract main carriage and on-carriage. The steamship line hit rough waters, and the container was lost at sea. Per COGSA 1937, a steamship line is only responsible for \$500 per container, so the firm lost \$124,500 USD. The firm made a costly and avoidable mistake. Although not stated in Stapleton and Saulnier (1999, 2001), FOB is misused for container transport.

Bergami (2012, 2013) surveyed bank letter of credit forms for container transport. He found that waterway Incoterms® (FOB, CFR, CIF) account for 55%, multimodal Incoterms® (FCA, CPT, CIP) account for 34%, and others are either made up, outdated, or other non-Incoterms. Bergami (2012, 2013) notes that if FOB is used, there is a mismatch between loss of physical control (e.g. can be handled six to eight times before loading on a vessel) and risk transfer point. He concludes that banks are not knowledgeable about Incoterms®, and that bank requirements increase risk to the seller.

He states that it is “strange that the term FOB, coined at least two hundred years before the era of containerisation (from the 1960’s), has been so readily adopted and inappropriately applied to modern day container handling practices” (Bergami, 2012, p.37).

Stapleton et al. (2014b) surveyed 1,000 freight forwarders, and they found that misuse was prevalent: 49% have used FOB for containerized freight, 37% reported using CIF for containerized freight, 60% used CFR for containerized freight, and 14% reported using C&F, which has not been an official Incoterm[®] for decades. They also found that Incoterms[®] are sometimes deliberately misused in certain countries to manipulate or game the system and even sometimes to enable kickbacks. Large shippers, like Wal-Mart and Aldi, use EXW or FCA to provide supply chain visibility.

Zhai (2013) provides another example of evidence of Incoterms[®] error that occurred in August 2004 between a candle producer in Changsha, Hunan Province, China (seller) and a wholesaler in Yinchuan, Qinghai Province, China (buyer). The parties agreed to a contract for 200 cartons for 20,000 Yuan with an October 2004 delivery, but the place of delivery was not clearly stated. The seller transported 200 cartons in September via rail, but upon buyer inspection, 60 cartons had become deformed due to heat damage. The buyer paid the seller short, and the case went to court, which provided two important findings. First, the seller is responsible, as he did not fulfill the 200 cartons contract. Second, the carrier caused the issue, so the seller is not responsible, and the buyer owes the remaining amount. The verdict beyond these

opinions is not clear. Zhai exclaims that “no risk point in the contract is the unforgivable error” and that Incoterms® impact on China’s domestic good trade is “landmark” (Zhai, 2013, p. 13).

However, much of the evidence of common usage errors is anecdotal (Stapleton et al., 2014a). This is compounded by Bergami’s (2012, 2013) finding of a scarcity of Incoterms® 2010 literature beyond that published by the ICC. As noted by Bergami, most research available on Incoterms® is from short articles in trade publications (2013). Academic research in the last few years has just started to explore the Incoterms® arena leaving a wide opening for continued and expanded academic research. New training methods for learning Incoterms® have also emerged to combat the lack of Incoterms® understanding (Holley & Haynes, 2003; Kock et al., 2008).

In summary, buyer-seller relationships are critical for the supply chain. Within these buyer-seller relationships, negotiation is an important aspect of solving problems and conflict that leads to dyadic benefits (Rinehart et al., 1988; Ramsay, 2004; Atkin & Rinehart, 2006). While a plethora of negotiation and buyer-seller relationship research exists, researchers have not focused on the buyer-seller negotiation of logistics management services between firms transferring goods. Little is known of this negotiation process. Interestingly, a key component of negotiation is dyadic agreement on responsibilities of logistics management components related to the sale. Incoterms® rules, through three character acronyms, define and designate the dyadic responsibilities for tasks, costs, and risks involved in the delivery of goods from sellers to

buyers (ICC, 2010, Stapleton et al. 2014b). However, researchers have found errors in Incoterms® usage (Stapleton & Saulnier, 2001; Reynolds, 2010; Bergami, 2011, 2012, 2013; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Roos, 2011; Stapleton, 2014; Stapleton et al., 2014a, 2014b) leading to dyadic misunderstandings (Reynolds, 2010).

1.1 RESEARCH OBJECTIVE AND RESEARCH QUESTIONS

This research utilizes and builds on existing purchasing, marketing, legal, logistics management, and supply chain literature guiding the reader through buyer-seller relationships, the associated logistics management decision, and their communication. This inter-organizational communication is necessary for effective supply chain collaboration (Peng, 2011). Based upon the identified literature gaps and missing connections between various studies, the following four research questions are developed:

1. *How do buyer-seller dyads negotiate logistics management decisions?*
2. *How do buyer-seller dyads communicate logistics management decisions?*
3. *Why do errors in logistics management decision communication occur within buyer-seller dyads and what are the consequences of these errors?*
4. *What can improve the quality of communication of logistics management decisions within buyer-seller dyads?*

To date, scholars have not focused their research on the buyer-seller negotiation process, communication, or outcomes of logistics management decisions. The four research questions are investigated via three related studies. The first study is a

qualitative, pilot case study. The second study involves multiple qualitative case studies. The third study is a quantitative, experimental study.

1.2 JUSTIFICATION FOR THIS RESEARCH

This research is essential for six reasons. First, this study explores how buyer-seller dyads negotiate logistics management decisions. Second, this study explores how buyer-seller dyads communicate logistics management decisions. Both are underexplored areas of negotiation and buyer-seller relationship research. Third, anecdotal evidence is prevalent regarding Incoterms® usage errors (Stapleton et al., 2014a), yet no thoroughly comprehensive or academically rigorous evidence exists. This study will apply appropriate systematic rigor to explore Incoterms® usage errors. Fourth, a scarcity of Incoterms® research exists, and most research available is from short articles in trade publications (Bergami, 2012, 2013). Incoterms® research will be systematically reviewed and summarized in a literature review. This study will add to Incoterms® literature. Fifth, mixed methods research is an underutilized research method within purchasing, marketing, and supply chain literature, and this study will use this underutilized research method. Lastly, this study seeks to improve the quality of buyer-seller dyad communication of logistics management decisions.

1.3 RESEARCH APPROACH

Research within the area of supply chain management has used various methodologies including quantitative, qualitative, contextual, and analytical approaches (Sachan & Datta, 2005; Frankel et al., 2008). Buyer-seller relationship business research

is very popular, which had led to a cornucopia of theories and methods to examine the phenomena (Autry & Golicic, 2010).

This study will use a mixed methods research approach defined as the use of both quantitative and qualitative research in a single study. Qualitative research focuses on “induction, discovery, exploration, theory/hypothesis generation, the researcher as the primary ‘instrument’ of data collection, and qualitative analysis” (Burke Johnson & Onwuegbuzie, 2004). Contrastingly, quantitative research focuses “on deduction, confirmation, theory/hypothesis testing, explanation, prediction, standardized data collection, and statistical analysis” (Burke Johnson & Onwuegbuzie, 2004). However, by understanding the strengths and weaknesses of quantitative and qualitative research methods, the researcher is positioned to mix methods thereby providing a superior study compared to mono-method research (Johnson & Turner, 2003; Burke Johnson & Onwuegbuzie, 2004).

Using the research of Burke Johnson & Onwuegbuzie (2004), this study’s mixed method designs will transact a smaller qualitative study, followed by a full-scale qualitative study that informs a quantitative study (qual → QUAL → QUAN). Study 1 is a qualitative, pilot case study that seeks evidence of logistics management communication error outcomes or Incoterm® usage error outcomes within a purposeful sample of an anonymous large, international corporation in the industrial market. Anonymity is provided to this corporation to protect their corporate image, proprietary data and allow subjects to be more comfortable with sharing information. Study 2 qualitatively

conducts multiple case studies that explore buyer-seller dyad negotiation, how the dyad communicates logistics management decisions, and the communication errors that occur between them, within a purposeful sample of an anonymous large, international corporation in the industrial market. Rinehart (2016) argues that relationships can't really be understood unless they are viewed dyadically. Therefore, interviews with dyadic members within and outside the company are conducted. U.S. to non-U.S. dyads are explored as well as U.S. to U.S. dyads and non-U.S. to non-U.S. country dyads. This will provide a holistic view of global dyads. Due to the exploratory characteristics of the research, grounded theory is deemed appropriate to allow the flexibility needed for appropriate exploration in studies one and two (Glaser & Strauss, 1967; Patton, 1990; Eisenhardt, 1989; Yin, 1989; Pappu & Mundy, 2002; Thomas, 2013). Grounded theory allows the discovery of theories from systematically obtained data (Pappu & Mundy, 2002). Study 3 quantitatively tests the hypotheses explored and developed in Study 2, and seeks to find ways to improve the quality of buyer-seller dyad communication of logistics management decisions. This hypothesis testing is conducted via designed experiments at an anonymous large, international corporation in the industrial market. The experimental design is fitting for the systematic testing of theory (Thye, 2007; Siemsen, 2011; Thomas, 2013).

Buyer-seller relationships can differ due to industrial circumstances (Goffin et al., 2006; Autry & Golicic, 2010). There are significant measurement differences and variances from industry to industry and from firm to firm (Goffin et al., 2006; Autry & Golicic, 2010). Researchers, who review design and execution plans across firms and

industries subsequently aggregate or compare them and, thus, are likely to create errors due to metric dis-uniformity perhaps underestimating the true effects in one context while overstating them in others (Autry & Golicic, 2010). Therefore, this research will be restricted to a single company and industry, thus enhancing internal validity at some expense to external validity.

1.4 CONTRIBUTIONS OF THIS RESEARCH

This research makes six important contributions to scholars and practitioners. First, this research systematically investigates the usage errors described in the Incoterms® literature. Currently, only anecdotal evidence is prevalent regarding Incoterms® usage errors (Stapleton et al., 2014a). This study explores and reports on the outcomes that Incoterms® rules actually have.

Second, and related to the above, usage errors found in this research which are not described in existing research are identified. These usage errors are described, characterized and tested for prevalence.

Third, this probing research sheds light on an area in logistics management negotiations and communication, Incoterms®, with little prior academically rigorous research. Practitioner attention is clearly present as shown in the literature review. However, while some academic research does exist, this study's intent is to highlight the importance and wide-ranging usage of Incoterms®, thereby, driving more attention and research to the area. A renewed, and perhaps different, practitioner focus is also suggested through applying proper academic rigor to explore Incoterms®.

Fourth, within the scope of buyer-seller dyadic negotiations, this study explores and explains how dyads negotiate and communicate the agreed upon logistics management responsibilities. Therefore, not only are the negotiation outcomes (i.e. usage errors) explored and explained, so too are the negotiation process and the communication of logistics management decisions.

Fifth, it is shown that the appropriate research method depends upon the topic and research questions being investigated. Finding and validating the best research method for a topic is examined. Different insights are gained by applying different research methods, and there is a danger, such as method weaknesses or singularity, if one relies too much on a single method (Stewart, 2009; Davis et al., 2011). In contrast with the typical research paradigm of employing either a quantitative or qualitative approach, a mixed methods approach, is used to study the supply chain management topic of how dyadic buyer-seller relationships communicate logistics management decisions. Therefore, this study applies mixed methods research in the supply chain management domain. Other disciplines may also benefit. The merger of qualitative and quantitative research methods is shown to complement and add further validity and generalizability to this study. By using mixed methods research (MMR) to study the same phenomenon, more robust and compelling findings may be anticipated (Stewart, 2009; Davis et al., 2011). Mixed methods research is still a somewhat novel approach within purchasing, marketing, and supply chain literature, and it is certainly a new approach to exploring and explaining the Incoterm® phenomena. This study provides a

“how-to” guide for conducting this form of mixed methods research, which is shown to be an appropriate and practical research technique for this research.

Lastly, this study adds to the very limited research using practicing managers as participants in designed experiments. Participants in negotiation research generally have been MBA students, and the use of real-life participants is very limited (Mestdagh & Buelens, 2003). Mestdagh and Buelens found that practicing managers are included as participants in only 5% of studies (2003).

1.5 DISSERTATION ORGANIZATION

This dissertation comprises five chapters. Chapter 1 introduces the phenomena, logistics management decisions within dyadic buyer-seller relationships. Chapter 2 reviews existing research on the topics of buyer-seller relationships and logistics management, synthesizes the topic and literature on Incoterms®, and explores the literature on mixed methods research. Chapter 3 develops in detail the appropriate mixed methods methodology, the pilot case study, the multiple case studies, and the experiment, used to investigate the phenomenon. Chapter 4 reports on the results of the mixed methods research. The first section describes the pilot case study. The second section details the multiple case studies, and the third section reports on the experiment. Chapter 5 interprets the results of all three studies, so that practitioners and scholars can find the results useful. It also identifies the limitations of the research and likely beneficial directions for future research.

CHAPTER 2

LITERATURE REVIEW

This section reviews existing research on the topics of buyer-seller relationships, logistic management, Incoterms[®], mixed methods research, and experiments. This research is thus grounded in this existing literature.

2.1 BUYER-SELLER RELATIONSHIPS.

Many social science disciplines have studied inter-organizational relationships (Autry & Golicic, 2010). Marketing researchers have repeatedly focused on buyer-seller exchanges (Dwyer et al., 1987), and some have even declared the primary focus of marketing to be the exchange relationship (Kotler & Levy, 1969; Luck, 1969; Ferber, 1970; Kotler & Zlatman, 1971; Kotler, 1972; Luck, 1974; Dwyer et al. 1987). These dyadic buyer-seller relationships are crucial for the supply chain management discipline, where many customer and supplier relationships drive industry success (Autry & Golicic, 2010). The reverse is also true; poor dyadic buyer-seller relationships can lead to poor industry performance (Autry & Golicic, 2010). According to many researchers, an essential piece of supply chain management is the management of business relationships (Lambert et al., 1996; Staughton & Johnston, 2005; Cousins & Menguc, 2006; Autry, & Griffis, 2008; Autry & Golicic, 2010). There is much research interest on formal and informal agreements within buyer-seller relationships (Lassar & Zinn, 1995; Frankel et al., 1996; Atkin & Rinehart, 2006).

Over the decades, the pressure of global competition has forced manufacturers to focus their in-house undertakings on core competencies and to outsource non-core competencies (Prahalad & Hamel, 1990; Atkin & Rinehart, 2006). This trend has increased interest in the integration of various supply chain layers (Frohlich & Westbrook, 2002; Atkin & Rinehart, 2006). This builds on Porter and Millar's (1985) concept of the value system or value chain, which was introduced over 30 years ago (Porter & Millar, 1985; Atkin & Rinehart, 2006). Today, there is a tendency to outsource some of the non-critical value chain activities, which magnifies the interdependence of supply chain members (Atkin & Rinehart, 2006).

Due to the aforementioned trend, it is not surprising that today's supply chains are characterized by many buyer-seller relationships (Mentzer et al., 2001; Xu & Beamon, 2006; Frankel et al., 2008; Thomas, 2013), and negotiations are a key part of those buyer-seller relationships (Thomas, 2013). Therefore, it is expected that negotiations between members of the supply chain are essential for competitiveness (Atkin & Rinehart, 2006). There is a symbiotic relationship between members within the supply chain (Ramsay, 2004; Atkin & Rinehart, 2006; Thomas, 2013). Interestingly, dyadic buyer-seller relationships are dynamic, whereby there is a simultaneous struggle between cooperation and competition within the relationship (Jap, 2001; Nair et al., 2011). As found in Daugherty (2011), Dwyer et al. (1987) stressed the significance of the change towards close and on-going buyer-seller relationships.

Many types of buyer-seller relationships exist in the supply chain, such as

manufacturer-distributor, material supplier-manufacturer, shipper-carrier, etc. (Thomas, 2013), but many researchers and managers are particularly interested in vertical buyer-supplier relationships (Autry & Golobic, 2010). Much of this interest is a result of strong vertical buyer-supplier relationships leading to improved performance and competitive advantages for both dyads (Morgan & Hunt, 1994; Day, 2000; Krause et al., 2007; Autry & Golobic, 2010).

Negotiation is a specific type of interaction within buyer-seller relationships (Thomas, 2013). The negotiation process is the principal method of handling conflict within such relationships (Ramsay, 2004), and it is a dyadic process that is supposed to solve problems resulting in benefits for both dyadic participants (Rinehart et al., 1988; Atkin & Rinehart, 2006). Negotiation offers an exceptional vantage point to study inter-organizational linkages in supply chains (Dwyer et al., 1987; Atkin & Rinehart, 2006). In addition, negotiations are very relevant because many sales conditions, such as price, date of delivery, and warranties, are negotiated between value chain partners (Anderson & Narus, 2004; Fang, 2006; Herbst et al., 2011; Thomas, 2013). Most importantly, for purchasing or supply management, negotiation is the process by which a buyer and seller come to establish terms in a purchase agreement (Dobler et al., 1984; Atkin & Rinehart 2006). The two corporate functions that deal with most negotiation are the purchasing and selling functions (Ramsay, 2004). It is also said that 25% of a manager's time is spent on negotiations (Mestdagh & Buelens, 2003; Thomas, 2013). The dyads are compelled to find the best results within the buyer-seller transactions (Herbst et al., 2011). Firms most effectively negotiating may be more likely to

outperform rivals (Thomas, 2013).

Today, firms are creating collaborative relationships with their counterparts in the buyer-seller dyad to gain competitive advantage (Nyaga et al., 2010). It is not surprising that new buyer-seller approaches such as the “vested outsourcing” approach have emerged (Vitasek & Manrodt, 2012a, 2012b). Ongoing buyer-seller relationships, which are described as long-term associations with formal contracts and termed “domesticated markets” are explained as transactions that are planned and administered rather than being conducted on an ad hoc basis (Dwyer et al., 1987; Arndt, 1979). As opposed to these relational exchanges, discrete transactions can be described as having very little buyer-seller communication or relationship (Dwyer et al., 1987). As coined by Atkin and Rinehart (2006), “contract formality” is established when the buyer and seller explicitly state requirements via a contract (Mohr et al., 1996; Atkin & Rinehart, 2006;). As noted by Atkin and Rinehart (2006), Fawcett and Magnan (2000) affirm this by stating, “in the absence of trust, an effort is made to legislate cooperation” via a contract.

Interactions between the buyer–seller play key roles within industrial markets (Håkansson, 1988; Gemünden, 1997; Håkansson & Ford, 2006; Herbst, 2011). Negotiation behavior is a “fundamental phenomenon” for industrial markets’ inter-firm behavior (Perdue et al., 1986; Atkin & Rinehart, 2006), and within these industrial markets, buyer-seller interactions play a key role (Anderson & Narus, 2004; Fang, 2006; Herbst et al., 2011).

2.2 LOGISTICS MANAGEMENT

Over 30 years ago, Porter and Millar introduced the concept of the value system or value chain (1985). They defined activities related to the creation and delivery of a product or service. Their five primary activity areas are inbound logistics, operations, outbound logistics, marketing and sales, and service. As shown in Atkin and Rinehart (2006), Porter and Millar (1985) maintained that the successful performance of these activities and the ability to properly manage their linkages lead to competitive advantage (Porter & Millar, 1985; Atkin & Rinehart, 2006).

Similar to the transcendence of partners within the supply chain, Daugherty (2011) asserted that Bowersox et al. (1989) and La Londe et al. (1988) both indicated that logistics relationships have changed. A large variety of different logistics management services have emerged since the deregulation of the U.S. interstate trucking industry (Smith et al., 2007). Terms such as “partners” and “alliances” emerged in the literature (Daugherty, 2011). In addition, it was clear that both academics and practitioners began to see the importance of logistics management (Daugherty, 2011). As noted in Daugherty, (2011), Stank and Daugherty (1997) note that during the 1980’s and 1990’s, companies faced pressure to provide “better, faster, cheaper logistical services,” and similar to the overall supply chain, companies decided to focus on core competencies and outsource the non-core competencies of logistics. These companies specializing in external logistics offered more cost-effective ways to achieve company goals (Daugherty, 2011). During that time, logistics services were some of the most

common business areas to be outsourced (La Londe & Maltz, 1992; Daugherty, 2011) with strong demand over time (Knemeyer & Murphy, 2005). It is noted that during the 1990s, logistics management research also shifted beyond the boundaries of an individual firm to study both inter-firm relationships as well as both parts of dyads (Langley & Holcomb, 1992; Frankel et al., 2008).

Logistics management is critical in the overall supply chain's success (Stank & Goldsby, 2000). In 1997, logistics management costs accounted for 57% of U.S. firms' supply chain costs (Berg, 1998; Stank & Goldsby, 2000). As noted in Stank and Goldsby (2000), Bowersox and Closs (1996) found that one in seven jobs in the U.S. are logistics management related. However, many shippers use pre-1980s logic to make logistics management decisions (Stank & Goldsby, 2000) leading to poor performance as supply chain management advances (Moultrie, 1998; Stank & Goldsby, 2000). Expectations of logistics management have changed over time from low-cost and high-service criteria to cutting-edge technology in order to meet increasingly stringent service requirements and steadily lowering costs (Stank & Goldsby, 2000). The overall supply chain is only as strong as the weakest component and unfortunately, logistics management is one of the supply chain's weakest components (Stank & Goldsby, 2000).

In the context of a buyer-seller dyad, the buyers' logistics management requirements influence their purchasing and the associated logistics management choices. Stronger buyer logistics management needs increase their importance and possibly the associated cost component. Within logistics management, distribution plays

a significant role in securing suitable transportation arrangements. The buyer or supplier control of various logistics management components can alter the total purchase cost. Appropriate understanding and analysis of the logistics management component of an overall purchase is critical for keeping costs competitive. Buyers look for any opportunity to secure lower logistics management costs (Wagner, 1987).

2.3 INCOTERMS®

This section of the literature review provides the history and usage of Incoterms® rules. It also systemically identifies and synthesizes academic journals and practitioner publications on the topic of Incoterms®, which are broadly defined as shipping term(s).

2.3.1 History of Incoterms®.

The tradition of using trade terms started during the nineteenth century in Great Britain (Malfliet, 2011). However, it was not until 1921 that Incoterms® rules were first considered by the ICC and ultimately brought into use in 1936 (ICC, 2010, 2015a). Prior to this time, trade terms were often subjective, leading to various interpretations and frequent disputes and litigation (Gupta, 2010; Bergami, 2011). As stated by the ICC, “a Trade Terms Committee with the assistance of the ICC National Committees developed the first six rules in 1923: FOB, FAS, FOT, FOR, Free Delivered CIF and C&F, which were the precursor of what would later be known as the Incoterms® rules” (2015a). These six rules are described as Free on board (FOB), Free alongside ship (FAS), Free on truck

(FOT), Free on rail (FOR), Cost, insurance, and freight (CIF), and Cost and freight (C&F). Since then, the ICC has updated Incoterms® rules regularly to reflect the ever-changing business environment, commercial practices, types of goods and transports, and international laws (ICC, 2010, 2015a). Ramberg (2011) notes that Incoterms® revisions require “something important” to have taken place in commercial practice. The ICC’s Commission on Commercial Law and Practice, which is composed of members with expansive global and sector expertise, is tasked to ensure that the Incoterms® rules reflect and respond to B2B global needs (ICC, 2010). Initial revision is delegated to a small global Drafting Group, whose membership is formed of experts from assorted nations chosen for their contributions to international commercial law and to the ICC (ICC, 2015a). From there, revised drafts are disseminated internationally and broadly through the ICC, with the resulting comments and suggestions provided back to the Drafting Group (ICC, 2015a). When the ICC Commission on Commercial Law and Practice approves the final draft, it is submitted for adoption to the ICC Executive Board (ICC, 2015a). The ICC states that the “broad international consultation aims to ensure that official ICC products possess an authority as representing the true consensus viewpoint of the world business community” (ICC, 2015a).

On their website, the ICC (2015b) provides a short description of the eleven 2010 Incoterms® rules:

2.3.1.1 RULES FOR ANY MODE OR MODES OF TRANSPORT

EXW Ex Works - “Ex Works” means that the seller delivers when it places the

goods at the disposal of the buyer at the seller's premises or at another named place (i.e. works, factory, warehouse, etc.). The seller does not need to load the goods on any collecting vehicle, nor does it need to clear the goods for export, where such clearance is applicable.

FCA Free Carrier - "Free Carrier" means that the seller delivers the goods to the carrier or another person nominated by the buyer at the seller's premises or another named place. The parties are well advised to specify as clearly as possible the point within the named place of delivery, as the risk passes to the buyer at that point.

CPT Carriage Paid To - "Carriage Paid To" means that the seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination.

CIP Carriage And Insurance Paid To - "Carriage and Insurance Paid to" means that the seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination. The seller also contracts for insurance cover against the buyer's risk of loss of or damage to the goods during the carriage. The buyer should note that under CIP, the seller is required to obtain

insurance only on minimum cover. Should the buyer wish to have more insurance protection, it will need either to agree as much expressly with the seller or to make its own extra insurance arrangements.

DAT Delivered At Terminal - “Delivered at Terminal” means that the seller delivers when the goods, once unloaded from the arriving means of transport, are placed at the disposal of the buyer at a named terminal at the named port or place of destination. “Terminal” includes a place, whether covered or not, such as a quay, warehouse, container yard or road, rail or air cargo terminal. The seller bears all risks involved in bringing the goods to and unloading them at the terminal at the named port or place of destination.

DAP Delivered At Place - “Delivered at Place” means that the seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. The seller bears all risks involved in bringing the goods to the named place.

DDP Delivered Duty Paid - “Delivered Duty Paid” means that the seller delivers the goods when the goods are placed at the disposal of the buyer, cleared for import on the arriving means of transport ready for unloading at the named place of destination. The seller bears all the costs and risks involved in bringing the goods to the place of destination and has an obligation to clear the goods not only for export but also for import, to pay any duty for both export and import, and to carry out all customs formalities.

2.3.1.2 RULES FOR SEA AND INLAND WATERWAY TRANSPORT

FAS Free Alongside Ship - “Free Alongside Ship” means that the seller delivers when the goods are placed alongside the vessel (e.g., on a quay or a barge) nominated by the buyer at the named port of shipment. The risk of loss of or damage to the goods passes when the goods are alongside the ship, and the buyer bears all costs from that moment onwards.

FOB Free On Board - “Free On Board” means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards.

CFR Cost and Freight - “Cost and Freight” means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

CIF Cost, Insurance, and Freight - “Cost, Insurance, and Freight” means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination. The seller also

contracts for insurance cover against the buyer's risk of loss of or damage to the goods during the carriage. The buyer should note that under CIF, the seller is required to obtain insurance only on minimum cover. Should the buyer wish to have more insurance protection, it will need either to agree as much expressly with the seller or to make its own extra insurance arrangements.

The complete Incoterms® 2010 English Edition published by the ICC is available at <http://store.iccwbo.org/incoterms-2010> (ICC, 2015b). Listed below are some of the most significant revisions that have led to the Incoterms® 2010 version:

- 1980 – The term FCA is introduced (ICC, 2015a).
- 1990 – EDI-messages were allowed to fulfill the seller's obligation for proof of delivery (ICC, 2015a).
- 2000 – Two changes were made. First, the export clearance responsibility under FAS was placed upon the buyer (previously seller) (ICC, 2015a). Second, for FCA, clarity was provided in that under this term, the seller was not obligated to load goods onto the buyer's collecting vehicle, and the buyer's obligation to receive the seller's arriving vehicle unloaded was noted (ICC, 2015a).
- 2010 - On January 1, 2011, Incoterms® 2010 rules took effect creating two new rules (DAT and DAP) replacing four Incoterms® 2000 rules (DAF, DES, DEQ, and DDU) (ICC, 2010, 2015a).

Through the Incoterms® years, there have been attempts to get Incoterms® endorsed internationally (Bergami, 2011). In 1969, Incoterms® of 1953 attempted to

gain endorsement from the United Nations Commission on International Trade Law (UNCITRAL), but this attempt was not successful (Bergami, 2011). Finally, in 1992, Incoterms® 1990 was endorsed by UNCITRAL, which is the commission that formulates and regulates international trade, at its 480th meeting (Bergami, 2011). Incoterms® 2000 was also endorsed by UNCITRAL (Bergami, 2011).

Incoterms® are not to be confused with the 1941 Revised American Foreign Trade Definitions or the 1951 Uniform Commercial Code (UCC) shipping and delivery terms, that are primarily used within North America, especially in the U.S. (Bergami, 2011, 2012; Legal Information Institute, 2015). However, others have found UCC shipping and delivery term influences outside of the United States, such as in China (Zhai, 2013). With this Incoterms® “competitor” (Bergami, 2011), three of the UCC shipping and delivery term acronyms (FOB, FAS, and CIF) overlap with Incoterms® 2010 rules (Bergami, 2012; Legal Information Institute, 2015). While much of same terminology exists, UCC terms allow variations (i.e. Origin or Destination) to provide different meanings (Bergami, 2011). Critically different from Incoterms®, UCC shipping and delivery terms do indicate transfer of title or ownership, and they may indicate obligations beyond those of Incoterms® (Bergami, 2012; Legal Information Institute, 2015). The similarities in UCC and Incoterms® terminology lead to confusion in the marketplace (Bergami, 2011). In 2004, the UCC eliminated shipping and delivery terms, opening the door for wider acceptance of Incoterms® rules (Bergami, 2011).

2.3.2 Proper Use of Incoterms®

When used properly, using Incoterms® is “an effective risk management tool” (Bergami, 2013). The ICC states that there are four main considerations for proper Incoterms® use (ICC, 2010):

- 1) Use Incoterms® 2010 rules in the contract of sale – If you want to use Incoterms® rules in a contract, you should clearly specify by stating the Incoterms® rule, followed by the named place or port, and then specifying the Incoterms® versions, such as Incoterms® 2010.
- 2) Identify the appropriate Incoterms® rule – Use the Guidance Notes for each Incoterms® rule to determine the appropriate three character Incoterm®.
- 3) Stipulate the place or port accurately – Precisely naming the place or port after the Incoterms® rule is critical to avoid misunderstandings between parties.
- 4) Incoterms® do not provide a complete contract of sale – Incoterms® rules only specify a party’s obligation to secure carriage or insurance, when delivery occurs between seller and buyer, and the cost obligations of each party. Incoterms® rules do not state the price to be paid nor the payment method. Additionally, they do not indicate transfer of title or ownership or contract breach consequences.

On occasion, parties may want to alter the Incoterms® rules. Although not prohibited, potential dangers do arise. If an Incoterms® rule is altered, the ICC strongly suggests that the deliberate effect is made exceptionally clear in the contract of sale

(ICC, 2010).

Since Incoterms® rules are not a body of law, they must be specifically included in the dyadic sales contract for the Incoterms® rules to apply (Bergami, 2012). When used in a sales contract, Incoterms® rules are binding on the buyer-seller dyad, but the Incoterms® rule obligations may require other contracts to be formed, such as a contract with a transportation provider or customs broker. These third parties are not bound by the dyadic buyer-seller sales agreement, but rather by their individual agreements (Bergami, 2013).

For each of the 11 Incoterms® rules, very detailed guidance notes are provided in *Incoterms® 2010: ICC rules for the use of domestic and international trade terms*. The guidance notes clarify the specifics of each Incoterms® rule, such as when it should be used, when risk passes from seller to buyer, and how costs are allocated between seller and buyer. To clarify, the guidance notes are not part of the actual Incoterms® 2010 rules, but are intended to help the user correctly and efficiently navigate towards the suitable Incoterms® rule for a particular transaction (ICC, 2010). As stated by the ICC (2010), the following guidance notes are provided for each Incoterms® rule.

- A – The seller’s obligations
 - A1 – General obligations of the seller
 - A2 – License, authorizations, security clearances, and other formalities
 - A3 – Contracts of carriage and insurance
 - A4 – Delivery

- A5 – Transfer of risks
- A6 – Allocations of costs
- A7 – Notices to the buyer
- A8 – Delivery documents
- A9 – Checking – packaging – marking
- A10 – Assistance with information and related costs

- B – The buyer’s obligations
 - B1 – General obligations of the buyer
 - B2 – License, authorizations, security clearances, and other formalities
 - B3 – Contracts of carriage and insurance
 - B4 – Taking delivery
 - B5 – Transfer of risks
 - B6 – Allocations of costs
 - B7 – Notices to the seller
 - B8 – Proof of delivery
 - B9 – Inspection of goods
 - B10 – Assistance with information and related costs

2.4 LITERATURE REVIEW METHODOLOGY

The ABI/Inform Complete 1971 – Present database was used to identify academic journals and practitioner publications on the topic of Incoterms®. Multiple

ABI/Inform Complete searches were conducted using the “Advanced Search” functionality. The initial keyword search focused on the singular form (incoterm) or plural form (incoterms) of Incoterms®. No additional limitations on the search were used. This initial search yielded 199 results in the period through June 2017. A second keyword search was then conducted on the singular form (shipping term) or plural form (shipping terms) of shipping terms. Once again, no additional limitations on the search were used. This second search yielded 62 results. Therefore, 261 total articles were found from the two searches. All 261 articles citations were then transferred to Microsoft Excel. Appendix I – Literature Review contains this complete list of articles.

Taking a comprehensive approach, all 261 articles were reviewed. Upon reviewing each article, and within the Microsoft Excel file, each article was marked as either relevant “1” or not relevant “0” to the topic of Incoterms®. Articles were deemed relevant if they contained any discussion on the topic of Incoterms®. Additionally, it was noted whether each article was peer reviewed (“1” peer reviewed). Further, a brief article summary was recorded in a separate Microsoft Excel column. By utilizing the Microsoft Excel sort function, duplicate articles were found and noted in a separate Microsoft Excel column. By conducting other ad hoc searches using different article search engines and by following citations, 15 additional relevant articles merged. A summary by total and percentage is shown in Table 2.1. Of the 276 articles, only 25, or 9.06%, were found in peer reviewed scholarly journals. Thirty-two duplicate (i.e. same article listed more than once) articles were found.

Table 2.1 Summary of Articles Reviewed

Relevant	Not Relevant	Peer Reviewed	Duplicate
154	122	25	32
55.80%	44.20%	9.06%	11.59%
Total	276		

2.4.1 Review Process

Using the aforementioned Excel file and after removal of duplicates, 142 total articles were ascertained as relevant to the topic of Incoterms®. Of the 142 remaining articles, only 14 were considered to be relevant, peer reviewed, academic journal articles. The remaining 130 articles appeared in practitioner publications.

2.4.2 Classification framework

By thoroughly reviewing the 142 articles, four groupings of the literature emerged.

- 1) Explains Incoterms® - Articles in this group either attempt to explain Incoterms® overall or a specific Incoterms® rule or concept.
- 2) New Incoterms® version – These articles alert readers that a new revision is forthcoming or was recently introduced (i.e. Incoterms® 2010 taking effect January 1, 2011).
- 3) Training – Articles in this group alert or entice readers to participate in training workshops in Incoterms®.

4) Other – Articles not fitting into the other three groups were classified as “other.”

2.4.3 Results

Using the classification framework, the 142 articles were categorized into the four groupings. A total and percent summary of these groups is shown in Table 2.2.

Table 2.2 Summary of Article Classification

Explains Incoterms	New Incoterms Version	Training	Other
69	41	13	19
48.59%	28.87%	9.15%	13.38%

The largest group, with 69 of the 142 articles (48.59%), is the “Explains Incoterms®” group. These articles either attempt to explain Incoterms® overall or a specific Incoterms® rule or concept in particular. For example, from 2002 until 2013, Colin Barrett, the president of Barrett Transportation Consultants, took Incoterms® questions and provided answers (Q&A) in two practitioner publications: *Journal of Commerce* and *Traffic World* (Barrett, 2002, 2005, 2006, 2010a, 2010b, 2013).

The next largest group, with 41 articles (28.87%), is the “New Incoterms® version” group. These articles alert readers that a revision of the Incoterms® rules is forthcoming or has recently been introduced. Understandably, these articles typically appeared just prior to or shortly after a revision of the Incoterms® rules. For example, many of these articles were published around January 1, 2011 when Incoterms® 2010

became effective.

While 110 articles (77.46%) focused on either explaining Incoterms® or describing new Incoterms® versions, only 13 articles (9.15%) focused on Incoterms® training or training workshops. Of these, only two articles (Holley & Haynes, 2003 and Kock et al., 2008) discussed new training designs or methods with Incoterms®. The rest of these articles simply enticed readers to free or paid workshops or instruction.

The remaining 19 articles (13.38%) were placed into an “Other” group. The “Other” group articles varied greatly in topics. Many suggested mandatory or global support for Incoterms®, while others recommended or introduced tools for Incoterms use.

2.4.4 Discussion

Based upon this literature review, it is possible to offer some observations. First, there is scarcity of peer reviewed academic literature as it relates to Incoterms®. After updating the literature review in June 2017, only 14 articles were identified in peer reviewed academic journals. As shown below, the 14 articles covered all four categories: Explains Incoterms, New Incoterms version, Training, and Other. However, beyond these articles, there is some other academic attention on the subject of Incoterms® via university publications, newsletters, and conference presentations (Stapleton & Saulnier, 2001; Căruntu & Lăpădusi, 2010; Malfliet, 2011; Bergami, 2012; Stapleton, 2014).

Table 2.3 Summary of Academic Articles on Incoterms®

Article	Explains Incoterms	New Incoterms Version	Training	Other
Bergami (2011)	0	1	0	0
Bergami (2013)	1	0	0	0
Glitz (2011)	0	0	0	1
Holley & Haynes (2003)	0	0	1	0
Kock et al. (2008)	0	0	1	0
Kumar (2010)	0	0	0	1
McKinnon (2014)	0	0	0	1
Ramberg (2011)	0	1	0	0
Stapleton et al.(2014a)	1	0	0	0
Stapleton et al.(2014b)	1	0	0	0
Stapleton & Saulnier (1999)	0	1	0	0
Stapleton & Saulnier (2002)	1	0	0	0
Yao-Hua & Thoen (2000)	0	0	0	1
Zhai (2013)	0	0	0	1
	4	3	2	5
	28.57%	21.43%	14.29%	35.71%

Many journal and scholarly articles, university publications, newsletters, and conference presentations introduce, provide a history, and summarize Incoterms® rules

(Stapleton & Saulnier, 1999, 2001, 2002; Căruntu & Lăpădusi, 2010; Bergami, 2011, 2012, 2013; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Stapleton, 2014; Stapleton et al., 2014a, 2014b). Similarly, many journal and scholarly articles, university publications, newsletters, and conference presentations explain the differences between the latest Incoterms® rule version and the previous version (Stapleton & Saulnier 1999, 2001; Căruntu & Lăpădusi, 2010; Bergami, 2011, 2012, 2013; Malfliet, 2011; Ramberg, 2011; Stapleton et al. 2014a, 2014b). Yet other journal and scholarly articles, university publications, newsletters, and conference presentations, more interestingly discuss Incoterms® application (Stapleton & Saulnier, 2001; Căruntu & Lăpădusi, 2010; Bergami 2011, 2012, 2013; Malfliet, 2011; Stapleton, 2014; Stapleton et al., 2014a, 2014b) and common usage errors in their application (Stapleton & Saulnier, 2001; Bergami, 2011, 2012, 2013; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Stapleton, 2014; Stapleton et al. 2014a, 2014b). These are discussed below.

