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Naturalistic Decision Making in First Sales Calls:
A Narrative Study of Experienced Technical Sales Professionals

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Education in Adult and Lifelong Learning

by

Douglas Williams
University of Illinois at Urbana-Champaign
Bachelor of Arts in History, 1994
DePaul University
Master of Arts in Interdisciplinary Studies, 1997

July 2021
University of Arkansas

This dissertation is approved for recommendation to the Graduate Council.

Kit Kacirek, Ed.D.
Dissertation Director

James F. Maddox, Ph.D.
Committee Member

Michael T. Miller, Ed.D.
Committee Member

Abstract

The first conversation between business-to-business sellers and new customers comes with the potential for both opportunity and risk. Sellers spend substantial effort gaining the right to engage in a first call with a potential customer. This study fills a gap in the literature by exploring the role of Naturalistic Decision Making (NDM) and how it impacts the way experienced technology sales professionals navigate first conversations with new customers. NDM explores how experienced professionals make decisions in high-stakes, real world situations that are ambiguous, time-pressured, and have poorly defined goals. While NDM studies have been performed in other professional disciplines, none have explored the part NDM plays in first sales calls in business-to-business technology sales.

This critical decision method (CDM) study explored the primary research question, “How do experienced technology sales professionals navigate first discovery calls?” Ten CDM interviews were conducted with experienced technology sales professionals from a mid-sized software company headquartered in the United States. There were five major findings from the study: 1) Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate first customer calls; 2) Contextual cues about customer’s organizational structure and strategy were the primary mechanisms that influenced sellers’ success on first sales calls; 3) Customer behavioral cues were the primary mechanism that informed sellers about customer interests; 4) Sellers’ decision making was influenced by a consideration of the value of the conversation to their customers; and 5) Product training was not a critical element of the first customer call. The findings of this study can help organizations better prioritize the types of training they provide their sellers in helping them to gain proficiency in recognizing and adapting to novel sales situations with new customers.

Acknowledgments

The journey of the Adult and Lifelong Learning doctoral program and the process of writing this dissertation have been an extraordinary experiences. While I was focusing on the research problem at hand and studied theories of adult learning, I was also experiencing what it meant to be an adult learner by engaging in the type of real-world self-directed learning we studied during our first courses in the program. The effort of producing this study, while significant, was in many more ways a thrill and a reward.

No journey is ever completed entirely alone, and there are many who contributed to my ability to complete this study and this process. First, I would like to thank the members of my doctoral cohort. We shared the challenges of our coursework together and picked one another up when needed. I'm not sure I would have made it through these years without your support. I consider you all friends and colleagues for life.

Second, I'd like to thank the faculty with whom I worked, and especially my dissertation committee for your suggestions and guidance in helping me identify and narrow the scope of my study, in selecting a suitable research methodology, and so much more. I'd especially like to recognize Dr Kacirek for her tireless help in guiding the way in which I approached the writing of this dissertation and for helping me maintain my perspective through each step of the process.

Third, I'd like to thank my parents for a lifetime of support and never-ending confidence in my ability. Ever since I was a child, they encouraged me to learn about and try as many things as I could. I am excited to have them take part in seeing me complete this final step of the journey.

Finally, and most importantly, without my wife Monica, I likely would not have found the energy to complete this process. I won't be able to adequately thank you, but you gave me the motivation to continue through many late nights of homework and countless revisions on top of your commitments to work and family. Thank you for always listening and offering me advice when I needed it. I love you even more.

Table of Contents

Chapter 1: Introduction	1
Professional Sellers as Adult Learners.....	1
The IT Sales Career Path	2
Sales Training and Adult Learning	3
The Relationship between Seller and Customer	5
Business to Business Technology Sales.....	5
Rapport Building.....	7
Decision-Making for Sales Professionals	7
Statement of the Problem.....	8
Purpose of the Study	9
Significance of the Study	9
Potential to Impact Training Programs	10
Research Questions.....	11
Overview of Research Design	11
Choice of Qualitative Method.....	12
Researcher Role	12
Researcher Assumptions and Limitations	13
Definitions.....	14
Chapter Summary	16

Chapter 2: Literature Review	17
Theoretical Framework	17
Dual Process Theory	19
Kolb’s Experiential Learning Theory	21
Kurt Lewin’s Influence	23
David Kolb and Modern Experiential Learning Theory	23
Experiential Learning in Business Settings	27
Criticism of Experiential Learning Theory	29
Naturalistic Decision Making	30
Role of Experience in Naturalistic Decision Making	33
Contrast with Judgment and Decision-Making Practice	34
NDM and Training in Organizations	36
Criticism of NDM	39
The Recognition-Primed Decision Model of Rapid Decision Making	40
Pattern Recognition in the RPD Model	46
Mental Simulations in the RPD Model	49
Chapter Summary	49
Chapter 3: Methodology	50
Introduction and Overview	50
Rationale for Qualitative Research Design	50

Social Constructivism	51
Rationale for CDM Methodology	52
Research Sample	54
The Participants and Context	55
Seller Training.....	56
How Sellers Prepared for Customer Calls	58
Information Needed to Conduct the Study	60
Perceptual Information.....	60
Demographic Information.....	60
Data Collection: The Critical Decision Method	61
Critical Decision Method Interview Sweep 1: Incident Identification	62
Critical Decision Method Interview Sweep 2: Timeline Verification.....	63
Critical Decision Method Interview Sweep 3: Deepening	64
Critical Decision Method Interview Sweep 4: “What If” Queries	67
Data Analysis	68
Stage 1: Decision Chart	69
Stage 2: Incident Summary	69
Stage 3: Decision Analysis Table.....	69
Stage 4: Items of interest.....	70
Stage 5: Collation and comparison of items across cases.....	70

Ethical Considerations	72
Issues of Trustworthiness	72
Credibility	74
Dependability	75
Transferability	75
Limitations	76
Chapter Summary	77
Chapter 4: Findings.....	78
Summary of the Findings.....	78
Finding 1: Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate the first customer calls.....	79
Finding 2: Contextual cues about customer’s organizational structure and strategy were the primary mechanisms that influenced sellers’ success on first sales calls.....	84
Finding 3: Customer behavioral cues were the primary mechanism that informed sellers about customer interests.	87
Finding 4: Sellers’ decision making was influenced by a consideration of the value of the conversation to their customers	89
Finding 5: Product training was not a critical element of the first customer call	89
Reflection: Novice Mistakes.....	90
Chapter Summary	92
Chapter 5: Discussion and Recommendations.....	95

Discussion of the Findings.....	95
Finding 1: Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate the first customer calls.....	96
Discussion and Implications for Sales Training Programs	98
Finding 2: Contextual cues about customer’s organizational structure and strategy were the primary mechanisms that influenced sellers’ success on first sales calls.....	99
Discussion and Implications for Sales Training Programs	100
Finding 3: Customer behavioral cues were the primary mechanism that informed sellers about customer interests	100
Discussion and Implications for Sales Training Programs	101
Finding 4 Sellers’ decision making was influenced by a consideration of the value of the conversation to their customers.....	102
Discussion and Implications for Sales Training.....	102
Finding 5: Product training was not a critical element of the first customer call ...	103
Discussion and Implications for Sales Training.....	104
Implications for Adult Learning.....	105
Limitations	107
Delimitations and Assumptions	108
Recommendations for Future Research	109
Chapter Summary	109
References.....	110

Appendix A: Letter of Invitation to Head of Global Sales	121
Appendix B: Letter of Invitation to Sales professionals	122
Appendix C: CDM Interview Protocol	123
Appendix D: Researcher's Current Professional Role.....	124
Appendix E: University of Arkansas Institutional Review Board	126
Appendix F: CDM Interview Timeline Constructed in Sweep 2 - Example	127
Appendix G: CDM Decision Chart.....	128
Appendix H: CDM Call Summary Example	129
Appendix I: CDM Decision Analysis Table Example	130
Appendix J: CDM Consolidated Items of Interest across Interviews - Example	131

List of Tables

Table 1: Percentage of Companies by Number of Employees that Have Dedicated Sales Training	4
Table 2: Characteristics of System 1 and System 2 Processes.....	20
Table 3: Glossary of Dual-Process Terminologies.....	21
Table 4: Demographic data	61
Table 5: Interview Protocol Questions, Interview Sweep 1	63
Table 6: Interview Protocol Questions, Interview Sweep 2.....	64
Table 7: Interview Protocol Questions, Interview Sweep 3	66
Table 8: Interview Protocol Questions, Interview Sweep 4.....	68

List of Figures

Figure 1: Relationship of theoretical concepts in this study	18
Figure 2: The Experiential Learning Cycle.....	24
Figure 3: Experiential Learning Theory: Grasping Experience.....	26
Figure 4: Experiential Learning Theory: Transforming Experience.....	27
Figure 5: The Decision-Analytic Model of Decision Making	35
Figure 6: Recognition-Primed Decision Model	42
Figure 7: Simple Pattern Recognition Process for Intuitive Decision Making.....	47
Figure 8: Recognition-Primed Decision Model for Complex Situations.....	48
Figure 9: Example Open Office Floor Plan for Sales	56
Figure 10: Call Planner: Customer Information	58
Figure 11: High level intended agenda prepared by sellers before first sales conversation	59
Figure 12: Call Planner: Example Questions.....	59
Figure 13: Structured approach for analyzing CDM data.....	71
Figure 14: Approximate number of minutes to uncover information related to organizational structure and organizational strategy on first customer calls.....	84
Figure 15: Main factors contributing to first call success with a new customer.....	96
Figure 16: ELT Accommodative Learning Style: Potential Relationship to NDM and the RPD model.....	106

Chapter 1: Introduction

The purpose of this qualitative study was to understand how experienced technology sales professionals became aware of and adapted to customer cues during a first sales conversation. This Critical Decision Method investigation was conducted with the goal of assisting sales professionals and their managers in identifying how sellers make decisions in pressure-laden, high-stakes situations, where goals are poorly defined and there is the potential for a high degree of ambiguity. Instead of focusing only on ways for sales professionals to eliminate the mistakes from their first sales calls, there was also an opportunity to focus on the insights and discoveries that come from such experiences and celebrate that type of adult learning as a strength.

This chapter describes the background and context for the study as it relates to the environment in which experienced technology sales professionals operate. The purpose of the study, problem statement, and research questions are provided. The study's importance, methodology rationale, limitations and assumptions, and key terms are defined.

Professional Sellers as Adult Learners

Every sales interaction “involves a different human problem or situation. In brief, there is no one sales situation and no one way to sell” (Thompson, 1973; p. 8). In many technology companies, financial investment in recruiting and training sales professionals is substantial. The quicker sales professionals can achieve productivity as measured by the attainment of a quarterly or yearly monetary quota, the faster a company can grow. However, it is increasingly difficult for organizations to train sellers in technology sales positions to communicate value to customers who are highly educated, highly technical, and operate in increasingly complex, sophisticated environments. Developing technology sales professionals is both an adult learning challenge and

a balancing act for businesses. Sales professionals operate in high pressure, high-stakes, often ambiguous environments. Formal sales training is often based on a combination of didactic (traditional lecture) and formal experiential methods, involving team problem-solving, role-play exercises, sharing sessions, and other participative interactions. Informal experiential learning, the way sellers experience, reflect, and act upon their interactions with customers, is an underexplored area of research; however, it is arguably where most experienced sales professionals learn the bulk of the skills they need to be successful in their roles.

The IT Sales Career Path

Worldwide IT spending surpassed \$3.8 trillion globally in 2019 and continues to grow each year. In 2019, enterprise software and data center systems purchased by businesses accounted for \$661 billion in revenues for technology vendors (Gartner, 2020). Given the massive stakes involved, technology vendors compete for highly qualified, experienced sales professionals. There is no agreed upon figure for the number of technology sales professionals globally. In most organizations, there are multiple levels of sales professionals, each with a different focus. Entry level employees may have a title of Sales Development Representative, Business Development Representative, or Lead Development Representative. These employees focus on generating sales leads and setting meetings for senior sales employees (InsightSquared, 2015). If they are successful in this role, these entry-level sellers are promoted into a small- or mid-market role, selling to small and medium sized businesses. For many of these sales professionals, it is their first taste of taking a sale from beginning to end, and the point at which they begin to generate the foundation of experience that accelerates progress in their role and in the profession. In this phase of their career, many sellers learn to manage a deal to the end of the sales process, known as ‘closing the deal’ in sales parlance. Success in this intermediate role can

lead to an enterprise, or ‘field’ sales role. Field sales professionals typically have just a few large organizations as customers, with a high sales target, or ‘quota’ to achieve. The best among these enterprise sales professionals can command base salaries well into the six figures with the median in the USA estimated at \$225,000 per year (Neuvoo, 2020). Sales professionals who significantly overachieve against their sales targets can earn in excess of \$1 million. It is important to note that with respect to both the small/midmarket and enterprise roles, I have directly observed that it takes both roughly the same amount of time for reps hired directly into these roles (as opposed to being promoted through the ranks) to learn the product, market, and sales methodology of the organization for which they are selling. In the first six to nine months of employment, the performance of a small/mid-market seller may be indistinguishable from their more senior enterprise counterparts. However, the cumulative career experience of the enterprise seller allows them to accelerate more rapidly once they have a foundation in these areas.

Sales Training and Adult Learning

Today’s sales professionals are as focused on personal and professional development as they are on achieving the goals of their specific role. Carroll (1995) noted the importance of practical experiential learning as the complexity of work environments continue to grow. Even with such high stakes, not every organization invests in a dedicated sales training function. In their CSO Insights 2019 Sales Enablement Report, Miller Heiman noted the investment in sales training among companies of different sizes. Table 1 shows the percentage of companies with dedicated sales enablement teams by company size.

Table 1: Percentage of Companies by Number of Employees that Have Dedicated Sales Training

<26 employees	26-50 employees	51-250 employees	251-500 employees	>500 employees
39%	64%	73%	72%	77%

Note: Adapted from Miller Heiman Group, 2019

Organizations that invest in training sales professionals typically use a product and technology-focused curriculum that explores how to identify and attract new prospects, expands the seller's product knowledge and enhances the seller's understanding of the market into which they are selling. These elements are meant to help accelerate the time it takes for sellers to become productive for their organizations and gain the experience to be self-sufficient. Over the past 40 years, business-to-business (B2B) sales professionals (as opposed to business-to-consumer sales professionals) have evolved from being focused on transactional customer interactions that may occur only once to a relationship-management system that encompasses multiple, expanding transactions over time (Plouffe and Barclay, 2007). Today, B2B sales professionals typically approach the first customer interaction with a goal to develop a long-term relationship (Kaski et al., 2018).