Regarding the application of Incoterms®, Stapleton et al. (2014a) provide important considerations that the Buyer and Seller should differentiate and clarify amongst the dyad by stating:

- a) Who pays for the various dispatch and delivery elements;
- b) Who initially pays for what in a given process; obviously, the Buyer always pays in the end either to the freight mover (e.g., carriers) directly or when charged by the Seller on an export invoice;
- c) Where exactly delivery takes place; remember, traders always need to

define delivery points very precisely;

- d) Finally, where risks and cost responsibilities pass from the Seller to Buyer, which normally though not always occur at the point of delivery.

The Buyer and Seller should have a clear understanding of what they agree to, and the contract of sale should clarify any nuances (Stapleton et al. 2014a). Importantly, and as noted by the ICC (2010), Incoterms® use alone does not constitute a contract of sale, and it should be incorporated into the contract of sale (Stapleton et al., 2014a) to be binding (Bergami, 2012). Bergami (2012) and Ramberg (2011), also point out that Incoterms® rules do exclude aspects of the sales contract, such as method of payment or title transfer, nor do they explain what happens when a dyadic member fails to perform an obligation (i.e. contract breach). Stapleton et al. (2014a) most significantly note any member of the Buyer-Seller dyad should only take on responsibility for functions that they either have control of or can exercise control over. Similar to Stapleton et al. (2014a), Căruntu & Lăpădusi (2010) provide various cases to illustrate total cost differences incurred by using different Incoterms® rules.

Beyond the application benefits already mentioned, Bergami (2011) cites that many trading nations have signed the United Nations Convention on Contracts for the International Sales of Goods (CISG), also referred to as the Vienna Convention of 1980. As of December 18, 2015, 84 nations had ratified the CISG, representing a large breadth of trading nations (Wikipedia, 2016). Since Incoterms® rules indicate a precise delivery point and various seller-to-buyer procedures, they may override, in a positive way,

many aspects of Article 31 of the CISG (Bergami, 2011).

Literature also suggests common Incoterms® usage errors. As mentioned by Reynolds (2010) in a non-academic book, these mistakes can lead to misunderstandings. Much of the evidence of common usage error is anecdotal (Stapleton et al., 2014a). Stapleton et al. (2014a) suggest that shippers may use less-than-optimal Incoterms® strategies created through a lack of knowledge of vulnerabilities and sloppy implementations. They also mention that traders are “creatures of habit” and many times repeatedly make the same Incoterms® usage errors leading to preventable risk. Bergami offers a similar sentiment “there are significant problems in getting traders to change from the established routines to more appropriate and correct use of Incoterms” (2012, p.37).

Stapleton et al. (2014a) list six common usage errors as follows:

1. Using FOB or other sea and inland waterway Incoterms® for containerized transport.
2. Using Incoterms® rules without clearly specifying a geographic place.
3. Not adopting to a recent Incoterms® rule version, such as Incoterms® 2000/2010.
4. Believing that using Incoterms® rules leads to a legal contract of sale.
5. Buyers misunderstanding the delivery and risk points when using CFR.
6. Buyers and Sellers in the U.S. misunderstanding loopholes in the Carriage of Goods by Sea Act, or COGSA, of 1936.

Stapleton et al. (2014b) add other common usage errors.

1. “Ship’s rail” as a transfer point was eliminated in Incoterms 2010.
2. Problems are created when using FOB with documentary letters of credit (DLC).
3. Banking institution regulations often require different duties of shippers.

Stapleton (2014) and Stapleton et al. (2014b) also go into more details beyond what has already been mentioned about FOB’s inappropriate use. For example, they cite the widespread “naked” FOB (i.e. not followed by a port name) use on Alibaba.com.

Additionally, they mention the distinction between FCA’s “loading,” which is consistent with containerized or truck freight of the goods, and FOB’s “placing,” which is consistent with break-bulk freight of the goods. McKinnon (2014) also indicates the substantial importer and exporter inappropriate use of FOB (and CIF, CFR, FAS) for containerized freight. Bergami (2013) found that banking practices may place requirements upon sellers that are contrary to the Incoterms® rules. Supporting this finding, Roos (2011), although not in an academic book, found that banks place secondary importance on Incoterms®, and U.S. Customs does not recognize them. Glitz (2011) reviewed court cases in Brazil and found that courts may eventually provide “the customary interpretation” of the shipping and delivery terms used by traders, as Brazilian doctrine and jurisprudence may be unfamiliar with Incoterms® rules.

Zhai (2013) investigates Incoterms® rule influence in the P.R. of China’s domestic trade. In doing so, Zhai (2013) provides an example of an Incoterms® error that occurred in August 2004 between a candle producer in Changsha, Hunan Province, China (seller)

and a wholesaler in Yinchuan, Qinghai Province, China (buyer). The parties agreed to a contract for 200 cartons for 20,000 Yuan with an October 2004 delivery, but the place of delivery was not clearly stated. The seller transported 200 cartons in September via rail, but upon buyer inspection, 60 cartons had become deformed due to heat damage. The buyer paid the seller short, and the case went to court, which provided two findings. First, the seller is responsible, as it did not fulfill the 200 cartons contract. Second, the carrier caused the issue, so the seller is not responsible, and the buyer owes the remaining amount. The verdict beyond these opinions is not clear. Zhai exclaims that “no risk point in the contract is the unforgivable error” and that Incoterms[®] impact on China’s domestic good trade is “landmark” (Zhai, 2013, p. 13).

Kumar (2010) suggests switching from FOB to FCA Incoterms[®] in order to reduce freight costs for a global retail supply chain. The benefit of FCA is generated by closer port routings, due to Buyer’s and not Seller’s preference of port, and a reduction in duty to Buyer. Interestingly, Kumar describes Incoterms[®] as “a series of sales terms used by businesses throughout the world primarily to facilitate easier transactions in international trade by clearly defining the terms, conditions, transaction costs, and ownership/transfer of goods in a transaction” (2010, p.52) While the overall benefit (reduced U.S. Customs duty, more flexible logistics routing, greater retailer logistics control, and the potential to leverage preferential U.S. importer status) is accurate, Kumar (2010) makes a common Incoterms[®] error by stating that the Incoterms[®] indicate ownership transfer, while the ICC clearly states that Incoterms[®] do not indicate ownership transfer (ICC, 2010).

McKinnon (2014) examines the influence that shippers can have on carbon emissions from the deep-sea container supply chain. In doing so, McKinnon surveys 34 large United Kingdom shippers with supplemented focus group discussions and interviews of key deep-sea container supply chain stakeholders. One item explored is the choice of trade terms, which are noted as Incoterms®. McKinnon concludes that “it is not known to what extent the choice of Incoterms® is currently influenced by environmental considerations” (McKinnon, 2014, p. 16). While not pointed out in the article, the article did find substantial importer and exporter inappropriate use of sea and inland waterway Incoterms® rules (CIF, CFR, FAS, and FOB) for containerized freight.

Yao-Hua and Thoen (2000) indicate that electronic commerce, doing business via electronic networks, has started to replace paper-based trade as it relates to B2B. They acknowledge the importance of Incoterms® in these transactions and, most appropriately, find that “differences between Incoterms can be very subtle.” They mention that the negotiation process between Buyer and Seller in their determination that selecting the optimal Incoterm® is a barrier in international trade “because it requires an expert knowledge about Incoterms® that most small- and medium-sized companies cannot afford” (2000, p. 391). While Incoterms® guides and books may be useful, Yao-Hua and Thoen observe, “it still requires a considerable effort to familiarize oneself with the content” (2000, p.391). Accordingly, the authors note that “when negotiating the delivery terms of a contract on-line it would be very helpful when the negotiator could consult an on-line automated expert system that gives some explanation about the meaning of the specific delivery terms proposed in the contract”

(2000, p.390). Therefore, Yao-Hua and Thoen devised a Prolog-based “INCoterms Advise System” (INCAS) to give users advice on the Incoterms® (2000).

In the “Training” category, Holley and Haynes (2003) devised a multimedia tool to assist in learning Incoterms® content related to the International Purchasing module of the Business Operations Management undergraduate degree offered by the Business School at the University of North London and for part-time professional students preparing for the Chartered Institute of Purchasing and Supply (CIPS) examination. Within this context, Holley and Haynes identified problems associated with teaching and learning Incoterms® including its perceived dullness, less perceived value by students compared to other business knowledge, little retention of content, perceived limited applicability of Incoterms® by students, no available training videos, only brief explanations available online, and the requirement to buy the Incoterms® book for in-depth knowledge. While Holley and Haynes found that their multimedia Incoterms® training tool increased student learning, they also observed that students still required a hard copy of Incoterms® information. (2003)

Similar to Holley and Haynes, Kock et al. (2008) tested web-based learning for Incoterms®. Humorously, their tests used web-based simulated threats, such as a picture of a snake in a striking position, to stimulate users’ increased learning of Incoterms®, which were inferred to be a dull subject. The study participants, who had no prior Incoterms® knowledge, tested 28% better when they received the threat stimuli (2008).

Interestingly, few articles suggest future research directions. Stapleton and Saulnier (1999, 2001) suggested that future research should investigate how Incoterms® influence international trade and strategy between the buyer and seller dyad, how various Incoterms® influence buyer and seller dyadic shipping practices, and how transportation providers react to various Incoterms® use.

Bergami advocated discovery of any problems experienced within industry and whether or not these problems were the same globally or rather localized to specific geographic areas or industries, rightfully pointing out that such research cannot be conducted until the most recent version of Incoterms® rules have been used for two to three years (2012). Bergami suggested that future research opportunities exist in studying the power relationships between banks and traders, in conducting research throughout many industries and countries for enriching data and rigorous analysis, and in the influence that banks can have on contracts including the additional costs that exporters may face (2013).

Stapleton et al. propose that future research should create an expert system to better guide Buyers and Sellers in appropriate Incoterms® use. They recommend that the system be grounded in Transaction Cost Economics with Game Theory mechanisms (2014a).

2.5 MIXED METHODS RESEARCH

2.5.1 Definition

Mixed methods research is an increasingly chosen area of methodology for many researchers and disciplines (Miller & Cameron, 2011; Cameron & Molina-Azorin, 2014). No single, widely accepted definition of mixed methods research exists, and many researchers provide various definitions (Creswell et al., 2003; Burke Johnson & Onwuegbuzie, 2004; *Journal of Mixed Methods Research*, 2006; Creswell & Plano Clark, 2007; Thurston et al., 2008; Teddlie & Tashakkori, 2010; Davis et al., 2011; Cameron & Molina-Azorin, 2014). Creswell et al. define mixed methods research as “the collection of analysis of both quantitative and qualitative data in a single study in which data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research” (2003, p. 212). Burke Johnson & Onwuegbuzie (2004) define mixed methods research formally as “the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study” (2004). Cameron and Molina-Azorin (2014) recall that the *Journal of Mixed Methods Research*, in its call for papers, specified mixed methods as “research in which the investigator collects, analyzes, mixes, and draws inferences from both quantitative and qualitative data in a single study or a program of inquiry” (2006). Creswell and Plano Clark stated that,

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or a series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. (2007, p. 5)

As noted by Cameron and Molina-Azorin (2014a), Thurston et al. state that “mixed methods studies can either combine methods from different paradigms or use multiple methods within the same paradigm, or multiple strategies within methods” (2008, p. 3). Whereas, Miller and Cameron (2011) present Teddlie and Tashakkori’s (2010) definition of mixed methods methodology as “the broad inquiry logic that guides the selection of specific methods and that is informed by conceptual positions common to mixed methods practitioners (e.g., the rejection of ‘either-or’ choices at all levels of the research process” (2010, p. 5). Miller and Cameron distinguish the MMR approach to conducting research from that practiced in either the quantitative or qualitative approach (2011).

Mixed methods research is not to be confused with multiple methods research. Davis et al. help clarify that “multiple methods studies may employ two or more qualitative methods, two or more quantitative methods, or a combination of qualitative and quantitative methods in what is called a mixed methods approach” (2011, p. 468).

Miller & Cameron (2011) also attempt to clarify the differences by citing the *International Journal of Multiple Research Approaches* call for papers by Leech et. al (2008), which stated,

Mixed methodologies is distinguished from multiple methodologies, wherein mixed methodologies refers to approaches in which quantitative and qualitative research techniques are integrated into a single study, whereas multiple methodologies refer to approaches in which more than one research method or data collection and analysis technique (including two or more methods within the same paradigm) is used to address research questions. (2011, p.389)

By simplifying the overlapping characterizations from above, mixed methods research is defined here as the use of both quantitative and qualitative research in a single study.

2.5.2 History

Hanson et al. state that “the historical evolution of mixed methods research has not been traced completely by any one author or source, although Datta (1994) and Teddlie and Tashakkori (1998, 2003) have identified many of the major developmental milestones” (2005, p. 225). The method of multiple data collection is traced back to early social science research (Hanson et al., 2005). As shown in Hanson et al. (2005), the Campbell and Fiske (1959) validation study of psychological traits brought multiple data collection methods into the limelight. Although not pure mixed methods as defined above (multiple quantitative data were used), the study encouraged multiple methods

and forms of data within a single study and hence, influenced researchers (Sieber, 1973; Hanson et al., 2005). Later, the term, triangulation, lent from naval science signifying the use of multiple reference points to uncover an object's exact position, was used to support the complementary methodology of using both quantitative and qualitative data to explore a phenomenon's exact nature (Denzin, 1978; Jick, 1979; Hanson et al., 2005; Davis et al., 2011). The use of both quantitative and qualitative data could unearth "some unique variance" that could otherwise be overlooked by any one particular approach (Jick, 1979; Hanson et al., 2005).

As shown in both Miller and Cameron (2011) and Cameron and Molina-Azorin (2014), Creswell and Plano Clark (2007) also plotted a brief history of mixed methods research and found four, sometimes overlapping time periods of mixed methods research evolution. These are 1) the formative period (1950s to 1980s); 2) the paradigm debate period (late 1970s to 1990s); 3) the procedural development period (late 1980s to 2000); and 4) the advocacy as a separate design period (2000+).

Mixed methods research has become a "viable alternative" as a supplemental research method (Hanson et al., 2005) as well as a stand-alone, legitimate research design (Greene et al., 1989; Tashakkori & Teddlie, 1998, 2003, 2010; Creswell, 2002, 2003; Hanson et al., 2005), and prominent mixed methods research scholars have emerged (Greene & Caracelli, 1997; Mingers & Gill, 1997; Tashakkori & Teddlie, 1998; 2003, 2010; Creswell, 2003; Hanson et al., 2005; Mertens, 2005; Creswell & Plano Clark, 2007; Bazeley, 2008; Bergman, 2008; Bryman, 2008; Miller & Cameron, 2011; Cameron

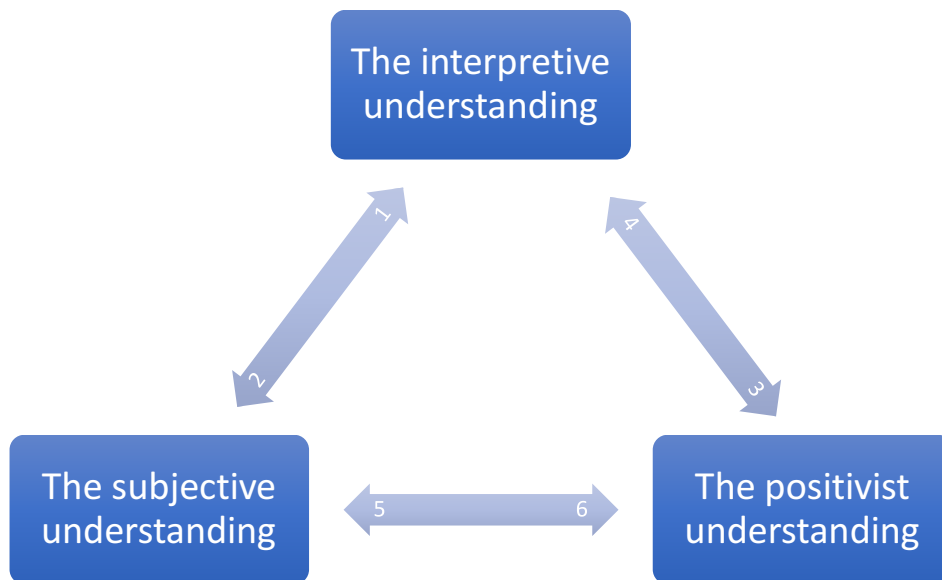
& Molina-Azorin, 2014). Beyond academic journal publications (Miller & Cameron, 2011; Cameron & Molina-Azorin, 2014), mixed methods research interest has also spilled over to chapters within research texts (McMillan & Schumacher, 2006; Sheperis et al., 2010), and to entire textbooks (Cook & Reichardt, 1979; Bryman, 1988; Brewer & Hunter, 1989; Reichardt & Rallis, 1994; Greene & Caracelli, 1997; Newman & Benz, 1998; Tashakkori & Teddlie, 1998, 2003, 2010; Bamberger, 2000; Creswell, 2002, 2003; Todd et al., 2004; ,Creswell & Plano Clark, 2007; Greene, 2007; Bergman, 2008; Andrew & Halcomb, 2009; Morse & Niehaus, 2009; Nagy Hesse-Biber, 2010). Specific academic journals have also emerged, such as the *Journal of Mixed Methods Research*, the *International Journal of Multiple Research Approaches*, the *International Journal of Mixed Methods in Applied Business and Policy Research*, *Qualitative Social Research*, and the *Field Methods and Quantity and Quality* (Hanson et al. 2005, Miller & Cameron 2011, Cameron & Molina-Azorin 2014). Practical mixed method research guides have also appeared (Hanson et al. 2005, Miller & Cameron 2011, Cameron & Molina-Azorin 2014). The *Handbook of Mixed Methods in Social and Behavioral Research*, currently in its second edition (Tashakkori & Teddlie, 2003, 2010), is noted as the “most comprehensive publication of mixed methods to date” (Miller & Cameron 2011, Cameron & Molina-Azorin 2014). Specialized conferences and Special Interest Groups (SIGs) on mixed methods research are also emerging across disciplines (Miller & Cameron 2011).

2.5.3 Philosophical Foundation

A few authors have endeavored to describe the philosophical foundation for

mixed methods research. These efforts start with Lee's (1991) proposal for a framework integrating positivist methods, such as inferential statistics, with interpretive approaches, such as case studies. Lee refuted the notion that positivist and interpretive approaches are opposed and irreconcilable, demonstrating in fact how these two approaches could be mutually supportive rather than mutually exclusive (1991).

Figure 2.1 - Lee's (1991) framework



The Lee framework, which is described verbatim below, contains three levels of understanding.

1. The subjective understanding, which consists of the everyday meanings and everyday common sense with which the observed human subjects see themselves and the organizational world around them,
2. The interpretive understanding, which consists of the organizational researcher's reading or interpretation of the subjective understanding,

- developed, with the help of such methods as those of phenomenological sociology, hermeneutics, ethnography, and participant-observation, and
3. The positivist understanding, which consists of theoretical propositions, manipulated according to
 - a. The rules of formal logic
 - b. The rules of hypothetico-deductive logic

so that the resulting theory satisfies the requirements of

- i. falsifiability
- ii. logically consistency
- iii. relative explanatory power
- iv. survival.

Lee, 1991, p. 364

Lee's (1991) framework creates a triangle, which is depicted in Figure 2.1. Arrow 1 goes from subjective understanding to the interpretive understanding, while Arrow 2 goes in the reverse direction. Arrow 3 goes from interpretive understanding to the positivist understanding. Arrow 4 goes in reverse of Arrow 3. Arrow 5 goes from positivist understanding to subjective understanding. Arrow 6 travels the reverse of Arrow 5, from subjective understanding to positivist understanding. In comparing Lee's (1991) framework, Arrow 1 shows that "subjective understanding provides the basis on which to develop [the] interpretive understanding" (Lee, 1991, p. 351). Lee's directive "to test the validity of the resulting interpretive understanding, the researcher may

refer back to the subjective understanding” (p. 352) is depicted by Arrow 2. With Arrow 3, “interpretive understanding, once judged to be valid, may then provide the basis on which to develop [the] positivist understanding” (p. 352). Lee stipulates three tests that would result in positivist understanding. For the first test, following Arrow 4, “the researcher refers back to the subjective meanings earlier recorded in the interpretive understanding, [...] which would then serve as the point of comparison for judging the subjective meanings contained in the positivist understanding” (p. 352), which consequently follows Arrow 3.

Thirteen years later, Burke Johnson and Onwuegbuzie (2004), when referring to mixed methods research, state that, “philosophically, it is the ‘third wave’ or third research movement, a movement that moves past the paradigm wars by offering a logical and practical alternative” (p. 17). They further expand by saying that mixed methods research “is an attempt to legitimate the use of multiple approaches in answering research questions, rather than restricting or constraining researchers’ choices (i.e., it rejects dogmatism)” (p. 17). They go on to postulate that, “mixed methods research should, instead (at this time), use a method and philosophy that attempt to fit together the insights provided by qualitative and quantitative research into a workable solution” (p. 16). They suggest that pragmatism will not end the philosophical debates nor should the debates end. However, they agree with others that for the mixed methods research movement, the discussion of pragmatism would be productive. They further exclaim that, “we reject an incompatibilist, either/or approach to paradigm selection and we recommend a more pluralistic or compatibilist approach”

(p. 17).

Burke Johnson & Onwuegbuzie (2004) “endorse pragmatism as a philosophy that can help to build bridges between conflicting philosophies, pragmatism, like all current philosophies, has some shortcomings” (p. 17). Some of the pragmatic shortcomings mentioned are: 1) Receiving less attention than applied research, which may appear to produce more immediate and practical results; 2) Promoting incremental change rather than more fundamental, structural, or revolutionary change in society; 3) Failing to provide a satisfactory answer to the question “For whom is a pragmatic solution useful?” (Mertens, 2003); 4) Creating ambiguity in workability or usefulness unless the researcher explicitly addresses them; 5) Enduring difficulty in dealing with theories of truth usefulness cases; 6) Failing as a solution (logical, as opposed with practical) to many philosophical disputes; 7) Enduring complete rejection by neo-pragmatists, such as Rorty and postmodernists, for correspondence of truth in any form. Burke Johnson & Onwuegbuzie (2004) suggest that researchers should be “reflexive and strategic” to avoid potential consequences of pragmatic weaknesses in their works.

Following Burke Johnson & Onwuegbuzie (2004), Hanson et al. (2005) identify two items, paradigm-method fit and “best” paradigm, that have aroused considerable debate as to the philosophical basis of mixed methods research. Hanson et al. (2005) state that the paradigm–method fit issue relates to the question, “Do philosophical paradigms (e.g., postpositivism, constructivism) and research methods have to fit together?” This first debate surfaced in the 1960s and 1970s, which saw the popularity

of qualitative research increase along with philosophical distinctions between traditional postpositivist and naturalistic research. This eventually led to a separation between traditional inquiry paradigms and naturalistic paradigms. For example, some have argued that a postpositivist philosophical paradigm should only be combined with quantitative methods, and a naturalistic paradigm should only be combined with qualitative methods. Reichardt and Rallis (1994) referred to issue as the “paradigm debate.” This led to the view that mixed methods research was incompatible because no legitimate fit exists between certain paradigms and methods (Smith, 1983). However, Reichardt and Cook (1979) countered that compatibility does exist between different philosophical paradigms and methods by arguing that paradigms and methods are not inherently linked. The perspective still exists that mixed methods research can be used within one research study taking advantage of the positive aspects of both quantitative findings, such as the representativeness and generalizability, and of qualitative findings, such as its in-depth, contextual nature (Greene & Caracelli, 2003).

Hanson et al. (2005) also addressed the “best” paradigm issue by addressing the question “What philosophical paradigm is the best foundation for mixed methods research?” Multiple perspectives also exist for this question (Tashakkori & Teddlie, 2003). One view is that mixed methods research intentionally uses competing paradigms by giving each one equal merit and footing. However, Hanson et al. (2005) suggest “honoring and respecting the different paradigmatic perspectives” in a study. They identified six different mixed methods research designs, and their perspective suggests that mixed methods research be viewed as a “method” that allows researchers

to justify its use by any number of philosophical foundations, and hence, the “best” paradigm is determined by the researcher and the research problem not the method. Hüttinger et al. (2014) remarks that Matthyssens (2007) encourages disabling the methodological divides by displaying paradigmatic tolerance and pluralism, hence advocating mixed methods research.

2.5.4 Rationale

Building on the schemes of others (Greene et al., 1989), Bryman (2006) identifies 18 different rationales for utilizing mixed methods research. They are listed in Table 2.4.

Table 2.4 - Rationales for utilizing mixed methods research

- 1) Triangulation or greater validity – refers to the traditional view that quantitative and qualitative research might be combined to triangulate findings, so that they may be mutually corroborated.
- 2) Offset – refers to the suggestion that the research methods associated with both quantitative and qualitative research have their own strengths and weaknesses, so that combining them allows the researcher to offset their weaknesses by drawing on the strengths of both.
- 3) Completeness –the “notion that the researcher can bring together a more comprehensive account of the area of interest if both quantitative and qualitative research methods are employed.
- 4) Process – quantitative research provides an account of structures in social life, but qualitative research provides [a] sense of process.
- 5) Different research questions – The argument that quantitative and qualitative research can each answer different research questions but this item was coded only if authors explicitly stated that they were doing this.
- 6) Explanation – one method is used to help explain findings generated by the other.
- 7) Unexpected results – quantitative and qualitative research can be fruitfully combined to generate surprising results.
- 8) Instrument development – qualitative research can be employed to develop quantitative instruments, such as questionnaires and scale items, so that better wording or more comprehensive closed answers can be generated.
- 9) Sampling – one method can be used to facilitate the sampling of respondents or cases.

- 10) Credibility – employing both approaches enhances the integrity of findings.
- 11) Context – the combination of research methods can provide contextual understanding coupled with either generalizable, externally valid findings or broad relationships among variables.
- 12) Illustration –qualitative data is used to illustrate quantitative findings, often referred to as putting "meat on the bones" of "dry" quantitative findings.
- 13) Utility or improving the usefulness of findings –combining the two approaches is more useful to practitioners, a suggestion, which is more likely to be prominent among articles with an applied focus.
- 14) Confirm and discover – qualitative data is used to generate hypotheses, while quantitative research is used to test them within a single project.
- 15) Diversity of views – this includes two slightly different rationales – namely, combining researchers' and participants' perspectives through quantitative and qualitative research respectively, and uncovering relationships among variables through quantitative research while also revealing meanings among research participants through qualitative research.
- 16) Enhancement or building upon quantitative/qualitative findings –quantitative or qualitative findings can be augmented by gathering data using a qualitative or quantitative research approach.
- 17) Other/unclear
- 18) Not stated

Bryman, 2006, p. 105-107

Bryman (2006) suggests that researchers clearly indicate the grounds for mixed methods research use. However, there is an understanding that results may be unpredictable, and hence, actual practice may vary from the rationale given (Bryman, 2006).

2.5.5 Comparison of Qualitative, Quantitative, and Mixed Methods Research

Morgan sums up the reason for using mixed methods very well by stating, "virtually every discussion of the reasons for combining qualitative and quantitative methods begins with the recognition that different methods have different strengths" (1998, p. 362). Burke Johnson and Onwuegbuzie (2004) provide a useful comparison of

qualitative, quantitative, and mixed methods research. For effective mixed methods research, they suggest that researchers consider all of the relevant characteristics of quantitative and qualitative research. They consider the major characteristics of quantitative research to be focused “on deduction, confirmation, theory/hypothesis testing, explanation, prediction, standardized data collection, and statistical analysis” (Burke Johnson & Onwuegbuzie, 2004, p. 18). Contrastingly, qualitative research focuses on “induction, discovery, exploration, theory/hypothesis generation, the researcher as the primary “instrument” of data collection, and qualitative analysis” (Burke Johnson & Onwuegbuzie, 2004, p. 18).

Burke Johnson and Onwuegbuzie (2004) list the strengths and weaknesses for quantitative and qualitative research methods. The strengths and weaknesses of quantitative research methods are listed in Table 2.5.

Table 2.5: Strengths and Weaknesses of Quantitative Research

Strengths

- 1) Testing and validating already constructed theories about how (and to a lesser degree, why) phenomena occur.
- 2) Testing hypotheses that are constructed before the data are collected. Can generalize research findings when the data are based on random samples of sufficient size.
- 3) Can generalize a research finding when it has been replicated on many different populations and subpopulations.
- 4) Useful for obtaining data that allow quantitative predictions to be made.
- 5) The researcher may construct a situation that eliminates the confounding influence of many variables, allowing one to more credibly assess cause-and-effect relationships.
- 6) Data collection using some quantitative methods is relatively quick (e.g., telephone interviews).
- 7) Provides precise, quantitative, numerical data.
- 8) Data analysis is relatively less time consuming (using statistical software).
- 9) The research results are relatively independent of the researcher (e.g., effect

size, statistical significance).

10) It may have higher credibility with many people in power (e.g., administrators, politicians, people who fund programs).

11) It is useful for studying large numbers of people.

Weaknesses

1) The researcher's categories that are used may not reflect local constituencies' understandings.

2) The researcher's theories that are used may not reflect local constituencies' understandings.

3) The researcher may miss out on phenomena occurring because of the focus on theory or hypothesis testing rather than on theory or hypothesis generation (called the confirmation bias).

4) Knowledge produced may be too abstract and general for direct application to specific local situations, contexts, and individuals.

(Burke Johnson & Onwuegbuzie, 2004, p. 19)

Burke Johnson and Onwuegbuzie also clarify the strengths and weaknesses for qualitative research methods. These are shown below in Table 2.6.

Table 2.6 - Strengths and Weaknesses of Qualitative Research

Strengths

1) The data are based on the participants' own categories of meaning.

2) It is useful for studying a limited number of cases in depth.

3) It is useful for describing complex phenomena.

4) Provides individual case information.

5) Can conduct cross-case comparisons and analysis.

6) Provides understanding and description of people's personal experiences of phenomena (i.e., the "emic" or insider's viewpoint).

7) Can describe, in rich detail, phenomena as they are situated and embedded in local contexts.

8) The researcher identifies contextual and setting factors as they relate to the phenomenon of interest.

9) The researcher can study dynamic processes (i.e., documenting sequential patterns and change).

10) The researcher can use the primarily qualitative method of "grounded theory" to generate inductively a tentative but explanatory theory about a phenomenon.

11) Can determine how participants interpret "constructs" (e.g., self-esteem, IQ).

12) Data are usually collected in naturalistic settings in qualitative research.

- 13) Qualitative approaches are responsive to local situations, conditions, and stakeholders' needs.
- 14) Qualitative researchers are responsive to changes that occur during the conduct of a study (especially during extended fieldwork) and may shift the focus of their studies as a result.
- 15) Qualitative data in the words and categories of participants lend themselves to exploring how and why phenomena occur.
- 16) One can use an important case to demonstrate vividly a phenomenon to the readers of a report.
- 17) Determine idiographic causation (i.e., determination of causes of a particular event).

Weaknesses

- 1) Knowledge produced may not generalize to other people or other settings (i.e., findings may be unique to the relatively few people included in the research study).
- 2) It is difficult to make quantitative predictions.
- 3) It is more difficult to test hypotheses and theories.
- 4) It may have lower credibility with some administrators and commissioners of programs.
- 5) It generally takes more time to collect the data when compared to quantitative research.
- 6) Data analysis is often time consuming.
- 7) The results are more easily influenced by the researcher's personal biases and idiosyncrasies.

(Burke Johnson & Onwuegbuzie, 2004, p. 20)

By understanding the strengths and weaknesses of quantitative and qualitative research methods, the researcher is positioned to mix methods (Johnson & Turner, 2003; Burke Johnson & Onwuegbuzie, 2004,). This is called the "fundamental principle of mixed research" by Johnson and Turner (2003). The fundamental principle of mixed research serves as a major justification for mixed methods research providing a superior study compared to monomethods (Burke Johnson & Onwuegbuzie, 2004).

Burke Johnson and Onwuegbuzie (2004) also provide an excellent summary of the strengths and weaknesses of mixed methods research, and these are listed in Table

2.7.

Table 2.7 - Strengths and Weaknesses of Mixed Methods Research

Strengths

- 1) Words, pictures, and narrative can be used to add meaning to numbers.
- 2) Numbers can be used to add precision to words, pictures, and narrative.
- 3) Can provide quantitative and qualitative research strengths (i.e., see strengths listed in Tables 3 and 4). Researcher can generate and test a grounded theory.
- 4) Can answer a broader and more complete range of research questions because the researcher is not confined to a single method or approach.
- 5) The specific mixed research designs discussed in this article have specific strengths and weaknesses that should be considered (e.g., in a two-stage sequential design, the Stage 1 results can be used to develop and inform the purpose and design of the Stage 2 component).
- 6) A researcher can use the strengths of an additional method to overcome the weaknesses in another method by using both in a research study.
- 7) Can provide stronger evidence for a conclusion through convergence and corroboration of findings.
- 8) Can add insights and understanding that might be missed when only a single method is used.
- 9) Can be used to increase the generalizability of the results.
- 10) Qualitative and quantitative research used together produce more complete knowledge necessary to inform theory and practice.

Weaknesses

- 1) Can be difficult for a single researcher to carry out both qualitative and quantitative research, especially if two or more approaches are expected to be used concurrently; it may require a research team.
- 2) Researcher has to learn about multiple methods and approaches and understand how to mix them appropriately.
- 3) Methodological purists contend that one should always work within either a qualitative or a quantitative paradigm.
- 4) More expensive.
- 5) More time consuming.
- 6) Some of the details of mixed research remain to be worked out fully by research methodologists (e.g., problems of paradigm mixing, how to qualitatively analyze quantitative data, how to interpret conflicting results).

(Burke Johnson & Onwuebuozie, 2004, p. 21)

The intent of this lengthy review is to aid researchers in their decision about whether to

use mixed methods in a research study.

2.5.6 Basic Steps

Research suggests that some basic steps are needed when designing a mixed methods study. Hanson et al. observes three basic steps. First, they suggest deciding about whether to use an explicit paradigm. Their second step involves implementation and prioritization of data collection. The last step is a decision on the point at which data analysis and integration will occur (2005). Even more simplistically, Burke Johnson and Onwuegbuzie believe that researchers should make just two primary decisions: whether the researcher operates with one dominant paradigm and whether the researcher conducts phases concurrently or sequentially (2004).

2.5.7 Research Designs

Mixed methods research designs can take various forms. Since mixed method research is relatively new, design typologies are continually being developed (Hanson et al., 2005). Some of the more prominent designs are described below.

One example comes from Tashakkori and Teddlie (1998), who observed four basic research purposes for mixed methods research as follows: 1) Development – the use of one study to inform a subsequent study; 2) Initiation – the use of a preliminary study to launch a main study; 3) Complementarity – concurrent examination of various facets of a phenomenon through two or more studies; 4) Interpretation – concurrent use of a second study to explain or confirm the results from a main study.

Another example is offered by Creswell et al. (2003), who describe six primary design types: three sequential (explanatory, exploratory, transformative) and three concurrent (triangulation, nested, transformative). The design types vary according to “[the] use of an explicit theoretical/advocacy lens, [the] approach to implementation (sequential or concurrent data collection procedures), [the] priority given to the quantitative and qualitative data (equal or unequal), [the] stage at which the data are analyzed and integrated (separated, transformed, or connected), and procedural notations” (Hanson et al., 2005, p. 228).

Using uppercase letters to indicate high priority and lowercase for lower priority, Creswell et al. (2003) also described six primary design types as follows: “Qual” stands for qualitative, and “quan” stands for quantitative. 1) Sequential explanatory is Quan → qual. 2) Sequential exploratory is QUAL → quan. 3) Sequential transformative is an advocacy lens with either Quan → qual or QUAL → quan. 4) Concurrent triangulation is QUAN + QUAL leading to results. 5) Concurrent nested is either qual nested within QUAN or quan nested within QUAL. Lastly, 6) concurrent transformative is either an advocacy lens with QUAN + QUAL leading to results or an advocacy lens QUAL → quan (Creswell et al., 2003).

A third, more elaborate example is described by Burke Johnson and Onwuegbuzie (2004). Their typology incorporates nine mixed method designs using the following notations, based upon Morse (1991). “Qual” and “quan” indicate qualitative and quantitative, respectively. A plus-sign “+” stands for concurrent, and a right-arrow

“→” stands for sequential. Uppercase indicates high priority, and lowercase shows lower priority. QUAL + QUAN represents a concurrent time order decision and the equal status of paradigm emphasis. QUAL → QUAN and QUAN → QUAL represent a sequential time order decision and the equal status of paradigm emphasis. QUAL + quan and QUAN + qual represent a concurrent time order decision and the dominant status of paradigm emphasis. Lastly, QUAL → quan, qual → QUAN, QUAN → qual, and quan → QUAL are all sequential time order decisions and show the dominant status of paradigm emphasis. With this approach, the researchers remark, “one can easily create more user specific and more complex designs” (p. 20) directing mixed methods researchers to “mindfully create designs that effectively answer their research questions” (p. 20). In using their matrix, they tell researchers to determine two primary factors; 1) whether the researcher operates with one dominant paradigm and 2) whether or not the researcher conducts phases concurrently or sequentially (Burke Johnson & Onwuegbuzie, 2004).

2.5.8 Prevalence and Use in Business Research

Traditionally, business research has been undertaken quantitatively with the emerging presence of qualitative research (Miller & Marchant, 2009; Miller & Cameron, 2011). For example, Cameron and Molina-Azorin conclude that the overwhelmingly dominant method, used in 76% of the empirical articles sampled from peer-reviewed journals, is quantitative (2014). Recently however, mixed methods research has become part of business research and has even taken a significant role in doctoral level business

research (Miller & Marchant, 2009; Miller & Cameron, 2011). Of concern is the slight delay in the overall adoption of mixed methods research in business disciplines compared to other social science areas (Miller & Cameron, 2011).