While product knowledge and an understanding of market trends are essential for customer satisfaction, discovery skills are critical to founding an ongoing sales relationship. Sales professionals use discovery skills and knowledge to understand a customer's needs, goals, obstacles, and requirements to meet their objectives. By contextualizing customers, sales professionals can better determine the chances of establishing a sales relationship with the customer. Despite the research that supports behavioral training's effectiveness for teaching sales professionals how to create mutual-value relationships for the customer and the seller, few organizations focus on reinforcing such behaviors (see Töytäri, 2015; Terho et al., 2015; Kienzler et al., 2019; Keränen et al., 2020). According to a study by the Miller Heiman Group (2019),

50% of organizations participating in the study identified the need to invest more in sales discovery skills, sales methodology, and value messaging training.

The Relationship between Seller and Customer

Although technology customers have abundant information at their disposal, the relationship between customer and seller is a crucial determinant in making a sale. Dwyer et al. (1987) describe customer-seller relationship development as having four distinct phases. The first phase is awareness, during which customers identify companies with which they will consider doing business. During this phase, customers may experience uncertainty due to a lack of information about the company and the sales professional with whom they would potentially work (Claycomb, 2010). In the second phase, the exploration phase, customers evaluate different companies by assessing their business terms, setting requirements for possible purchases, and making low-risk orders to assess the company's fulfillment process. The third phase that customers experience is expansion. During this phase, customers execute long-term agreements and accelerate their purchasing from the sales professional. Finally, in the commitment phase, customers and sales professionals agree to establish stable, ongoing partnerships in which both parties' organizations stand to benefit (Dwyer et al., 1987).

Business to Business Technology Sales

Business-to-business (B2B) sales is different from business-to-consumer (B2C) or business-to-government (B2G) sales. Business-to-business sales involve a transaction between businesses. Examples of this type of transaction would be the sale of raw goods to a manufacturer, or from a manufacturer to a retailer (Chen, 2020). Business-to-consumer sales involves the sale of products or services directly from a business to the end-user of its products. An example of a B2C sale would be a retailer selling a smartphone to a private citizen for their

personal use (Kenton, 2020). Finally, B2G sales involve a transaction between a business and governments at all levels. Examples of B2G sales could involve large transactions such as the sale of ships to the military or small transactions involving the sale of classroom supplies to a local school (Kenton, 2019). This study focuses on B2B sales.

Just as there are different audiences to which businesses sell, there are different types of sales within each industry. Technology sales differ from sales in manufacturing, healthcare, or services. Business to business technology sales differ from both B2C and B2G technology sales. This is the case for several important reasons. In B2C sales, individual consumers often make rapid technology purchases based on emotions and their personal preferences (Lahoutifard, 2019). They often choose technology based on ease of use and portability, and most consumers are willing to dispose of technology after just a few years, moving on to the ‘next greatest thing.’

In contrast, in B2B sales, when businesses purchase technology, they often follow a more deliberate process that involves scrutiny from multiple levels of management. There is a focus on the return on investment (ROI) the company might receive from their purchase. Businesses making a purchase often agree to multi-year commitments to receive better prices to achieve a better ROI.

With so much at stake for both B2B technology vendors and their customers, choosing the right sales professional is critical. Competition is fierce for the best sales professionals in the B2B technology space. Kaski et al. (2018) note that sales managers should consider hiring members who break the mold of the typical highly extroverted personality; instead, they suggest hiring highly educated, driven, and experienced professionals who can be flexible in their handling of situations and the ability to respond appropriately to cues from customers. Not only do Kaski et al. note that this requires sales professionals to possess intuition, sensitivity, and

creativity, they agree with Lahoutifard (2019) that these professionals have demonstrated an ability to perform in high-pressure situations while possessing a high level of emotional intelligence. All these qualities are needed to address the complexity of the problems their technology can solve for large businesses. The ability to communicate effectively with a wide range of personalities and job roles in high-stakes, time-pressured environments is what sets these professionals apart.

Rapport Building

In a B2B sales situation, sales professionals and customers beginning a discussion related to a potential purchase share the desire to participate in a relational exchange that represents the expectation of long-term continuity instead of a single transaction (Dwyer et al., 1987). Rapport building is integral to the initial stages of sales professional-customer interaction. Defined by Gremler & Gwinner (2008), rapport is “the perceived quality of the relationship, dealing with the communication between the two parties and characterized by a connection or understanding among the participants” (p. 309). Rapport is an early indicator of credibility, which is a foundation for trust, and consequently, for the relationship (Manning et al., 2012). Rapport involves short, informal exchanges that share non-business-related experiences. Rapport is often an expected part of the first conversation with a customer. Rapport building creates a shared experience that enables an atmosphere that promotes confidence in the sales professional (Claycomb, 2010). Rapport establishes a sales professional’s capacity to listen and adapt to the customer’s perceived needs for the remainder of the discovery conversation.

Decision-Making for Sales Professionals

To be successful, sales professionals must determine the appropriate sales strategy for each customer they encounter (Weitz et al., 1986). This determination depends on the sales

professional's accurate perception of customer needs (Weitz, 1981) that influences how they approach the customer conversation. Therefore, perceptual accuracy is critical in contextualizing the customers' needs and determining a response to those needs (Hall et al., 2015). Dane and Pratt (2007) define two types of perceptual judgments individuals make when problem solving: intuitive judgments and deliberative judgments. Intuitive judgments are "affectively charged judgments that arise through rapid, nonconscious, and holistic associations" (p. 40). Intuitive judgments share four characteristics: first, they are nonconscious, experiential processes. While we are conscious of the judgment itself, the process of arriving at an intuitive judgment is something of which we are not conscious. In the context of sales, this often occurs when hearing a prospective customer's job title for the first time and assuming that they have particular interests and goals. Second, intuitive judgments involve making what Dane & Pratt refer to as *holistic associations* (p. 36). Holistic associations are a type of recognition which represent environmental elements that are matched with a nonconscious category, pattern or feature. Instead of relying on multiple, fine-grained data points, these associations are generalized in each situation. Third, the intuition process is fast, especially when contrasted with rational, deliberative processes. Finally, intuitive judgments are affectively charged by an individual's emotions. In contrast to intuitive judgments, deliberative judgments arise from slower, conscious, and analytical associations.

Statement of the Problem

Salespeople are invaluable to building long-term relationships with customers. They need to be competent communicators to succeed in their work (Koponen et al., 2019). The primary goal of any initial sales conversation is to establish expectations about the sales relationship. Rocco & Bush (2016) note in a survey of 127 firms of various sizes that high annual turnover for

both inside and outside sales roles of 26.9% and 25.7% respectively is costly for firms where an average cost per turnover of \$97,690. He also shares that sales professional turnover is due in large part to 42% of sales professionals failing to meet their quotas due to lack of success in the sales process.

A successful first discovery call creates potential for both a sale and a long-term business relationship. An unsuccessful first discovery call does not offer the same promise.

Understanding the ways in which experienced sales professionals identify and interpret customer cues, and the actions they take as a result to achieve a successful outcome in first discovery calls is of critical importance to sales professionals, their managers, and their companies. During discovery, as customers share information, the conversation may move in a direction the sales professional had not anticipated. These situations were the focus of this study. This study examined how experienced technology sales professionals become aware of and adapted to customer cues during initial sales discovery meetings with new clients.

Purpose of the Study

The purpose of this study was to understand how experienced technology sales professionals become aware of and adapted to customer cues during initial sales discovery meetings with new clients. Specifically, the study identified customers' behavioral and informational cues that sellers recognized and interpreted during the initial meeting. The study subsequently identified how these cues influenced the seller's decision-making process during their first sales call.

Significance of the Study

This study has important implications for sales professionals, sales leaders, and organizations. Sales professionals not only need to accurately perceive and judge their

customers' needs to be able to perform effectively, they also must be able to adapt their approach to customers' needs as they evolve during the first discovery call. The information from this study could assist sales professionals and their managers to identify how sellers make decisions in high pressure, high-stakes situations, illustrating how the application of Naturalistic Decision Making (NDM) and Klein et al.'s (1989) Recognition-Primed Decision (RPD) model can be applied to the sales discipline.

Potential to Impact Training Programs

Klein (2015) noted the opportunity to approach NDM research as a form of positive psychology. Instead of only focusing on ways for sales professionals to eliminate the mistakes from their behavior on first sales calls, Klein's lesson is that there is also an opportunity to focus on the insights and discoveries that come from such experiences and celebrate those as strengths. The opportunity for sales training programs is to be able to accumulate the insights and discoveries of experienced sellers and use them to help train up and coming professionals in the field. He also calls for the creation of decision aids and the use of concrete, scenario-based training exercises to introduce and reinforce lessons learned from more experienced professionals. Likewise, the ability to frame an evaluation of sellers' conversations with customers using a common vocabulary to educate sellers could reduce the amount of time associated with communicating feedback to sellers and sales leaders alike. These were only a few of the potential outcomes of this study.

Research Questions

The research questions that guided this study explored a general, though potentially complex set of factors to bring forth the perspectives of participants related to phenomena (Creswell & Creswell, 2018). The primary research question was:

Q1. How do experienced technical sales professionals navigate first discovery calls?

Two sub-questions were also examined:

Q2. What customer cues do experienced technical sales professionals recognize that lead to success on first discovery calls?

Q3. How do technical sales professionals interpret and respond to different types of customer cues on first discovery calls?

Overview of Research Design

This qualitative study used the Critical Decision Method (CDM) (Klein et al., 1989) and semi-structured interviews to collect data. The CDM is a story-based, narrative, retrospective interview technique that involves systematically asking questions to an experienced professional regarding a memorable, nonroutine situation to uncover information related to how they made decisions during the sequence of events (Wong, 2004). In this study, an experienced professional meant a sales professional who had been in their current role for at least one year and had completed both the basic and advanced training sequence of the organization. Ten participants were interviewed for the study. Sample size in the Critical Decision Method is focused on the number of decisions – not the number of participants (Borgen et al., 2008). Saturation is achieved when recurring themes repeatedly occur across multiple interviews.

Choice of Qualitative Method

Merriam and Tisdell (2016) assert that qualitative researchers focus on how individuals interpret experiences and how they make sense of the world and the meaning they assign to their experiences. To achieve this outcome, I approached the questions in this study through a constructivist lens: that is, a viewpoint that Creswell and Creswell (2018) note as one where we seek to establish meaning of phenomena through the voices and experiences of participants. Crotty (1998, pp. 42-43) asserts that “Meanings are constructed by human beings as they engage with the world they are interpreting.” While a quantitative instrument such as a survey could have yielded valuable information to respond to questions about what exists, such as “who,” “what,” “where,” or “how many” questions, these would, at best, only be a precursor to this study. Likewise, a formal experimental study would limit the study to the exploration of the relationship of predefined variables. Neither would have offered the opportunity for the same flexibility nor richness of data to emerge in response to questions about the ways in which sales professionals adapt to their first conversations with new customers.

Researcher Role

Bloomberg and Volpe (2019) note the importance of providing the professional and educational background of the researcher. Likewise, Merriam (2009) notes the importance of acknowledging potential biases about the study. My background and experiences both frame the viewpoints I brought to the study.

My parents are both college-educated professionals from the Midwest, though neither of them progressed beyond their bachelor’s degree. While there was some technology in our house growing up, we were typically the last ones in our neighborhood to get the latest new gadget such as a VCR or a computer. While in high school and even through my bachelor’s and

master's degrees, I had little interest in the technology. Though my father spent much of his career in sales, I never aspired to the profession. While I had no formal training in software development, marketing, or sales, I had the opportunity to pursue each as part of my professional development. During my career, I had to make decisions in situations I had not previously experienced. While conducting this study, I remained aware of how my background could influence the assumptions that I could potentially make about the participants and their responses. I needed to resist any inclination to overlay my own experiences over those described by the study's participants. My background is discussed in more detail in Appendix D.

Researcher Assumptions and Limitations

According to Bloomberg & Volpe (2019), assumptions are important issues I believed to be true before I began data collection. These assumptions included CDM being the correct methodology to uncover information to answer the research questions and offer a structure to analyze interview data; that the participants in the study would be able to identify a nonroutine first sales call; and those respondents would respond honestly to interview questions.

Due to the specific industry of the sample available for the study, results are not generalizable beyond the specific population from which the sample was drawn, nor are they meant to be. Bloomberg & Volpe (2019) discuss the concept of transferability, which describes how lessons learned in one setting could be useful in other settings. They note that “transferability refers to the fit or match between the research context and other contexts as judged by the reader” (p. 330). Due to human resource or regulatory restrictions, individuals from all geographies were not able to participate. As a result, the population involved in the current study focused only on team members within a single technology company located within the US. Only technology sales professionals who had been at the company in their current roles

for at least one year and had completed both the basic and advanced sales training courses provided by the company were eligible to participate. There was the potential for respondents to fail to answer with candor, and consequently, results might not accurately reflect the opinions of all members of the included population. Additionally, due to Covid-19, interviews had to be conducted entirely online using Zoom videoconferencing software. As this was being written, concern for the safety of both the participants and myself prevented me from being able to conduct interviews in person. The study captured a point in time snapshot of the respondents in the sample. No longitudinal study was planned.

Definitions

Discovery. The initial stage in the relationship of a business-to-business sales interaction between seller and customer. The seller, having done their research, connects with a prospective customer in one or more meetings meant to understand the customer's situation and the potential value a seller's organization could provide (Anderson & Welch, 2020).

Dual Process Theory. Dual Process theories share the view that there are two systems at play when humans process information: an intuitive system which is more automatic, nonconscious, and undemanding of "computational resources" is often referred to as System 1; its counterpart is a more deliberative, rational system that involves conscious analysis, often referred to as System 2 (Stanovich & West, 2000).