Fortunately, mixed methods research has gained attention in business and as such, prevalence rate studies have emerged (Rocco et al., 2003; Hurmerinta-Peltomaki & Nummela, 2006; Hanson & Grimmer, 2007; Bazeley, 2008, Molina-Azorin, 2008, 2009; Grimmer & Hanson, 2009; Molina-Azorin & López-Fernández, 2009; Cameron, 2011, Cameron & Molina-Azorin, 2014). Miller and Cameron (2011) investigated these studies, and they find that the prevalence of mixed methods research rates range from 8%-25% depending on the field. From their point of view, the area lacks acknowledgement, and this poses a big challenge for business researchers who want to use mixed methods. The empirical evidence in Miller and Cameron (2011) shows that a “transitional creep,” which they define as “a periodic reflection of the evolution of mixed methods as a third methodological movement” (p. 398), has entered the business discipline. Miller and Cameron (2011) lament the immaturity of the mixed methods movement, as it has not yet entered mainstream university teaching. However, they acknowledge that mixed methods research is a growing methodology choice for business disciplines, and they expect wider use of mixed methods in the future. As found in Hüttinger et al. (2014), Cadden et al. (2013) states that mixed methods are gaining importance in the field of supply chain management. Those in young fields of study, such as purchasing and supply management, agree that they should learn from adjacent fields and combine quantitative and qualitative methods, which could offer the potential for accelerated

knowledge growth (Tazelaar, 2007; Hüttinger et al., 2014). Similarly, as found in Hüttinger et al. (2014), Matthyssens (2007) encourages the use of mixed methods in purchasing and supply management studies.

2.5.9 Recommendations

Hanson et al. (2005) provides eight very useful recommendations for designing, implementing, and reporting a mixed methods study. This is summarized in Table 2.8.

Table 2.8 - Recommendations for Designing, Implementing, and Reporting Mixed Methods Studies

- Pay close consideration to theoretical/paradigmatic issues
- Give careful consideration to design and implementation
- Become familiar with data analysis and integration strategies as these may occur any point in time
- Work in research teams to provide expertise for both qualitative and quantitative methods
- Use the phrase “mixed methods” in the study title to help focus the research
- State the rationale for using mixed methods in the introduction
- Specify the type of mixed methods research design to be used
- Discuss the legitimacy and viability of mixed methods research candidly

Hansen et al., 2005, p. 233

2.6 EXPERIMENTS

Experiments are the traditional, research methods employed for investigations of buyer-seller relationships like negotiation (Mestdagh & Buelens, 2003), and this trend has continued (Buchan et al., 2004; Wolfe & McGinn, 2005; Bottom et al., 2006; Krause et al., 2006; Huang et al., 2008; Friend, 2010; Thomas et al., 2010; Nair et al., 2011; Thomas, 2013; Özer et al., 2014). Experimentation is suitable for theory testing of cause-and-effect relationships (Thye, 2007; Siemsen, 2011; Thomas, 2013) while maximizing

control and assessing causality (McGrath, 1982; Beatty & Ferrell, 1998; Thomas, 2013). Unlike other research approaches, as found in Thomas et al. (2010), Beatty and Ferrell state that experiments are the only research approach that provides “unequivocal assessment of causality” (1998). Internal validity is a concern when testing causality (Huang et al., 2008) as is control over internal validity threats (Cook & Campbell, 1979; Huang et al., 2008). Experimentation is well matched to overcome these concerns because experiments allows direct manipulation of treatments by researchers to randomly assign respondents to conditions and to control for confounding factors (McGrath, 1982; Wacker, 1998; Huang et al. 2008).

A common type of experimental design is scenario-based experimentation (Huang et al., 2008; Friend, 2010; Thomas et al., 2010; Thomas, 2013). Scenario-based experimentation can help to reduce biases, memory lapses, rationalization tendencies, and consistency factors (Grewel et al., 2008; Thomas et al., 2010; Thomas, 2013). It is also “less threatening to participants and allows researchers to explore interfirm relationship phenomena” (Thomas et al., 2010).

Participants in experimental research on buyer-seller relationships are generally MBA students (Mestdagh & Buelens, 2003). Example studies can be found in Huang et al. (2008), Friend (2010), Nair et al. (2011), Thomas et al. (2010), Thomas (2013), and Özer et al. (2014). However, the use of undergraduate students is also present in many studies (Buchan et al., 2004; Wolfe & McGinn, 2005; Bottom et al., 2006; Krause et al., 2006). In contrast, the use of non-student participants is very limited (Mestdagh &

Buelens, 2003). Mestdagh and Buelens found that “only 5% of studies use practicing managers as participants” (2003), which they state is “not exactly good news” (2003).

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This study uses a mixed methods research approach, defined here as the use of both quantitative and qualitative research in a single study. By understanding the strengths and weaknesses of quantitative and qualitative research methods, the researcher is positioned to mix methods thereby providing a superior study compared to mono-method research (Johnson & Turner, 2003; Burke Johnson & Onwuegbuzie 2004). By conducting mixed methods research, hence becoming a “mixed-methodologist,” researchers are capable of not only employing qualitative and quantitative methods, but also of integrating both methods together in a “third methodology” (Bazeley, 2003, 2006; Halcomb & Andrew, 2009). Mixed methods research also provides researchers the opportunity to be creative in research presentation (Halcomb & Andrew, 2009).

Using the mixed methods research of Burke Johnson & Onwuegbuzie (2004), this study transacts qual → QUAL → QUAN via a pilot case study and multiple case studies, followed by an experiment. This sequential mixed method design supports more compelling findings (Halcomb & Andrew, 2009). Both case study and experimental research methods are appropriate for the “how” and “why” type of research questions (Yin, 2014).

Study 1 is a qualitative pilot case study that seeks evidence of outcomes due to logistics management communication errors (i.e. Incoterm® usage errors) within a purposeful sample of an anonymous single, large, international corporation operating in multiple industrial markets.

Study 2 conducts multiple qualitative case studies that explore how buyer-seller dyads negotiate and communicate logistics management decisions and the communication errors that occur within buyer-seller dyads. Dyads are drawn from a purposeful sample of cases where at least one dyadic member is associated with the anonymous large, international corporation operating in multiple industrial markets. Interviews with both members of each selected dyad are conducted. U.S. to non-U.S. dyads, U.S. to U.S. dyads, and non-U.S. to non-U.S. dyads are identified, selected, and explored. This provides a holistic view of global dyads. Due to the exploratory characteristics of the research question, grounded theory is deemed appropriate to allow the flexibility needed for appropriate exploration in Study one and Study two (Glaser & Strauss, 1967; Patton, 1990; Eisenhardt, 1989; Yin, 1989; Pappu & Mundy, 2002; Thomas, 2013). Grounded theory allows theory discovery from systematically obtained data (Pappu & Mundy, 2002).

Study 3 quantitatively tests hypotheses developed from analysis of the results of Study two and seeks to find ways to improve the quality of communication of logistics management decisions in buyer-seller dyads. This hypothesis testing is conducted via experiments completed at the anonymous large, international corporation operating in

multiple industrial markets. An experimental research design is an appropriate setting for the systematic testing of theory (Thye, 2007; Siemsen, 2011; Thomas, 2013).

Buyer-seller relationships can differ due to industrial circumstances (Goffin et al., 2006; Autry & Golicic, 2010). There are significant dyadic relationship measurement differences and variances from industry to industry and firm-to-firm (Goffin et al., 2006; Autry & Golicic, 2010). Research design and execution across multiple firms and industries are subsequently aggregated or compared and are thus likely to encounter errors due to the artificially imposed uniformity of metrics which may underestimate the true effects in one context while overstating them in others (Autry & Golicic, 2010). Restricting this study to dyads where at least one member is associated with a single company enhances internal validity at some expense to external validity.

Recognizing the research questions and the qual → QUAL → QUAN research approach stated above, the rationales suggested by Bryman (2006) are applied to this mixed methods research. The following seven Bryman (2006) rationales are relevant to this study: 1) “Triangulation” is the expectation that the qualitative and quantitative portions will mutually corroborate one another. This study will build upon case study research and then use experimental research to further substantiate or refute the qualitative findings. Bryman also remarked that separating and sequencing the qualitative and quantitative techniques will draw on their strengths and diminish their weaknesses (2006). Strengths and weaknesses of both research approaches will be noted. 2) With “Completeness,” a comprehensive account is expected (Bryman, 2006).

For this study's population, using both qualitative and quantitative methods will provide a fuller examination of the phenomenon within the population set of buyer-seller dyads in the anonymous large, international corporation in the industrial market. 3)

"Explanation" is that the quantitative method is expected to explain qualitative findings (Bryman, 2006). Based upon the qualitative findings, further explanation will be realized from the quantitative findings. 4) "Instrument development" applies because the qualitative case studies will be used to develop hypotheses. Through this study's case studies, hypotheses and treatments will become evident and fine-tuned prior to experimental research. 5) "Credibility" means that the findings will have more integrity. 6) "Utility" applies because findings are expected to be useful for practitioners and their applied focus. Elucidation of Incoterms® challenges will help practitioners and researchers to find ways to overcome these challenges. 7) "Confirm and discover" means that the qualitative case studies will assist hypothesis generation with the quantitative experiment testing the hypothesis. This study's case study research will form the hypotheses to be tested via experimental research. The above rationales will be more evident by the end of this chapter.

Using the mixed methods research model, both qualitative and quantitative components are employed to address the research question (Halcomb & Andrew, 2009; O'Cathain, 2009). The research questions are investigated via three sequential and integrated studies. Study 1 is a qualitative, pilot case study focusing on the corporate perspective. Study 2 involves qualitative, multiple case studies focusing on buyers and sellers both from the individual and corporate perspectives. Study 3 is a quantitative,

experimental study that also focuses on buyers and sellers from the individual as well as corporate perspectives. All studies are described in detail below.

3.2 STUDIES ONE AND TWO: QUALITATIVE DESIGN OVERVIEW

Qualitative research is appropriate for exploratory research (Maholtra & Peterson, 2006; Yin, 2011; Thomas, 2013; Yin, 2014). This research method is used to inquire into meaning regarding social or human problems that affect individuals or groups (Creswell, 2007; Thomas, 2013). Researchers have suggested that qualitative methods be employed within buyer-seller relationship research, especially due to the subtle nuances exhibited within negotiations (Rinehart, 1989; Hopmann, 2002; Ramsay, 2004; Thomas, 2013). Within qualitative research methods, case study research is deemed most appropriate.

Case study research has been described in various ways. Yin describes the scope of a case study as, “an empirical inquiry that investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (2014, p. 16). In essence, Yin (2014) suggests using a case study to understand the real-world items important to your inquiry. Yin further states, “a case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis”

(2004, p. 17). This indicates that Yin (2014) believes that case study research is an “all-encompassing method” that includes design, collection, and data analysis. Gable adds that “case studies differ fundamentally from surveys (and from laboratory experiments, field experiments and field studies) in that the researcher generally has less presumptive knowledge of what the variables of interest will be and how they will be measured” (1994, p.5).

A common misconception of conducting case study research is that it is not “rigorous” because variables may not be mathematically quantified and independently manipulated (Meredith, 1998). However, as many researchers have commented, the scientific method does not require statistical controls and mathematical propositions (Reichardt & Cook, 1979; Bonoma, 1985; Lee, 1989; Yin, 1989; McCutcheon & Meredith, 1993; Meredith, 1998). Per Meredith, case study research achieves rigor through different means (1998). As described by Meredith (1998), Lee (1989) explains the ways that case studies attain each of the four requisites of rigor: controlled observations, controlled deductions, replicability, and generalizability. As opposed to laboratory or statistical controls, case study research utilizes controlled observations via natural controls, which are similar to those used by astronomers or geologists. Secondly, as formal logic encompasses mathematics, the controlled deductions rigor requirement is satisfied by applying the rules of formal logic to verbal propositions coming from a case study. Accordingly, it is not a requirement to mathematically quantify all study variables. Regarding replicability, identical case study conditions cannot be duplicated in another situation. However, replicability is achieved by applying the case study theory attained

to a different condition set, which may result in a different prediction. Accordingly, while the prediction is different, the same theory is tested (Meredith, 1998). According to Meredith, theoretic generalizability, “where the theory itself indicates that it would be applicable in a particular situation” (1998, p. 450), is used to validate the ability of a case study to be generalized.

3.2.1 Grounded Theory

Grounded theory is appropriate for these exploratory studies, as it is recommended when investigating uncharted phenomenon or for a taking a fresh look at an existing phenomenon (Stern, 1994; Pappu & Mundy, 2002; Glaser & Strauss, 2008). It allows the flexibility needed to achieve the level of exploration appropriate for this study (Pappu & Mundy, 2002). Glaser and Strauss (1967) describe grounded theory as that which is discovered from systematically obtained research data. Strauss and Corbin (1990, 1998) further add that the data goes through a “constant comparative method,” which is when the researcher continually moves back and forth between data coding and analysis looking at data for new properties and theoretical categories in each research stage. Pappu and Mundy describe grounded theory best by stating, the “grounded theory process is very much like an iterative spiral constantly flitting between enquiry and analysis” (2002, p. 38). It is expected to provide more rigorous and robust results than other qualitative methodologies (Stern, 1994; Pappu & Mundy, 2002). Corbin and Strauss now generally refer to grounded theory as theory originating from qualitative data derived via theoretical constructs (2008).

3.2.2 Design

A case study design has been deemed appropriate for these studies. This design offers a significant contribution to theory building and knowledge (Yin, 2014). An anonymous large, international corporation operating in multiple industrial markets was chosen as the domain of this design. Study 1 uses a unit of analysis where purposeful personnel within the company offer information from a company perspective. Study 2 uses interviews, or cases, as the unit of measure where dyadic buyers and sellers offer information from both individual and company perspectives. This allows for control of spurious evidence, and hence a further increase in internal validity.

Yin (2014) identifies five rationales for conducting a single-case study: critical, unusual, common, revelatory, and longitudinal. For this study, four of the five rationales apply (critical, common, longitudinal, and revelatory). The single-case study is *critical* to the theory and theoretical propositions (Yin, 2014). The *common* case rationale applies because this study captures conditions and circumstances of everyday situations as they relate to theoretical interests. The *longitudinal* rationale pertains because some aspects of the single-case study occur at two or more different points in time. Lastly, and most importantly, the *revelatory* rationale applies because this study is able to access, observe, and analyze a phenomenon with uninhibited access to the large, (anonymous) international corporation. As mentioned above, Study 1 is a single, pilot case study, whereas Study 2 involves multiple case studies.

3.2.3 Data Collection Procedures.

Darke et al. describes how to collect case study data effectively and efficiently, noting that it “requires careful planning and judicious use of both case participants’ and the researcher’s time” (1998, p. 282). Background information on case subjects, which may be found via public information or company public relations departments, is needed prior to data collection. The key to proper case study research is organization and categorization for both analysis and future reference purposes. This database may include such case data as documents, video, audio, and field notes (Darke et al., 1998).

Yin (2014) lists six sources of case study evidence: documentation, archival records, interviews, direct observations, participant observation, and physical artifacts. All but physical artifacts apply to this study. Emails and other company documents have been included. Archival records via organizational records, such as SAP reports, have been reviewed. Direct observations of the researcher, such as observed Incoterms® use on a sales order while viewing a SAP R/3 screen and participant observations provided to the researcher, such as verbal misuse examples, have been reported. Study 1 primarily includes archival records and direct observations of the researcher. However, most data collection especially for Study two has been via interviews.

Following the appropriate grounded theory guidelines (Glaser & Strauss 1967, 2008; Strauss & Corbin 1990, 1998; Corbin & Strauss, 2008), interviews have been completed with both members of buyer-seller dyads to explore how the buyer-seller dyads negotiate and communicate logistics management decisions as well as common

communication errors. Dyads have been characterized as internal or external facing to the focal corporation as well as by country. An in-depth, semi-structured interview approach has been used to maintain focus on the phenomenon of interest while allowing the flexibility to properly explore and elaborate it. For use during the interviews, or cases, the researcher has formed an in-depth semi-structured interview guide. The stream of questioning is fluid rather than rigid, meaning that the questioning is meant to be conversational rather than inorganic (Rubin & Rubin, 2011; Yin, 2014). The interview guide helps to facilitate discussions, while the interviewer allows broadened discussion if it relates to the phenomenon. When possible, audio recording has been used with the permission of the interviewee, and the conversation has been meticulously transcribed. When audio recording was not possible, detailed notes have been taken. Study 2 was assigned project number 885996-2 by the University of Missouri-St. Louis Institutional Review Board (IRB), and it was approved under exemption category #2.

3.2.4 Analysis.

Following grounded theory guidelines (Glaser & Strauss, 1967, 2008; Strauss & Corbin, 1990, 1998; Corbin & Strauss, 2008), rigorous analysis of interview transcripts and notes is essential. Prior to analysis, interview transcripts and notes were read many times to develop a complete understanding of the information and concepts developed. As found in Pappu and Mundy (2002) and Thomas (2013), Strauss and Corbin (1990, 1998) further expand by stating that the data goes through a “constant comparative

method,” which is when the researcher constantly moves back and forth between data coding and analysis looking at data for new properties and theoretical categories in each research stage. This constant comparison can occur simultaneously (Locke, 1996; Thomas, 2013). Words, sentences, and paragraphs are coded and eventually, concepts emerge. The same occurs for other sources of evidence documentation, archival records, interviews, direct observations, and participant observation. Study 1 reports evidence for outcomes of logistics management communication errors or Incoterms® usage errors. Study 2 explores how buyer-seller dyads negotiate and communicate logistics management decisions. It also expands the knowledge on logistics management communication errors gained from Study 1 and explores ways to improve. The outcome is a process description of the negotiation to arrive at logistics management decisions within the buyer-seller dyads. Further, the logistics management tradeoffs (e.g. risk, control, costs, etc.) and eventual Incoterms® considered by the dyads are described. In addition, ways to improve communication between buyer-seller dyads form hypotheses. As Glaser and Strauss state, “generating hypotheses from the data requires only enough data to suggest the hypothesis, not prove it” (1967, p. 40). The following hypotheses are tested in Study 3:

H1: Incoterms® training leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.

H2: Providing fully specified and explicit Incoterms® definitions leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.

H3: Providing fully specified and explicit Incoterms® definitions and Incoterms® training leads to a further decrease in communication errors evidenced by a further reduction in inappropriate Incoterms® application.

In addition, other observations are likely for inclusion within future research studies beyond the scope of this study's research questions. For example, Incoterms® are used for purposes other than those stated by the ICC. Another example may be Incoterms® importance for use with a transportation management system (TMS) that allows the TMS to clearly define the company's transportation obligations.

3.2.5 Sampling.

Following grounded theory guidelines (Glaser & Strauss, 1967, 2008; Corbin & Strauss, 2008; Strauss & Corbin, 1990, 1998), this study has utilized purposive and theoretical sampling. Purposive sampling is the selection of specific individuals or settings believed to have knowledge or experience relevant to the phenomenon (Thomas, 2013). Buyers, sellers, and other logistics functions within and external to the anonymous large, international corporation in the industrial market have been selected as most likely to have knowledge of the phenomenon. Participants were selected through the researcher's knowledge of the corporation. Subsequent participants were selected via theoretical sampling. Theoretical sampling is collecting data to exploit opportunities to cultivate concepts (Corbin & Strauss, 2008; Thomas, 2013). Sampled participants direct the researcher to other individuals who were likely to have knowledge of the concept of interest. The key here is that concepts (individuals likely

having conceptual knowledge) are sampled as opposed to people (Corbin & Strauss, 2008; Thomas 2013). Theoretical sampling participants, of which there is no magical number, are directed to the researcher (Thomas, 2013). Concept saturation, which is the continual emergence of a notion, is eventually met.

3.2.6 Research Trustworthiness.

Quantitative assessors of research rigor (internal validity, reliability, objectivity, and external validity) are less appropriate evaluation criteria for qualitative research, especially grounded theory (Thomas, 2013). Thomas (2013) developed nine criteria for grounded theory trustworthiness. They are credibility, transferability, dependability, confirmability, integrity, fit, understanding, generality, and control. These trustworthiness criteria were evaluated after completion of Study 2.

3.3 STUDY THREE: QUANTITATIVE DESIGN OVERVIEW

As stated by Carter and Stevens, “experiments provide a valuable complement to existing field studies by providing highly controlled tests to examine the effects of independent variables. Although some facets of external validity may be compromised, the tradeoff in increased control affords researchers a sound basis for inferring casual relationships” (2007, p.1039). Internal validity is a concern when testing causality (Huang et al., 2008), as is control over internal validity threats (Cook & Campbell, 1979; Huang et al., 2008). Experiments are well suited to overcome these concerns because they allow direct manipulation of treatments by researchers to randomly assign

respondents to conditions and control for confounding factors (McGrath, 1982; Wacker, 1998; Huang et al. 2008).

To test the hypotheses developed in Study 2, hypothetical scenario based experimental designs have been utilized within purposeful dyadic buyer-seller samples of an anonymous large, international corporation in the industrial market. Participants could find a scenario based approach less threatening (Thomas et al., 2010). Since Study 3 was conducted wholly within the same anonymous large, international corporation in the industrial market, it was important that the subjects did not feel threatened by the study. Another advantage of the scenario based approach stated by Grewel et al. is that it “reduces biases from memory lapses, rationalization tendencies, and consistency factors” (2008, p. 428).

3.3.1 Sample.

Within buyer-seller relationship research, the use of real-life participants, as opposed to students, is very limited. According to Mestdagh and Buelens, “only 5% of studies use practicing managers as participants, [which is] not exactly good news” (2003, p.34). The present study had access to an anonymous large, international corporation in the industrial market. The corporation agreed to extensive access for this research study. Therefore, the participants have been drawn from employees wholly within this large, international corporation. Both buyers, who are primarily part of the corporation’s supply management function, and sellers, who are part of the corporation’s sales, marketing, and customer service functions, have been purposefully

sampled. Additionally, the anonymous large, international corporation had internally conducted Incoterms® training via their internal training university and group training sessions. Both trained and untrained individuals have been purposefully sampled.

3.3.2 Procedure.

Based upon the hypotheses described in Study 2, the following experimental procedure was developed for Study 3 to quantitatively test the proposed hypotheses. An internal email containing an invitation to participate and a link to a questionnaire initiated Study 3. The anonymous large, international corporation provided access to an email distribution list of employees in all buyer and seller corporate functions. The email subject and body described the study importance and invited employees to participate. The same email provided a website link to start the questionnaire. Voluntary participants were randomly assigned to complete one of two questionnaires presenting five identical hypothetical scenarios regarding the appropriate use of Incoterms® in each scenario. Both questionnaires asked respondents to answer some demographic questions including whether the respondent had been recently trained in the use of Incoterms®. The two questionnaires were differentiated by providing 1) operational definitions of candidate Incoterms® when selecting the correct term to employ in the scenario or 2) only three character Incoterms® without providing detailed operational definitions.

This random assignment to a questionnaire was important to maximize internal validity and minimize group differences (Webster & Sell, 2007; Huang et al., 2008;

Thomas 2013). As respondents self-reported Incoterms® training, no random assignment was required on this basis. Therefore, four treatment cells resulted from the 2 (Trained: Yes, No) x 2 (operational definitions fully spelled out or Incoterms® used) experimental design. The “trained” treatment differentiated between those trained and those untrained. The “operational definitions fully spelled out or Incoterms® used” treatment identified whether three character Incoterms® or a full operational definition within a given scenario could provide better results.

Within the questionnaire, a brief introduction once again described the study and its importance. Initially, demographic information was requested, such as sex, age range, role, years of experience, etc. Participants then read a set of instructions followed by scenarios. Each dependent variable had an associated scenario. The participants responded to each scenario. This method assumes that the participants project themselves into the scenario and provide answers as they would normally respond in real life work situations (Fisher, 1993; Chandy et al., 2003; Antia et al., 2006; Thomas et al., 2010; Thomas, 2013), based upon their own behaviors and values (Mick et al., 1992; Thomas et al., 2010), and the totality of their entire career experience as opposed to just their current jobs and companies (Thomas et al., 2010). The structured projective technique has been shown to successfully provide managerial attitude and corporate strategy insights (Fisher, 1993; Chandy et al., 2003; Antia et al., 2006; Thomas, et al., 2010). This research instrument, the structured projective technique, has been shown to be reliable, valid, and trustworthy (Ramsey et al., 2006; Thomas et al., 2010).

Within experimental designs, written scenarios are widely used to operationalize independent variables (Scheer & Stern, 1992; Pilling et al., 1994; Dabholkar & Bagozi, 2002; Thomas et al., 2010; Thomas, 2013). Written scenario based manipulations are not reading comprehension tests but rather very descriptive passages, administering the participant with the experimental treatment condition (Thomas et al., 2010). For example, the word “risk” did not appear in the written scenarios. Terms such as “likely to have damage” for a shipment “not in control of” were used instead.

3.3.3 Pretest.

Experienced buyers and sellers within the large, international company as well as academic subject matter experts reviewed the scenario based questionnaire and evaluated its face validity, readability, and realism. The experimental manipulation treatments were also checked. Revisions, were completed iteratively until the final questionnaire was deemed suitable for release to the sample.

3.3.4 Instruments and Measures.

The elements of informed consent (45 CFR 46.116) were present within the questionnaire (U.S. Department of Health & Human Services 2010). Participants read a brief introduction describing the purpose of the study and its importance, including the potential benefits to the individual, corporation, or others. Participants were reminded that their participation was voluntary and were provided with the conditions of participation, including the right to refuse or withdraw without penalty. Confidentiality protections for the individuals were provided via the web-based questionnaire. Since

this study was sent via an internal email, participants were reminded that their responses were anonymous and their individual results would not be shared with the corporation. No foreseeable risks/discomforts to the individual or their compensation plans were to be expected. Lastly, contact information was provided for questions regarding the study, participants' rights, and in case of injury. Study 3 was assigned project number 885996-3 by the University of Missouri-St. Louis Institutional Review Board (IRB) and was approved under exemption category #2.

The introduction was followed by requests for demographic information, such as sex, age range, job role, and years of experience. Next, participants were asked if they had received Incoterms® training, and if so, the timing of this training. Participants then read a set of instructions followed by five hypothetical scenarios designed to explore their understanding of the appropriate use of Incoterms®. The participants were asked to respond to the scenario based on how they would react if the scenario were real. The questionnaire was compiled after Study 2 to allow Study 3 to be informed by information identified in Study 2, and hence, allowing properly derived hypotheses to be tested.

3.3.5 Data Analysis.

First, descriptive statistics were compiled to summarize the demographic information provided by the participants. Second, as respondents' participation was voluntary, two non-response bias tests were performed to ascertain the representativeness of respondents of the underlying population of questionnaire

recipients. The first test explores the demographic similarity of those who responded before and after a reminder email, and the second test explores the demographic similarity of those who provided full or only partial responses to the questionnaire. The demographic information was compared of these two partitioning of respondents using simple t-tests.

Next, to explore the effects of Incoterms® training, providing operational definitions (when using Incoterms®), and the presence of both factors on reducing inappropriate Incoterms® application on individual scenarios examined by the questionnaire, five binary logistic regression models were formulated and estimated. Each logistic regression model employs as its dependent variable a binary categorization of whether the respondent correctly answered that scenario's question (yes or no). The independent variables that affect the probability of a respondent correctly answering the question are three categorical variables associated with each respondent: (1) has the respondent been trained in Incoterms® usage or not; (2) were the operational definitions associated with the Incoterms® provided in the scenario responses or not; and (3) is there an interaction variable indicating that the respondent is both trained in Incoterms® usage and the operational definitions was provided to the respondent when answering the question. This analytical approach is appropriate when modeling question responses as binary categorical variables (Roberts et. al, 1987).

To explore the effects of Incoterms® training, providing operational definitions when using Incoterms®, and the possible interaction of both on reducing inappropriate Incoterms® application across all the scenarios examined by the questionnaire, an

ordinal logistic regression model was formulated and estimated. The ordinal logistic regression model employs as its dependent variable the correct number of responses to all five scenario questions by each respondent (0, 1, 2, 3, 4, or 5). This categorical variable has a natural rank order making an ordinal logistic regression model a good candidate to evaluate the effects of Incoterms® training and providing operational definitions in reducing inappropriate use of Incoterms®. The independent variables that affect the probability of a respondent correctly choosing across categorical variables are three categorical variables associated with each respondent: (1) has the respondent been trained in Incoterms® usage or not; (2) were the operational definitions associated with the Incoterms® provided in the scenario responses or not; and (3) is there an interaction variable indicating that the respondent is both trained in Incoterms® usage and the operational definitions were provided to the respondent when answering the question. This analytical approach is appropriate whenever the dependent variable in a regression is qualitative and used to explain choices involving multiple categorical variables in natural rank order (Becker & Kennedy, 1992; Greene, 2000; Burns et. al, 2013).

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 STUDY ONE: PILOT CASE STUDY (QUALITATIVE RESEARCH FINDINGS)

Study 1 is an exploratory case study focusing on one global corporation, employing over 100,000 people and operating in multiple markets in approximately 100 countries. First, the study utilized actual corporate data to observe the global corporation's challenges with negotiating and communicating logistics management responsibilities, especially those involving shipping terms such as Incoterms®. Further, it identified the misuse of Incoterms® using real corporate data, from which it also uncovered examples of the consequences of misuse. Lastly, Study 1 explained the outcomes of this misuse.

To explore the dyadic agreements on logistics management responsibilities, a data extract from SAP, which is the corporation's enterprise-resource system (ERP) in the U.S., was conducted using one year of sales and purchasing data. Within SAP, two Incoterms® fields exist for sales and purchase orders: Incoterms Field 1 contains a drop-down list of two-to-three-character shipping terms, and Incoterms Field 2 is a free-form text field. The Tables 4.1 and 4.2 below describe the frequency, percent, cumulative frequency, and cumulative percent for Incoterms® Field 1 of customer and supplier master data. "Blank" indicates nothing present in Field 1.

Table 4.1 Customer Usage

Customer Usage				
Incoterms® Field 1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Blank	89	0.06%	89	0.06%
CC	1036	0.65%	1125	0.70%
CFR	142	0.09%	1267	0.79%
CIF	278	0.17%	1545	0.97%
CIP	301	0.19%	1846	1.16%
CPT	922	0.58%	2768	1.73%
DAF	41	0.03%	2809	1.76%
DAP	185	0.12%	2994	1.87%
DDP	1526	0.96%	4520	2.83%
DDU	368	0.23%	4888	3.06%
EXW	97145	60.83%	102033	63.89%
FAS	12	0.01%	102045	63.90%
FCA	25571	16.01%	127616	79.91%
FOB	24590	15.40%	152206	95.31%
NON	11	0.01%	152217	95.32%
PA	4091	2.56%	156308	97.88%
PC	3387	2.12%	159695	100.00%

Table 4.2 Supplier Usage

Supplier Usage				
Incoterms® Field 1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CC	3004	11.55%	3004	11.55%
CFR	63	0.24%	3067	11.79%
CIF	26	0.10%	3093	11.89%
CIP	14	0.05%	3107	11.95%
CPT	268	1.03%	3375	12.98%
DAF	4	0.02%	3379	12.99%
DAP	373	1.43%	3752	14.43%
DAT	2	0.01%	3754	14.44%
DDP	128	0.49%	3882	14.93%
DDU	19	0.07%	3901	15.00%
DES	6	0.02%	3907	15.02%
EXW	8623	33.16%	12530	48.18%
FAS	2	0.01%	12532	48.19%
FCA	1056	4.06%	13588	52.25%
FOB	9475	36.43%	23063	88.68%
NON	771	2.96%	23834	91.65%
PA	884	3.40%	24718	95.05%
PC	1288	4.95%	26006	100.00%

It is also interesting to view the combined customer and supplier usage. This is shown in Table 4.3.

Table 4.3 Combined Usage (Customer and Supplier)

Combined Usage (Customer and Supplier)				
Incoterms® Field 1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Blank	89	0.05%	89	0.05%
CC	4040	2.18%	4129	2.22%
CFR	205	0.11%	4334	2.33%
CIF	304	0.16%	4638	2.50%
CIP	315	0.17%	4953	2.67%
CPT	1190	0.64%	6143	3.31%
DAF	45	0.02%	6188	3.33%
DAT	2	0.00%	6190	3.33%
DAP	558	0.30%	6748	3.63%
DDP	1654	0.89%	8402	4.52%
DDU	387	0.21%	8789	4.73%
DES	6	0.00%	8795	4.74%
EXW	105768	56.96%	114563	61.69%
FAS	14	0.01%	114577	61.70%
FCA	26627	14.34%	141204	76.04%
FOB	34065	18.34%	175269	94.38%
NON	782	0.42%	176051	94.80%
PA	4975	2.68%	181026	97.48%
PC	4675	2.52%	185701	100.00%

From this initial exploratory look at actual Incoterms® usage, it is clear that Incoterms® 2010 rules are overwhelmingly used (91.92%) by the corporation's

practitioners for sales and purchases. A further breakdown by Incoterms® rules is presented in Table 4.4.

Table 4.4 Frequency of Incoterms® 2010 Use

Incoterms®	Frequency	Percent
CFR	205	0.11%
CIF	304	0.16%
CIP	315	0.17%
CPT	1190	0.64%
DAT	2	0.00%
DAP	558	0.30%
DDP	1654	0.89%
EXW	105768	56.96%
FAS	14	0.01%
FCA	26627	14.34%
FOB	34065	18.34%
Total	170702	91.92%

On the surface, the Incoterms® usage appears substantial. However, a closer examination of the combined usage table suggests some of the problems associated with Incoterms®. First, three UCC shipping term acronyms (FOB, FAS and CIF) overlap with Incoterms® 2010 rules (Legal Information Institute, 2015). It is not clear in the data whether the Incoterms® rule or the UCC shipping term is intended to apply but is mistakenly entered in the Incoterms® field. The ICC suggests specifying the Incoterms® versions, such as Incoterms® 2010, to address this exact situation (ICC, 2010). Due to

SAP's structure and character limitations, specifying the Incoterms® version (e.g. Incoterms® 2010) in Field 2 is generally not possible when also specifying the named place or port. Additionally, SAP does not by default specify the Incoterms® rule version.

Second, three earlier Incoterms® rules (DAF, DES, and DDU) are still in use. These Incoterms® 2000 rules have been replaced in the Incoterms® 2010 rules. Table 4.5 presents the frequency of use of these terms. While previous Incoterms® rules versions may be used, when doing so, the version should be specified (ICC, 2010) and, in this example data, applicable versions are not specified anywhere.

Table 4.5 Frequency of use of Incoterms® 2000, DAF, DES, and DDU

Incoterms®	Frequency	Percent
DAF	45	0.02%
DES	6	0.00%
DDU	387	0.21%
Total	438	0.24%

Third, other shipping terms (i.e. non-Incoterms®) are being used 7.84% of the time. Table 4.6 provides details of other shipping term usage.

Table 4.6 Frequency of Other Shipping Term Use

Other Shipping Terms	Frequency	Percent
Blank	89	0.05%
CC	4040	2.18%
NON	782	0.42%
PA	4975	2.68%
PC	4675	2.52%
Total	14561	7.84%

Interestingly, none of the four other shipping terms are UCC shipping terms (Legal Information Institute, 2015). In fact, they appear to be created within the corporation.

Fourth, upon further examination of the different textual data in Incoterms Field 2, which are too numerous to usefully show in a table, consistency and clarity is not present. The ICC suggests that if you use Incoterms[®] rules in a contract, you should do so by clearly specifying the Incoterms[®] rule, followed by the named place or port, and then specifying the Incoterms[®] versions, such as Incoterms[®] 2010 (ICC, 2010). This suggested approach is not evident within this corporate data sample. Furthermore, the ICC highly recommends that the place of port be specified as precisely as possible (ICC, 2010). Once again, this corporate data sample does not have clear and precise places or ports named.

Lastly, based upon the Incoterms[®] rule used, the corporation uses some Incoterms[®] three-character terms, but with different meanings compared to those stated by the ICC. For example, EXW is used for 33.16% of purchases. EXW represents the least obligations that a seller may agree to, as the seller is not responsible for export formalities or loading the oncoming vehicle. However, per the corporation (and its freight payment data), the buyer does expect the seller to load the oncoming vehicle and clear for export, if applicable. This is an FCA Incoterms[®] rule. Conversely, sellers use EXW in 60.83% of sales. With this term, the buyer is expected to arrange the loading of the means of transport and clear export, where applicable. However, due to liability and

insurance risk, the corporation will not allow customers to bring their own forklift or crane onto corporate property to load the vehicle. Furthermore, due to United States export obligations, the corporation may still be required to arrange export formalities, and this conflicts with the Incoterms® EXW rule used. Once again, this is an FCA Incoterms® rule.

Due to the five problems identified in the corporate data sample, buyer and seller miscommunication seems likely. To investigate further, first-hand accounts of the consequences of problematic Incoterms® usage have been provided by the corporation. These are briefly described below.

A corporate location in St. Louis, Missouri, U.S.A. placed a purchase order from a supplier in Europe. The stated Incoterm® on the purchase order was “FCA St. Louis.” The corporate location in St. Louis was perplexed that once the material was ready to ship, the supplier insisted that they would only take care of export formalities per the FCA St. Louis agreement. The buyer maintained that the supplier should be responsible for shipment to the location in St. Louis. After further investigation, the supplier in Europe was found to be in St. Louis, France! Consequently, the material was shipped late and needed to be expedited via air shipment, which cost the corporation significantly more money. Thus, the buyer paid too much for the material due to communication breakdown over Incoterms® interpretations.

A corporate location in the U.S. repaired a customer’s unit in the U.S. and shipped it back to the customer in Mexico using DDP (delivered duty paid), which is the

maximum obligation for sellers requiring them to be responsible for both export and import customs formalities and duties. However, when the repaired unit arrived in Mexico, it was halted by Mexican Customs agents. The U.S. location was unable to arrange import into Mexico because they did not have a way to import and pay duty. This halted transport of the repaired unit, which was already late. After several weeks of back and forth discussions, the customer eventually agreed to import the item themselves, and the Incoterms® were changed to DAP (delivered at place). However, this substantially affected the customer-seller relationship.

A U.S. local business unit Category Team Leader advised that their business unit “standardly used Ex-Works as terms; even though the supplier is loading for them.” This Category Team Leader was unaware that EXW does not require the seller to load the collecting vehicle or clear goods for export, where applicable. This U.S. local business unit was unwilling to change Incoterms® rules even after learning of the differences with FCA. This put the U.S. local business unit at risk of extra loading costs, export customs clearance delays, or shipment delays due to additional, unanticipated shipping requirements, such as export packaging. This supports Stapleton et al. (2014a) suggesting that traders are “creatures of habit” and many times repeatedly make the same Incoterms® usage errors leading to preventable risk.

Finally, Study 1 helped to identify other consequences of misuse. First, the outcome of insurance claims is discussed. Next, the complications of the Incoterms® rule CIF are provided. Lastly, two examples of CIF complications are provided.

Insurance costs, risks, and responsibilities are critical to the operations of this global corporation. Many of the corporation's large value sales and purchases are at risk of loss until final delivery. However, only 2% of their sales contracts clearly state insurability requirements. In many cases, the corporation notes that the choice of Incoterms®, especially CIF, is driven by payment terms and customs items. Insurance, and perhaps even risk, may not be considered. This makes sales or purchase order articles, such as Incoterms®, increasingly important. In many cases, logistics management personnel or others knowledgeable about logistics management risk are not consulted or involved in the sales process. The same occurs with the purchase of material from suppliers; logistics management personnel are not involved or consulted.

Due to the above, and other factors explored in Study 2, the risk exposure of the global corporation, along with that of its insurer, have increased in recent years. The corporation has seen annual insurance claim payouts climb as high as \$13 million U.S. dollars in recent years, and these are paid only for claims that exceed a high deductible threshold. When annual insurance claims paid or reserved exceed annual insurance premiums paid, there is a loss ratio over 100%, and this puts the corporation at risk for increased insurance premiums in subsequent years adding to the corporation's cost. Insurance companies cannot sustain a consecutive loss ratio over 100%. Anything that can help reduce risk will benefit the firm. Claims below the high deductible threshold are generally absorbed by local business units, and these claims are estimated to be at least three-fold of actual insurance claims.

As mentioned above, for many sales and purchases the risk of loss is extended until final port of delivery or destination. This risk increases when the Incoterms® rule CIF is used. Beyond the formerly mentioned inappropriate use of CIF for containerized transport, CIF is rather vague stating that the goods should be delivered in the manner customary at the port, so this can vary substantially from port to port. This vagueness can expose the corporation to unintended risk. Further, CIF is further complicated from the port of delivery to the point of final destination, as there are circumstances where there may not be insurance coverage during the inland transport segment (e.g. port of delivery to final destination) to final destination, if the named place is beyond the port of destination. While the Incoterms® rule CIF states the named port of destination, sometimes this is ignored, and the final destination is named instead. For the port of delivery to final destination leg, the corporation has no influence on risk control during that transport portion. While the port of delivery handling is of grave concern, so too is the transportation beyond the port until final destination. This is even more complicated with project cargo, as the goods may await ultimate disposition at final destination for days to months. Additionally, the corporation notes that the certificate of insurance required for CIF has held up shipments, especially when the cargo is subject to financing or supported by a letter of credit. Acquiring a certificate of insurance takes time, and it is essentially a legal tender that, which when presented to the local claims agent of the insurer, can be converted into cash.

The corporation provided examples of CIF complications. One example is a situation where cargo fell off a drayage truck during terminal handling at the port of

delivery. The contract between the corporation and buyer did not clearly detail where the risk transferred from the corporation to the customer at the port of delivery. As mentioned above, these transfers can vary from port to port. Ultimately, the corporation accommodated the customer, so the loss was absorbed by the corporation. A second example relates to a shipment from the U.S. to Haiti that was sold to an agent via the Incoterms® of CIF Port au Prince. Per the Incoterms® rule of CIF, the corporation provided evidence of insurance via certificate of insurance. The large sale item shipped in August, and it was destined to arrive within 5 weeks. However, in October, the corporation was notified by the agent that the item had been damaged. A surveyor was sent, and the surveyor reported that it appeared a forklift had damaged the item. After numerous attempts to secure more information, the corporation eventually contacted the harbormaster to request the captain's log regarding offload data and conditions. Eventually, after many weeks of research and review of the captain's log, Port au Prince dock-workers admitted to damaging the item via forklift. Once the item was offloaded from the vessel, the dock-workers had moved it multiple times causing the damage. The investigation was costly and absorbed many weeks of time of numerous corporate personnel. The use of another, more appropriate Incoterms® rule could have avoided this cost by clearly specifying the point of transfer of risk or insurability to a point where the corporation had more control, rather than at a point where the corporation had no control, such as at a foreign port.

4.1.2 Discussion of the Pilot Case Study

The pilot case study for Study 1 provides a preliminary look at a global corporation's challenges in negotiating and communicating logistics management responsibilities, especially those involving shipping terms such as Incoterms[®], using real corporate data. As shown, Incoterms[®] are used and likely misused in observed transactions, and examples of misuse are provided by the corporation. Consequences of use and misuse are detailed, which include increased insurance claims and premiums and unintended complications associated with CIF usage. Two specific examples of the misuse of CIF are identified and discussed. The complications of CIF misuse are new to the literature, adding to items to explore and investigate in Studies 2 and 3.

The corporation, during various knowledge-mapping efforts, observed the internal lack of sufficient Incoterms[®] knowledge. To address the problem, the corporation has been working to increase Incoterms[®] knowledge through internal web-based training. In addition, internal Incoterms[®] experts have emerged as reference resources for those seeking clarity or advice. Furthermore, their internal enterprise-resource system (ERP), SAP, used to initiate purchase orders is being updated to allow only "true" Incoterms[®] rules.

4.2 STUDY TWO: MULTIPLE CASE STUDIES (QUALITATIVE RESEARCH FINDINGS)

4.2.1 Introduction

Study 2 has conducted multiple qualitative case studies that explore how buyer-seller dyads negotiate and communicate logistics management decisions and the communication errors that occur within buyer-seller dyads. Cases have been drawn from a purposeful sample of dyads where at least one member is associated with an anonymous large, international corporation operating in multiple industrial markets. Interviews with members of selected dyads have been conducted and represent the case studies. Selected dyads involve U.S. and non-U.S. dyads, U.S. to U.S. dyads, and non-U.S. to non-U.S. dyads to provide a true global and cultural perspective from samples in North America, Asia, and Europe. Ultimately, 14 individuals have been interviewed in Study 2 from 12 cases.

Following grounded theory guidelines (Glaser & Strauss, 1967, 2008; Strauss & Corbin, 1990, 1998; Corbin & Strauss, 2008), this study has utilized purposive and theoretical sampling to select the 14 participants in the twelve interviews. Purposive sampling is the selection of specific individuals or settings believed to have knowledge or experience relevant to the phenomena under investigation (Thomas, 2013). Seven buyers and two sellers within the anonymous large, international corporation in the industrial market have been selected as initial subjects most likely to have knowledge of the phenomena. Therefore, nine purposeful participants have been selected through the researcher's knowledge of the corporation. Subsequent participants were selected

via theoretical sampling. Theoretical sampling is collecting data to exploit opportunities to cultivate concepts (Corbin & Strauss, 2008; Thomas, 2013). Nine sampled participants, many of those chosen by the researcher, directed the researcher to other individuals likely to have knowledge of the concepts of interest. Through theoretical sampling, theoretical saturation can be achieved (Mello, 2006; Williams, 2014).

4.2.2 Data Collection

An in-depth semi-structured interview guide was used to ensure focus of the researcher and participants on the four research questions. The content of the in-depth semi-structured interview guide is derived from information available from the literature review and the researcher's knowledge of the phenomena. When an in-depth semi-structured interview guide is used, conversations could deviate with open and flexible discourse that allows participants to steer conversations within topic areas. The interview guide is presented in Appendix II – Study Two In-Depth Semi-Structured Interview Guide. Participants have been encouraged to draw on either recent or atypical experiences in topic areas and were provided a copy of the structured questions well in advance of the interview allowing them some preparation time to reflect on relevant experiences.

The in-depth semi-structured interview guide facilitated the coding of interviewee responses. Mentor reviews, expert reviews, and a pilot interview were used to verify the interview guide for completeness and to alleviate any potential issues with using the interview guide. The mentor reviews consisted of this dissertation committee

reviewing and providing feedback on the interview guide. Similarly, expert reviews from within the anonymous large, international corporation operating in multiple industrial markets have been conducted. One final pilot interview was used to further fine-tune the in-depth semi-structured interview guide. This iterative process has resulted in the final in-depth semi-structured interview guide found in Appendix II.

4.2.3 Sample

A total of 12 interviews with 14 participants has been completed via telephone and recorded with each participant's permission. The interviews lasted between 42 and 84 minutes. Using the audio recording, all interviews have been transcribed verbatim to enable further analysis. Transcription has resulted in 158 pages of interviews plus 36 pages of interviewer notes. Table 4.7 describes the participants and dyads. As shown in Table 4.7, seven individuals represent the "buyer" in a dyad, and seven individuals represent the "seller." Both sides of four true buyer-seller dyads have participated, while four participants whose opposing dyadic partners were not available have also been interviewed. Participants' years of experience ranged from a minimum of 9 years to a maximum of 41 years with an average of 19 years of experience. Most participants stated that they negotiated logistics decisions on a global basis, while only one participant negotiated locally, and one other negotiated regionally. The level of negotiations varied by participant with a good mix of strategic, strategic/transactional, and transactional logistics decisions. This represented well the range of all negotiation levels within the focal organization. All participants had negotiated logistics

arrangements for goods used in manufacturing production with an annual spend/sales per negotiation ranging from \$125,000 to \$600,000,000 USD.

Table 4.7 - Participant and Dyad Table

Individual #	Case #	Dyad Type	Dyad #	Dyad Importance to My Company	Job Title	Negotiation Scope	Negotiation Level(s)	Dollar Responsibility	Years Experience
1	1	Buyer	2	High	Purchasing Head	Global	Strategic, Transactional	\$10 to \$25 Million	18
2	2	Buyer	*		Category Leader	Global	Strategic	\$200 to \$400 Million	20
3	3	Seller	3	Medium	Sales Director	Global	Strategic	\$10 to \$25 Million	9
4	4	Seller	*		Sales Director	Global	Strategic	\$10 to \$25 Million	10
5	5	Buyer	*		Supply Chain Director	Global	Strategic, Transactional	\$10 to \$25 Million	15
6	6	Seller	2	High	Customer Service	Global	Strategic, Transactional	**	15
7	6	Seller	2	High	Sales Manager	Global	Strategic	**	15
8	6	Seller	2	High	Sales Representative	Global	Transactional	**	15
9	7	Buyer	4	High	Purchasing Lead	Local	Transactional	\$0 to \$1 Million	32
10	8	Buyer	*		Supply Chain Director	Global	Strategic, Transactional	\$10 to \$25 Million	41
11	9	Seller	4	High	President	Regional	Strategic, Transactional	\$10 to \$25 Million	20
12	10	Seller	1	High	Sales Manager	Global	Strategic	\$200 to \$400 Million	19
13	11	Buyer	3	Medium to High	Purchasing Lead	Global	Strategic, Transactional	\$25 to \$40 Million	10
14	12	Buyer	1	High	Category Leader	Global	Strategic	\$400 to \$600 Million	28

*Opposing dyad not available

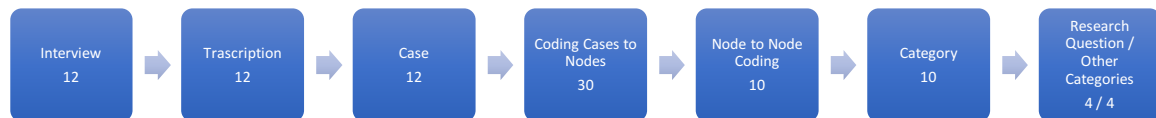
**Unknown/would not disclose

4.2.4 Data Coding and Analysis.

NVivo for Mac© was used to facilitate qualitative data coding and analysis. The researcher has been careful to proceed consistently with grounded theory guidelines

(Glaser & Strauss, 1967, 2008; Strauss & Corbin, 1990, 1998; Corbin & Strauss, 2008; Thomas, 2013). The process flow chart, Figure 4.1, describes the major activities involved in the data coding and analysis. The numbers in Figure 4.1 indicate the actual number of items processed in each step.

Figure 4.1 Process Flow from Interview to Discussion



Each interview was transcribed and imported into NVivo for Mac© as a case. Demographic information, such as years of experience, internal or external to focal firm, and buyer/seller dyad have been appended to each case. Initially, thirty informational nodes were created corresponding to interviewee responses to the questions and sub-questions contained in the structured interviews. These nodes have been analyzed and combined to represent the ultimate research questions, or categories, that emerge from the case studies. To first familiarize the researcher with the cases, a word frequency query was run on all the cases, and then a word cloud, available in Appendix III – Word Cloud Before Coding, was created. Within NVivo for Mac, each case has been then examined multiple times to facilitate a full understanding of the data in each case. Participants’ responses to each question, which could be individual words, sentences, or paragraphs, have been coded to appropriate nodes, which represent the initial categories or themes of the research. This initial coding from cases to nodes followed the interview guide questions found in Appendix II. Tables 4.8 and 4.9 present the

coding from cases to nodes in more detail. In Table 4.8, the larger boxes indicate multiple-part questions mapped to multiple nodes. In Table 4.9, the cell entries signify the number of responses from each case (words, sentences, or paragraphs) recorded for each node (question or part of a question). Following this initial coding, a second word frequency query was run from just the nodes, and then another word cloud, which is available in Appendix IV – Word Cloud After Coding, was created. The result of Appendix IV – Word Cloud After Coding indicates more refinement compared to Appendix III – Word Cloud Before Coding.

Table 4.8 - Case to Node Coding Table

Question 1				Question 7			Question 3			Question 5	Question 9			
1f	1h	1e	1c	a.	e.	3a	3d	3c	Question 10	Question ...	Question ...	Question ...	Question ...	
1b	1g	1d	b.			d.	3b	Question 2						Question 4
	1i			c.										

Table 4.9 - Case to Node Coding Table

Nodes	Cases	1	2	3	4	5	6	7	8	9	10	11	12
Question 1		0	0	0	0	0	0	0	0	0	0	0	0
1a		0	0	0	0	0	0	1	0	0	0	0	0
1b		3	1	2	1	4	4	2	1	1	1	3	4
1c		1	1	1	1	3	1	1	1	2	1	1	2
1d		1	2	1	1	1	1	1	1	1	1	1	1
1e		1	1	1	1	1	2	3	1	1	1	2	2
1f		3	2	2	3	4	1	4	5	4	3	6	3
1g		3	2	1	2	1	1	4	1	1	1	1	1
1h		2	3	1	2	2	1	2	4	3	1	1	2
1i		2	1	1	2	1	1	2	1	1	1	2	2
Question 2		4	8	1	4	6	6	2	4	4	3	3	1
Question 3		0	0	0	0	0	0	0	0	0	0	0	0
3a		4	2	2	4	5	5	2	3	1	1	2	3
3b		2	1	1	3	1	1	1	1	1	1	2	1
3c		1	1	1	2	2	0	1	2	1	1	2	1
3d		1	1	1	1	4	2	1	1	1	1	1	1
Question 4		2	3	1	1	1	1	3	1	0	1	2	1
Question 5		2	3	2	3	2	2	4	6	3	3	5	3
Question 6		0	1	1	2	2	1	3	1	1	2	1	1
Question 7		3	3	1	3	3	1	5	3	5	3	2	5
7a		2	2	2	1	2	1	2	3	0	1	3	1
7b		2	5	0	2	2	1	1	1	0	1	2	3
7c		2	1	1	2	2	1	1	1	0	1	1	1
7d		1	1	1	1	1	1	2	1	0	1	2	2
7e		2	2	1	1	2	1	1	1	0	1	2	1
Question 8		1	2	1	2	1	1	1	1	1	1	1	2
Question 9		5	1	2	3	1	1	2	2	2	2	1	1
Question 10		4	2	2	3	2	1	2	3	1	3	2	2
Question 11		1	2	1	2	2	1	1	2	1	1	1	2
Question 12		2	1	1	1	1	2	1	1	1	1	2	1
Question 13		2	1	1	1	1	1	1	1	1	1	1	1
Question 14		1	3	1	1	1	1	4	3	1	1	1	1
Question 15		1	1	1	1	1	1	1	1	1	1	2	1

Within NVivo for Mac®, nodal responses across the cases were then examined to fully understand the relationship between the information contained in the individual

nodes and the original research questions (as groups or categories of nodes). Further coding for words, sentences, or paragraphs was conducted to identify relationships between existing nodal categories to identify emergent categories not previously identified in the original research questions. The following two tables, Node to Category Coding Table 4.10 and Node to Category Coding Table 4.11, present the results of the subsequent re-codings from the original nodes to the final set of categories identified in the data. In the Node to Category Coding Table 4.10, larger boxes indicate more complex categories, and in the Node to Category Coding Table 4.11, cell entries signify the number of responses in nodes mapped to each final category. Additionally, the first row of the Node to Category Coding Table 4.11 shows the relationship of the final categories to the four original research questions and the emergent categories. Following this initial coding, another word frequency query was run from just the nodes, and then a word cloud, which is available in Appendix V – Word Cloud After Node to Category Coding, was created. The result of Appendix V – Word Cloud After Node to Category indicates more refinement compared to Appendix IV – Word Cloud After Coding.

Table 4.10 - Node to Category Coding Table

Question 1			General Negotiation Process	Question 7			Question 3		Communicat...	Quest...			
1f	1b	1h		b.	e.	d.	3a						
				a.					Question 2	Questi...	Ques...		
1g	1e		Communication errors	Negotiation Process ...			Demographics			Quest...	Que...		
1i	1c								Question 5	Impro...	Que...		

Table 4.11 - Node to Category Coding Table

Research Question	R2	R3	Demographics	Other	Other	R1	R4	R1	Other	Other
Nodes	Categories	Communication errors	Demographics	Expedited freight	FCA vs EXW	General Negotiation Process	Improve quality	Negotiation Process for Transportation	Revenue Recognition	Sellers focus on sale
Question 1		0	0	0	0	0	0	0	0	0
1a		0	0	1	0	0	0	0	0	0
1b		0	0	27	0	0	0	0	0	0
1c		0	0	0	0	0	16	0	0	0
1d		0	0	0	0	0	13	0	0	0
1e		0	0	17	0	0	0	0	0	0
1f		0	0	0	0	0	40	0	0	0
1g		0	0	0	0	0	19	0	0	0
1h		0	0	24	0	0	0	0	0	0
1i		0	0	0	0	0	17	0	0	0
Question 2		0	0	0	0	0	46	0	0	0
Question 3		0	0	0	0	0	0	0	0	0
3a		0	0	0	0	0	0	34	0	0
3b		0	0	0	0	0	0	16	0	0
3c		0	0	0	0	0	0	15	0	0
3d		0	0	0	0	0	0	16	0	0
Question 4		0	0	0	0	0	0	17	0	0
Question 5		38	0	0	0	0	0	0	0	0
Question 6		3	0	0	0	0	11	0	2	0
Question 7		0	37	0	0	5	0	0	0	0
7a		0	20	0	0	0	0	0	0	0
7b		0	20	0	0	3	0	0	0	0
7c		0	14	0	0	0	0	0	0	0
7d		0	14	0	0	2	0	0	0	0
7e		0	15	0	0	0	0	0	0	0
Question 8		2	0	0	0	0	0	0	6	1
Question 9		0	6	0	0	0	0	17	0	0
Question 10		27	0	0	0	0	0	0	0	0
Question 11		0	0	0	0	0	0	0	12	0
Question 12		0	15	0	0	0	0	0	0	0
Question 13		0	13	0	0	0	0	0	0	0
Question 14		2	0	0	3	0	0	9	1	0
Question 15		4	0	0	0	0	0	0	0	0

R1 = How do buyer-seller dyads negotiate logistics management decisions?

R2 = How do buyer-seller dyads communicate logistics management decisions?

R3 = Why do logistics management decision communication errors occur between buyer-seller dyads?

R4 = What can improve the quality of buyer-seller dyads' communication of logistics management decisions?

Other = Other categories discovered

Demographic = Demographic information

The following sample process Figure 4.2 presents the details of an example of the mapping from the original 30 nodes in each interview to the final category of research question R4, "What can improve the quality of buyer-seller dyads' communication of logistics management decisions?"

Figure 4.2 - Sample Process



The analytical process described above is consistent with the constant comparative method in which the researcher constantly moves back and forth between data coding, analysis, and within/between transcripts looking at data for new properties and theoretical categories (Strauss & Corbin, 1990, 1998; Pappu & Mundy, 2002; Thomas, 2013).

4.2.5 Theoretical Saturation

As posed by Williams (2014), “a key question in grounded theory research is: How will the researcher know when the research is complete?” Following grounded theory guidelines (Glaser & Strauss, 1967, 2008; Strauss & Corbin, 1990, 1998; Goulding, 2002; Mello, 2006; Corbin & Strauss, 2008; Thomas, 2013; Williams, 2014), data collection continues until the researcher determines that theoretical saturation has been met. Theoretical saturation is reached when no new information is obtained from a subsequent interview (Goulding, 2002; Thomas, 2013; Williams, 2014). As noted further by Williams (2014), Corbin and Strauss (2008) and Mello (2006), theoretical saturation arises when three circumstances are achieved: “a) no new or relevant data seem to emerge, b) the category is well developed in terms of its properties and dimension demonstrating variation, and c) the relationships among categories are well established and validated” (p.92-93).

Per Glaser (1978), as illustrated by Williams (2014), the researcher should take the research as far as necessary to reach saturation and not come to closure too early to reach theoretical completeness. Goulding (2002) points out, as demonstrated by Williams (2014), that no specific rules exist to point how long a researcher should continue data collection other than to achieve data saturation, which indicates that the data sample encompasses the widest and most diversified range of information possible. This “saturation” occurs through maximized differences among cases under research (Glaser & Strauss, 1967; Mello, 2006; Williams, 2014). Therefore, theoretical saturation results in core variable emergence, categorical properties identification, and clarification of categorical relationships and hence, behavioral explanations of the phenomenon (Mello, 2006; Williams, 2014).

Per McCracken (1988), as noted by Thomas (2013), theoretical saturation may generally be reached in less than eight interviews. After completing eight interviews, this researcher determined that the investigation had reached theoretical saturation. However, four additional interviews were completed to confirm that theoretical saturation had been achieved. No new data, categories, variations, or relationships emerged in the additional interviews. This increased confidence in the finding of theoretical saturation. The relationships among the categories were well established, and were validated by the additional set of four cases.

4.2.6 Research Trustworthiness

As noted by Williams (2014), “it is necessary to use accepted criteria to assess the rigor and trustworthiness of the research.” As mentioned earlier, the assessors of quantitative research rigor (internal validity, reliability, objectivity, and external validity) are different from the evaluation criteria for qualitative research, especially grounded theory qualitative research (Thomas, 2013). Following the works of other researchers (Hirschman, 1986; Lincoln & Guba, 1985; and Strauss & Corbin, 1990; Flint & Mentzer, 2000; Flint et al., 2002), Thomas (2013) developed and defined nine criteria for grounded theory trustworthiness presented in Table 4.12 with a discussion of the application of the criteria to evaluate the trustworthiness of this research.

Table 4.12 Research Trustworthiness

Trustworthiness Criteria	Definition	Applied in this Study
Credibility	Extent to which results appear to be acceptable representations of the data	Interviews were conducted with continued data analysis Mentor review, expert review, and pilot interview were used to verify interview guide
Transferability	Extent to which the findings may transfer to other contexts	Used theoretical sampling techniques A variety of internal and external buyers and suppliers from different industries, firm sizes, and years of experience were used
Dependability	Extent to which findings are unique to time and place; the stability of the explanations	Participants discussed recent as well as previous experiences. Some experiences occurred many years prior. Internal and external buyers and suppliers were represented
Confirmability	Extent to which interpretations are the result of the participants and phenomenon and not to researcher bias	Mentor review, expert review, and pilot interview were used to verify interview guide Verbatim transcription of 158 interview pages plus additional notes
Integrity	Extent to which findings are the result of misinformation or evasion by participants	Researcher conducted the interviews in a nonthreatening, professional way following IRB procedures Participants anonymity was insured
Fit	Extent to which findings fit substantive area	Addressed in responses to credibility, dependability, and confirmability
Understanding	Extent to which theory makes sense to participants	Three verification types (mentor review, peer/expert review, pilot) were used for the interview guide Findings summary was presented to participants allowing them to determine interpretation realism
Generality	Comprehensiveness of construct and theory development	Interview length varied between 42 and 84 minutes indicating that they allowed the emergence pertinent to the phenomenon in each interview Both buyer and seller dyads were interviewed
Control	Extent to which aspects of the theory can be influenced	Participants had some degree of control over variables that lead to the theory

4.2.7 Discussion of Qualitative Study Two Results

Study 2 involved employing 12 qualitative case studies to explore the following four research questions:

- How do buyer-seller dyads negotiate logistics management decisions?
- How do buyer-seller dyads communicate logistics management decisions?
- Why do logistics management decision communication errors occur within buyer-seller dyads, and what are the consequences of these errors?
- What can improve the quality of buyer-seller dyads communication of logistics management decisions?

All four of the findings from the analysis of the case studies as well as emergent and related theoretical concepts uncovered in the analysis are discussed below. It is important to note that the data, categories, and relationships that emerged were consistent across case specific parameters such as buyer-seller, dyad, internal or external to focal firm, years of experience, dollar responsibility, negotiation level, and scope.

4.2.7.1 How do buyer-seller dyads negotiate logistics management decisions?

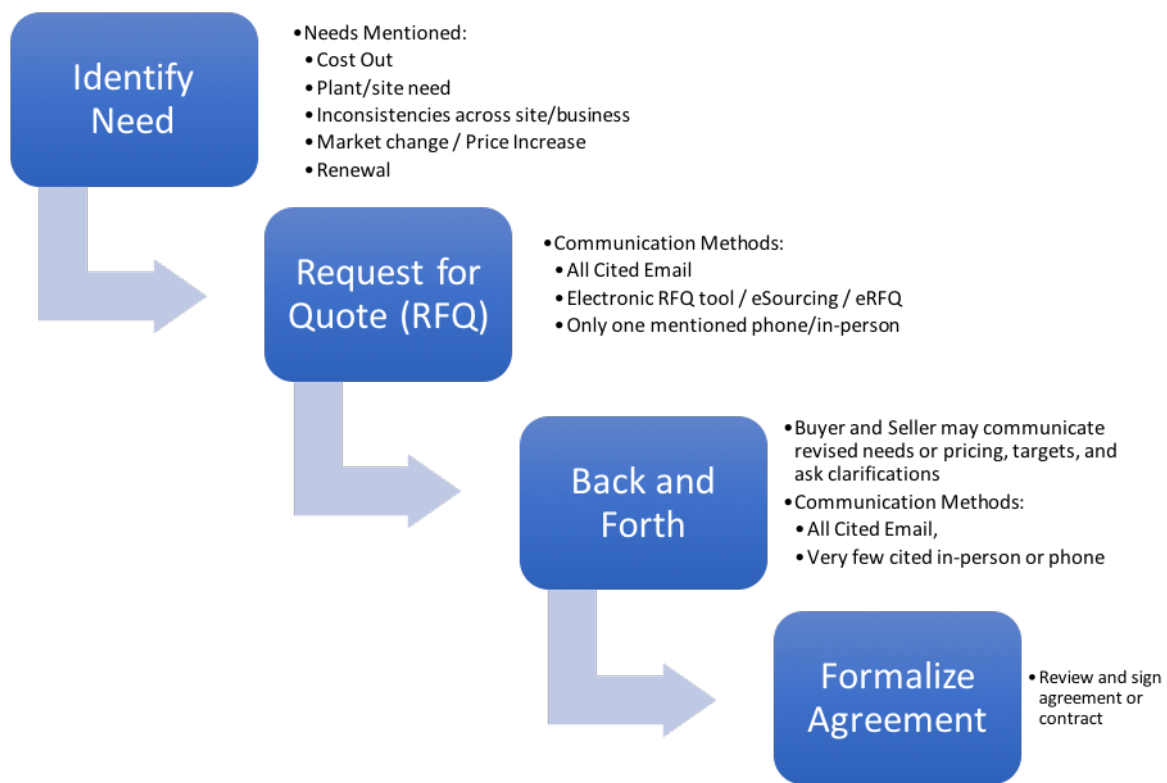
General Negotiation Process. Participants indicated broad frequencies of negotiation with their dyadic counterparts that ranged from weekly, monthly, and quarterly to annually or less. Negotiation frequency appears linked to the type of logistic negotiation, such as transactional negotiations, new contract/frame agreement negotiations, or renewal of contract/frame agreement negotiations. Frame agreements

refer to contracts that provide a general agreement on terms and conditions (framework) that allows the flexibility to add further negotiation results later throughout the frame agreement validity period. For example, more frequent negotiations were cited by individuals using only purchase orders along with terms and conditions to negotiate transactions. This contrasts with participants who negotiate yearly for contract/frame agreement renewals, where their primary focus is price as opposed to terms and conditions, which were previously agreed to in their prior agreements. For negotiating new contract/frame agreements, participants generally cited the use of a “template” provided by either their company or the opposite party to guide the negotiations. At least one buyer stated that an informal pricing agreement was used with some suppliers during and after negotiations. However, even those with contract/frame agreements stated that new products or logistic needs arising during the lifecycle of the contract/frame agreement require negotiations, as they may fall outside of existing agreements. For these instances, participants added items as an addendum to the agreements. Beyond part price, which is what most participants focused on, participants noted that they also negotiate payment terms, currency, warranty, and Incoterms®. For both payment terms and Incoterms®, most buyers referenced a strong push by their company to target the minimum number of payment days, such as net 90 days, and preference of specific Incoterms®, such as EXW, FCA, FOB, DAP, or DDP.

All participants were asked to describe a recent, typical negotiation process.

Figure 4.3 portrays the four-stage negotiation process for contracts described in the cases. A critical observation is that all cases described using primarily email to communicate and hence, negotiate with their opposing party. Very little in-person or verbal communication was mentioned. In-person meetings appear linked to “very large” negotiations where many rounds of negotiating occur.

Figure 4.3 - Negotiation Process



When a buyer in a dyad was asked, what is included in the request for quote (RFQ), the buyer stated:

So, let's see, you're going to have a price. You're going to have a lead time in there. It's pretty much a total cost analysis, and there is a template that we use for the total cost analysis. So, if there is going to be transportation-- we're going to look at price, quality, lead time, and on-time delivery. But in the initial quoting and RFQ, we would have lead time, if there's a minimum order quantity. There

will be a logistics component. There will also be comparing the cost to do an assessment and qualify the supplier if they are new. It's looking at sizing and background information, so there is a financial analysis.

More specifically, when the buyer initiates an RFQ, not only does the RFQ include a request for prices of the production items, it also includes proposed terms and conditions from the purchaser's perspective. Most participants named payment terms and Incoterms® as typical terms they require or prefer. Other items or terms mentioned included: technical details, Supplier Code of Conduct, supplier qualification questionnaire, lead-time, quality, warranty, letter of credit, consignment stock, supply chain financing program, and key performance indicators (KPI), such as on-time delivery. In other words, buyers tended to outline their full terms and conditions requests, not only their price request, in the initial RFQ phase. These requests were then reviewed by the sellers, who either accepted, proposed alternative terms, or provided additional terms. As mentioned by several buyers, the RFQ information is used to inform a total cost of ownership analysis that is employed to compare options offered by sellers.

Both buyers and sellers mentioned a propensity to formalize agreements with a contract or frame agreement. One experienced buyer explained:

I feel our culture within the company is more pro-- in favor of contracts than it was 10-15 years ago. Well, really 20 years. So, if you talk about somebody's been around awhile, a veteran or whatever you want to call me, that's been around awhile, I look back in the early '90s, and there's a lot of what I would call handshake agreements, whereas now I think the general culture is more contract-driven.

Thereafter, orders are transacted on purchase orders.

Negotiation Process for Transportation. As shown in the process flow diagram in the previous section, negotiation for terms and costs of transportation starts in the RFQ stage with back-and-forth communication thereafter. One buyer participant stated it best:

It starts in the RFQ process where they identify their cost for transportation and how they'll do it. I typically will give the preferred terms that my company will use, and here's our carriers, but I will also ask them for their pricing, and who they use just to make sure that we're competitive. But, it usually starts at the pricing, and then from there, it really is covered when we get to the agreement stage. It's pretty much already defined in the agreement.

The buyer went on to mention:

So my company in the GSA (meaning global supply agreement) has a set of preferred freight terms, and also I know what the Incoterms® is that we typically use, but then there is certainly boilerplate language that is in our template that we will typically try to get approved with the supplier. Hopefully, if it's a smaller supplier, usually they don't have too many issues with our terms and conditions in our agreement language. If it is a larger, that is where we get into a lot more back and forth.

The buyer elaborated:

So typically, what I'll do is I'll specify the preferred Incoterms® and the way to provide it. So, I will specify that I would like to have everything quoted in FCA. And I can already calculate because we have a freight calculator, so I can determine what our cost's going to be for that freight, but I will ask them to quote the freight based on those Incoterms®. In some cases, I'll find the supplier doesn't want to use, say, an FCA or the Incoterms we've defined, so therefore, they want to put in Ex Works, or typically it's Ex Works. That becomes a little more challenging because now you've got to somewhat equate their price quoted back to the FCA. So, the preference is that everyone quotes per FCA so you have a good benchmark of price-to-price.

When asked to clarify further:

I'm specifically saying that I'm looking at the cost of the transport it's a separate element in the agreement that we look at. So, it is a separate cost item. So, no, it's specifically comparing price of transport between the suppliers, and given their distance that's going to adjust. So, it's a key element in the total cost, or the delivered cost for the product.

Another buyer clearly indicated, “Normally, when we start the sourcing process, we were letting supplier know what kind of Incoterms®.” A different buyer specified:

Like I said, if there's not an agreement already in place, and I might in some instances when I know the cost for transportation will be significant because the product is big or because it's heavy, then I will maybe go back and ask the supplier, "Okay, so if I were to ask you to take the transportation what would be your new pricing?" And then he'll come back with a price, and then I'll evaluate whether or not it's more to my advantage to take on the transportation or leave it with the supplier. But again, you'll have other subjective factors that come into place. If I want the full control over it, then I might just say, "Okay, no, I prefer to take on the transportation," and take it even though it might be more expensive than if the supplier takes it.

As described by the participants, the buyers generally state either their preferred Incoterms® or ask for multiple alternatives available from the suppliers. Multiple alternatives are used by the buyer to support a total cost of ownership (TCO) analysis.

One buyer explained it this way:

Yeah but I guess we are comparing like if we have something that would be shipped, let's say, in Europe from one country to another, so we're just comparing our own transportation costs versus suppliers' transportation costs. So, we do just like a price-to-price comparison for that section transportation. but we like the TCO is actually done for the total cost like the price of the good with the transportation, if there's any duty on that inventory, and so on, and payment terms, and this is all. But if we're just comparing freight cost to freight cost, we do our own cost and then compare it to the supplier's cost. And then we decide if we will take the responsibility of the transportation depending on these costs.

When asked, “What if you compare suppliers from different areas?” the buyer replied:

That would be, I guess, the same thing. But that would be-- the TCO will actually drive the final cost. So, if it's different from a different country, then it will give us-- we could in some cases say, "Okay, this supply is from that country. Transportation costs look pretty high. Maybe we can just look at our internal costs to see if we could get some more benefit." And then we'll do the final TCO to compare one supplier to another.

In contrast, a seller in a dyad commented on TCO:

These buyers are looking to-- they're starting to compare transportation cost. So, it's not uncommon with the few customers that I have for them to ask me to quote a product that can give them multiple options for their shipping terms. And that's quite problematic for me. It adds a lot more work to-- or more effort to what I'm doing.

The seller's responses also supported the comments by the buyers in dyads. One seller, who stated it best, explains the seller's perspective:

Well, with most of the customers, they agree what I propose in my quote. From experience, I know my customers, and I know, okay, they usually accept Ex-Works, for example. They can accept my delivery time. They're not negotiating there because they know us. So, usually, if he talks about pricing, then he usually accepts all the rest.

The seller continued:

Sometimes, of course, he doesn't want to have an Ex-Works state, but he wants Free on Board, or even delivered, and then, again, I pick up the phone and say, "Well, okay, you can have the Free on Board or delivered, but then I'm going to raise my price," which they usually understand, of course.

Another seller indicated, *"In offer stage, or when he places the order, once it is confirmed which Incoterms[®] he wants, then there's no further negotiation,"* while a third seller commented:

Usually it's on the front end. So let's just say a brand-new customer comes to me today, sends me a quote request. "Hey, I got your name from Joe Blow over at XYZ company. Okay, here's my project. Here's what it is, I submit pricing that says, "Hey, our pricing is FOB our dock." Which means, hey, you're figuring out how to get it from my dock to your dock at your expense. They come back to me and say, "Hey, can you include freight?" then we include freight. If they say, "Hey, everything going forward, please include freight," then we include the freight. If they say, "Hey, let me know when the parts are done, we'll arrange to have a truck there," we do that as well. It's really determined on the front end, and then once we understand what the customer needs, and how they operate, we continue to operate along those terms.

Regarding transportation, both buyers and sellers stated that they consider not only the costs, such as transport and duty, but they also consider the tasks and risks associated with moving the goods from seller to buyer. Using the Incoterms®, many buyers and sellers mentioned that they compare the tasks they are responsible for versus the tasks the other party is responsible for in their negotiations. Tasks mentioned include items such as customs clearance, documentation, and packaging. When the value of the goods is high, then both buyers and sellers prefer the other party to take on the risk during the transportation. One buyer commented, *"It really comes down to the Incoterms and the passing of risk."* A second buyer stated:

I would say that because most of the time goods that I purchase are under global agreements, the insurance is covered by our global freight forwarder, so I do not consider that in my negotiations considering that the transportation is with us. If it's with the supplier, most of the time-- I'm trying to see. It will depend on the value of the good too, right? If it's just something that's not worth much, then I won't bother to think about risk and insurance. If it's something that's worth a lot of money, then yes I will consider it. It's really depending on the value of the goods also.

The buyer continued:

Local purchases are more low-value items I would say. So I wouldn't really take in consideration risk or insurance because the goods are of lesser value.

Another buyer stated:

Because depending on the Incoterm that we'll be using, custom clearance and documentation will either fall on either the seller or the buyer. So in the sense where I agreed to an Incoterm®, it's taken into consideration. Sometimes if we know that something is very urgent or that the transportation is time sensitive, then we might seek on-- it might influence my negotiation in the sense that I'll want to take on the transportation to have a better control over it. So in that sense it will influence.