Experiential Learning Theory. Experiential learning is "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb & Kolb, 2005, p. 194).

Naturalistic Decision Making. Naturalistic Decision Making focuses on how people make decisions in real life, as opposed to how they should make decisions based on controlled, laboratory tasks. Naturalistic Decision Making focuses on decision making when conditions are complex, when there is time pressure, when goals are vague, when multiple decision-makers of varying experience are present, and stakes are high. (Schraagen et al., 2008, Klein & Wright, 2016).

Recognition-Primed Decision model. The Recognition-Primed Decision model involves “learned holistic associations based on prototypes that enable an experienced decision maker to gain an acute awareness of a situation based on relevant cues (compared to a novice who might devote scarce mental resources to irrelevancies), deploy action scripts (activated by meaningful patterns of cues based on similarity to previously-encountered situations), mentally simulate the deployment of a given script (based on mental models), take the necessary actions (based on requisite levels of skill), and accomplish the whole process “in an instant and without conscious thought” (Gore & Sadler-Smith, 2011, p. 13; Klein, 2003, p.14).

Pattern matching. Pattern matching refers to the ability of someone with experience being able to “detect typicality and to notice events that did not happen and other anomalies that violate the pattern” (Klein, 1998, p. 149).

Mental simulation. Mental simulation is “the ability to see events that happened previously and events that are likely to happen in the future” (Klein, 1998, p. 149). To determine whether an action is an appropriate response to a pattern of events or cues, the decision maker imagines it, simulating the steps and outcomes of each. The decision maker also seeks to identify any problems with the action and whether the problem can be handled. If the action is appropriate and any problems can be mitigated, the decision maker enacts it; conversely, if the

action is deemed to be inappropriate, the decision maker discards the option and proceeds to the next potential action (Lipshitz, 1993).

Sales prospect. A sales prospect represents an individual or an organization who have: “recognized needs that would be fully or somewhat satisfied by buying the particular product or service offered; buying power in terms of available funds as well as the authority to make a purchase decision; and would be receptive to a contact by a seller of the product or service and are accessible to that seller” (Jolson & Wotruba, 1992).

Chapter Summary

The purpose of this study was to understand how experienced technology sales professionals became aware of and adapted to unanticipated customer responses during a first sales conversation. Chapter 1 presented the introduction, the statement of the problem and significance of the study, the research questions, research approach, and researcher assumptions & limitations. A definition of terms was also provided. Chapter 2 offers a review of the literature related to the concepts associated with dual process theory, Experiential Learning Theory, Naturalistic Decision Making, and the Recognition Primed Decision Model as it relates to the current study.

Chapter 2: Literature Review

The purpose of this study was to understand how experienced technology sales professionals become aware of and adapted to customer cues during initial sales discovery meetings with new clients. Creswell & Creswell (2018) suggest that the first step in any research project is to spend considerable time examining the existing research. The themes that emerged from the data collection and analysis process were used to further inform the relevant literature for this chapter.

Theoretical Framework

The framework for this study combines four theoretical models. The first involves foundational principles related to Dual Process Theory, which describes two systems at play when humans process information: an intuitive system which is more automatic, nonconscious, and undemanding of “computational resources” is often referred to as System 1; its counterpart is a more deliberative, rational system that involves conscious analysis, often referred to as System 2 (Stanovich & West, 2000).

The second theoretical model is Kolb’s experiential learning theory (ELT). ELT focuses on the central role that experience plays in the adult learning process. The theory’s origins have their roots in other experiential theories from Piaget, Dewey, Lewin, Freire, and James (Baker et al., 2005).

The Naturalistic Decision Making (NDM) model (Orasanu & Connolly, 1993) focuses on the decision process of individuals of differing experience levels in actual real-world settings and circumstances. It incorporates the principles of dual process theory by arguing that those possessing substantial experience in a particular discipline primarily make decisions using System 1 processes, and only incorporate System 2 processes as necessary.

The primary theoretical lens for the study was Klein's Recognition-Primed Decision (RPD) model (Klein & Crandall, 1996). The RPD model incorporates the principles of dual process theories within NDM situations in two key respects: the first is situation recognition, where System 1 processes are primarily at play in recognizing situational cues and patterns; and the second is action determination, where System 2 processes allow the individual to analyze identified patterns and to mentally simulate potential decisions representing the course of action to be taken. The relationship of these different theories is depicted in Figure 1.

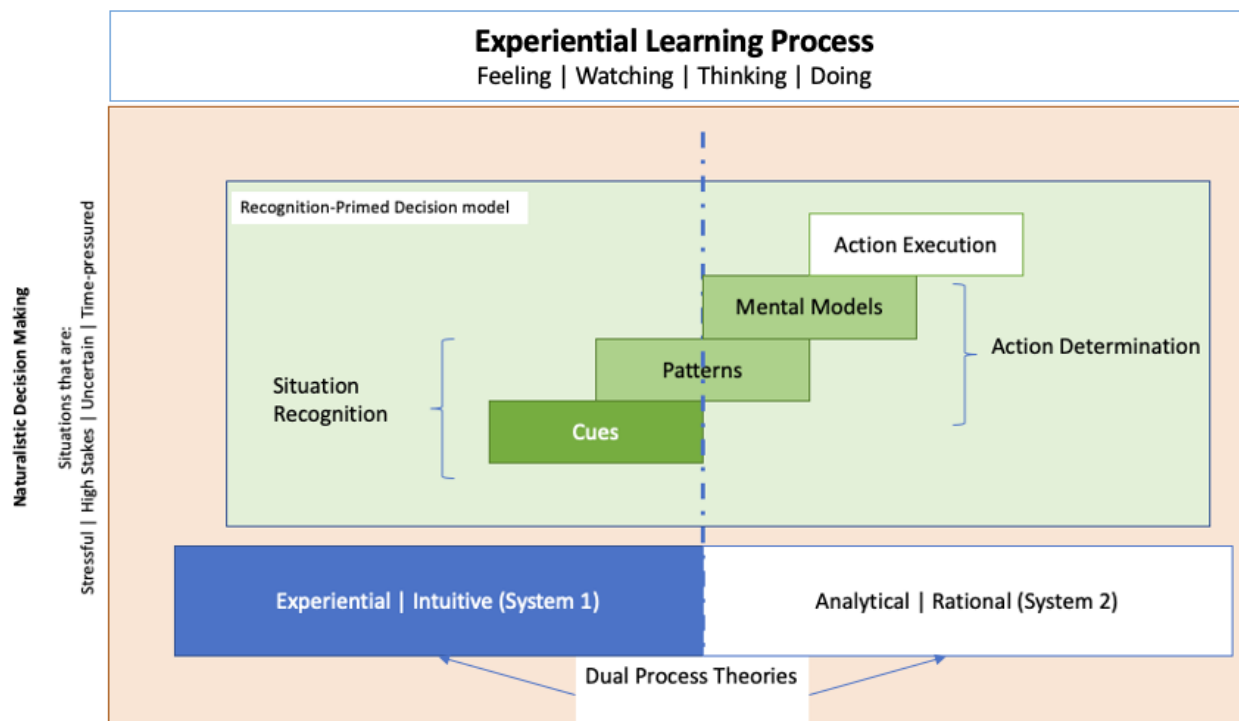


Figure 1: Relationship of theoretical concepts in this study

I was unable to find any studies in the research that investigated the sales profession using this combination of constructs, though success in initial sales discovery meetings often results from the principles NDM describes: decision-making as a function of tacit knowledge gained through substantial experience; time pressure, ambiguous problems and ill-defined goals; the use of experiential mental models to enable simulation of potential outcomes; and the

importance of framing available information against the backdrop of the sales professional's current situation (Klein & Wright, 2016). This research aims to provide a new orientation to the application of these models for use by sales professionals and sales managers alike.