Restating this comment, buyers may sometime prefer to use an Incoterms® rule that allows them to handle transportation to provide more control and visibility over delivery and its associated costs. This supports Kumar (2010), who suggests switching from FOB to FCA Incoterms® to reduce freight costs that are generated by closer port routings, due to buyer's and not seller's preference of port, and reduction in duty to the buyer.

A seller commented:

The buyer. So, I know that with FCA not unloaded to a first US destination, there is some costs associated with us and risks of transporting the goods from our factory to that location. So, that's something that we're aware of.

4.2.7.2 How do buyer-seller dyads communicate logistics management decisions?

As mentioned earlier in the general negotiation process section, buyers and sellers in dyads primarily use email to communicate with their opposing party. Within these email communications, all participants mentioned Incoterms® rules, or what they thought were Incoterms® rules (e.g. UCC terms of sale), and their three character acronyms, as the method within the email communications to represent options and

choices regarding the assignments of logistics responsibilities. This was the same for all negotiations types. One buyer commented:

The Incoterms® are clear when we send out the purchase order. In the purchase order, it's written our Incoterms®, and he will confirm the acknowledgment with the same Incoterms®. If it's same thing, then we keep it, and we are thinking about that it's clear. And if the acknowledgment is wrong, so we have to check it with the supplier why he won't adopt our Incoterms®. But after receiving the acknowledgment in for the whole transportation, it's clear who has to pay.

Three other buyers had similar comments:

1. *But it's actually agreed during negotiation and then we just state it on the final agreement what would be the Incoterms®. --- Basically, we just use Incoterms®.*
2. *The Incoterms® is pretty comprehensive on who does what, when, how, why, blah, blah, blah. It answers all that, so no. Typically, once you agree on the Incoterms®, it's pretty clear who's doing what.*
3. *When you talk about transportation, the Incoterms® are the big deal. Communication of a black and white agreement on that is the big deal. And from there, you've got to be able to manage it, monitor it, whatever.*

Sellers provided similar comments. One seller stated, “[...] everybody sticks to the Incoterms®. This is a global standard for transportation.” Another seller rationalized:

Exactly, we're very strictly working to the Incoterms® 2010. Basically, we're obeying to the rules that makes it easy because they're the worldwide terms and everything is solved in that basically.

This use of Incoterms® places a very heavy reliance on both the buyer's and seller's understandings of Incoterms® rules. Otherwise, communication errors can occur. One buyer described this, “If it's says CPT, then there is an Incoterms® that guides that. I do not spell out what CPT means.” Another buyer commented:

With the Incoterms® mainly, if you do it well, there should be little room for miscommunication unless the supplier doesn't understand the Incoterm terminology.

Sellers commented similarly. One seller explained, “*Yeah. I think this one should be very clear to follow the Incoterms®.*” The seller continued to talk about listing out details in the customer agreement:

I think no, even from the contract perspective. No more details left to explain what's a FOB, what's responsibilities that you need to take. Yeah, Incoterms® the suppliers also understand very clear.

Another seller stated, “*I mean the Incoterms® they basically state everything. There's nothing better you could really use.*”

At least one buyer recognized that Incoterms® rules are not to be confused with the Uniform Commercial Code (UCC) 1951 shipping and delivery terms that are primarily used within North America, especially the United States (Legal Information Institute, 2015; Bergami, 2011; Bergami, 2012). The Canadian-based buyer explained:

I would say it depends on the supplier. If it's an international supplier who's used to supplying globally, then Incoterms® most of the time is sufficient for both parties to have a good understanding of what it implicates. But often local or U.S. suppliers are less familiar with these international Incoterms® and you have to go into the specifications and say, "Okay, I'd like to change for Incoterm® such-and-such, hence you will be responsible for delivery up to this point," et cetera, et cetera. So, it really depends on the fluency of the supplier in terms of Incoterm® knowledge. Because in the U.S., you had this previous - I don't know what system they called it - but the FOB terminology and the less international terminology. So sometimes you'll get requests for quotations that indicate FOB such-and-such, but we prefer to use the international standard of the Incoterms®. So, not all suppliers are fluent in terms of those terminologies. So, it will depend. If I see that the supplier is not getting what I'm asking, I'll have to spell it out for him. Otherwise, if they agree to my Incoterm®, FCA for instance, or DDP would be more to-- DAP

would be more to my advantage. And if he says yes, then my comprehension is that he understands or at least looked it up to make sure that he understands what I'm asking for. Otherwise, I guess he's tight with the legal implications of it.

4.2.7.3 Why do errors in logistics management decision communication occur within buyer-seller dyads, and what are the consequences of these errors?

It became apparent that a thorough understanding of all Incoterms® rules aspects is exceedingly uncommon. For example, a seller mistakenly commented that Incoterms® do not clarify insurance, so they negotiate this separately:

And of course, apart from the Incoterms® the other thing is insurance. Incoterms® don't cover insurance, so each customer that we sell to has to be insured by our credit insurance company. If they don't get insurance then we don't do the transportation, we rather insist for this customer to, for instance, pay in advance and take care of the transportation themselves. This completely takes the risk out of our business because we're dealing [with a] product that's quite expensive. In order to minimize the risk, then this is the best way to do. But it's quite rare I think. 90% of our customers are fully insured on the quite high values.

When asked if ownership of goods, which is also referred to as title transfer, is considered during transport, the responses varied. One seller remarked:

This should be covered again with the Incoterms®. Normally, if it is Ex Works, we consider that the title of the - how you say - the ownership of the material changes when we load on the truck. So, when the machine exits from here, the owner is the customer, because normally with Ex Works, we don't do nothing. So, it's the customer organizing the transportation and so on. While with DAP, the customer became owner only when the machine is discharged at his site. Then there are some situation in the middle, like the cash against documents. ---So, in this case, we are-- the title passed from us to the customer when the customer pays the bank, and the bank gives the documents to the customer. And the customers can transfer the machine to the final site. So normally, we follow the Incoterm, mostly for the passage of ownership on the material.

Another seller stated:

Well yeah, that really depends on the Incoterms® that are being used. The Incoterms® basically make clear who has ownership or who has the title of the goods during the transport.

A buyer commented:

It is in the GSA. A lot of times it does get discussed. Of course, the preference is that we don't take title until it's delivered. A lot of times that's not the case. Best case would be that-- or maybe, worst case, but I'll say it is best case. Best case is that the title and transfer is at the point that we actually pick up the goods, and that mainly will take place if we're using our authorized transport providers because that's how we negotiate it in the agreement.

A second buyer explained:

Typically, while that's a key element in Incoterms®, right or wrong, typically not really. And that's probably a mistake. And when I say a mistake, I'm talking a mistake on my part. But a lot of my peers within the company, I kind of wonder how much they're considering it, too. I don't think I or we do a good job on truly considering the Incoterm, the deals, and how it deals with the ownership. So no, I don't think I do.

The varied responses relating to transfer of title or ownership indicate a misunderstanding of Incoterms® rules. Incoterms® do not indicate transfer of title or ownership (Legal Information Institute, 2015; Bergami, 2012).

Further increasing the likelihood of communication errors and as presented earlier, sole use of Incoterms® places a very heavy reliance on both the buyer's and seller's understandings of Incoterms® rules. Otherwise, communication errors can

occur. Buyers and sellers do not operationally define Incoterms® rules while communicating with the other party. They expect that the other party fully understands the Incoterms® rule. Some in the study also recognized that Incoterms® rules are not to be confused with the Uniform Commercial Code (UCC) 1951 shipping and delivery terms that are primarily used within North America, especially the United States (Legal Information Institute 2015, Bergami 2011, Bergami 2012).

Building on past studies (Stapleton & Saulnier, 2001; Bergami, 2011, 2012, 2013; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Stapleton, 2014; Stapleton et al., 2014a, 2014b), Study 2 has attempted to extend and validate existing research on communication errors between buyers and sellers. The case studies have provided extensive examples of communication errors and other interesting aspects of the buyer-seller relationship as related to decisions about communicating logistics management.

Both buyers and sellers provided examples of communication errors. One buyer noted two examples of communication errors related to the Incoterms® rules used with a seller. The buyer briefly explained the first example, where after many successful repeat purchases, the seller raised an issue about customs clearance responsibility:

We had issues with who was responsible for the customs clearance. And it may have been a case they didn't want to do it anymore. Even though they had been doing it.

The second example contained an unclear “name place of destination” related to the Incoterms® rule used with a seller:

And then the other example was that we had a place where they actually closed their U.S. warehousing. So now, it put additional strain on transportation cost and whatnot. Because we needed to look at, you know, bringing in half or full container loads. And then also, we were responsible for the inventory and the shipment to the location from an international.

The first example error resulted from unclear customs clearance responsibilities, and the second example error was caused by not specifying the purchase origin, which used to be a U.S. warehouse, and resulted in purely domestic transportation. The buyer continued to explain that both examples cost substantial additional monies.

It was an unfavorable change, and then the negotiations was really around how do we minimize that. In both cases, it was an additional cost or risk to the company. In one case, it was an inventory carrying cost risk. Yeah, in both cases, but the negotiation really was to try to minimize the impact.

A seller also indicated that delivery locations can be problematic.

If I take Turkey, for an example, where we have one customer entity, it's a good example to use this customer actually. Where we have one customer factory, who want their materials to be delivered to a warehouse, which is close to their factory. But this is something that was communicated wrong from customer at first. When we got the right information, then, of course. Unfortunately, as it is, a mistake happened here. So, the next delivery again went directly to the customer, so that was just basic miscommunication, but solved very fast.

The seller continued:

Well, it's quite simple. When we started this business, we received the purchase order. The purchase order had a delivery address on it. So, it's a standard purchase order with a delivery address, which was the address of the customer facility. This is the information that we used to ship out this shipment to the facility. Until we got a notice from the entity saying, "Hey, we received the truck, but this truck shouldn't have been here," but how should we know? We then got the information that next shipment please to this and this warehouse, which didn't actually happen, which was also a miscommunication within our company where the

customer service basically stated the new address, but the logistics, which is a different department, how do you say, did get the information, but via email.

The seller added:

We weren't, at that point - this is about three years ago - we didn't have the system. We were working with SAP. We didn't have the system set up to have an interface between customer service and logistics, so a lot was done through email when it came to delivery addresses and so on. Things like terms, and quantities, delivery notes, invoices, and stuff. That's communicated by SAP, but at that time addresses weren't. This was a request by email, which basically wasn't read by the person who received it. So, it went wrong a second time. But from that point on - because it did go wrong - it didn't cause too much anger or anything. It was just a basic mistake, but from that point on it was handled in a different priority, and since two years, we have a complete interface between logistics and sales and customer service. So, all information is being transferred one to one. And of course, it always depends what's written on the PO. That's the information that's most relevant for us.

One other buyer offered an example that caused issues with a North America

Free Trade Agreement (NAFTA) qualified shipment that should have been using an FCA

Incoterms® rule, but instead, the order indicated the EXW Incoterms® rule.

I believe, during negotiation, the Incoterms was FCA but on the PO, I think it was stated Ex Works. I believe-- I'm not 100% sure of that, but this is what I remember. I believe that was where it led the miscommunication, I think it was, between the contract administrator and the buyers that we probably did not make sure that everything was clear. And even from the supplier side, they should have used the contract Incoterms® in that case but they used a PO.

The buyer continued:

Like I said, it was something that we did not, that we overlooked this detail for sure back then, and I think it was back in 2013, something like that or, I can't recall exactly the time, but this is not important. I think the thing was that we should have validated that information up front before. Because now we know that for

any-- since also that it was involving the free trade. I guess it's also from both sides I believe because supplier is also-- they have experience of shipping to U.S. I think they could have caught that also before, but we cannot rely on suppliers on this. We should up front do the right thing at the beginning. So, we definitely missed on this example. We did not define the right Incoterms® at the beginning.

The buyer added:

I should say that then the mistake was signing on the contract side. But now we know that we should never use Ex Work, and I think it was maybe a lesson learned.

With the EXW Incoterms® rule, the supplier did not need to clear goods for export and hence, the supplier did not feel obliged to provide a NAFTA form, which would have saved the buyer's company from paying import duty. This resulted in \$8,500 duty per shipment on a product that shipped weekly.

Another buyer located in P.R. China provided an example where both internal and external miscommunication was present:

Even from United States, some people, really, they cannot understand what's meaning of DAP. Even if two weeks ago, we have signed all the contracts already, the finance controller suddenly said, "... we cannot accept DAP. You have to do the DDP." This is even the last minute. I think this is very interesting. For my understanding, as we mentioned, when we start this project with suppliers, we have to teach them, train them, or educate them to give them explanation of what is definition of each kind of Incoterms®, so supplier can understand what kind of tasks they need to take, what kind of responsibility they need to take, especially for the customer related. But sometimes from the U.S. side, it's crazy. "Oh, I'm sorry, we cannot use DAP." Things like that. So for sure, we have this kind of miscommunication. From buyer side, because U.S. is imported country, so from customer understanding, you should have one customer specialist who can lead this kind of communications to avoid any misunderstanding. So, from supplier side, sure, we can help them to understand this.

The buyer continued to explain that:

So, U.S. mostly (sources) goods come from low-cost country like China, India, and other countries. So, sometimes when we use those Incoterms®, sometimes they tell me, "We need the goods with FOB behind it." It means that they don't understand the definition of the Incoterms®. I think this is a challenge for us, but from this global area, they can understand very well. But maybe for the other functionality department like logistics, like finance, like other, they may not so clear about these terms, what really is the definition should have. Who will be charged the customs related cost? Who will be charged the transportation, inland transportation? Or things like that. So, we still need to take some time to get support ...internally. He can understand and support it. He can send out to get some advice. Next, DDP, we cannot do that because Chinese supplier has no legal entity in the U.S., right? So, they cannot do DDP. So, I think there's only one solution-- one option, DAP, start to do that. So after that, I think everybody can be agree what we discussed. Still need some time.

The buyer continued to point out, "Miscommunication is that we'll be leading to mis-operation I think." An additional buyer provided a miscommunication example:

We had parts coming in from an India supplier, and it wasn't clear to them if FCA implicated customs clearance. So, when the goods were about to leave, we had to have some back-and-forth discussions on trying to figure out who was responsible for what because it wasn't clear to them off the bat. So basically, we ended up paying a fee for them to take on some responsibilities that we had understood to be part of their responsibility at the outset. But it was a minimal fee, so it ended out okay, I guess. Had it been more important, then I might not have had the same response [chuckles]. Disagreements on delivery points, sometimes it might not be clear if a good is coming from overseas. Its delivery point is-- you've got lots of delivery points at say the port at Montreal rather than door delivery, so it might happen where you have a disagreement-- well, not a disagreement but unclear whether who is responsible for taking on the last portion of port to door. So then, again, what happens in those instances is that there's communication because then the freight forwarder will ask questions and then the supplier and the buyer will have to chat again to establish, "Okay, so how do we get this product now to the final destination?" So, you readjust on the way. If miscommunication happened at the outset, you just have to deal with it as it goes along.

A seller also commented on miscommunication:

There are tasks associated with exporting goods that aren't covered by these Incoterms. And I guess an example of those might be like containerization fees, or

stuffing charges, loading charges, these kinds of things. And if it's a customer that we haven't already established a routine or a normal payment, a bunch of transactions in a row where something didn't come up, these customers might consider these fees to be something that my company is responsible for. And through the years, what I've done is change my template for a quotation to include further clarification on who's responsible for what, for those things that aren't exclusively clarified, I guess, in just the three-letter Incoterms in terms of shipment.

The seller continued:

In those cases, where somebody knows enough about Incoterms to say, "Well, you quoted us CIF, but this shuffling fee or containerization fee isn't exclusively described in your quotation." A concession might be made on my side to ensure that that doesn't escalate to something bigger because it's a lesson learned thing, I guess, for me along the way. So now, I make sure that in my quotation where I put these shipping terms, it doesn't just say FCA not unloaded first U.S. destination, then there's another two or three lines behind it that clarify some of those other charges and who's responsible for what.

The seller noted that fees can add \$150 to \$300 per shipment. Interestingly, this example also indicates a communication error, as Incoterms® rules do address the costs that the seller referred to. Another seller explained a general miscommunication example:

The Incoterms®, they thought it's not Ex-Works, it's FOB, and then they claim, "Well, but you know, in my country, it's always been like that." Then you try to sell it to him, of course, so he has to pay more, but in most cases, they want to stick to their pricing they issued the order for, because he claim, "Because...it's been approved by management. I cannot ask for more money, blah, blah, blah." What happens then, we just try to get the money for the next order, so we make a kind of hidden surplus on the next order to compensate the loss of the last one-- or not the loss, but the higher expenditures on our side. ---It is Incoterms, which he'll also have to change. Because he cannot misinterpret an FCA term. This is the same for everybody. But he's going to ask for another term.

The seller continued:

Yeah, probably because the buyer did not pay enough attention. He was focusing, "Is the product the correct product or is the pricing what I need?" Then he probably doesn't pay too much attention on the Incoterms, up to the point where we tell him, "Well, it's ready. You can pick it up." And he goes, "Whoa, what do you mean by picking up? You have to deliver." So, it can happen, then you start again.

Another seller provided:

Normally what happens is, as I said with the Middle East, the problem is that sometimes, we don't export their parts according to AeroMed, and then the customer claim that he wants to have this declaration to skip the duty payments. So, this is, I think, the case that happens more regularly, not always due to us, but because sometimes they promise to get to get this certificate, you must order the parts with the same certificates to the supplier. But if the customer asks for a very rapid delivery, so very quick, to have the parts in a very short time, we need to deliver from our warehouse, and in this case, we cannot apply the AeroMed. And sometimes, these are grey area, because maybe we are in contact with their technical guy, and then the purchase is a different guy. So, the technical guy needs the parts really very fast, but the purchasing is not aligned, and so this creates some mistakes.

When asked if this communication error cost their company money, the response was:

Yes, because if we have to make a discount in order to solve not perfect situation with money.

A buyer also indicated an example of freight forwarder error:

They will receive the paper sheets from the supplier, and they will do their own airway bill, and they will write down, maybe I don't know, an Ex Works, and it would be DAP or whatever, then we have to check it before we give the okay for the import, and then we have to clarify with the supplier why he changed it. Or it could be the fault in the forwarder.

The buyer continued:

Most of the time we go back to the forwarder and tell them it can't be because the paper sheets from the supplier are correct, but the forwarder has missed, or has typos in the system. Most of the time the problem is by the forwarder team.

In this case, the buyer indicated:

It's really the fault of the provider, so it's okay. So, we have to discuss with our provider, or we know that the next time we won't have this provider; we recommend another one. That's the only thing where the impact is, that we choose another forwarder.

Participants were also asked about the impact of miscommunication related to transportation. A buyer stated, *"Yes, definitely, maybe impact the relationship with supplier. Absolutely."* Another buyer supported this further:

Clearly. Clearly. Clearly. Miscommunication of any sort is going to affect a relationship. So, it not only behooves you, it behooves the other party to make sure that everything is ironed out as much as it can be up front. And if you sound like you're keying off at transport, and then fine. But that statement applies to every element of it. You don't want to be, after the fact, saying, "Hey, I thought we agreed to net 90." We either did or we didn't. What's the contract say?

That buyer continued, *"Anytime I have to carry extra inventory, or I have to spend more time, or the buyer has to spend more time managing the day to day, that's money."* A third buyer commented:

Well, again, this is where we'll negotiate. If I say for instance, "Well, your quote said this Incoterms[®], so it was understood to be delivery at door," and the supplier says, "Well, we only figured it was up to port," and it wasn't clearly stated at the outset, or it was and then the supplier said, "Well, we understood it only to be at port," and it's clearly stated at the outset that it's to door delivery, then he'll take on the extra cost for whatever he didn't cost into his transportation fees. So, it depends. Sometimes it will, sometimes it won't. Again, it reopens the door for a negotiation.

Still another buyer indicated that miscommunication affected the relationship, and thus, the buyer kept extra inventory, so it also affected cost.

But did it affect my future relationship? Yes. Did it affect how much risk I was willing to carry for that supplier? In other words, if I trust that supplier implicitly, I may only keep two weeks on the floor. If he's scaring the daylights out of me, I may keep six weeks on the floor. And if I can't communicate properly on that packaging element of the transport, then that could lead me more to carrying extra inventory. Therefore, I'm dealing with the risk factor.

A seller also noted that miscommunication cost their company money.

Sometimes, we try to negotiate. In this case, we give him a discount trying to cover the duty. So, when he is asking, we tried to solve the problem in his way, and at the end, we are still in good relations.

Finally, a buyer explained the lasting effects of miscommunication:

As a buyer, you sort of categorize your suppliers as either mature, less mature, reliable - maybe I should use that term - reliable, less reliable, and you learn to know them, and you know that some suppliers are solid. They understand the Incoterms®, they understand your needs and will be proactive. You've got other suppliers where you always have to give them direction and always inform them and follow them closely. So, when there is miscommunication, you sort of have a tendency to classify them in a less reliable class. You try to put everything at the outset very clear. Maybe from lack of proactiveness? They didn't ask the questions at the outset to make sure everything was clear. I know that on my end when you're looking to purchase something, you want it in time, right? So, I do everything I can to make sure that everything is clear off the bat. That's why I was saying I sort of evaluate the supplier's fluency in terms of Incoterms®, and if I get the feeling that he's not clearly understanding what I'm asking for, then I will go into the nitty-gritty and say, "Okay, so I'm expecting you to take responsibility for this. I'm expecting you to take the cost of this, and just to make sure, I do expect that you will take on port-to-door portion of the transportation." So, if there is miscommunication, even though at the outset, I did everything on my end to make sure that everything is clear, then it will impact in the sense that okay, next time when I do purchase from this supplier I will go even further lengths to make sure that everything is clear. I will call him. I'll make sure that whatever went wrong the first time, I make sure that it won't happen again by telling him, "Okay, so on previous occasions this happened. So, what will be done this time so that it doesn't happen again?"

Buyers and sellers also indicated that miscommunication cost them “time.” One buyer commented that this “time” cost the company money.

Our original plan would be started the consignment program from September. Okay? But now we have to change our schedule to November. So still have two months’ delay. So, these two months, I think, means money, right?

Another buyer remarked that time not only impacts costs, but it can also translate to their company’s reputation with their customer:

Of course, it can impact the delivery. For sure, we can have delays in the shipment that can also impact production. So, if we have miscommunication then it could have a major impact in the production. That's cost, but that's also-- if we are late in getting materials, then we can be late in the delivery and impacting our reputation as well. So, that could have also a big impact.

A seller commented:

Well, yeah, if you have a misunderstanding or a miscommunication related to Incoterms®, then you're going to delay the material. Because we tell the customer, "Okay, it's ready for pick-up," but then you have to negotiate again, we have to tell them, "Well, that's not the way. We have to prepare new papers and you're going to delay it." So, at the end, the component is not being delivered as promised.

The seller continued:

And having purchase orders that clearly identify who the customer's nominated freight forwarders are in advance of when the POs process or at initial submittal also helps in that because it doesn't-- I told you, the thing we value is we're able to ship the goods early. Well, if I accept a PO from a customer that says they agreed to FCA terms, but they don't identify who that forwarder is-- and sometimes I can still get stuck with goods sitting on our dock and not being able to move after they're completed finished goods.

The same seller added:

And what I find sometimes is that buyers don't have nominated forwarders that they trust or they have a relationship with that already is established. So, what they end up doing is we process the order, and they ask us for weights and dimensions of the goods before they're ready to ship. I can give them some rough estimates for what they would be, but we don't weigh-- the product that we have, we don't already know what the weight and the dimension of it is going to be before it's packed. So, what happens sometimes is they'll wait until we give them the weights and dimensions of goods and tell them it's ready to go out and start trying to negotiate with freight forwarders for the best price to get the product there. And sometimes, that can last weeks.

Another seller made similar comments:

Some of the account managers that I see are more-- and these guys change pretty frequently, but I find some of the more responsible ones will-- upon accepting an order and processing it, when they send the order acknowledgment, if forwarder isn't identified, they'll add a note to their email communication with the OA - order acknowledgment - back to the buyer that, "Within two weeks, it is ready to ship. We need to know who it is so we can send it to you so it leaves on time." And I've had cases in the past where that hasn't been clarified, and the buyer's expecting something to happen that doesn't happen.

The same seller continued by saying:

I guess this goes back to one of your earlier questions where you asked about if there's anything that affects the relationship with the buyer. I've had customer in Thailand get pretty upset at me because they've nominated their freight forwarder and identified to us who they were, but they didn't give us any contact information for them. So, when the goods are ready, we go back to the buyer and say, "Hey, this is ready. Tell your forwarder to come and get it." Or we might not even say that. We might just say, "Hey, these are ready to be picked up. Where do you want us to ship it?"

That seller further belloped about buyers:

And they don't understand that their responsibility is to take that information and send it to their freight forwarder and say, "Here it is. Go get it." They think that-- I don't know. In my opinion, they think that because they write DHL, there's one

person for DHL that we can go and tell, and that person will know exactly what their responsibilities are, and they'll come get the goods, and everything will ship on time. And sometimes, that doesn't happen. The goods end up sitting here for a long period of time. And they think that we're late with the goods because they haven't shipped, and we're late into production, when in fact, the goods were ready on time, but they never left because certain actions didn't occur in a timely fashion.

Another seller explained about coordination with both their customer and freight

forwarder:

Also, we coordinate the transportation time because another important thing is that the customer has to pay the VAT. And if the customer is not prepared, we can lose time at the customs because when we transfer the product from our site to the final.....When the truck arrives to the customs, you have to pay the VAT to get the importation, to get to the custom clearance. And in the past, what happened is that we lost days because the customer was not paying the VAT.

It is apparent that participants placed heavy importance on the buyer-seller relationship as well as on price. A seller noted that:

Well, it is the relationship, because the brand name.... is very well-known in the world, and they associate this with quality. So, the customer relation is top priority, of course.

A buyer indicated, "Relationship with supplier, both should be very important." Another

buyer indicated that both price and relationship are important:

From buyers' side, cost is very important. But sometimes we still need to support from supplier. So, relationships still very important as well. I can say both.

In a similar way, another buyer commented:

I think to me that they're both important, the relationship and the cost, but I think - well, definitely with a strategic and even with a high buy from, at least from mid-

range, let's say, I think it's really important to figure out how to keep both of you in business. In other words, make both of your businesses-- how can you make both of your businesses sustain and grow and do well and not kill the other guy?

Another buyer asserted, *"I feel strongly that both are important."* A seller commented that:

It's a variable of both. The most important thing is, of course, the relationship. Because if you want a reliable, safe business, a lot is based on trust. So, you've got to trust each other. You have to communicate very openly. If it gets too open, we're signing NDAs... So we have NDAs...in place, so the communication is very open. If there's questions concerning our processes and so on, it's just trust, is basically the main thing. And, of course, second thing is price. There can be a lot of trust, but if the price is too high, it's not going to work. So, it's got to be trust, understanding on a mutual base, I would say.

Another seller remarked:

I do think the relationships are impacted somewhat, but there-- with each problem, there's an opportunity to even get closer. So maybe the miscommunication resulted in an initial negative feeling by the customer. But if we're able to work through that problem in a way that leaves them not upset, it's an opportunity to bring us closer.

A third seller commented:

Because a good relationship can bring us further orders from the same customers and a customer can suggest to other companies to come to us to purchase. And of course, also the cost. If we are competitive, it helps us to conclude more orders. And so, all these aspects are very important during and after the negotiations for us.

A fourth seller also remarked, *"The relationships are important all the time. That's quite clear. The costs, exactly the same."*

It is also noted that for one-time sales, the relationship is not as important. A buyer stated, *“If it's a one-time supplier, the relationship isn't that significant.”* Similarly, another buyer commented, *“Honestly, when we buy once in the supplier, so it's the cost reliance for me.”*

4.2.8 Other categories discovered

Four unanticipated categories of theory have emerged from analyzing the cases in Study 2. The uncovering of these findings is a direct consequence of the choice to employ semi-structured interviews in this exploratory research. The four categories related to logistics negotiations are discussed in detail below.

4.2.8.1 Sellers focus on sale, not execution

It has been observed that sellers in dyads often have a strong focus on the completion of the sale itself and not necessarily on the execution of the order. This lesser focus on order execution includes the logistics management activities associated with completing the transactions. One seller remarked regarding order execution:

Yeah, so this is not on my table. You go a step further now - whenever they have questions about packaging-- what is it? The bill of lading, or whatever, it's not on my plate anymore.

Later, the seller reiterated:

You have to understand, I'm a sales guy. I don't really care what happens [chuckles] after I sell. That's basically the point. I care that the customer will be happy after I sold it, but, really, the processing between, this is another department.

Another seller commented on sale focus:

Well, first of all, success is getting the order. Increasing our sales is the biggest success once we get the order. The second success is, of course, getting the most profit out of it. So, do not buy it for less than the customer is willing to pay. For this, you have to know the market and the customer.

A third seller made similar comments:

I think, to me, success means first of all that I made the sale. Second of all, I pride myself in getting premium pricing for selling a product. Not just the product, but the value that we offer to the customer. I think that allows me to get a premium on the prices that perhaps other guys are showing the same product for. So, I really try to sell at a higher price than what anybody else is doing and at the same time having a customer that's happy with the transaction. Total sales, total annual sales gets a lot of attention at this factory sometimes that I work at.

A fourth seller indicated:

Well, of course, we know that the negotiating activity has been successful when we get the PO from the customer and especially when we get the PO after the first quotation. So, when the customer accepts the first price and the first price is also the last price without any discount required. So, in that case, we know that negotiation has been very successful because we have all the commercial margins we have calculated. And, yes, it's also successful when we get the PO in a very short time.

A fifth seller also commented, “That's the-- success looks like an email or an allocation letter....To get in the contract.” This strong sales focus also relates to the next discovered area regarding logistics negotiations, which is revenue recognition.

4.2.8.2 Revenue Recognition

Sellers seek to recognize the revenue as quickly as possible and desire to control processes to facilitate this. One seller stated:

They also like for us to get the product out off site as quickly as possible and moving. So if I'm quoting ex works, all I'm really doing is, when the product's ready, because these are international shipments, instead of asking them who their freight forwarder is and then telling that freight forwarder, "Hey, this is ready. Come get it," using FCA not unloaded to a first US destination allows us to, when the product's ready, choose a carrier of our choice, put it on a truck, and take it to that location. And we don't-- we can realize the revenue sooner that way rather than sometimes waiting for weeks for someone to come and get something that's sitting on our dock. So if we want to have any chance of having a forecast that's reasonably correct, we want to be able to get that out the door and moving as quickly as possible--delivering to a point, a port or a point, within the U.S. allows you to move to that point - that's your freedom - and recognize revenue from the company's perspective much earlier.

Another seller commented:

Sometimes. Now, what we start to expect, this is in terms of turnover, the company consider-- but these because of I think this weeks are low that the turnover is made when the machine leaves the site. So, when the machine is shipped, we consider the machine like completely sold and not anymore in the inventory.

Similarly, a buyer mentioned:

More for outbound transportation in terms of revenue recognition. If revenue recognition can take place at say our plant or whether it can take place delivered can make a big difference.

4.2.8.3 Expedited freight

Another area related to logistics negotiations has emerged within the cases.

Buyer-seller negotiations and agreements generally address normal operations and, hence, normal logistics management operations (i.e. not expedited freight). However, events happen during operations that warrant the use of expedited freight which may not be specifically addressed in negotiations. A buyer astutely stated:

I'm just trying to think if there's a question of airfreight versus ocean, and what happens if-- so there may be situations where-- and a lot of times we will document this - what happens when we do have to expedite a product? Do we still follow the same terms and conditions, or given now we're expediting does that immediately go to ABB as picking up the full fee, or is it the difference of what they would have picked up versus the expedite fee? So, that may be something else that comes up and that is not something that's spelled in the agreement. Typically, the agreement is handling here's what's happening in the case of standard business.....Typically what I've seen is it's not a, okay, we'll pay over what you would have paid. It's usually, if you're expediting, you're picking up the whole tab.

The buyer further commented on how the relationship with the seller affects these expedited situations:

It is, because if you've got the relationship it's a, "Okay, I'll do this as a favor for you, and we'll just kind of--" what it usually comes down to is where you have the exceptions that kind of go outside of the agreement, is trying to get the supplier, even though we asked you to expedite, yeah, we're going to follow the agreement. So, then it may come up that he runs into a situation where, "Hey, we got a late delivery on a part. I'm going to be late." It may be a situation in that, "Hey, we can adjust our manufacturing time to accommodate where you don't have to expedite it." And that always happens better where you've got a good relationship. If it's more of an adversarial, it's going to be, "No. Put it in the air." So, it is the flexibility on both sides of the parties working together.

[4.2.8.4 FCA vs. EXW Incoterms®](#)

The final category related to logistics negotiations uncovered in the case studies was the frequency in which the Incoterms® rule, EXW, was incorrectly utilized in situations where the appropriate Incoterms® rule was FCA. EXW represents the least obligations that a seller may agree to, as the seller is not responsible for export formalities or loading the oncoming vehicle. Due to some countries' export obligations, even though EXW is negotiated, the seller may still be required to arrange export formalities, which could conflict with the EXW Incoterms® rule. Study 2 has found a

clear example of EXW misuse over the preferred FCA Incoterms® rule. A buyer provided an example that caused issues with a North America Free Trade Agreement (NAFTA) qualified shipment that should have been using an FCA Incoterms® rule but instead, the order indicated the EXW Incoterms® rule. With the EXW Incoterms® rule, the supplier did not need to clear goods for export and hence, the supplier felt no obligation to provide a NAFTA form, which would have saved the buyer's company from paying import duty. This resulted in \$8,500 duty per shipment on a product that shipped weekly.

4.2.9 What can improve the quality of buyer-seller dyads communication of logistics management decisions?

While the purpose of Study 2 is primarily to explore the first three research questions, it has also explored what actions or changes in logistics negotiations processes might improve the quality communication of logistics management decisions in buyer-seller dyads. Participants were directly asked their opinions on what could improve buyer-seller communication of logistics management decisions. The responses indicated that the three character Incoterms® acronyms should be used whenever appropriate in communicating logistics decisions; moreover, fully specifying operational definitions of the relevant Incoterms® rules would be helpful in clarifying the obligations and duties of the parties involved. A buyer explained:

Not relying solely sometimes on the Incoterm but making sure that the other party has the same understanding of the Incoterm as you do could have avoided some of these miscommunications. What else? Perhaps stating at the outset also when you request a quote what your expectations are. That could help as well.

The buyer continued:

I would use the international-- well, like the Incoterm guide and would basically address ownership, risk, and cost. I think those are the three main components, and make sure to explicitly say, "Okay, so my understanding is that your responsibility starts here and ends there. Your costs start here or end there, and your tasks start here and end there." So basically, I would chop it down based on the definition of the Incoterm to make sure that the other person understands clearly.

Another buyer commented:

I mean, the one thing is, if you have an annual contract you can put all details into that contract to make things clear from the beginning, and you have to stick to them. If you stick to them, there is no miscommunication. Then it's all quite clear. Because a lot of the things, especially concerning transport are implemented in the Incoterms®. So, if you're working through Incoterms, you don't have miscommunication because you know how it's working. You've got all the old issues covered. You can never exclude that something, like the example before, delivery addresses miscommunicated.

A third buyer commented that not only are Incoterms® used in the contract, but these Incoterms® are explained in detail, and then he reflected by stating:

I think the best way is to provide examples in the agreement, and that's one thing that I've changed in how I do it, so it's not just putting the words in the agreement, but then having an example so that it's clearly spelled out. And I think that's a great communication for the using locations as well. Because sometimes one person can read it and interpret it one way and another person can interpret it a different way, but an example will clearly define here's what the meaning is of the wording.

Other participants made broad statements about the effects of improving Incoterms® understanding on communicating logistics decisions. This indicates a

perception that the counterparty in the dyad does not fully understand Incoterms® rules. One buyer simply stated, “Just a better understanding of Incoterms®.” Another buyer mentioned, “Lesson learned. Ask for pictures of how you're going to package it. "Can you give me examples of what you shipped today, using that packaging?" A seller commented, “Training, education, I think they're important for both parties.” The seller continued by saying, “Everyone should understand the Incoterms®... This is our base for any discussion or negotiations. Otherwise will be confusion or misunderstanding, miscommunication.” Another seller stated:

I definitely think an education or training of not just the sellers, but also our buyers on who's responsible for what when specific-- I'll be honest, not a lot of people understand Incoterms® in this business anyways. And when I say that, I'm referring to the buyers themselves. They don't know, even within my own company. And perhaps even an explanation of who's responsible for what in the Incoterms section rather than relying on someone to know or go back and find out who's responsible for what when specific terms are used in the sale would help.

These statements support the comments of Yao-Hua and Thoen (2000) that the negotiation process between buyer and seller to determine the optimal Incoterms® is a potential barrier in international trade, “because it requires an expert knowledge about Incoterms that most small- and medium-sized companies cannot afford” (p. 391).

Extending this belief further, it appears that large corporations are also challenged in their Incoterms® usage. This finding supports Stapleton et al. (2014a), who suggested that shippers might use less-than-optimal Incoterms® strategies created through a lack of knowledge of vulnerabilities and sloppy implementations. Bergami (2012) expresses a

similar notion that “there are significant problems in getting traders to change from the established routines to more appropriate and correct use of Incoterms” (p. 37).

Of all participants, only one buyer and one seller stated that they have specified all logistics related tasks with their supplier or customer in negotiations. The buyer commented:

I will if I feel that the supplier is not fluent in the terminology, and then I'll explicitly spell it out if I'm asking clarifications to their proposal. I'll say, "Okay, so I understand that this and this and this is included. Is that your understanding of it?" And then we'll go from there.

The buyer continued:

In that sense, no. I don't know, this is just a personal preference, but rather than using their terminology, I'll try to get them to accept mine by saying, "Okay, could you consider rather than FOB, for instance, an FCA?" And then I would say, "This implicates this, this, this, and this." And then they'll either respond yes or no and sometimes they'll be reluctant, and then we'll have to try to figure out a way to word it so that they're in agreement with it. Generally, that's the starting point and we'll word it out and try to reach a common agreement.

The seller stated:

Okay, in terms of task, yes, in terms of task, we share with the customer. For instance, we say, "Okay. We make the packaging. We put the parts on the truck. We coordinate the truck or the air or ship. Still your site. You have to bring the crates from the truck. You have to unpack the crates. We then have to transfer the parts in the final room. We need to install." So this is something we do. So we, with the customer, we agree, step-by-step for the different tasks.