To conduct this literature review, I used multiple information sources, the most valuable of which was the University of Arkansas online library. It was the portal to access countless journal articles and other publications. There was no delimiting time frame for the research. As much as possible, I attempted to ensure the concepts had a clear link to the research questions in this study. I also attempted to identify contrasting viewpoints where possible.

This literature review focused on four key theories: dual-processing systems, Kolb's Experiential Learning Theory, Naturalistic Decision Making, and the role of the Recognition Primed Decision model.

Dual Process Theory

Dual Process theories share the view that there are two systems at play when humans process information: an intuitive system, often referred to as System 1, and a more deliberative rational system, often referred to as System 2 (Stanovich & West, 2000). Within the past fifty years, a great deal of research has been conducted in the realm of reasoning, judgment, and decision science, with multiple dual process theories emerging to describe each. Dual process theories have also emerged in the fields of learning psychology and social cognition (Evans & Stanovich, 2013). While theories may diverge in terms of their specific application, it has generally been agreed that System 1 and System 2 processes consist of the qualities shown in Table 2 (Sadler-Smith, 2008).

Table 2: Characteristics of System 1 and System 2 Processes

System 1 Processes	System 2 Processes
Associative	Rule-Based
Holistic	Analytic
Automatic	Controlled
Cognitively undemanding	Cognitively Demanding
Fast	Slow
Involuntary	Voluntary
Acquired through biology, exposure, informal/implicit learning and experience	Acquired through cultural formation and formal/explicit learning
Interactional intelligence	Analytic intelligence
Intuiting	Analyzing

(Sadler-Smith, 2008, p. 202)

It may be tempting to think of these qualities as a straightforward means of unifying an understanding of dual process theories. However, the complexity for readers and researchers alike lies in the fact that many of dual-process theories make use of different terms, often with the intention of being synonymous with System 1 and System 2. One such example is with the use of the word system – Evans (2008) notes that it is unlikely that there are two distinct systems at play, and in later research he chooses to pivot his own use of the terminology of the dual process principle as a framing of “two minds” rather than two systems (Evans, 2012). Over the years, researchers have expanded or restricted the scope of the concepts to accommodate the fields to which specific research has been applied. Table 3 reflects a glossary of dual-process terminologies as compiled by Evans and Stanovich (2013).

Table 3: Glossary of Dual-Process Terminologies

Term	Definition
Dual processes	The assumption by many theorists that cognitive tasks evoke two forms of processing that contribute to observed behavior.
Dual types	Terminology that implies that the dual processes are qualitatively distinct. Type 1 processes are (broadly) intuitive and Type 2 processes reflective.
Dual systems	It is common in the literature to use the terms System 1 and System 2 to refer to the Type 1 and 2 distinction. Some but not all authors associate these with an evolutionary distinction associated with only two specific cognitive or neurological systems.

(Adapted from Evans and Stanovich, 2013).

Because of the variety of fields to which dual process theory has been applied and the number of variations it represents, the construct has not gone without criticism. Some of this criticism relates to the number and vagueness of different dual-processing definitions. Others question the need to have a dual process theory at all, noting that single processes can actually explain data related to researched phenomena (e.g., Kruglanski & Gigerenzer, 2011; Keren & Schul, 2009). Despite these criticisms, dual process theories have been applied to a wide range of research and evidence to support their well-established principles. For this dissertation's purpose, the important distinction is that processing occurs that makes use of an intuitive system (System 1), and a system focused on deliberative, rational thought (System 2).

Kolb's Experiential Learning Theory

Experiential Learning Theory (ELT) incorporates foundational concepts from the work of several 20th century scholars, including John Dewey, Kurt Lewin, Jean Piaget, William James, Carl Jung, Paulo Freire, and Carl Rogers. Within ELT, learning is defined as "the process

whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb, 2015, p. 51). Six propositions form the core of ELT (Kolb & Kolb, 2005, p. 194):

- Learning is best conceived as a process, not in terms of outcomes: The focus should be on student engagement. The process should enhance student learning, including feedback on their efforts.
- All learning is relearning: The process should draw out a students’ beliefs and ideas about a topic for later integration with new experiences and ideas.
- Learning requires the resolution of conflict between opposed modes of adaptation to the world: students are asked to move between the opposing modes of reflection and action; and the opposing modes of thinking and feeling.
- Learning is a holistic process of adaptation to the world: Learning is about the entire person: how they think, feel, perceive, and behave.
- Learning results from the synergetic transactions between the person and the environment: Learning is a process of assimilating new experiences into existing concepts and accommodating existing concepts to new experience.
- Learning is the process of creating knowledge: ELT is a constructivist theory of learning. Social knowledge is created in the personal knowledge of the learner over the course of continued experiences. This contrasts with traditional educational practices in which existing, fixed ideas are transmitted from instructor to learner.

Kurt Lewin's Influence

Experiential learning has roots in constructivist theory, whereby learning is not only about how learners mechanically process information, but also how they make meaning of that information. The research of Kurt Lewin was foundational to the development of the concept of experiential learning. Much of Lewin's work is credited with leading to modern educational and organizational development work. Lewin (1936) conceived of behavior as a function of the person with his or her environment usually captured in the formula of $B = f(P, E)$, where B=behavior, P = person, and E = environment. Lewin's work suggests that instead of depending purely upon the past, there is value in a person incorporating the realities of the current situation into their behavior.

Bond (2013) offered that the equation may be considered too simplistic to be used across cultures and proposed an expanded Lewinian formula of $B = f(P.P[S].O[S].CO[S])$ is more appropriate, with the E term for environment being replaced by S for 'situation.' Bond suggested that additional terms representing an individual's personality (P[S]), objective cultural norms (O[S]), and consensus of others in the same situation (CO[S]) were needed to address dynamics across and within cultures. These concepts are also important for the conversation associated with Naturalistic Decision Making and the Recognition Primed Decision model.

David Kolb and Modern Experiential Learning Theory

Experiential learning is distinguished from behavioralist theories. Experiential learning focuses on the processes associated with learning as opposed to behaviorist orientations that focus only on outcomes from learning. Kolb (2015) notes, "Experiential learning theory, however, proceeds from a different set of assumptions. Ideas are not fixed and immutable elements of thought but are formed and re-formed through experience...No two thoughts are

ever the same, since experience always intervenes” (p. 37). It is the active participation in and experience of an individual in an environment that characterizes experiential learning. Instead of an instructor presenting facts and figures to a learner, or the learner being left to memorize loosely connected or disconnected principles, the learner is an active participant in navigating the environment and the experience in front of them. The facilitator’s role is to encourage the learner to ask questions, share observations, and construct answers. The facilitator also encourages self-analysis and discussion while introducing new experiences and encouraging experimentation by the learners. This, in contrast with the instructor’s traditional role which is often associated with authority and control of the learners and the material to which they are exposed.