Two suggestions to improve the quality of buyer-seller dyad's communication of logistics management decisions has emerged in the case study interviews. First, there

exists a perception that the other dyadic partner does not fully understand Incoterms® rules. Second, participants suggested that listing out the full implications of these Incoterms® rules, the operational definitions, might reduce the likelihood of miscommunications occurring. Both suggestions led to hypotheses tested in Study 3.

4.2.10 Hypotheses for Study Three

Based upon existing literature, the case study results, and the researcher's knowledge, three testable hypotheses have been developed and discussed. The hypotheses are:

H1: Incoterms® training leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.

H2: Providing fully specified and explicit Incoterms® definitions leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.

H3: Providing fully specified and explicit Incoterms® definitions and Incoterms® training leads to a further decrease in communication errors evidenced by a further reduction in inappropriate Incoterms® application.

Hypothesis 1 was suggested by the Study 2 results. Many buyers and sellers offered that they felt a need for the opposing dyadic partner to receive Incoterms® training. For example, a buyer suggested that others could obtain, "*just a better understanding of Incoterms®.*" Support for Hypothesis 2 was also found in the results of Study 2. The responses in Study 2 indicate that the specified definitions of these

Incoterms® rules, which are the operational definitions, should be employed in communications concerning logistics decisions. Several cases suggested that including operational definitions is a best practice to provide clear dyadic buyer-seller communication of logistics management decisions. Hypothesis 3, “providing fully specified and explicit Incoterms® definitions and Incoterms® training leads to a further decrease in communication errors evidenced by a further reduction in inappropriate Incoterms® application” tested the effects of the combination of both Incoterms® training and providing operational definitions.

4.3 STUDY THREE: QUANTITATIVE RESEARCH FINDINGS – TESTING HYPOTHESES

4.3.1 Experimental Design

Study 3 experimentally tested the hypotheses developed in Study 2:

H1: Incoterms® training leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.

H2: Providing fully specified and explicit Incoterms® definitions leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.

H3: Providing fully specified and explicit Incoterms® definitions and Incoterms® training leads to a further decrease in communication errors evidenced by a further reduction in inappropriate Incoterms® application.

The experimental design involved the completion of a questionnaire regarding the use of Incoterms® in five hypothetical scenarios drawn from a purposeful sample of

buyers and sellers in the host company. The questionnaire is described in detail in Section 4.3.2. Questionnaire respondents were partitioned into four different treatment groups: (respondents who self-identified that they were trained in the use of Incoterms®: Yes or No) x (respondents who received a questionnaire with candidate responses with operational definitions fully specified and the Incoterms® acronym or respondents who received a questionnaire with candidate responses with only the Incoterms® acronym). The binary “trained” variable differentiates between those trained and those untrained. The “operational definitions fully specified with Incoterms® acronyms” or “only Incoterms® acronyms used” binary variable differentiates between those two circumstances. The experimental design permits fully testing the three hypotheses using the number of total correct responses to the questions as a dependent variable.

4.3.2 Questionnaire

The questionnaire complies with the requirements of informed consent (45 CFR 46.116) for research involving human subjects (U.S. Department of Health & Human Services 2010). The questionnaire was built via Qualtrics® software in a university account. Participants first read a brief introduction describing the purpose of the study and its importance, including the potential benefits to the individual, corporation, and others. Participants were then reminded that their participation was voluntary and were provided the conditions of their participation, including their right to refuse or withdraw at any time without penalty. Confidentiality protections for the individuals were

presented via the web-based questionnaire. Since the questionnaire was delivered via an internal email, participants were reminded that their responses would be anonymous and their individual results would not be shared with the corporation. No foreseeable risks or discomforts to the individual or compensation plan were expected. Lastly, contact information was provided for respondent's questions regarding the study, participants' rights, and in case of injury. Study 3 was assigned Project Number 885996-3 by the University of Missouri-St. Louis Institutional Review Board (IRB) and approved under exemption Category #2.

Following the introductory information, a series of four questions requested demographic information including sex, age range, job role, and years of experience. A fifth question asked participants if they had received Incoterms® training either internally by the company or externally. This question segregated participants into one of two trained treatments: *Yes* or *No*. Finally, if the respondent was trained in Incoterms®, a sixth question asked how recently that Incoterms® training had occurred.

Participants then read a set of directions and were asked to project themselves into a fictitious corporation, YZZ Inc., which was described as a large, international manufacturing corporation that supplies products to international industrial markets and purchases items globally for use in its production. The participants were asked to respond to each of five scenarios requiring them to identify the appropriate Incoterms® for use in the scenario based upon how they would react if the scenario was real. They were given five candidate Incoterms® rules to select the appropriate rule from in each

scenario. This method of questioning assumes that the participants imagine themselves in each scenario and provide answers as they would normally respond in real-life work situations (Fisher, 1993; Chandy et al., 2003; Antia et al., 2006; Thomas et al., 2010; Thomas, 2013), based upon their own behaviors and values (Mick et al., 1992; Thomas et al., 2010) and the totality of their entire career experience as opposed to just their current job and company (Thomas et al., 2010). The structured projective technique has been shown to successfully provide managerial attitude and corporate strategy insights (Fisher, 1993; Chandy et al., 2003; Antia et al., 2006; Thomas et al., 2010). This kind of research instrument has been shown to be reliable, valid, and trustworthy (Ramsey et al., 2006; Thomas et al., 2010).

After reading the directions, participants were randomly assigned to one of two questionnaire formats: 1) Scenarios with both operational definitions fully specified and Incoterms® acronyms used or 2) identical scenarios with only the Incoterms® acronyms supplied. The participants were provided their five scenarios in a randomized order. Each scenario required the participant to identify the correct Incoterm® to employ in the situation described from five candidate Incoterms® and had only one correct response. The five scenarios were developed using a combination of issues identified in the literature (e.g. Stapleton et al., 2014a) and the results from Studies 1 and 2. The full questionnaire for Study 3 can be found in Appendix VI. The correct responses are in bold text.

Scenario 1 explores one common error found in the literature: incorrect sea and inland waterway Incoterms® applications for containerized transport. This is identified

among the six common usage errors that Stapleton et al. (2014a) noted. The case studies also found this behavior. Some examples are provided here. For instance, a seller talked about listing out the details of FOB in the customer agreement:

I think no, even from the contract perspective. No more details left to explain what's a FOB, what's responsibilities that you need to take. Yeah, Incoterms® the suppliers also understand very clear.

Another seller referenced “FOB our dock” in his comments:

Usually it's on the front end. So, let's just say a brand new customer comes to me today, sends me a quote request. "Hey, I got your name from Joe Blow over at XYZ company. Okay, here's my project. Here's what it is, I submit pricing that says, "Hey, our pricing is FOB our dock." Which means, hey, you're figuring out how to get it from my dock to your dock at your expense.

Even one buyer complained about the incorrect FOB usage behavior:

So, U.S. mostly (sources) goods come from low-cost country like China, India, and other countries. So, sometimes when we use those Incoterms®, sometimes they tell me, "...we need the goods with FOB behind it." It means that they don't understand the definition of the Incoterms®.

CIF usage was also found. For example, one seller states:

In those cases, where somebody knows enough about Incoterms to say, "Well, you quoted us CIF, but this shuffling fee or containerization fee isn't exclusively described in your quotation."

In addition, Study 1 found that the corporation had experienced two examples of CIF complications. One example was provided for a shipment from the U.S. to Haiti that was sold to an agent via the Incoterms® of CIF Port au Prince. The second example was a situation where cargo fell off a drayage truck during terminal handling at the port of

delivery. It was clarified with the participants that production goods do indeed ship via an ocean container, as opposed to break-bulk.

Scenario 2 explores the correct usage of FOB applied as an Incoterms® rule as opposed to a UCC term of sale. Examples of inappropriate use of FOB have been identified in Studies 1 and 2. For example, within Study 2, one Canada-based buyer explicitly commented that Incoterms® rules are not to be confused with the Uniform Commercial Code (UCC) 1951 shipping and delivery terms. The Canada-based buyer stated:

But often local or U.S. suppliers are less familiar with these international Incoterms®, and you have to go into the specifications and say, "Okay, I'd like to change for Incoterm® such-and-such. Hence, you will be responsible for delivery up to this point," et cetera, et cetera. So, it really depends on the fluency of the supplier in terms of Incoterm® knowledge. Because in the U.S., you had this previous - I don't know what system they called it - but the FOB terminology and the less international terminology. So, sometimes you'll get requests for quotations that indicate FOB such-and-such, but we prefer to use the international standard of the Incoterms®, so not all suppliers are fluent in terms of those terminologies, so it will depend. If I see that the supplier is not getting what I'm asking, I'll have to spell it out for him. Otherwise, if they agree to my Incoterm®, FCA for instance, or DDP would be more to-- DAP would be more to my advantage. And if he says yes, then my comprehension is that he understands or at least looked it up to make sure that he understands what I'm asking for. Otherwise, I guess he's tight with the legal implications of it.

In addition, Study 1 also identified extensive incorrect use of FOB.

Scenario 3 explores correct specification of a geographic place with Incoterms®. Within the six common usage errors described by Stapleton et al. (2014a), Incoterms® rules were found to be used without clearly specifying a geographic place. This contrasts with the ICC recommendation that the place of port be specified as precisely as possible

(ICC, 2010). Study 2 has identified an example from a buyer related to an unclear “name place,” which proved problematic after the seller’s U.S. warehouse was closed. This cost the buyer substantial monies compared to the U.S. warehouse arrangement that was closer to the buyer’s location.

One seller indicated that specifying a clear, geographic place can also be problematic. The seller referenced customers in Turkey who indicated their factory as the named delivery place, whereas the buyer wanted delivery to a nearby warehouse. In addition, Study 1 also found that the corporate data sample frequently did not have a clear or precise place or port named when required. Additionally, a corporate location used “FCA St. Louis” Incoterms® on a purchase order to a supplier in St. Louis, France as opposed to St. Louis, Missouri, and this caused confusion, extra shipping time, and ultimately, increased buyer cost. Also within Study 1, and due to SAP R/3’s structure and character limitations, specifying the Incoterms® version (e.g. Incoterms® 2010) in the Incoterms(s) Field 2 is generally impossible when also specifying the named place or port.

Scenario 4 explores the need to specify the correct Incoterms® version (i.e. Incoterms® 2010, 2000). This is also identified by Stapleton et al. (2014a) in the six common usage errors as “not adopting to recent Incoterms® rule version, such as Incoterms® 2000/2010.” Study 1 has found that SAP R/3 does not by default specify the Incoterms® rule version nor does SAP R/3 allow enough characters to allow both a location and Incoterms® version. Study 1 has also found that three earlier Incoterms®

rules (DAF, DES, and DDU) are still being used. These Incoterms® 2000 rules have been replaced in the Incoterms® 2010 rules. While previous Incoterms® rule versions may be used, the version should be specified when doing so (ICC, 2010). In the Study 1 data, applicable versions were frequently not specified.

Lastly, Scenario 5 explores FCA being correctly applied relative to EXW. Support for exploring this scenario is observed in both Studies 1 and 2. EXW represents the minimal obligations that a seller may agree to, as the seller is not responsible for export formalities or loading the oncoming vehicle. Due to some countries' export obligations, even though EXW is used, the seller may still be required to arrange export formalities, conflicting with the EXW Incoterms® rule. Within Study 1, EXW is used for 33.16% of purchases. However, per the corporation (and its freight payment data), the buyer does expect the seller to load the oncoming vehicle or clear for export, if applicable. This requires an FCA Incoterms® rule. Conversely, sellers use EXW in 60.83% of sales. With this term, the buyer should arrange loading the means of transport and clear export, where applicable. However, due to liability and insurance risk, the corporation will not allow customers to bring their own forklift or crane onto corporate property to load the vehicle. Study 1 has also found that a U.S. local business unit Category Team Leader advised that their business unit "standardly used Ex-Works as terms, even though the supplier is loading for them." Study 2 has also found a clear example of EXW use over the preferred FCA Incoterms® rule. A buyer provided an example that caused issues with a NAFTA qualified shipment that should have used an FCA Incoterms® rule, but instead, the order indicated the EXW Incoterms® rule. With the EXW Incoterms® rule, the

supplier did not need to clear goods for export and hence, the supplier felt no obligation to provide a NAFTA form, which would have saved the buyer's company from paying import duty. This resulted in \$8,500 duty per shipment on a product that shipped weekly.

4.3.3 Questionnaire Pretest

Experienced buyers and sellers within the large, international company as well as academic subject matter experts reviewed early versions of the scenario based questionnaire and evaluated its face validity, readability, and realism. The experimental treatments were checked. Revisions were completed iteratively until the final questionnaire was judged suitable for release to the sample.

4.3.4 Questionnaire Sample

Within buyer-seller relationship research, the use of real-life participants has been very limited (Mestdagh & Buelens, 2003) where "only 5% of studies use practicing managers as participants," which they state further is "not exactly good news." This study has surveyed practicing manager participants within a large, international corporation operating in many industrial markets. Therefore, the invited participants were wholly within this single large, international corporation. The corporation agreed to provide wide-ranging access to managers for this research study. Buyers, who were primarily part of the corporation's supply chain management function, and sellers, who were part of the corporation's sales, marketing, and customer service functions, were both purposefully sampled. In addition, due to Study 2 identifying the role of Incoterms®

in revenue recognition, accounting and finance professionals were purposefully sampled. The anonymous large, international corporation had internally conducted Incoterms® training through their internal training university, group training sessions, and external trainings. Trained and untrained individuals were both purposefully sampled.

The anonymous large, international corporation provided an email distribution list of 2,397 practicing managers within the supply chain management, sales, marketing, customer service, accounting, and finance functions. These managers were emailed a link to the survey site and asked to respond within a two-week period. A reminder email was sent to the distribution list one week before the response deadline. In total, 912 practicing managers responded at least in part to the emailed questionnaire. However, only 823 responded to all the demographics questions, and only 617 fully completed the questionnaire. This made the response rate 25.74% ($617 \text{ full responses} \div 2,397 \text{ emailed}$). Table 4.13 presents the frequencies of responses to each demographic question. Only respondents who answered “Yes” to Incoterms® training were asked when that training had occurred. Figure 4.4 presents a map of the geographic locations of respondents to the questionnaire indicating that respondents were distributed across the globe. Selected summary statistics have been compiled from the demographic questions for respondent gender, age range, job role, work experience years, Incoterms® training and when Incoterms® training occurred are presented in Tables 4.14 through 4.19. The *Valid* rows indicate the frequencies of each possible response to

the questions and the *Missing* rows indicate the number of respondents from the 912 practicing managers who did not complete each demographic question.

Table 4.13 – Demographic Frequencies

		Gender	Age	Job Role	Work Experience	Incoterms Training	When Trained
N	Valid	842	839	828	828	823	660
	Missing	70	73	84	84	89	252

Figure 4.4 – Map of Respondents

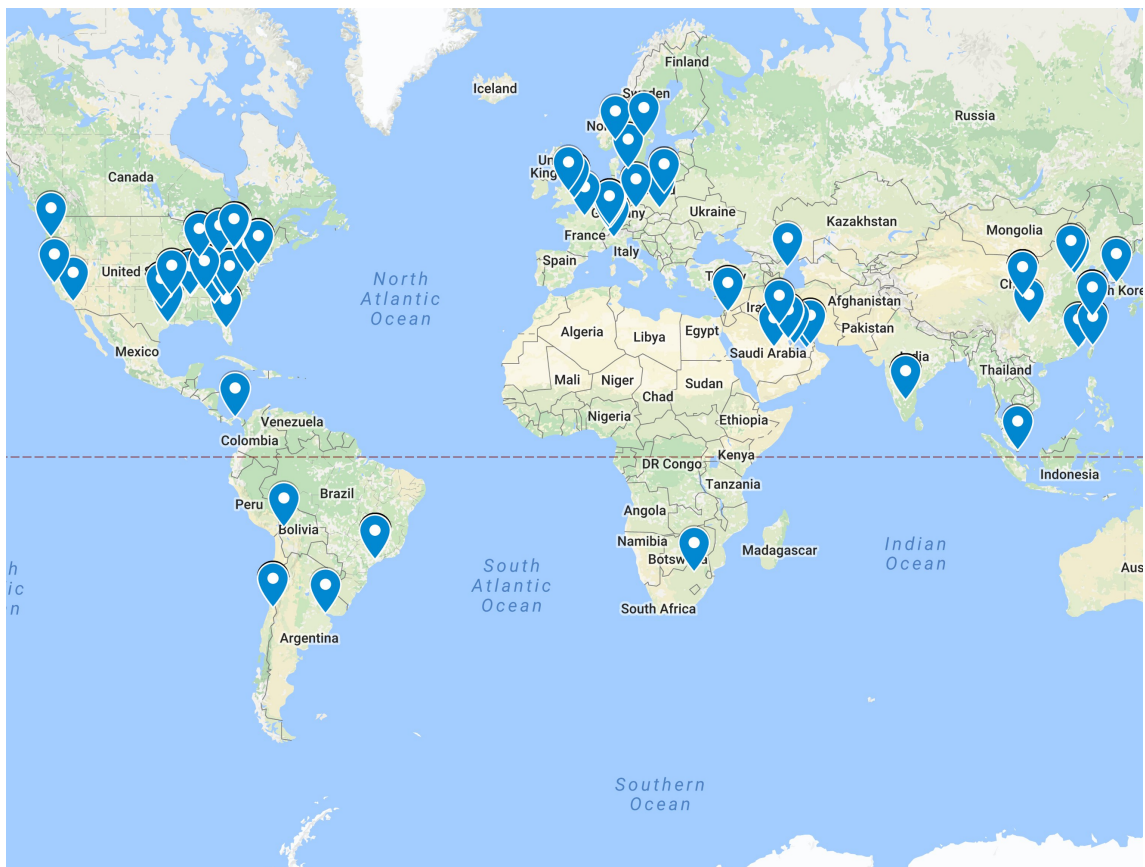


Table 4.14 – Gender Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	462	50.7	54.9	54.9
	Female	360	39.5	42.8	97.6
	Not Identified	20	2.2	2.4	100.0
	Total	842	92.3	100.0	
Missing	System	70	7.7		
Total		912	100.0		

Table 4.15 – Age Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 to 24	16	1.8	1.9	1.9
	25 to 34	257	28.2	30.6	32.5
	35 to 44	247	27.1	29.4	62.0
	45 to 54	196	21.5	23.4	85.3
	55 to 64	94	10.3	11.2	96.5
	65 or older	10	1.1	1.2	97.7
	Not identified	19	2.1	2.3	100.0
	Total	839	92.0	100.0	
Missing	System	73	8.0		
Total		912	100.0		

Table 4.16 – Job Role Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sales or Marketing	155	17.0	18.7	18.7
	Supply Chain	562	61.6	67.9	86.6
	Finance or Accounting	111	12.2	13.4	100.0
	Total	828	90.8	100.0	
Missing	System	84	9.2		
Total		912	100.0		

Table 4.17 – Work Experience Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 to 5	117	12.8	14.1	14.1
	6 to 10	176	19.3	21.3	35.4
	11 to 15	147	16.1	17.8	53.1
	16 to 20	112	12.3	13.5	66.7
	21 to 25	92	10.1	11.1	77.8
	26 to 30	82	9.0	9.9	87.7
	30 or more	95	10.4	11.5	99.2
	Not identified	7	.8	.8	100.0
	Total	828	90.8	100.0	
Missing	System	84	9.2		
Total		912	100.0		

Table 4.18 – Incoterms® Training Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	663	72.7	80.6	80.6
	No	160	17.5	19.4	100.0
	Total	823	90.2	100.0	
Missing	System	89	9.8		
Total		912	100.0		

Table 4.19 – When Incoterms® Trained Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 to 6 months	114	12.5	17.3	17.3
	7 months to 1 year	154	16.9	23.3	40.6
	1 to 1.5 years	112	12.3	17.0	57.6
	1.5 to 2 years	77	8.4	11.7	69.2
	2 years or more	203	22.3	30.8	100.0
	Total	660	72.4	100.0	
Missing	System	252	27.6		
Total		912	100.0		

4.3.5 Analysis

4.3.5.1 *Nonresponse Bias*

The Qualtrics[®] questionnaire output was imported into IBM's SPSS version 24 for MAC for all statistical analyses. As the respondents to the questionnaire were self-determined, the possibility of non-response bias in the results (the respondents are not representative of the underlying population) was analyzed via two methods: 1) comparing the demographic characteristics of respondents before and after the reminder email was sent; and 2) comparing the demographics of respondents who fully completed the survey to respondents who started the survey but did not fully complete it. Both analyses are described in detail in the following two sections. For a useful discussion of non-response bias and its effects see Groves and Peytcheva (2008).

4.3.5.2 *Before and After Reminder Demographic Comparisons*

The first method used to analyze the possibility of non-response bias was to compare the demographic data of respondents who responded quickly to the initial email to the demographic data of those who responded after the reminder email was sent. Significant differences in the demographic data of early versus late responders could be indicative of a systematic difference in the propensity of survey recipients to participate in the survey.

The respondent's gender identification before and after the email reminder was sent is cross tabulated in Table 4.20. A reminder *No* indicates that the response was recorded *prior* to the reminder email, and a *Yes* indicates the response was recorded

after the reminder email. As shown by the chi-square tests in Table 4.20, there is no significant difference at the 0.05 level between male, female, and not identified respondents before and after the reminder email.

Table 4.20 – Cross Tabulation of Gender and Case Reminder

			Gender			Total
			Male	Female	Not Identified	
Reminder	No	Count	266	195	12	473
		Expected Count	259.5	202.2	11.2	473.0
	Yes	Count	196	165	8	369
		Expected Count	202.5	157.8	8.8	369.0
Total	Count	462	360	20	842	
	Expected Count	462.0	360.0	20.0	842.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.077 ^a	2	.584
Likelihood Ratio	1.077	2	.584
Linear-by-Linear Association	.528	1	.467
N of Valid Cases	842		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.76.

The respondent's age responses before and after the reminder email was sent are cross tabulated in Table 4.21. The chi-square tests in Table 4.21 also indicate that there is no significant difference at the 0.05 level between age categories of respondents before and after the reminder email.

Table 4.21 – Cross Tabulation of Age and Reminder

		Crosstab							Total	
		Age								
		18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 or older	Not identified		
Reminder	No	Count	8	147	142	107	55	2	9	470
		Expected Count	9.0	144.0	138.4	109.8	52.7	5.6	10.6	470.0
	Yes	Count	8	110	105	89	39	8	10	369
		Expected Count	7.0	113.0	108.6	86.2	41.3	4.4	8.4	369.0
Total		Count	16	257	247	196	94	10	19	839
		Expected Count	16.0	257.0	247.0	196.0	94.0	10.0	19.0	839.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.839 ^a	6	.336
Likelihood Ratio	7.020	6	.319
Linear-by-Linear Association	.902	1	.342
N of Valid Cases	839		

a. 1 cells (7.1%) have expected count less than 5. The minimum expected count is 4.40.

The respondent’s job role responses before and after the reminder email was sent are cross tabulated in Table 4.22. Table 4.22 shows the chi-square tests for differences in respondent’s job role before and after the reminder email indicate that there is a significant difference at the 0.05 level between the job roles of respondents who responded before and after the reminder email. Examining Table 4.22 reveals significant differences in the expected and actual number of Finance or Accounting job role respondents before and after the reminder email. According to officials of the anonymous large, international corporation, this difference in response propensity over time of this job function is explainable. The workload of the Finance or Accounting job

role is cyclical with the greatest workloads occurring at the very end and beginning of each month. The initial questionnaire was sent out during a period when these roles were busier, whereas the reminder email was sent towards the middle of the month, when Finance or Accounting was less busy. Sales, Marketing, and Supply Chain work is more evenly loaded with a slight peak at month or quarter end to push shipment of orders.

Table 4.22 – Cross Tabulation of Job Role and Reminder

		Crosstab			Total	
			Sales or Marketing	Job Role Supply Chain	Finance or Accounting	
Reminder	No	Count	96	324	46	466
		Expected Count	87.2	316.3	62.5	466.0
	Yes	Count	59	238	65	362
		Expected Count	67.8	245.7	48.5	362.0
Total	Count	155	562	111	828	
	Expected Count	155.0	562.0	111.0	828.0	

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.377 ^a	2	.002
Likelihood Ratio	12.301	2	.002
Linear-by-Linear Association	9.805	1	.002
N of Valid Cases	828		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 48.53

In Table 4.23, the range of respondent’s years of work experience responses is cross tabulated before and after the reminder email was sent. As shown by the chi-

square tests in Table 4.23, there is no significant difference at the 0.05 level between the various work experience ranges for respondents before and after the reminder email.

Table 4.23 – Cross Tabulation of Work Experience Reminder

Crosstab

		Work Experience								Total	
		1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	30 or more	Not identified		
Reminder	No	Count	54	109	89	64	44	49	54	3	466
		Expected Count	65.8	99.1	82.7	63.0	51.8	46.1	53.5	3.9	466.0
	Yes	Count	63	67	58	48	48	33	41	4	362
		Expected Count	51.2	76.9	64.3	49.0	40.2	35.9	41.5	3.1	362.0
Total		Count	117	176	147	112	92	82	95	7	828
		Expected Count	117.0	176.0	147.0	112.0	92.0	82.0	95.0	7.0	828.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.880 ^a	7	.105
Likelihood Ratio	11.840	7	.106
Linear-by-Linear Association	.034	1	.854
N of Valid Cases	828		

a. 2 cells (12.5%) have expected count less than 5. The minimum expected count is 3.06.

In Table 4.24, the respondents receiving Incoterms® training is cross tabulated

with before and after sending the reminder email. The chi-square test in Table 4.24 indicates that there is no significant difference at the 0.05 level of the respondents before and after the reminder email with respect to those receiving Incoterms® training.

Table 4.24 – Cross Tabulation of Incoterms Training and Reminder

Crosstab

			Incoterms Training		Total
			Yes	No	
Reminder	No	Count	375	89	464
		Expected Count	373.8	90.2	464.0
	Yes	Count	288	71	359
		Expected Count	289.2	69.8	359.0
Total	Count	663	160	823	
	Expected Count	663.0	160.0	823.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.046 ^a	1	.830		
Continuity Correction ^b	.016	1	.900		
Likelihood Ratio	.046	1	.830		
Fisher's Exact Test				.859	.449
Linear-by-Linear Association	.046	1	.830		
N of Valid Cases	823				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 69.79.

b. Computed only for a 2x2 table

Based upon the cross tabulations and chi-square tests for differences in the demographic characteristics of early and late responders, it does not appear that there is significant non-response bias with respect to these tests. The differences in Finance or

Accounting job role propensity to respond before and after the reminder email are readily understood.

4.3.5.3 Full questionnaire responses versus not fully completed demographic comparisons

The second method used to analyze the possibility of non-response bias was to compare the demographic information of respondents who fully responded to the survey answering all questions with those who did not fully respond but rather provided only incomplete responses to the full set of questions. This method explores the possibility that respondents fully completing the entire questionnaire might differ from respondents who did not. Table 4.25 shows the number of *valid* and *missing* responses compared to the total 912 (n) responses on each of the five demographic questions.

Table 4.25 – Case Processing Finished

	Case Processing Summary					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Finished * Gender	842	92.3%	70	7.7%	912	100.0%
Finished * Age	839	92.0%	73	8.0%	912	100.0%
Finished * Job Role	828	90.8%	84	9.2%	912	100.0%
Finished * Work Experience	828	90.8%	84	9.2%	912	100.0%
Finished * Incoterms Training	823	90.2%	89	9.8%	912	100.0%

The respondents' gender and whether the respondent fully finished the questionnaire are cross tabulated in Table 4.26. A *Finished No* indicates that the respondent ended the questionnaire at some point prior to responding to their very last

scenario after responding to the gender question, and a *Finished Yes* indicates that the respondent fully completed the questionnaire. As shown by the chi-square tests in Table 4.26, there is no significant difference at the 0.05 level between male, female, and not identified respondents who did or did not fully complete the questionnaire.

Table 4.26 – Cross Tabulation of Gender with Finished the Questionnaire

		Crosstab				
		Gender			Total	
		Male	Female	Not Identified		
Finished	No	Count	125	93	7	225
		Expected Count	123.5	96.2	5.3	225.0
	Yes	Count	337	267	13	617
		Expected Count	338.5	263.8	14.7	617.0
Total	Count	462	360	20	842	
	Expected Count	462.0	360.0	20.0	842.0	

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.871 ^a	2	.647
Likelihood Ratio	.834	2	.659
Linear-by-Linear Association	.000	1	.987
N of Valid Cases	842		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.34.

The respondent's age and whether the respondent fully finished the questionnaire are cross tabulated in Table 4.27. The chi-square tests in Table 4.27 indicate that there is no significant difference at the 0.05 level between age categories of respondents who did or did not fully finish the questionnaire after responding to the age question.

Table 4.27 – Cross Tabulation of Age with Finished the Questionnaire

Crosstab

			Age						Total	
			18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 or older	Not identified	
Finished	No	Count	9	65	63	46	27	4	8	222
		Expected Count	4.2	68.0	65.4	51.9	24.9	2.6	5.0	222.0
	Yes	Count	7	192	184	150	67	6	11	617
		Expected Count	11.8	189.0	181.6	144.1	69.1	7.4	14.0	617.0
Total		Count	16	257	247	196	94	10	19	839
		Expected Count	16.0	257.0	247.0	196.0	94.0	10.0	19.0	839.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.073 ^a	6	.060
Likelihood Ratio	10.804	6	.095
Linear-by-Linear Association	.253	1	.615
N of Valid Cases	839		

a. 2 cells (14.3%) have expected count less than 5. The minimum expected count is 2.65

The respondent's job role and whether the respondent fully finished the questionnaire are cross tabulated in Table 4.28. The chi-square tests in Table 4.28 indicate that at the 0.05 level, there is no significant difference across job categories for respondents who did or did not fully finish the questionnaire.

Table 4.28 – Cross Tabulation of Job Role with Finished the Questionnaire

Crosstab

			Job Role			Total
			Sales or Marketing	Supply Chain	Finance or Accounting	
Finished	No	Count	41	140	30	211
		Expected Count	39.5	143.2	28.3	211.0
Finished	Yes	Count	114	422	81	617
		Expected Count	115.5	418.8	82.7	617.0
Total		Count	155	562	111	828
		Expected Count	155.0	562.0	111.0	828.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Chi-Square	.313 ^a	2	.855
Likelihood Ratio	.311	2	.856
Linear-by-Linear Association	.001	1	.976
N of Valid Cases	828		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.29.

In Table 4.29, the respondents' years of work experience are cross tabulated with whether the respondent fully finished the questionnaire. As shown by the chi-square tests in Table 4.29, there is no significant difference at the 0.05 level between the various work experience ranges for respondents and whether the respondent fully

finished the questionnaire.

Table 4.29 – Cross Tabulation of Work Experience with Finished the Questionnaire

		Crosstab									Total
		Work Experience									
		1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	30 or more	Not identified		
Finished No	Count	35	45	41	23	19	15	29	4	211	
	Expected Count	29.8	44.9	37.5	28.5	23.4	20.9	24.2	1.8	211.0	
Yes	Count	82	131	106	89	73	67	66	3	617	
	Expected Count	87.2	131.1	109.5	83.5	68.6	61.1	70.8	5.2	617.0	
Total	Count	117	176	147	112	92	82	95	7	828	
	Expected Count	117.0	176.0	147.0	112.0	92.0	82.0	95.0	7.0	828.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.434 ^a	7	.121
Likelihood Ratio	11.068	7	.136
Linear-by-Linear Association	.253	1	.615
N of Valid Cases	828		

- a. 1 cells (6.3%) have expected count less than 5. The minimum expected count is 1.78.

In Table 4.30, whether respondents received Incoterms® training is cross tabulated with whether the respondent fully completed the questionnaire. The chi-square tests presented in Table 4.30 do indicate that there is a significant difference between respondents who received Incoterms® training or not and their propensities to fully finish the questionnaire with Incoterms® trained respondents more likely to fully

complete the questionnaire. Respondents who are presented with topics that they are unfamiliar with (not Incoterms® trained respondents) may be more likely to abandon the questionnaire in progress. Alternatively, if respondents believe that they are more knowledgeable about a subject (Incoterms® trained respondents), they may be more likely to fully respond to all scenarios. Therefore, it appears that the sample of respondents who fully responded to all five scenario questions may over represent Incoterms® trained respondents relative to non-trained respondents and the results of the analysis regarding the effects of Incoterms® training should be viewed considering this possible over representation.

Table 4.30 – Cross Tabulation of Incoterms Trained with Respondents Who Finished the Questionnaire

Crosstab

		Incoterms Training		Total	
		Yes	No		
Finished	No	Count	145	61	206
		Expected Count	166.0	40.0	206.0
	Yes	Count	518	99	617
		Expected Count	497.0	120.0	617.0
Total	Count	663	160	823	
	Expected Count	663.0	160.0	823.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	18.148 ^a	1	.000		
Continuity Correction ^b	17.293	1	.000		
Likelihood Ratio	16.961	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	18.126	1	.000		
N of Valid Cases	823				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 40.05.

b. Computed only for a 2x2 table

Based upon the cross tabulations and chi-square tests for full and partial responses to the questionnaire, it does not appear there is a non-response bias except for the possible over representation of Incoterms® trained respondents with respect to fully completing all questions in the questionnaire.

4.3.5.4 Questionnaire Response Analysis – By Scenario

In this section, the respondent’s answers to each of the five-scenario’s question are analyzed. Table 4.31 provides selected statistics on the total number of the five scenarios correctly responded to. Table 4.31 indicates that 708 respondents answered at least one of the five scenario-based questions with an average of 1.58 questions answered correctly by the respondents.

Table 4.31 – Number of Scenario Questions Responded to with Correct Answer

	N	Minimum Correct	Maximum Correct	Mean Correct	Std. Deviation Correct
Responded to a Question	708	0	5	1.58	1.123

Table 4.32 presents the number of responses to each scenario based question.

Table 4.32 – Valid Responses by Scenario Question

	Scenario1 Question	Scenario2 Question	Scenario3 Question	Scenario4 Question	Scenario5 Question
Number	648	652	660	642	655

Table 4.33 presents more detailed information on the frequency of the total number of correct responses supplied by the 708 respondents who answered at least one scenario based question. Only 0.3% correctly responded to all five scenario questions, 5.2% correctly responded to four of the questions, and 14.5% correctly responded to three questions. This means that 79.9% of all respondents correctly answered two or fewer scenario questions. This very high percentage of respondents answering two or fewer scenario questions correctly indicates a significant deficiency of Incoterms® knowledge and appropriate use among the sample respondents.

Table 4.33 – Frequency of Total Number of Correct Responses

		Frequency	Percent	Cumulative Percent
Total	0	134	18.9	18.9
Correct Responses	1	211	29.8	48.7
	2	221	31.2	79.9
	3	103	14.5	94.5
	4	37	5.2	99.7
	5	2	.3	100.0
	Total	708	100.0	100.0

To explore the effects of Incoterms® training, providing operational definitions when using Incoterms®, and the presence of both variables on reducing inappropriate Incoterms® application on the individual scenarios examined by the questionnaire, five binary logistic regression models are formulated and estimated. Each logistic regression model employs as its dependent variable a binary categorization of whether the respondent correctly answered that scenario’s question (*Yes* or *No*) from the five

candidate responses. The independent variables that affect the probability of a respondent correctly answering the question are three categorical variables associated with each respondent: (1) is the respondent *Incoterms*[®] *trained* or not; (2) are the *Operational definitions* associated with the *Incoterms*[®] *provided* in the scenario responses provided to the respondent or not; and (3) is there an interaction variable that indicates that the respondent is *Both Incoterms*[®] *trained* and the *operational definitions* are provided to the respondent when answering each question. This analytical approach is appropriate when modeling question responses as binary categorical variables (Roberts et. al, 1987).

The binary logistic regression model can be expressed as:

$$p = \frac{e^{a+b_1x_1+b_2x_2+b_3x_3+ \dots}}{1 + e^{a+b_1x_1+b_2x_2+b_3x_3+ \dots}}$$

Where:

p = the probability of correct response to the question,

e = the base of the natural logarithms (approximately 2.72),

a = a constant term,

b_1, b_2, b_3 = the estimated coefficients of the predictor variables,

$x_1 = 1$ if *Incoterms*[®] *trained*, 0 otherwise,

$x_2 = 1$ if *Operational definitions provided*, 0 otherwise, and

$x_3 = 1$ if *Both Incoterms*[®] *trained* and *operational definitions provided*, 0

otherwise.

Some important consequences and assumptions of a binary logistic regression model are:

- It does not assume a linear relationship between the dependent and independent variables;
- The dependent variable is one of two mutually exclusive and exhaustive categories; and
- Relatively larger samples are needed compared to a linear regression because using maximum likelihood estimation for coefficients requires large samples.

The following five sections explore the results of estimating a logistic regression for survey respondents to correctly answer each of the five questions associated with the experimental scenarios.

4.3.5.5 Scenario One Descriptive Statistics

In this section, descriptive statistics and the binary logistics regression results for Scenario 1 are reviewed. Scenario 1 examines respondents' knowledge regarding a common error identified in the literature: incorrect application of sea and inland waterway Incoterms®. The descriptive statistics in Table 4.34 show the number and percentages of correct and incorrect responses, where *No* indicates an incorrect response and *Yes* indicates a correct response. Only 23.9% of respondents correctly answered the question associated with Scenario 1.

Table 4.34 – Response to Scenario One Question

		Frequency	Percent
Correct	No	493	76.1
	Yes	155	23.9
	Total	648	100.0

As shown by both the Cox and Snell R-Square and Nagelkerke R-Square statistics displayed in Table 4.35, there is a very weak relationship between the predictor variables (*Incoterms® trained, Operational definitions provided, Both*) and the dependent variable, correctly answering Scenario 1.

Table 4.35 – Model Summary

Model	Cox & Snell R Square	Nagelkerke R Square
All Variables	.020	.030

As described in Table 4.36 none of the three predictors (*Incoterms® trained, Operational definitions provided, Both*) appear to significantly affect (at the 0.05 significance level) whether respondents will or will not answer the question associated with Scenario 1 correctly. However, it does appear that *Incoterms® training, providing operational definitions, and the interactive effect of both* have positive effects on answering the scenario correctly. Providing operational definitions has the largest impact.

Table 4.36 – Estimation Results of Answering Question 1 Correctly

	Variables in the Equation					
	B	S.E.	Wald	df	Sig.	Exp(B)
Incoterms Trained	.011	.381	.001	1	.978	1.011
Operational Definitions Provided	.506	.469	1.162	1	.281	1.658
Both	.186	.512	.132	1	.717	1.204
Constant	-1.504	.350	18.509	1	.000	.222

4.3.5.6 Scenario Two Descriptive Statistics

In this section, descriptive statistics and the binary logistics regression results for Scenario 2 are reviewed. Scenario 2 addresses the usage of FOB applied as an Incoterms® rule as opposed to a UCC term of sale. The descriptive statistics in Table 4.37 show the number and percentages of correct and incorrect responses, where *No* indicates an incorrect response and *Yes* indicates a correct response. Only 37.3% of respondents correctly answered the question associated with Scenario 2.

Table 4.37 – Response to Scenario 2 Question

		<i>Frequency</i>	<i>Percent</i>
Correct	No	409	62.7
	Yes	243	37.3
	Total	652	100.0

As shown by both the Cox and Snell R-Square and Nagelkerke R-Square statistics displayed in Table 4.38, there is a very weak relationship between the predictor variables (*Incoterms® trained, Operational definitions provided, Both*) and the dependent variable, correctly answering Scenario 2.

Table 4.38– Model Summary

Model	Cox & Snell R Square	Nagelkerke R Square
All Variables	.017	.023

As described in Table 4.39, none of the three predictors (*Incoterms® trained*, *Operational definitions provided*, *Both*) appear significantly affects (at the 0.05 significance level) whether respondents will or will not answer the question associated with Scenario 2 correctly. However, it does appear that Incoterms® training, providing operational definitions, and the interactive effect of both have positive effects on answering the scenario correctly. Providing operational definitions has the largest impact.

Table 4.39 – Estimation Results of Answering Question 2 Correctly

	Variables in the Equation					
	B	S.E.	Wald	df	Sig.	Exp(B)
Incoterms Trained	.099	.316	.099	1	.753	1.104
Operational Definitions Provided	.334	.410	.667	1	.414	1.397
Both	.218	.447	.239	1	.625	1.244
Constant	-.856	.290	8.735	1	.003	.425

4.3.5.7 Scenario Three Descriptive Statistics

Scenario 3 examines respondents’ knowledge regarding specifying a geographic place when using Incoterms®. One of the six common errors of Incoterms® rule usage identified by Stapleton et al. (2014a) was not clearly specifying a geographic place. The descriptive statistics in Table 4.40 show the number and percentages of correct and

incorrect responses, where *No* indicates an incorrect response and *Yes* indicates a correct response. Only 22.7% of respondents correctly answered the question associated with Scenario 3.

Table 4.40 - Response to Scenario 3 Question

		Frequency	Percent
Correct	No	510	77.3
	Yes	150	22.7
	Total	660	100.0

As shown by both the Cox and Snell R-Square and Nagelkerke R-Square statistics displayed in Table 4.41, there is a very weak relationship between the predictor variables (*Incoterms® trained*, *Operational definitions provided*, *Both*) and the dependent variable, correctly answering Scenario 3.

Table 4.41 – Model Summary

Model	Cox & Snell R Square	Nagelkerke R Square
All Variables	.034	.052

As described in Table 4.42, the predictors (*Incoterms® trained* and *Both*) do not appear to have significant effects (at the 0.05 significance level) on whether respondents will or will not answer the question associated with Scenario 3 correctly. However, it does appear that providing operational definitions significantly increases the likelihood that a respondent correctly answers the question. Further, providing both, training and operational definitions, does appear to further increase the likelihood that a respondent correctly answers the question although this effect is not significant.

Table 4.42 – Estimation Results of Answering Question 3 Correctly

	Variables in the Equation					
	B	S.E.	Wald	df	Sig.	Exp(B)
Incoterms Trained	.281	.435	.419	1	.517	1.325
Operational Definitions Provided	1.099	.508	4.669	1	.031	3.000
Both	-.237	.550	.186	1	.666	.789
Constant	-1.946	.404	23.193	1	.000	.143

a. Variable(s) entered on step 1: Incoterms Training, Operational Definitions, Op Def & Trained.

4.3.5.8 Scenario Four Descriptive Statistics

Scenario 4 explores respondents' knowledge regarding appropriate application of the version of Incoterms® (i.e. Incoterms® 2010, Incoterms® 2000) being specified. The descriptive statistics in Table 4.43 show the number and percentages of correct and incorrect responses, where *No* indicates an incorrect response and *Yes* indicates a correct response. Only 27.3% of respondents correctly answered the question associated with Scenario 4.

Table 4.43 - Response to Scenario 4 Question

		Frequency	Percent
Correct	No	393	43.1
	Yes	249	27.3
	Total	642	70.4

As shown by both the Cox and Snell R-Square and Nagelkerke R-Square statistics displayed in Table 4.44, there is a very weak relationship between the predictor variables (*Incoterms® trained, Operational definitions provided, Both*) and the

dependent variable, correctly answering Scenario 4.

Table 4.44 - Model Summary

Model	Cox & Snell R Square	Nagelkerke R Square
All Variables	.044	.059

As described in Table 4.45, the predictors (*Incoterms® trained, Operational, Both*) appear to have insignificant effects (at the 0.05 significance level) on whether respondents will or will not answer the question associated with Scenario 4 correctly. However, it does appear that providing operational definitions in this scenario decreases the likelihood that a respondent will correctly answer the question. This may be the result of respondents' lack of awareness of differences between Incoterms® version rules, such as DDU being replaced in Incoterms® 2010 rules.

Table 4.45 – Estimation Results of Answering Question 4 Correctly

	Variables in the Equation					
	B	S.E.	Wald	df	Sig.	Exp(B)
Incoterms Trained	.391	.300	1.702	1	.192	1.479
Operational Definitions Provided	-.773	.430	3.236	1	.072	.462
Op Def Provided & Trained	-.083	.467	.031	1	.860	.921
Constant	-.405	.275	2.170	1	.141	.667

a. Variable(s) entered on step 1: Incoterms Training, Operational Definitions, Op Def & Trained.

4.3.5.9 Scenario Five Descriptive Statistics

Scenario 5 examines the application of Incoterms® rule FCA being correctly

applied relative to EXW. The descriptive statistics in Table 4.46 show the number and percentages of correct and incorrect responses, where *No* indicates an incorrect response and *Yes* indicates a correct response. Of respondents, 49.3% correctly answered the question associated with Scenario 5.

Table 4.46 - Response to Scenario 5 Question

		Frequency	Percent
Correct	No	332	50.7
	Yes	323	49.3
	Total	655	100.0

As shown by both the Cox and Snell R-Square and Nagelkerke R-Square statistics displayed in Table 4.47, there is a very weak relationship between the predictor variables (*Incoterms® trained, Operational definitions provided, Both*) and the dependent variable, correctly answering Scenario 5.

Table 4.47 –Model Summary

Model	Cox & Snell R Square	Nagelkerke R Square
All Variables	.032	.042

As described in Table 4.48, neither of the predictors (*Operational definitions provided and Both*) appear to have significant effects (at the 0.05 significance level) on whether respondents will or will not answer the question associated with Scenario 5 correctly. However, it does appear that providing *Incoterms®* training significantly increases the likelihood that a respondent will correctly answer the question.

Table 4.48 – Estimation Results of Answering Question 5 Correctly

	Variables in the Equation					
	B	S.E.	Wald	df	Sig.	Exp(B)
Incoterms Trained	1.349	.341	15.668	1	.000	3.852
Operational Definitions Provided	.623	.427	2.131	1	.144	1.865
Both	-.855	.460	3.459	1	.063	.425
Constant	-1.124	.319	12.394	1	.000	.325

a. Variable(s) entered on step 1: Incoterms Training, Operational Definitions, Op Def & Trained.

To summarize the overall findings of the question by question binary logistics regression models, each respondent’s ability to correctly answer the questions associated with each scenario ranged from 22.7% to 49.3% of respondents, and this is shown in Table 4.49. Across all scenarios, the models generally show a weak relationship between the predictor variables (*Incoterms® trained, Operational definitions provided, Both*) and the dependent variable, correctly answering the scenario question. The models generally do not explain much of the variations observed in responses or the probability to predict correct responses.

Table 4.49 – Response to All Scenario Questions

		Frequency	Percent
Q1 Correct	No	493	76.1
	Yes	155	23.9
Q2 Correct	No	409	62.7
	Yes	243	37.3
Q3 Correct	No	510	77.3
	Yes	150	22.7
Q4 Correct	No	393	43.1
	Yes	249	27.3
Q5 Correct	No	332	50.7
	Yes	323	49.3

4.3.5.10 Questionnaire Response Analysis – Overall

To explore the effects of Incoterms® training, providing operational definitions when using Incoterms®, and the possible interaction of both on reducing inappropriate Incoterms® application across all the scenarios examined by the questionnaire, an ordered logistic regression model is formulated and estimated. The ordinal logistic regression model employs as its dependent variable the correct number of responses to all five scenario questions of each respondent (0, 1, 2, 3, 4, or 5). This categorical variable has a natural rank order making an ordinal logistic regression model a good candidate to evaluate the effects of Incoterms® training and providing operational definitions in reducing inappropriate use of Incoterms®. The independent variables that affect the probability of a respondent correctly choosing across categorical variables are three categorical variables associated with each respondent: (1) is the respondent *Incoterms® trained* or not; (2) are the *Operational definitions* associated with the Incoterms® *provided* in the candidate scenario responses or not; and (3) is there an

interaction variable indicating that the respondent is *Both Incoterms*[®] trained and the operational definitions are provided to the respondent when answering each question. This analytical approach is appropriate whenever the dependent variable in a regression is categorical and used to explain choices involving multiple categorical variables in natural rank order (Becker & Kennedy, 1992; Greene, 2000; Burns et. al, 2013).

The ordinal logistic regression may be expressed as:

$$y^* = \beta_0 + \beta_1 * x1 + \beta_2 * x2 + \beta_3 * x3 + \epsilon$$

where:

y^* represents latent (unobserved) *Incoterms*[®] rules knowledge and

Y is the number of questions answered correctly with;

$$Y = 0 \text{ if } y^* \leq \delta_0,$$

$$Y = 1 \text{ if } \delta_0 < y^* \leq \delta_1,$$

$$Y = 2 \text{ if } \delta_1 < y^* \leq \delta_2,$$

$$Y = 3 \text{ if } \delta_2 < y^* \leq \delta_3,$$

$$Y = 4 \text{ if } \delta_3 < y^* \leq \delta_4,$$

$$Y = 5 \text{ if } y^* > \delta_4,$$

Where the δ coefficients are termed threshold parameters,

$\beta_0, \beta_1, \beta_2,$ and β_3 are termed location parameters,

$\epsilon \sim \text{logit}(0, \sigma^2)$, and

$x1 = 1$ if *Incoterms*[®] trained, 0 otherwise,

$x2 = 1$ if *Operational definitions provided*, 0 otherwise, and

$x3 = 1$ if *Both Incoterms*[®] trained and *Operational definitions*, 0 otherwise.

Some important assumptions and consequences of an ordinal logistic regression model are:

- The dependent variable is ordinal;
- Independent variables are continuous, ordinal, or categorical;
- There is no significant multicollinearity; and
- The assumption of proportional odds is appropriate.
- To identify the model for maximum likelihood estimation it is assumed that $\delta_0=0$ and $\sigma^2=1$.

Summary statistics from the maximum likelihood estimation of the ordered logistic regression model in IBM SPSS 24 are shown in Table 4.50. The *Operational definitions provided* treatment was presented to 48.6% of valid respondents. *Incoterms® training* was present for 82.8% of valid respondents. *Both operational definitions and Incoterms® training* was present for 40.1% of valid respondents. There were 708 respondents used in the estimation of the model.

Table 4.50 – Case Processing Summary

		N	Marginal Percentage
Total Correct Questions	0	134	18.9%
	1	211	29.8%
	2	221	31.2%
	3	103	14.5%
	4	37	5.2%
	5	2	0.3%
Operational Definitions	No	364	51.4%
	Yes	344	48.6%
Incoterms Training	Yes	586	82.8%
	No	122	17.2%
Op Def & Trained	No	424	59.9%
	Yes	284	40.1%
Valid		708	100.0%

As evidenced by the significant change in -2 Log Likelihood, Table 4.51 illustrates that the model does a significantly better job of predicting the total number of questions responded to by each applicant than does a model with no explanatory variables (the intercept only model).

Table 4.51 – Model Fitting

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	98.161			
Final	79.120	19.042	3	.000

Link function: Logit.

Table 4.52 provides the Pearson and Deviance goodness-of-fit tests of the estimated model over profiles of the independent variables with neither indicating significant differences between the observed and expected number of outcomes.

Table 4.52 – Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	4.131	12	.981
Deviance	3.981	12	.984

Link function: Logit.

Table 4.53 shows the Cox and Snell, Nagelkerke, and McFadden pseudo R-square values for the model. These low values indicate that the model explains only a very small proportion of the variance of the dependent variable.

Table 4.53 – Pseudo R-Square

Cox and Snell	.027
Nagelkerke	.028
McFadden	.009

Link function: Logit.

Table 4.54 displays the maximum likelihood parameter estimates of the model. Table 4.54 suggests that all the threshold coefficient estimates of the model formulation are significant. The most significant explanatory variable in determining the underlying Incoterms® knowledge latent variable (and the total number of correctly answered questions in the survey) is that the respondent is Incoterms® trained with an estimate of 0.914 which is significantly different from zero at the 0.000 level. Providing operational definitions also appears to improve underlying Incoterms® knowledge but not significantly. The interaction term, *Both*, associated with providing both operational definitions and Incoterms® training has a negative value and is not significant,

suggesting that providing both operational definitions and Incoterms® training has a negative interaction impact on the underlying Incoterms® knowledge.

Table 4.54 – Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.
Threshold	[Total Correct = 0]	-.649	.235	7.621	1	.006
	[Total Correct = 1]	.786	.236	11.138	1	.001
	[Total Correct = 2]	2.242	.247	82.272	1	.000
	[Total Correct = 3]	3.709	.283	171.517	1	.000
	[Total Correct = 4]	6.735	.745	81.788	1	.000
Location	Operational Definitions Provided	.425	.328	1.680	1	.195
	Incoterms Trained	.914	.255	12.891	1	.000
	Both	-.328	.360	.829	1	.362

Table 4.55 provides the expected and observed cell count information output from SPSS. The table indicates the observed, expected, and Pearson residual across *Operational definitions provided, Incoterms® trained, and the interaction term, Both*. This greater granularly describes the model’s ability to predict Incoterms® knowledge application.

Table 4.55 – Cell Information

Frequency				Total Correct					
Operational Definitions	Incoterms			0	1	2	3	4	5
	Training	Both							
No	Yes	No	Observed	50	91	99	48	13	1
			Expected	52.32	89.04	97.36	45.89	16.50	.89
			Pearson Residual	-.352	.248	.202	.339	-.887	.114
	No	No	Observed	22	20	14	3	3	0
			Expected	21.29	21.31	13.45	4.47	1.41	.074
			Pearson Residual	.191	-.351	.170	-.723	1.356	-.271
Yes	Yes	Yes	Observed	46	81	92	45	19	1
			Expected	45.36	80.71	93.71	46.29	17.00	.925
			Pearson Residual	.103	.038	-.216	-.208	.500	.078
	No	No	Observed	16	19	16	7	2	0
			Expected	15.28	20.08	16.25	6.22	2.06	.11
			Pearson Residual	.212	-.295	-.072	.330	-.041	-.330

Link function: Logit.

Table 4.56 presents Brant’s test of parallel lines. The test indicates that the null hypothesis that the location parameters are the same across response categories is accepted, suggesting that the model does not violate the proportional odds assumption.

Table 4.56 – Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	79.120			
General	75.138	3.981	12	.984

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

Link function: Logit.

To explore the robustness of the ordered logistic regression model, alternative specifications have been examined. An ordinary least squares (OLS) regression model with the dependent variable coded as the total number of correct answers and employing the same set of explanatory variables yielded similar results. Further, an ordered logistics regression model was estimated employing the same set of independent variables along with all the demographic variables, which yielded similar results revealing none of the demographic variables as significant. Lastly, the original set of three explanatory variables was regressed on pairs of the remaining two to explore the possible confounding effects of potential multicollinearity. As expected, some multicollinearity was clearly present between the interaction variable, *Both*, and the *Operational Definitions Provided and Incoterms® Trained* variables. Dropping the *Both* variable from the original ordered logit model equation does not significantly alter the findings of the original estimation however. These results add confidence to the findings of the results of the original, ordinal logistics regression model employed in the research.

To recap the results from the ordinal logistics regression model, the model shows significant, but small impact to predict respondent's ability to apply latent Incoterms® application knowledge. Incoterms® training is shown to be a significant predictor. Incoterms® training has impact on answering scenario questions correctly, and hence, it improves a respondent's chances of making fewer mistakes. Training does make a difference. While providing operational definitions appears to have some predictive ability in the hypothesized direction, the statistical impact is not significant.

Further, the impact on correctly responding to individual questions is clearly differentiated by subject area. Providing operational definitions and Incoterms® training (i.e. *Both*) does not appear to add further significant predictive value.

4.3.6 Discussion of Study Three Results.

Study 3 has examined three testable hypotheses regarding Incoterms® communication errors based on a questionnaire of supply chain professionals in a large multinational company. Question specific, binary logistics regression models have been estimated and examined. An ordinal logistic regression model has been estimated and analyzed.

Non-response bias does not appear to be an important issue. In examining the differences in the propensities of early and late responders with respect to demographic characteristics before and after the reminder email, it does not appear that there is significant non-response bias. Furthermore, based upon additional tests for full and partial responses to the questionnaire, it does not appear there is a non-response bias with the possible exception of Incoterms® trained respondents being more likely to fully complete the questionnaire.

Study 3 has experimentally tested three hypotheses. Table 4.57 describes the findings of the three hypothesis tests.

Table 4.57 – Summary Tests of Hypotheses

Hypothesis	Finding
H1: Incoterms® training leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.	Supported
H2: Providing fully specified and explicit Incoterms® definitions leads to a decrease in communication errors evidenced by a reduction in inappropriate Incoterms® application.	Partially Supported
H3: Providing fully specified and explicit Incoterms® definitions and Incoterms® training leads to a further decrease in communication errors evidenced by a further reduction in inappropriate Incoterms® application.	Not Supported

Hypothesis 1 is clearly supported. Incoterms® training is the most significant explanatory variable found in the ordinal logistic regression model (0.000 level) that corresponds to the underlying latent knowledge to correctly apply Incoterms®. Additionally, when reviewing scenario-by-scenario questions, for Scenario 5, it appears that providing Incoterms® training significantly increases the likelihood that a respondent correctly applies Incoterms®. For Scenarios 1-4, Incoterms® training also has a positive impact on correct Incoterms® application but not at a statistically significant level.

Hypothesis 2 is partially supported. Both the ordinal logistics regression model and scenario-by-scenario binary logistic regression models show that providing operational definitions does have some predictive ability on correct Incoterms® application, but the impact is not statistically significant.

Hypothesis 3 is not supported. Both the ordinal logistics regression model and scenario-by-scenario, binary logistic regression models show providing operational definitions along with Incoterms® training (i.e. *Both*) does not appear to add significant

additional predictive value above their individual effects.

To further recap the Study 3 results, the fourth research question (What can improve the quality of buyer-seller dyads communication of logistics management decisions?) is only partially addressed by the findings of the validity of the three hypotheses. Of the factors tested, there is no doubt that Incoterms® training has the largest impact on improving the quality of buyer-seller dyads' communication of logistics management decisions. However, Incoterms® training has impacts one only one member of the dyad. Providing operational definitions when communicating logistics management decisions affects both dyad participants and therefore, the experimental design employed here might underestimate the significance of providing operational definitions in dyadic communications. This joint effect of improving dyadic communications might be a fruitful area for future research

CHAPTER 5

CONTRIBUTIONS, LIMITATIONS, AND FUTURE RESEARCH

The purpose of this last chapter is to first, discuss the overall dissertation contributions and implications including the research and managerial implications. Next, the limitations of the research are discussed. Future research directions are then proposed. Finally, the chapter concludes with summary remarks.

5.1 OVERALL CONTRIBUTIONS AND MANAGERIAL IMPLICATIONS

5.1.1 Overall Contributions

Fundamentally, this research contributes to detailed knowledge concerning the process used and the role of Incoterms® in the negotiation and communication of logistics management decisions. While Incoterms® rules appear to be widely used in goods transactions to negotiate and communicate logistics decisions, their inappropriate use causes a variety of issues including unanticipated costs and risks to participants. This research has explored this academically underdeveloped area and has applied academic rigor to ascertain the role of Incoterms® and the consequences of their inappropriate use in effective supply chain management. These are the fundamental research contributions.

As discussed in Chapter 1, this research makes six primary contributions. First, using multiple exploratory case studies and a controlled experiment, this enquiry has rigorously investigated the usage errors described in prior Incoterms® literature. Before

the present research, only anecdotal evidence regarding Incoterms® usage errors were prevalent in the literature (Stapleton et al., 2014a). Second, Incoterms® usage errors undescribed in existing literature have been identified, characterized, and empirically validated. Third, this in-depth research contributes to an area of supply chain management, the use of Incoterms® in communicating logistic responsibilities, which had previously received only limited academic attention. While practitioner attention had always been present, as shown in the literature review, and while some academic research does exist, this study sheds new light on the importance of Incoterms® in communicating logistics decisions and the wide-ranging impact of Incoterms® usage errors. Fourth, this study explains how buyers and sellers negotiate and communicate logistics management responsibilities. Fifth, in contrast with the typical research paradigm of using either a quantitative or qualitative approach, a mixed methods approach, a third research paradigm, has been used to study the supply chain management topic of how dyadic buyer-seller relationships communicate logistics management decisions. Mixed methods research is still a somewhat novel approach within purchasing, marketing, and supply chain literature, and it is certainly a new approach to exploring and explaining the Incoterm® phenomena. This study provides a “how-to” guide for conducting this form of mixed methods research, which has been shown to be an appropriate and practical research technique for this investigation. Lastly, this study contributes to the very limited research that uses actual practicing managers as participants in controlled experiments. Participants in experimental negotiation research are generally MBA students, and the use of real-life participants is

very limited (Mestdagh & Buelens, 2003). Mestdagh and Buelens found that practicing managers have been included as participants in only 5% of studies (2003). The use of practicing managers adds to the external validity of the research.

5.1.2 Managerial Implications

Good research should contribute to both the body of knowledge and ultimately be relevant to industry practitioners. This is achieved by providing practical managerial applications that managers can use within their firms. This research offers several managerial implications.

First, firms and managers should focus on how their buyers and sellers are making and communicating logistics management decisions. Both decisions concerning logistics and how they are communicated have implications for the firms' costs and risks. Processes should be identified and communicated to both buyers and sellers that enable a useful perspective on all parties' costs and risk implications associated with each Incoterms® rule. This should include how to properly handle expedited freight, which is often unaddressed in normal logistics management arrangements. In addition, not only buyers, but sellers too, should have forethought on the execution of logistics management.

Second, of practical interest to firms and managers, is the understanding that Incoterms® are often used for revenue recognition purposes. The purposes of Incoterms® rules are stated by the International Chamber of Commerce (ICC). The ICC indicates that Incoterms® rules do not deal with the transfer of ownership of the goods,

and they designate the responsibilities for tasks, costs, and risks involved in the delivery of goods from sellers to buyers (2010). Firms and managers should investigate and validate the stated purpose of the Incoterms® rules versus those of the Generally Accepted Accounting Principles (GAAP) and International Accounting Standards (IAS) guidelines for revenue recognition.

Third, this research clearly indicates that Incoterms® training is important for knowledge and proper application of Incoterms® rules. Firms and managers should consider Incoterms® training for both buyers, sellers, and other job functions that utilize Incoterms®. The type, style, or frequency of Incoterms® training should be examined. It is important that the acquisition of detailed Incoterms® knowledge is encouraged for all buyers and sellers. Training becomes even more important as Incoterms® rule versions change.

Lastly, Incoterms® rules were designed by the ICC to standardize B2B practice when contracting for goods (ICC, 2010). Incoterms® rules are the trademarked product of the ICC, are intended to clearly define seller and buyer obligations, thus reducing the parties' legal risks, and are intended to be self-explanatory (ICC, 2010). However, along with the present research, other researchers have found substantial Incoterms® usage errors (Stapleton & Saulnier, 2001; Reynolds, 2010; Bergami, 2011; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Roos, 2011; Bergami, 2012; Bergami, 2013; Stapleton, 2014; Stapleton et al., 2014a; Stapleton et al., 2014b). It is time for the ICC to reevaluate the understanding, application, and effectiveness of Incoterms® 2010 rules. Perhaps it would prove expedient to embrace some of the more common usage errors for future

rule versions.

5.2 RESEARCH LIMITATIONS

All research methods have strengths, weaknesses, and limitations (McGrath, 1982). By conducting a mixed methods approach, this research has combined qualitative, grounded theory, case study research with a behavioral experiment. Both methods have some limitations regarding generalizability. However, these limitations suggest future research opportunities, which may offer more generalizable results.

Study 1, Study 3, and a portion of the Study 2 case studies have been conducted solely within one large, international corporation operating in many different industrial markets. While this large, international corporation may be representative of many companies operating in global industrial markets, confining this research to a single company limits its generalizability. This limitation suggests future research directions in expanding the investigations presented here to other companies and industries.

Incoterms® training, whether internal or external to the participating company, was self-reported in this study through the demographic questions of Study 3. The type, style, and frequency of Incoterms® training has not been ascertained. Therefore, while Incoterms® training has been shown to have the biggest impact on improving the quality of buyer-seller dyads' communication of logistics management decisions, the most effective type, style, or frequency of Incoterms® training has not been investigated. This is another excellent direction for future research. It should also be noted that the results of providing operational definitions affect both parties in the dyad, while Incoterms

training affects only a single party in the dyad (buyer or seller, but not both). The spillover effect of operational definitions was not measured in the empirical work and is a limitation of the individual survey methodology.

5.3 FUTURE RESEARCH

Several significant contributions are made to the understanding of buyer-seller relationships, logistics management, and negotiation processes. This research identifies and details the process used in the negotiation and communication of logistics management decisions between buyers and sellers in transactions involving a large international firm. While Incoterms® rules appear widely used in goods transactions to communicate logistics decisions, their inappropriate use causes a variety of issues creating unanticipated costs and risks. Other academic research has touched on some of the aspects of the misuse of Incoterms® rules (Stapleton & Saulnier, 1999, 2001, 2002; Căruntu & Lăpădusi, 2010; Bergami, 2011, 2012, 2013; Glitz, 2011; Malfliet, 2011; Ramberg, 2011; Stapleton, 2014; Stapleton et al., 2014a, 2014b), however, the present research provides multiple, rigorous case studies that put many of the puzzle pieces together. Through the case studies, four new areas of concern with respect to Incoterms® use have been uncovered: 1) Incoterms® are often used for revenue recognition purposes; 2) expedited freight is often unaddressed in normal logistics management arrangements; 3) sellers focus on the sale rather than the execution of logistics decisions; and 4) errors occur in the usage of FCA vs. EXW Incoterms® rules. These issues invite further rigorous study.

The most interesting future research opportunities lie in the area of Incoterms® training. The present research clearly shows that Incoterms® training is effective in improving knowledge and for the appropriate application of Incoterms® rules. This should be of interest to academics and practitioners alike. The most effective type, style, or frequency of Incoterms® training is currently unknown. Literature and research in training complex tasks should be reviewed and applied to identify the best Incoterms® training approaches. Holley and Haynes (2003) and Kock et al. (2008) have provided some foundation for the exploration of improving teaching methods of Incoterms® rules. To add complexity to the effective teaching of Incoterms®, Holley and Haynes observed that Incoterms® rule learning is “one of the dullest sessions” in a course offering (Holley & Haynes, 2003, p. 396). Traditional lecture/seminar teaching, including handouts, case study material, and question and answer sessions, was noted as not particularly effective in Incoterms® learning (Holley & Haynes, 2003). Holley and Haynes (2003) created and examined the effectiveness of a multi-media tool called the “INCOTERMS Challenge,” which proved to be a more effective learning tool. During web-based training, Kock et. al (2008) applied a threat, which involved a picture of a snake in striking position, to improve Incoterms® rules training effectiveness.

As opposed to training, earlier work by Tan & Thoen (2000) proposed a different approach to improving Incoterms® rule application. They created an on-line tool, INCAS, that provides real-time Incoterms® rule explanations to electronic commerce users. This and other alternatives to training should be explored.

Other research methods, perhaps even combined in mixed methods, should be employed to further explore the phenomenon and validate results. The focus should be on methods that improve the generalizability of this research. Furthermore, future research should expand to other companies and industries. The spillover effect of employing operational definitions in negotiating and communicating logistics management decisions should also be explored. Beyond methodological, company, and industry limitations, this research provides the foundation for a rich variety of potential future studies.

5.4 CONCLUDING REMARKS

The negotiation and communication of logistics management decisions between buyers and sellers of goods is critical for effective supply chain management. The findings of the present research detail the process used in the negotiation and communication of logistics management decisions. While Incoterms® rules appear widely used in goods transactions to communicate logistics decisions, their inappropriate use causes a variety of issues including unanticipated costs and risks. Incoterms® training is shown to have a significant impact on improving the quality of communication of logistics management decisions within buyer-seller dyads. It is therefore hoped that this study generates substantial new research and managerial interest in this area. A greater understanding of Incoterms® rules will lead to improved communication between buyers and sellers, which would in turn produce more cost-effective transactions. In addition, when crafting the next version of Incoterms® rules,

the ICC is encouraged to consider this and other research to reevaluate the understanding, application, effectiveness, and training of Incoterms® rules.

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APPENDIX I – LITERATURE REVIEW



Literature
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Article	Article Categories					Article Summary
	Peer Reviewed	Explains Incoterms	New Incoterms Version	Training	Other	
Bergami, R., 2011. Incoterms 2010: comment on the new revision of delivery terms. <i>Vindobona Journal of International Commercial Law & Arbitration</i> (15), pp. 159-161.	1	0	1	0	0	New Incoterms 2010 taking effect
Bergami, R., 2012. Incoterms 2010: The Newest Revision of Delivery Terms, <i>Acta University Bohem Merid</i> 15(2), pp. 33-40.	0	0	1	0	0	New Incoterms 2010 taking effect
Bergami, R., 2013. Managing Incoterms 2010 risks: tension with trade and banking practices, <i>International Journal of Economics and Business Research</i> 6(3), pp. 324-338.	1	1	0	0	0	Explains Incoterms
Căruntu, C. and Lăpădusi, M., 2010. Complex issues regarding the role and importance of internationally codified rules and incoterms, <i>Petroleum-Gas University of Ploiesti Bulletin, Economic Sciences Series</i> 62(1), pp.98-110.	0	1	0	0	0	Explains Incoterms
Glitz, F.E., 2011. Transfer of Contractual Risk and INCOTERMS: Brief Analysis of its Application in Brazil, <i>Journal for International Commercial Law & Technology</i> (6)2, pp. 108-119.	1	0	0	0	1	Risk and Incoterms in Brazil

Article	Peer Reviewed	Explains Incoterms	New Incoterms Version	Training	Other	Article Summary
Malfliet, J., 2011. Incoterms 2010 and the mode of transport: how to choose the right term. Management Challenges in the 21st Century: Transport and Logistics: Opportunity for Slovakia in the Era of Knowledge Economy, Proceedings, Bratislava, Slovakia, pp.163-179.	0	1	0	0	0	Explains Incoterms 2010 and how to choose the right term
Ramberg, J., 2011. INCOTERMS 2010. European Journal of Law Reform (13)3-4, p.380-387.	1	0	1	0	0	Explains Incoterms 2010
Reynolds, F., 2010. Incoterms® For Americans®, Toledo, International Projects., Inc.	0	1	0	0	0	Explains Incoterms and UCC terms
Roos, P., 2011. Incoterminology 2010: Manual for the practical use of Incoterms®, Rotterdam, NT Publishers.	0	1	0	0	0	Book that explains Incoterms, written from European perspective
Stapleton, D.M., 2014. Optimizing shipper contracting: the correct usage of Incoterms for containerized/intermodal freight, Production Operations Management Society (POMS) Annual Conference Proceedings, Vol. 25. Presented and published in May 2014.	0	1	0	0	0	Using FCA over FOB
Stapleton, D.M., Pande, V., Ghosh, S., & Damali, U., 2014a. Refining shippers' dyadic cost, risk, and delivery responsibilities: the principal changes to Incoterms and a transaction cost focus for the future, Journal of Transportation Management 24(2), pp.7-29.	1	1	0	0	0	More in-depth explanation of Incoterms 2010 including appropriate application and misuse
Stapleton, D.M., Pande, V., & O'Brien, D., 2014b. EXW, FOB or FCA? Choosing the Right Incoterm and Why It Matters to Maritime Shippers, Journal of Transportation Law, Logistics & Policy, pp. 227-248.	1	1	0	0	0	More in-depth explanation of Incoterms 2010 including in-depth look at FCA or EXW instead of FOB

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Stapleton, D.M., Saulnier, V., 1999. Defining dyadic cost and risk in international trade: a review of INCOTERMS 2000 with strategic implications, <i>Journal of Transportation Management</i> 11(2), pp. 24-43.	1	0	1	0	0	In-depth explanation of Incoterms 2000 including strategic implications
Stapleton, D.M., Saulnier, V., 2001. A Study in Shipper Contracting Relationships, <i>ISBM Research Newsletter</i> [Online]. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.202.5041&rep=rep1&type=pdf [Accessed January 28, 2016].	0	1	0	0	0	Explains Incoterms 2000
Stapleton, D.M., Saulnier, V., 2002. Terms of Sale, Documentation, and Letters of Credit. In: <i>Logistics</i> , 1st ed., Bloomberg, D.J., LeMay, S. & Hanna, J.B. ed. New Jersey, Prentice Hall, pp. 296-301.	1	1	0	0	0	Explains Incoterms 2000
"Business Line: Seminar on Incoterms", 2011, <i>Businessline</i> , .	0	0	0	1	0	Incoterms 2010 training offered in India
"Common letter of credit & international payment misconceptions", 1998, <i>IOMA's Report on Managing International Credit & Collections</i> , vol. 98, no. 12, pp. 5.	0	1	0	0	0	Explains Incoterms
"ECONOMIC POLICY; NEW INCOTERMS 2010 RULES TAKE EFFECT FROM JANUARY 1, 2011", 2011, <i>Interfax : Ukraine Business Weekly</i> , .	0	0	1	0	0	New Incoterms 2010 taking effect
"ECONOMIC POLICY; UKRAINIAN PRESIDENT CANCELS DECREES ON APPLICATION OF INCOTERMS RULES", 2011, <i>Interfax : Ukraine Business Weekly</i> , .	0	0	0	0	1	Ukraine wants to make Incoterms 2010 mandatory in contracts
"Economists want Incoterms in national law", 2010, <i>Trade Finance</i> , .	0	0	0	0	1	Global support to make Incoterms part of national legislation

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"Expert identifies best of Incoterms 2000 for international credit pros," 2000, <i>IOMA's Report on Managing International Credit & Collections</i> , vol. 00, no. 3, pp. 1.	0	0	0	0	1	States that Incoterms do indicate transfer of title
"ICC launches Incoterms(R) 2010," 2010, <i>Trade Finance</i> .	0	0	1	0	0	New Incoterms 2010 taking effect
"Incoterms - your key to simplified distribution," 1983, <i>Canadian Transportation & Distribution Management</i> , vol. 86, no. 2, pp. 43-46.	0	1	0	0	0	Explains Incoterms
"Incoterms 2000 Descriptions", 2004, <i>Healthcare Purchasing News</i> , vol. 28, no. 7, pp. 82.	0	1	0	0	0	Explains Incoterms
"Incoterms and alternative ways of quoting prices - Clayton", 1992, <i>Northern Ontario Business</i> , vol. 13, no. 1, pp. 5.	0	1	0	0	0	Explains Incoterms
"Incoterms ensure smooth international distribution", 1983, <i>Canadian Transportation & Distribution Management</i> , vol. 86, no. 3, pp. 33-35.	0	1	0	0	0	Explains Incoterms
"Incoterms Training for Import/Export", 2012, <i>Material Handling & Logistics</i> .	0	0	0	1	0	Company offers training on Incoterms 2010
"India: Incoterms 2000 takes effect", 2000, <i>Businessline</i> , pp. 1.	0	0	1	0	0	New Incoterms 2000 taking effect
"International Commercial Terms (INCOTERMS)", 2005, <i>Batteries International</i> , no. 62, pp. 24-25.	0	1	0	0	0	Explains Incoterms
"International Program Expands Breadth of Executive Education at GSCFM", 2014, <i>Business Credit</i> , vol. 116, no. 8, pp. 10-11.	0	0	0	1	0	Dartmouth College executive-level instruction covered topics such as foreign exchange, international business ethics, sovereign risk and Incoterms.