ELT offers a learning cycle model that demonstrates the different ways individuals consume and process information. Figure 2 shows the sequence in which the cycle is completed: the cycle starts with concrete experience; moves to observations and reflection about the experience; develops abstract concepts and establishes generalizations derived from the reflection and invites experimentation of the implications of the new generalizations in new or different situations.

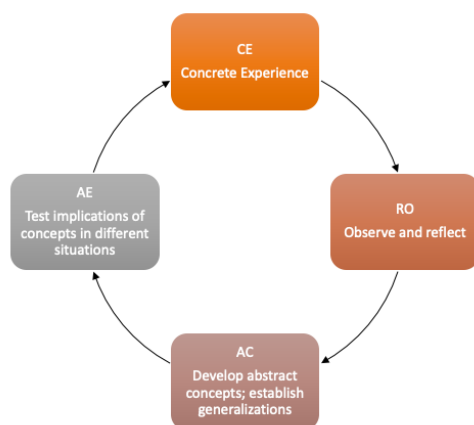


Figure 2: The Experiential Learning Cycle
Note: Adapted from Kolb (2015)

There is a combination of experience types that allow an individual to obtain knowledge. The first type of experience involves the process of consuming information. This is known as grasping experience. There are two modes in which individuals grasp experience: through concrete experience (CE) and through abstract conceptualization (AC). The second type of experience involves the process of interpreting and acting on information. This is known as transforming experience (Kolb, 2015). There are also two modes of transforming experience: an individual's observation and reflection (RO) and their testing of the implications of new concepts in different situations (AE). Within both the grasping dialectic (CE < > AC) and the transforming dialectic (RO < > AE), there is a creative tension that ultimately leads to learning. When grasping experience, there is a tension that exists between an openness and willingness to participate in new experiences (CE / feeling) on the one hand versus the ability to establish fresh conceptualizations from new experiences (AC / thinking) on the other. Likewise, with transforming experience, the ability to observe and reflect on new experiences (RO / watching) contrasts and competes with the use of new ideas in practice under circumstances the learner has not previously experienced (AE / doing) (Kolb, 2015).

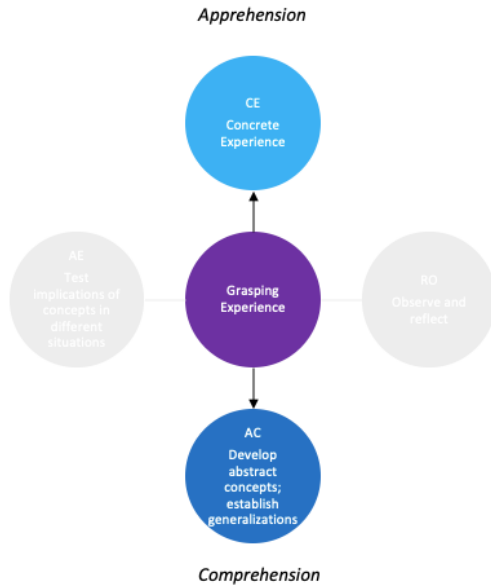


Figure 3: Experiential Learning Theory: Grasping Experience

Note: Adapted from Kolb (2015)

Kolb (2015), in describing the structural dimensions associated with the Experiential Learning Model, notes that the CE < > AC dialectic is related to “*prehension*, representing two different and opposed processes of grasping or taking hold of experience in the world” (p. 67). He describes the quality of concrete experience as one of apprehension, where the focus is on the felt experience. The quality of abstract conceptualization is described as comprehension, where the focus is on the interpretation of concepts.



Figure 4: Experiential Learning Theory: Transforming Experience

Note: Adapted from Kolb (2015)

The RO < > AE dialectic is described by Kolb as “one of *transformation*, representing two opposed ways of transforming that grasp or ‘figurative representation’ of experience” (p. 67). He labels the reflection characteristic of the RO stage as “intention,” and labels the active testing of concepts associated with the AE stage as “extension.”

The process of experiential learning within this construct involves the learner adapting their role multiple times: from an active participant to an observer, from observer to analyst, and then from analyst to an experimenter before resuming the role of active participant.

Kolb (2015) expands on these fundamental descriptions of the stages of the experiential learning model by describing four structural dimensions associated with the process.

Experiential Learning in Business Settings

Experiential learning exercises allow professionals to have the time and opportunity to interface with multiple, often novel, learning dimensions while involving old and new knowledge (Hoover, Giambatista, Sorenson, & Bommer, 2010). The concrete experience at the start of the experiential learning cycle represents the immersion required for an individual to begin the experiential learning process. Findings from a study by Feinstein (2001) demonstrated

that experiential learning increased learners' dynamic knowledge: the capacity to evoke higher-order cognitive abilities, problem-solving skills, and judgment.

There are many learning activities used to train and educate sales professionals today. These activities focus on ensuring sellers have a grasp of the knowledge, methods, principles, and processes associated with successful sales engagement. With respect to the immersive experiential learning that is the focus of this section, three types of simulation activities are typically used: role playing, gaming, and computer simulations. In training professional sellers, role playing is frequently employed as a way to mesh interpersonal skills while practicing the sales methodology of the organization. Feinstein et al. (2002) note that role playing allows participants to be immersed in a learning environment in which they encounter a particular situation. Sellers need to learn how to attract new customers, understand the balance associated with gaining entry to the customer's social system, establish relationships that involve collaboration with the customer towards a shared goal, evaluate the success of a project, and then be able to communicate it all to their internal stakeholders. Role playing allows sellers to be acquainted with many of the interpersonal dynamics, both political and psychological, that arise when working to understand or address a customer's situation.

In her study of professional consultants in an experiential learning graduate program, Neumann (2007) discusses the power of reflection in the experiential learning cycle and the tension associated with moving away from the concrete experience: "Moving from debriefing experiences to reflecting on the experience, however, can be difficult. Experiential learning captures deep feelings and reactions, and the time needed to distance from those 'here and now' feelings in order to analyze the experience varies. The mental ability to identify aspects of the experience, analyze them, and generalize comes hard to most participants" (p. 263).

For the role play to be effective, facilitators need to ensure that sellers all possess some degree of understanding and proficiency. Skill levels must be taken into account as well, as novices may struggle if expectations around skills or knowledge are not clearly communicated (Feinstein et al., 2002). The goal, regardless of the type of simulation, is for the seller to be able to practice processes, develop skills, reflect, and experiment in a safe environment.

Criticism of Experiential Learning Theory

Despite the success of ELT and the number of studies it has fostered, and in spite of the drive to increase the number of experiential learning activities, concerns over experiential learning theory have arisen.