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"Jaguar Freight Services; Importers Discover Financial Advantage with Shipping Contract Terms", 2008, <i>Asia Business Newsweekly</i> , pp. 36.	0	0	0	0	1	Incoterms do not deal with transfer of title
"Market View: INCOTERMS 2010 - What you need to know (part 2)," 2010, <i>Trade Finance</i> .	0	0	1	0	0	New Incoterms 2010 taking effect
"New edition of Incoterms 2000 now available", 2000, <i>Credit Control</i> , vol. 21, no. 3, pp. 27.	0	0	1	0	0	New Incoterms 2000 taking effect
"New Incoterms Set for January 1", 2010, <i>World Trade, WT 100</i> , vol. 23, no. 8, pp. 14.	0	0	1	0	0	New Incoterms 2010 taking effect
"SEKO Worldwide to Offer 2 Complimentary Webinars to Review Incoterms 2010 Rules", 2010, <i>Manufacturing Close - Up</i> .	0	0	0	1	0	SEKO Worldwide to hold free Incoterms 2010 workshops
"Seminars offered on new incoterms", 1999, <i>Logistics Management and Distribution Report</i> , vol. 38, no. 9, pp. 94.	0	0	1	0	0	New Incoterms 2000 taking effect
"Standard speak on point of sale: P. S. Kumar on determining when 'sale' is performed for the purpose of AS-9", 2004, <i>Businessline</i> , pp. 1. CALENDAR 2000, , New York.	0	1	0	0	0	Explains Incoterms
"The Revised Incoterms: Key Features", 1990, <i>International Trade Forum</i> , vol. 26, no. 2, pp. 4.	0	1	0	0	0	Explains Incoterms
"What int'l credit execs need to know about Incoterms 2000", 1999, <i>IOMA's Report on Managing International Credit & Collections</i> , vol. 99, no. 12, pp. 1.	0	1	0	0	0	Explains Incoterms
Barrett, C. 2002, "'Ex-works' revisited", <i>Traffic World</i> , vol. 266, no. 11, pp. 38.	0	1	0	0	0	Incoterms question and answer
Barrett, C. 2005, "Incoterms vs. Uniform Commercial Code", <i>Traffic World</i> , , pp. 1-38.	0	1	0	0	0	Incoterms question and answer

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Barrett, C. 2006, "Shipper's Load and Count", <i>Traffic World</i> , pp. 1-46.	0	1	0	0	0	Incoterms question and answer. Incorrectly states Incoterms indicate transfer of title
Barrett, C. 2010, <i>Demurrage and Detention Charges on Exported Containers</i> , New York.	0	1	0	0	0	Incoterms question and answer
Barrett, C. 2010, <i>Paying Demurrage in an Ex-Works Sale</i> , New York.	0	1	0	0	0	Incoterms question and answer
Barrett, C. 2013, <i>Incoterms and Conditions</i> , New York.	0	1	0	0	0	Incoterms question and answer
Barron, J. 2011, "New Decade, New Upgrade: Incoterms 2010 Picks Up Where Incoterms 2000 Left Off", <i>Business Credit</i> , vol. 113, no. 2, pp. 20-22.	0	0	1	0	0	New Incoterms 2010 taking effect
Biederman, D. 1998, "Too much of nothing", <i>Traffic World</i> , vol. 255, no. 9, pp. 39.	0	1	0	0	0	Explains EXW Incoterm
Biederman, D. 1999, "Get ready for incoterms 2000", <i>Traffic World</i> , vol. 260, no. 2, pp. 21.	0	0	1	0	0	New Incoterms 2000 taking effect
Biederman, D. 2000, <i>DDP Clarified</i> , New York.	0	1	0	0	0	Explains DDP Incoterm
Blum, J. 2011, <i>Knowledge Is Power</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Bonney, J. 2009, <i>Trade Terms Set for Revision</i> , New York.	0	0	1	0	0	New Incoterms 2000 taking effect
Brotherston, B. 1996, "INCOTERMS: A credit management minefield - Part 1", <i>Credit Control</i> , vol. 17, no. 2, pp. 22.	0	1	0	0	0	Explains Incoterms
Brotherston, B. 1996, "INCOTERMS: A credit management minefield--part 2", <i>Credit Control</i> , vol. 17, no. 4, pp. 19.	0	1	0	0	0	Explains Incoterms

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Burke, M. 2013, "Staying Afloat", <i>Property Casualty 360 - National Underwriter</i> .	0	1	0	0	0	Explains Incoterms
Business Editors/High, T.W. 2002, <i>Klatu's New Strategy is to License International E-Commerce Tool</i> , New York.	0	0	0	0	1	Incoterms are considered in e-commerce pricing tool
Business Editors/Technology Writers 2002, <i>Klatu's eCom Allows Computer Resellers to Offer DDP - Delivered Duty Paid - Pricing Throughout the Caribbean</i> , New York.	0	0	0	0	1	Incoterms are considered in e-commerce pricing tool
<i>CHARTERING A SHIP? USE THESE INCOTERMS 2000</i> , New York.	0	1	0	0	0	Explains Incoterms to use when chartering a ship
Coates, R. 2012, "Nine Rules for Logistics in China", <i>The China Business Review</i> , vol. 39, no. 2, pp. 13-17.	0	0	0	0	1	Need to know Incoterms when doing logistics in China
<i>Coming to terms with Incoterms 2014</i> , New York.	0	1	0	0	0	" the most misunderstood and misused element of an international transaction is the correct application of shipping Incoterms"
<i>COMPANIES & MARKETS; INTRODUCTION OF INCOTERMS 2010 RULES IN UKRAINE NEEDS TO BE SETTLED IN LAW, SAYS ICC UKRAINE 2011</i> , Kiev.	0	0	0	0	1	Ukraine cannot accept goods arriving at their ports using Incoterms 2010
Dearing, D. 2006, "A universal language", <i>Supply Management</i> , vol. 11, no. 6, pp. 37.	0	1	0	0	0	Explains Incoterms
Derains, Y. 1981, "Incoterms: Facilitating the Export Process", <i>International Trade Forum</i> , vol. 17, no. 3, pp. 12.	0	1	0	0	0	Explains Incoterms

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Dutton, G. 2011, "The Exporter's Handbook", <i>World Trade, WT 100</i> , vol. 24, no. 8, pp. 28-31.	0	0	1	0	0	New Incoterms 2010 taking effect
<i>Evolving lessons on Incoterms 1999</i> , New York.	0	0	0	1	0	Talks about Incoterms 2000 training sessions previously given
Foster, T.A. & Jessen, J.C. 1981, "INCOTERMS-The Language of Exporting", <i>Chilton's Distribution for Traffic & Transportation Decision Makers</i> , vol. 80, no. 1, pp. 36.	0	1	0	0	0	Explains Incoterms
Foster, T.A. 1990, "The Language of Foreign Trade", <i>Chilton's Distribution</i> , vol. 89, no. 10, pp. 86.	0	1	0	0	0	Explains Incoterms
Frank Reynolds / The JOURNAL of COMMERCE ONLINE 2007, <i>Export ABCs: Incoterms 2010</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Frank Reynolds / The JOURNAL of COMMERCE ONLINE 2007, <i>Export ABCs: UCP 600, Pt. 3</i> , New York.	0	1	0	0	0	Explains Incoterms
Frank Reynolds / The JOURNAL of COMMERCE ONLINE 2008, <i>Export ABCs: Cargo insurance</i> , New York.	0	1	0	0	0	Explains Incoterms
Frank Reynolds / The JOURNAL of COMMERCE ONLINE 2008, <i>Export ABCs: Incoterms revision</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Frank Reynolds / The JOURNAL of COMMERCE ONLINE 2009, <i>Export ABCs: Cargo Insurance -- Part 2</i> , New York.	0	1	0	0	0	Explains Incoterms
Frank Reynolds/The JOURNAL of COMMERCE ONLINE 2008, <i>Export ABCs: Documentation control</i> , New York.	0	1	0	0	0	Explains Incoterms
FREUDMANN, A. 1999, <i>Defining terms of today's commerce</i> , New York.	0	1	0	0	0	Explains Incoterms. "Bible of International Trade"

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FREUDMANN, A. 1999, <i>Traders get a brand-new bible</i> , New York.	0	0	1	0	0	New Incoterms 2000 taking effect. 'International trade bible'
Gardner, D. 2008, <i>A new chapter in Incoterms</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Giermanski, J. & McGhee, M. 2004, "International Trade & Title: Security & Tax Concerns-Part 1", <i>Strategic Finance</i> , vol. 85, no. 8, pp. 15-17.	0	1	0	0	0	Explains Incoterms and UCC terms
<i>Global Sourcing Made Easier (Gifts and Decorative Accessories) 2004</i> , , Waltham.	0	1	0	0	0	Proper Incoterms use on Commercial invoice
Gooley, T.B. 2000, "Incoterms 2000: What the changes mean to you", <i>Logistics Management and Distribution Report</i> , vol. 39, no. 1, pp. 49-51.	0	0	1	0	0	New Incoterms 2000 taking effect
<i>Government Sops for SMEs Welcomed by Entrepreneurs 2009</i> , New York.	0	0	0	1	0	New Delphi to offer free Incoterms training
Hamilton, H.K. 2002, "The importance of shipping terms", <i>Business Credit</i> , vol. 104, no. 2, pp. 68.	0	1	0	0	0	Explains shipping terms
Harrington, L.H. 1991, "New Trade Terms You Need to Know", <i>Traffic Management</i> , vol. 30, no. 5, pp. 61.	0	0	1	0	0	New Incoterms 1990 taking effect
Holley, D. & Haynes, R. 2003, "The "INCOTERMS" challenge: Using multi-media to engage learners," <i>Education & Training</i> , vol. 45, no. 7, pp. 392-401.	1	0	0	1	0	New learning method applied to teaching Incoterms, which are noted difficult to learn

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<i>ICC to carry out Incoterms workshops 2010, Karachi.</i>	0	0	0	1	0	ICC Pakistan to hold Incoterms 2010 workshops
<i>ICC updates Incoterms International Business] 2010, New Delhi.</i>	0	0	1	0	0	New Incoterms 2010 taking effect
<i>Implications of Incoterms 2000 1999, New York.</i>	0	0	1	0	0	New Incoterms 2000 taking effect
<i>Import on FOB basis can save millions: BAFFA 2014, Dhaka.</i>	0	0	0	0	1	Change Incoterms to save money
<i>Incoterms - a point of order 2010, , Institute of Credit Management Ltd, Stamford.</i>	0	1	0	0	0	ICC UK explains comment misunderstandings
<i>Incoterms 2000 1999, , Institute of Credit Management Ltd, Stamford.</i>	0	0	1	0	0	New Incoterms 2000 taking effect
<i>Incoterms 2000 meets AES Direct 1999, New York.</i>	0	0	0	1	0	Incoterms 2010 workshops
<i>Incoterms 2010 more precise, says BB Governor 2010, Dhaka.</i>	0	0	1	0	0	New Incoterms 2010 taking effect
<i>Incoterms(R) 2010 comes into effect from January 2010, Dhaka.</i>	0	0	1	0	0	New Incoterms 2010 taking effect
<i>Instone, T. 1985, "Exporting: Getting the Offer Document Right", Industrial Marketing Digest, vol. 10, no. 4, pp. 69.</i>	0	1	0	0	0	Explains shipping terms
<i>Iskander, S. 1999, Updated trade terms please exporters, London (UK).</i>	0	0	1	0	0	New Incoterms 2000 taking effect
<i>Jennifer, B.S. 2002, "International Trade Standards Define Buyer/Seller Responsibilities", EBN, no. 1317, pp. 42.</i>	0	1	0	0	0	Explains Incoterms

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Jessen, J.C. & Foster, T.A. 1982, "Anatomy of an Import", <i>Chilton's Distribution for Traffic & Transportation Decision Makers</i> , vol. 81, no. 10, pp. 74.	0	1	0	0	0	Explains Incoterms
Juarez, F. 1997, "The fine print", <i>Business Mexico</i> , vol. 7, no. 3, pp. 41.	0	0	0	0	1	Import/Exporters in Americas still confused with Incoterms
KANG SIEW, L.I. 2004, <i>Expert: Use of LCs in trade settlements not totally risk-free</i> , Kuala Lumpur.	0	1	0	0	0	Explains Incoterms
Kock, N., Chatelain-Jardon, R. & Carmona, J. 2008, "An Experimental Study of Simulated Web-Based Threats and Their Impact on Knowledge Communication Effectiveness", <i>IEEE Transactions on Professional Communication</i> , vol. 51, no. 2, pp. 183.	1	0	0	1	0	Training design for Incoterms
Kumar, S. 2010, "Logistics Routing Flexibility and Lower Freight Costs through Use of Incoterms," <i>Transportation Journal</i> , vol. 49, no. 3, pp. 48-56.	1	0	0	0	1	Switch FOB to FCA to lower costs from China supplier. Wrong use of FOB
Lane, S. 2012, "Incoterms 2010: What You Really Need to Know", <i>Business Credit</i> , vol. 114, no. 6, pp. 8-9.	0	0	1	0	0	New Incoterms 2010 taking effect
Leach, P.T. 2010, <i>International Chamber of Commerce Revises Incoterms</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Lowe, D. 2011, "Incoterms update", <i>Supply Management</i> , vol. 16, no. 2, pp. 14.	0	0	1	0	0	New Incoterms 2010 taking effect
McGhee, M. & Giermanski, J. 2007, "How SOX and C-TPAT Impact Global Supply Chain Security", <i>Strategic Finance</i> , vol. 88, no. 10, pp. 32-38.	0	1	0	0	0	Explains Incoterms and UCC terms
Moore, P. 2012, "Pricing and culture: Making the connection", <i>Logistics Management (2002)</i> , vol. 51, no. 2, pp. 18.	0	1	0	0	0	Define key terms

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Muller, E.J. 1992, "Yes You Can Export", <i>Distribution</i> , vol. 91, no. 10, pp. 26.	0	1	0	0	0	Incorrectly explains FOB (UCC term)
Murray, J., Jr 2003, "Risk, title and Incoterms", <i>Purchasing</i> , vol. 132, no. 10, pp. 26.	0	1	0	0	0	Explains Incoterms and UCC terms
<i>National Seminar Series to Explain Changes in B2B Shipping And Trade Terms</i> 2005, , New York.	0	0	0	1	0	Incoterms 2010 workshops
Neville, M.K., J.R. 2013, "Incoterms Count", <i>Journal of International Taxation</i> , vol. 24, no. 6, pp. 23-25.	0	1	0	0	0	Explains Incoterms and UCC terms
<i>Odds and ends at journey's end</i> 1999, New York.	0	0	1	0	0	New Incoterms 2000 taking effect
Parry, P. 2000, <i>Incoterms; Call for tonnage quality to be put on sale of goods agenda</i> , London.	0	0	0	0	1	Critical of Incoterms 2000
Posner, M. 1999, <i>Incoterms 2000</i> , Institute of Credit Management Ltd, Stamford.	0	0	1	0	0	New Incoterms 2000 taking effect
Posner, M. 2000, <i>Guide to Incoterms 2000</i> , Institute of Credit Management Ltd, Stamford.	0	1	0	0	0	Explains Incoterms
Rees, N. 2004, "Transaction Tax Management: A Seat at the Supply Chain Table", <i>Financial Executive</i> , vol. 20, no. 7, pp. 48-49.	0	0	0	0	1	Tax department not involved in Incoterms decisions
Reich, A. 2009, <i>International Sales Transactions - A Series of Simulated Negotiation and Drafting Exercises</i> , Social Science Research Network, Rochester.	0	0	0	0	1	Use Incoterms to reduce risk of disputes
Reilly, K. 2005, "Exporters Must Ensure Coordination Of Incoterms And Documentary Requirements For LC Payment", <i>Business Credit</i> , vol. 107, no. 6, pp. 70-71.	0	1	0	0	0	Explains Incoterms
Reynolds, F. 2005, <i>Export ABCs: More SOX issues</i> , New York.	0	1	0	0	0	Explains Incoterms and UCC terms
Reynolds, F. 2005, <i>Export ABCs: Sarbanes-Oxley</i> , New York.	0	1	0	0	0	Explains Incoterms and UCC terms

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Reynolds, F. 2009, <i>10+2, Lacey Act and more</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Reynolds, F. 2010, <i>Incoterms Update: Revision No. 8</i> , New York.	0	0	1	0	0	New Incoterms 2010 taking effect
Richer, S. 2011, "Balancing global priorities", <i>Logistics Management (2002)</i> , vol. 50, no. 1, pp. 42-44,46.	0	0	1	0	0	New Incoterms 2010 taking effect
Rosolen, D. 2010, "Change on the menu", <i>Materials Management and Distribution</i> , vol. 55, no. 7, pp. 13.	0	0	1	0	0	New Incoterms 2010 taking effect
Roszkowski, M.E. 2001, "Shipping terms based on Incoterms 2000: A statutory proposal", <i>Uniform Commercial Code Law Journal</i> , vol. 34, no. 2, pp. 169-200.	0	1	0	0	0	Explains Incoterms
Rowe, M. 1986, "What's in a Word? A Lot When It Comes to Trade Terms", <i>ICC Business World</i> , vol. 4, no. 3, pp. 17.	0	0	1	0	0	New Incoterms 1990 taking effect
Rowe, M. 1987, "The International Sales Contract-Central to Trade Transactions", <i>International Trade Forum</i> , vol. 23, no. 3, pp. 14.	0	1	0	0	0	Explains Incoterms
Schwartz, B.M. 1998, <i>Master the export Lexicon</i> , Penton Media, Inc., Penton Business Media, Inc, Cleveland.	0	0	1	0	0	New Incoterms 1990 taking effect
<i>SEBL holds workshop on forex transactions and INCOTERMS 2010</i> , Dhaka.	0	0	0	1	0	Bangladesh to hold Incoterms 2010 workshops
<i>SEKO Worldwide Offering Two Complimentary Webinars to Review New Incoterms(R) 2010 Rules 2010</i> , New York.	0	0	0	1	0	SEKO Worldwide to hold free Incoterms 2010 workshops
Shuman, J. 2000, "Incoterms 2000", <i>Business Credit</i> , vol. 102, no. 7, pp. 50.	0	0	1	0	0	New Incoterms 2000 taking effect

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Siviere, C. 2014, "Why do we need Incoterms?", <i>Materials Management and Distribution</i> , vol. 59, no. 2, pp. 12-13.	0	1	0	0	0	Explains Incoterms and UCC terms
<i>Some interesting new reading to give you all the answers</i> 1998, New York.	0	1	0	0	0	Explains Incoterms
Sriro, A.I. 1993, "Incoterms - A quick reference", <i>East Asian Executive Reports</i> , vol. 15, no. 9, pp. 21.	0	1	0	0	0	Explains Incoterms
Taghizadeh, E. 2013, <i>The Impact of Contract of Carriage of Goods Sold on Passing of Risk in Accordance with INCOTERMS Rules</i> , Social Science Research Network, Rochester.	0	1	0	0	0	Explains Incoterms
The JOURNAL of, C.O. 2003, <i>Export ABCs: Whither FOB Factory?</i> New York.	0	1	0	0	0	"The sales term "FOB Factory" is about as American as baseball and apple pie". FOB used in UCC and Incoterms
The JOURNAL of, C.O. 2005, <i>Export ABCs: UCC shipment and delivery terms</i> , New York.	0	1	0	0	0	Explains Incoterms and UCC terms
Thornley, D. 2010, <i>Playing by the rules</i> , Institute of Credit Management Ltd, Stamford.	0	0	1	0	0	New Incoterms 2010 taking effect
Turnbull, L. 2006, "Just what exactly is superior "customer service" and how can logistics help deliver it?" <i>Canadian Transportation Logistics</i> , vol. 109, no. 11, pp. 78.	0	0	0	0	1	Incoterms add complexity
<i>Vietnam: Firms urged to take advantage of trade pacts</i> 2013, Bangkok.	0	0	0	0	1	Encourage Vietnam import/export firms to take advantage of Incoterms (FOB buy and CIF sell)

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<i>VIETNAMESE LOGISTICS FIRMS URGED TO RAISE KNOWLEDGE OF INCOTERMS 2010</i> , Rhodes.	0	0	0	0	1	Vietnam wants logistics firms to increase knowledge of Incoterms 2010
<i>What are incoterms?</i> 2011, London.	0	1	0	0	0	Explains Incoterms
<i>Who pays when? Knowledge of Incoterms fundamental for traders.</i> 1999, New York.	0	1	0	0	0	Explains Incoterms
Yao-Hua, T. & Thoen, W. 2000, "INCAS: A legal expert system for contract terms in electronic commerce", <i>Decision Support Systems</i> , vol. 29, no. 4, pp. 389-411.	1	0	0	0	1	Incoterms important to electronic commerce, devise INCAS system to help suggest correct Incoterms
Zhai, J. 2013, "New Technology and Marketing Innovation-Base on Leading Trade Terms Into Pricing System," <i>Contemporary Logistics</i> , no. 13, pp. 9-13.	0	1	0	0	0	Explains Incoterms and UCC terms

						Total
	12	69	41	13	19	142
		48.59%	28.87%	9.15%	13.38%	

APPENDIX II – STUDY TWO IN-DEPTH SEMI-STRUCTURED INTERVIEW GUIDE

Begin the interview by

- Introducing yourself,
 - Giving a brief overview of the study,
 - This study looks at the negotiation process between buyers and sellers. Specifically, it looks at the negotiation process related to the transportation, responsibility, and risk associated with moving goods from the seller to the buyer. It considers how this negotiation process occurs, how communication happens, the results, and any ways to further improve the process. The questions that I will ask relate to these negotiation areas. This ultimate aim of this study is to shed light on these negotiation areas. At the end, I will ask for contact at one of your buyers/sellers to perform help with the study.
 - Give the interviewee assurance of your confidentiality, and
 - Make sure they have received and signed the informed consent form.
 - Offer to provide them with either a copy of the research results or a results presentation if they are interested in finding out what we learned from the research.
 - Ask the interviewee if they feel comfortable with interview process as discussed. Proceed only if interviewee agrees.
 - If interviewee seems slightly uncomfortable, do not ask to audiotape
 - If interviewee seems comfortable, then ask permission to audiotape.
1. To get started, please share some background information about yourself.
 - a. Internal or external to focal firm?
 - b. Title, Division, Years in Current Position, Years with Company, Years as Buyer/Sales Person
 - c. For what are you most likely to negotiate? – Goods for production, MRO, technology, services, special buys, etc.
 - d. Based upon the following scale, how often do you negotiate with your buyers/sellers?
 - i. 1 or more times per week
 - ii. 1 or more times per month
 - iii. 1 or more times per quarter
 - iv. 1 or more times per year
 - v. Not at all
 - e. Do you negotiate locally (your local country), regionally or globally?
 - f. How would you describe your negotiations?
 - i. Mostly transactional,
 1. If so, are any parts covered by a contract or terms and conditions (T&C's)?

- a. If via contract, who within your organization negotiates the contract?
 - b. If T&C's, ask for a copy or more details.
 - ii. Mostly covered by a mutually agreed upon contract (e.g. renewals), or
 - 1. Is a standard contract template used, or
 - 2. Is each contract unique?
 - iii. Mostly new contracts?
 - g. What do you do if negotiations arise for things that fall outside the contract guidelines? An example may be a new product or part not stated in the contract.
 - i. If so, can you provide some examples?
 - h. What's the typical total value or total spend impact of your negotiations?
 - i. How about additional things like financial terms, transportation or logistics during the negotiation?
 - i. Do you sign off or does someone else?
2. Please think about a recent, typical negotiation that involved the purchase/sale of goods. Please start at the beginning and describe in as much detail as possible the typical negotiation process with your buyer/sellers.
 - a. Can you provide a brief flowchart or can we talk through each step of the process?
3. Thinking about that same experience, please tell me about the negotiation for transporting the goods.
 - a. At what point do you negotiate for transporting the goods?
 - b. What factors did you consider?
 - c. What about the tasks, such as customs clearance or documentation, required of you versus your buyer/supplier?
 - d. How about ownership of the goods (a.k.a. title) during transport?
4. Tell me more about transportation and how it is discussed or compared?
5. Thinking about that same experience, please tell me how you and the buyer/seller communicate to each other the decision for transporting goods.
 - a. Is this the same for every negotiation?
 - b. If not, please describe each way.
6. Now, please think about all of your negotiations either personally, with another buyer/seller, or even another company.
 - a. Do any of the previous answers change?
7. Still thinking about all negotiations, and specifically the transportation tasks, risks, or costs, you described the negotiation process for transportation. Please describe in more detail any negotiation(s) where miscommunication occurred between your company and the buyer/seller. Miscommunication is the one party, buyer or seller, thinking the agreement before, during, or after transportation was different. For example, the other party thought the other party was handling customs clearance, a certain fee, or even disagreement on pick up/deliver point.

- a. Did this impact the relationship with the buyer/seller?
 - i. Corporate or personal relationship?
- b. Did it cost your company money? If not, how about your buyer/seller?
- c. What's more important to you and your firm: the relationship, cost, or both?
- d. Anything else important or impacted by the miscommunication?
- e. In your opinion, how could have this miscommunication been avoided?
8. Does your company use the transportation tasks, risks, or costs for other purposes (examples: revenue recognition, transportation management system or TMS, ownership/inventory, etc.)?
9. Still thinking about all of your negotiations, and specifically the transportation tasks, risks, or costs, what do you believe could improve communication with your buyer/seller?
 - a. If yes, then probe on how.
10. Do you list out in detail all of the transportation tasks, risks, or costs that both you and your buyer/supplier are respectively responsible for?
 - a. If not, how do you communicate and track these items?
11. When you are done negotiating, how do you know if you've been successful? In other words, what does success look like? For example, the best total cost of ownership, speed, payment terms, etc.
 - a. Is this the same for you and your company?
12. How does the relationship you have with the buyer/seller impact your negotiations?
13. Are the relationships, costs, both, or something else most important during and after negotiations with your buyer/seller?
14. Is there anything that I haven't covered that you believe is important during buyer/seller negotiations for transportation of goods?
15. Is there anything else that you think I should have asked or you would like to share?
16. Now that we have gone through the interview, can you think of and provide a contact at one of your buyers/sellers to go through a similar interview? (Prefer international contact and external to focal firm). Sending this via email or Skype is fine.
 - a. Get full name, company, email, and phone

After the interview is finished:

- Thank the interviewee for their time and help with this project.
- Ask if they would like to review a transcript of the interview to make sure everything is represented correctly.
- Ask if they would be willing to answer any follow-up questions that might come up as more interviews take place.

APPENDIX III – WORD CLOUD BEFORE CODING



APPENDIX IV – WORD CLOUD AFTER CODING



APPENDIX V – WORD CLOUD AFTER NODE TO CATEGORY CODING



APPENDIX VI – STUDY THREE QUESTIONNAIRE

Introduction

You are invited to participate in a research study conducted by Thomas J. (T.J.) Schaefer, an ABB Inc. employee, and Dr. Donald Sweeney/Dr. Ray Mundy from the University of Missouri-St. Louis. This study examines methods to improve the quality of buyer-seller communication with respect to logistics decisions related to the tasks, costs, and risks associated with transporting goods.

There are no anticipated risks associated and no direct benefits for you participating in this study. By participating, you will contribute to knowledge that may have future benefits to individuals, corporations, or others in negotiating the terms of business-to-business logistics transactions. Your participation in this study is voluntary, and you may refuse or withdraw your participation at any time during completing the questionnaire. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Thomas J. Schaefer +1-314-210-1497 or the Faculty Advisors, Dr. Donald Sweeney +1-314-516-7990 or Dr. Ray Mundy +1-314-516-7213. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research Administration at the University of Missouri-St. Louis, at +1-314-516-5897. By agreeing to participate, you understand and agree that your data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your identity will not be revealed.

Demographic Questions:

1) What sex do you identify as?

- 1) Female
- 2) Male
- 3) Prefer not to identify

2) What is your age?

- 1) 18 to 24 years
- 2) 25 to 34 years
- 3) 35 to 44 years
- 4) 45 to 54 years
- 5) 55 to 64 years
- 6) Age 65 or older
- 7) Prefer not to identify

3) What job role do you most closely identify with?

- 1) Sales and Marketing, including general management and project management
- 2) Supply Chain Management, including buying, planning, transportation, and operations
- 3) Accounting and Finance

4) How many years of work experience do you have?

- 1) 1 to 5 years
- 2) 6 to 10 years
- 3) 11 to 15 years
- 4) 16 to 20 years
- 5) 21 to 25 years
- 6) 26 to 30 years
- 7) 30 years or more
- 8) Prefer not to identify

5) Have you received Incoterms® training either internally by your company or externally?

- 1) Yes
- 2) No

6) When was that Incoterms® training? (If answered Yes to question 5)

- 1) 0 to 6 months ago
- 2) 7 months to 1 year ago
- 3) 1 to 1.5 years ago
- 4) 1.5 to 2 years ago
- 5) 2 years or more

After questions 5/6, respondent will then receive random assignment to either Treatment 1 or 2, and the questions will be assigned in random order.

Directions:

The following scenarios represent interactions of YZZ Inc. with its suppliers and customers. YZZ Inc. is a large, international manufacturing corporation that supplies products to the industrial market and purchases items globally for use in production. You may assume that all scenarios are trustworthy and accurate. After reading each scenario, please answer the related question by responding with what you believe is the most appropriate Incoterms to employ in the scenario to formalize the agreement with the supplier or customer related to the logistics tasks, costs, and risks associated with transporting goods.

TREATMENT 1: OPERATIONAL DEFINITIONS FULLY SPELLED OUT

Scenario 1: You represent Sales of YZZ Inc., and a customer from Shanghai, P.R. China contacts you about availability of a component that you sell. You check availability, and, fortunately, it is readily available at your U.S. plant. You already have a pre-negotiated component price, but you must negotiate the transportation responsibility and cost with the customer, as sometimes the customer decides to pick up the order from your U.S. plant. After discussions, the customer asks for a quotation from you with YZZ Inc. responsible for providing ocean container transportation, including minimal insurance, to the Shanghai, Yangshan port. When you respond to the request for a quote, what Incoterms® 2010 rule do you use?

1) “Cost and Freight” means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

2) “Cost, Insurance and Freight” means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination. The seller also contracts for insurance cover against the buyer’s risk of loss of or damage to the goods during the carriage. The buyer should note that under CIF the seller is required to obtain insurance only on minimum cover.

3) “Carriage and Insurance Paid to” means that the seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination. The seller also contracts for insurance cover against the buyer’s risk of loss of or damage to the goods during the carriage. The buyer should note that under CIP the seller is required to obtain insurance only on minimum cover.

4) “Carriage Paid To” means that the seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination.

5) "Delivered Duty Paid" means that the seller delivers the goods when the goods are placed at the disposal of the buyer, cleared for import on the arriving means of transport ready for unloading at the named place of destination. The seller bears all the costs and risks involved in bringing the goods to the place of destination and has an obligation to clear the goods not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities.

Scenario 2: YZZ Inc. has found a new domestic supplier, Echo Company, for supplying a component used in its manufacturing. You are assigned as YZZ Inc.'s lead negotiator with the Echo Company. After discussions with YZZ Inc. management, you agree that Echo Company should deliver the components to the YZZ Inc. plant, prepay for the freight costs, and have all responsibilities arranging for and assuming the risks of transport until reaching YZZ Inc.'s plant. What Incoterms® 2010 rule do you use?

1) "Cost and Freight" means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

2) "Carriage Paid To" means that the seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination.

3) "Delivered at Place" means that the seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. The seller bears all risks involved in bringing the goods to the named place.

4) "Delivered Duty Paid" means that the seller delivers the goods when the goods are placed at the disposal of the buyer, cleared for import on the arriving means of transport ready for unloading at the named place of destination. The seller bears all the costs and risks involved in bringing the goods to the place of destination and has an obligation to clear the goods not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities.

5) "Free on Board" means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already

so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards.

Scenario 3: YZZ Inc. has supplier, RHCP Inc., in Saint Louis for a critical component used in one its most profitable product lines. You are the Commodity Manager negotiating a contract renewal. Due to the critical nature of the component, you decide that you should control all transportation to improve control and visibility, but you still expect the supplier to handle export customs clearance. What Incoterms® 2010 rule should you use?

- 1) “Free Carrier” means that the seller delivers the goods to the carrier or another person nominated by the buyer at the seller’s premises in Saint Louis. The parties are well advised to specify as clearly as possible the point within the named place of delivery, as the risk passes to the buyer at that point. This is in accordance with Incoterms® 2010 rules.

- 2) “Ex Works” means that the seller delivers when it places the goods at the disposal of the buyer at the seller’s premises in Saint Louis. The seller does not need to load the goods on any collecting vehicle, nor does it need to clear the goods for export, where such clearance is applicable. This is in accordance with Incoterms® 2010 rules.

- 3) “Free Carrier” means that the seller delivers the goods to the carrier or another person nominated by the buyer at the seller’s premises, RHCP Inc., in Saint Louis. The parties are well advised to specify as clearly as possible the point within the named place of delivery, as the risk passes to the buyer at that point. This is in accordance with Incoterms® 2010 rules.

- 4) “Ex Works” means that the seller delivers when it places the goods at the disposal of the buyer at the seller’s premises, RHCP Inc., in Saint Louis. The seller does not need to load the goods on any collecting vehicle, nor does it need to clear the goods for export, where such clearance is applicable. This is in accordance with Incoterms® 2010 rules.

- 5) “Free Carrier” means that the seller delivers the goods to the carrier or another person nominated by the buyer at the seller’s premises, RHCP Inc., in Saint Louis, France. The parties are well advised to specify as clearly as possible the point within the named place of delivery, as the risk passes to the buyer at that point. This is in accordance with Incoterms® 2010 rules.**

Scenario 4: YZZ Inc.'s North America region has contracted with a supplier, Square One Inc., located in Germany that has much larger transportation volume, and hence, better transportation pricing. Because of this, both parties have agreed that Square One Inc. should handle delivery to YZZ Inc.'s distribution center in Memphis, Tennessee and transportation risk, but that YZZ Inc. will handle import duty. You are the last reviewer and approver of the supply agreement contract. What full Incoterms® rule do you expect listed in the contract?

1) "Carriage Paid To" means that the seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination, which is YZZ Inc. 486 YZ Blvd. Memphis, Tennessee 38119 USA.

2) "Delivered at Place" means that the seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination, which is YZZ Inc. in Memphis, Tennessee. The seller bears all risks involved in bringing the goods to the named place. This is in accordance with Incoterms® 2010 rules.

3) "Delivered Duty Paid" means that the seller delivers the goods when the goods are placed at the disposal of the buyer, cleared for import on the arriving means of transport ready for unloading at the named place of destination, which is YZZ Inc. 486 YZ Blvd. Memphis, Tennessee 38119 USA. The seller bears all the costs and risks involved in bringing the goods to the place of destination and has an obligation to clear the goods not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities.

4) "Delivered Duty Unpaid" means the seller delivers the goods to the buyer, not cleared for import, and not unloaded from any arriving means of transport at the named place of destination, which is YZZ Inc. in Memphis, Tennessee. The seller has to bear the costs and risks involved in bringing the goods thereto, other than, where applicable, any duty for import in the country of destination. Such duty has to be borne by the buyer as well as any costs and risks caused by his failure to clear the goods for import in time. This is in accordance with Incoterms® 2010 rules.

5) "Free on Board" means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment, which is YZZ Inc. 486 YZ Blvd.

Memphis, Tennessee 38119 USA. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards.

Scenario 5: You are in Sales for YZZ Inc. One of your best customers, Orange Blossom Power, has decided that they would like to pick up their orders directly from the YZZ Inc. plant, and hence, handle all tasks, costs, and risks associated with transportation. However, Orange Blossom Power still expects YZZ Inc. to load the purchased goods into the collecting vehicle of Orange Blossom Power's transportation carrier. What Incoterms® 2010 rule should you agree to?

1) "Cost and Freight" means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

2) "Delivered at Terminal" means that the seller delivers when the goods, once unloaded from the arriving means of transport, are placed at the disposal of the buyer at a named terminal at the named port or place of destination. "Terminal" includes a place, whether covered or not, such as a quay, warehouse, container yard or road, rail or air cargo terminal. The seller bears all risks involved in bringing the goods to and unloading them at the terminal at the named port or place of destination.

3) "Ex Works" means that the seller delivers when it places the goods at the disposal of the buyer at the seller's premises or at another named place (i.e. works, factory, warehouse, etc.). The seller does not need to load the goods on any collecting vehicle, nor does it need to clear the goods for export, where such clearance is applicable.

4) "Free Carrier" means that the seller delivers the goods to the carrier or another person nominated by the buyer at the seller's premises or another named place. The parties are well advised to specify as clearly as possible the point within the named place of delivery, as the risk passes to the buyer at that point.

5) "Free on Board" means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards.

TREATMENT 2: INCOTERMS® USED

Scenario 1: You represent Sales of YZZ Inc., and a customer from Shanghai, P.R. China contacts you about availability of a component that you sell. You check availability, and, fortunately, it is readily available at your U.S. plant. You already have a pre-negotiated component price, but you must negotiate the transportation responsibility and cost with the customer as sometimes the customer decides to pick up the order from your U.S. plant. After discussions, the customer asks for a quotation from you with YZZ Inc. responsible for providing ocean container transportation, including minimal insurance, to the Shanghai, Yangshan port. When you respond to the request for a quote, what Incoterms® 2010 rule do you use?

- 1) CFR
- 2) CIF
- 3) CIP**
- 4) CPT
- 5) DDP

Scenario 2: YZZ Inc. has found a new domestic supplier, Echo Company, for supplying a component used in its manufacturing. You are assigned as YZZ Inc.'s lead negotiator with the Echo Company. After discussions with YZZ Inc. management, you agree that Echo Company should deliver the components to the YZZ Inc. plant, prepay for the freight costs, and have all responsibilities arranging for and assuming the risks of transport until reaching YZZ Inc.'s plant. What Incoterms® 2010 rule do you use?

- 1) CFR
- 2) CPT
- 3) DAP**
- 4) DDP
- 5) FOB

Scenario 3: YZZ Inc. has supplier, RHCP Inc., in Saint Louis for a critical component used in one its most profitable product lines. You are the Commodity Manager negotiating a contract renewal. Due to the critical nature of the component, you decide that you should control all transportation to improve control and visibility, but you still expect the supplier to handle export customs clearance. What Incoterms® 2010 rule should you use?

- 1) FCA Saint Louis Incoterms® 2010
- 2) EXW Saint Louis Incoterms® 2010
- 3) FCA RHCP Inc. Saint Louis Incoterms® 2010
- 4) EXW RHCP Inc. Saint Louis Incoterms® 2010
- 5) FCA RHCP Inc. Saint Louis, France Incoterms® 2010**

Scenario 4: YZZ Inc.'s North America region has contracted with a supplier, Square One Inc., located in Germany that has much larger transportation volume, and hence, better transportation pricing. Because of this, both parties have agreed that Square One Inc. should handle delivery to YZZ Inc.'s distribution center in Memphis, Tennessee and transportation risk, but that YZZ Inc. will handle import duty. You are the last reviewer and approver of the supply agreement contract. What full Incoterms® rule do you expect listed in the contract?

- 1) CPT YZZ Inc. 486 YYZ Blvd. Memphis, Tennessee 38119 USA
- 2) DAP YZZ Inc. Memphis, Tennessee Incoterms® 2010**
- 3) DDP YZZ Inc. 486 YYZ Blvd. Memphis, Tennessee 38119 USA
- 4) DDU YZZ Inc. Memphis, Tennessee Incoterms® 2010
- 5) FOB YZZ Inc. 486 YYZ Blvd. Memphis, Tennessee 38119 USA

Scenario 5: You are in Sales for YZZ Inc. One of your best customers, Orange Blossom Power, has decided that they would like to pick up their orders directly from the YZZ Inc. plant, and hence, handle all tasks, costs, and risks associated with transportation. However, Orange Blossom Power still expects YZZ Inc. to load the purchased goods into the collecting vehicle of Orange Blossom Power's transportation carrier. What Incoterms® 2010 rule should you agree to?

- 1) CFR
- 2) DAT
- 3) EXW
- 4) FCA**
- 5) FOB