Kayes (2002) undertook an investigation of the different criticisms leveled at ELT. Critics of Kolb's experiential learning theory and its associated model focused on shortcomings in terms of empirical validation (Freedman & Stumpf, 1980) and its theoretical limitations (e.g., Holman et al., 1997; Hopkins, 1993; Miettinen, 1998; Reynolds, 1999; Vince, 1998). With respect to empirical limitations, criticism from Freedman & Stumpf (1980) centered around the Learning Style Inventory (LSI), a tool developed by Kolb in 1976 as a means for individuals to identify and assess their learning style along the four dimensions of the experiential learning cycle. Kolb responded to this criticism by updating the LSI in 1985 and 1999, addressing concerns levied in the original critique. Regarding theoretical limitations, Kayes (2002) notes that critics orient their focus on three aspects of learning: psychodynamic, social, and institutional. Those pursuing a critique from the psychodynamic perspective (Reynolds, 1999; Vince, 1998) suggest that some assumptions of the original theory be modified to focus more closely on the importance of reflection and more closely on social and political influences in addition to the focus on personal experience. Holman et al (1997) focus their critique on the social perspective,

arguing that ELT overemphasizes the role of the individual; they suggest that more value should be placed on social activity to offset cognitive bias. The institutionalist standpoint espoused by Hopkins (1993) and Miettinen (1998) seeks to either terminate ELT or integrate it into other theoretical constructs. Miettinen argues that ELT is based on a misreading of Dewey, Piaget, and Lewin, and therefore lacks an institutional home useful to any population of learners. Hopkins believed ELT to be an attack on the nature of experience itself and its value to learning.

Burch et al (2019) note in their review of concerns of ELT that the literature indicates that the critiques are unwarranted. They note that despite critiques arguing that there was insufficient theoretical basis for ELT, the foundations of Kolb's theory are substantial in that they are based on the precedents set by Lewin with his work in action, research and field theory.

Naturalistic Decision Making

There are many disciplines that depend on training to develop employees' skill sets. Technical sales is no different. In most organizations, training focuses on teaching sales professionals about rules and how to follow procedures. Klein and Wright (2016) argue that what is missing is a focus on the types of difficult decisions professionals are likely to face once training is complete. This includes ambiguous situations in which there isn't always access to data. Cues received from customers may be difficult to decode, and sales professionals may not recognize problems in a timely manner when they arise.

The beginnings of Naturalistic Decision Making (NDM) as a distinct field of study are discussed in several works (e.g., Klein et al., 1993; Gore et al., 2015). In the 1980s, Gary Klein, a cognitive psychologist, began working with Judith Orasanu, a NASA human factors psychologist. They focused on how people made decisions in real-world work settings as

opposed to laboratory settings (Klein & Wright, 2016). Researchers studying NDM focus on how people actually make decisions when conditions are complex, when there is time pressure, when goals are vague, when multiple decision-makers of varying professional tenure are present, stakes are high, and there are varying levels of experience (Schraagen et al., 2008, Klein & Wright, 2016). However, instead of focusing on what individuals miss, NDM takes a positive approach: “Instead of trying to show how people do not measure up to ideal strategies for performing tasks, we have been motivated by curiosity about how people do so well under difficult conditions” (Klein, 1998, p. 1).

When it was introduced in 1989 as an outcome of a community of researchers focusing on similar ideas related to real-life decision making, NDM challenged many previously held beliefs. The qualitative investigation of professionals in complex, time-pressured field situations represented a major change from traditional research in decision making (Ericsson et al., 2006). NDM primarily depends on tacit knowledge and intuition as opposed to strict, conscious adherence to rules and procedures (Klein & Hoffman, 1993). Because many real-life projects are complicated and goals are often ill-defined, NDM does not hold that projects must start with a clear description of goals. Instead of people taking a building-block approach that builds data into information, information into knowledge, and knowledge to understanding, NDM asserts that the more experienced an individual is, the more they can take advantage of their own mental models to determine which data matters (Schraagen et al., 2008). Klein (2013) also noted that NDM allows insights to arise via an individual’s ability to identify contradictions and to detect connections. It also places a limit on the value of the volume of data; in fact, NDM holds that too much data can impair decision performance. Instead, uncertainty in NDM is treated as much as a consequence of the amount of data as the way in which it is framed in a particular

circumstance. In contrast to the premium placed on the elimination of mistakes above all else, NDM focuses on positive performance and the pursuit of insights – not just the absence or elimination of errors (Klein & Wright, 2016).

In a study of fireground commanders in the mid-1980s, Klein found himself struggling to fit the answers from post-event interviews into the traditional analytical-choice models of the day, which focused on normative approaches in which individuals had the time and space to conduct analytical comparisons before selecting the ‘best choice.’ He noticed that the commanders were describing a different type of process: one that was more dependent on intuitive decisions. From this he developed a model based on cue recognition, pattern matching, and the ability to recall action options from what individuals noticed in a situation (Gore et al., 2015). In these cases, tacit (as opposed to explicit) knowledge came into play as the key to commanders making rapid decisions. When interviewing fireground (another name for firefighter) commanders, Klein et al. (1986) found that the commanders didn’t have time to generate and evaluate options – they had to make the best decision they could with the limited time they had. The researchers’ initial hypothesis was that the commanders would evaluate at least two options before selecting the best one. They found that commanders typically considered just one option – the one based on the patterns they had compiled over the course of their experience. Commanders acknowledge that they mentally simulated the option before they made a decision, but much like studies of chess players done by deGroot (1978) in which chess grand masters quickly identify the best moves, fireground commanders identified the most likely pattern and therefore the correct option often emerged first.

Role of Experience in Naturalistic Decision Making

Naturalistic Decision Making researchers focus on uncovering the lessons of experience among those who perform a constant task (such as sales) but encounter novel situations in the course of their work. Kahneman and Klein (2009) note that “the ability to recognize that a situation is anomalous and poses a novel challenge is one of the manifestations of authentic expertise” (p. 522). For most commercial organizations a key goal is to shorten, as much as possible, the amount of time it takes for a newly hired seller to gain a level of experience to become productive and to become a net contributor to the business. Gaining proficiency in a company’s products, processes, and sales methodology is a clear organizational goal. Defining expertise, however, has proven complicated for scholars. One challenge has been in defining the nature of the types of knowledge individuals rely upon to gain proficiency. Klein et al. (1989) argue that there are multiple classes of expertise. They describe the first of these as being explicit and objective knowledge. This is represented by factual knowledge, if/then rules, and procedures. There has been a tendency for organizations and educators alike to focus on this type of knowledge. Two other classes of knowledge, Klein et al. argue, are equally important to achieving proficiency. One is tacit knowledge. Tacit knowledge includes an appreciation of context. This contextual knowledge is defined as “the background of practices enabling experts to articulate if/then rules and apply analytical procedures” (p. 463). Analogical reasoning and judgments of typicality are also exemplifying of tacit knowledge that allow us to infer situational cues and to recognize that similar circumstances have occurred in the past. Perceptual learning is another class of knowledge that influences task proficiency and includes motor functioning and operates in tandem with explicit and tacit knowledge. Some tasks (e.g., driving a car) require this fine motor skill; others (e.g., chess) do not.

Contrast with Judgment and Decision-Making Practice

The Judgment and Decision Making (JDM) community of practice (also known as the normative approach to decision-making) originated in the 1960s with a focus on economics and business decision making. In contrast to NDM, which focuses on decision making in real-world circumstances, JDM research is typically conducted in highly controlled laboratory environments. This allows researchers to dictate the conditions in which decisions are made and to set the context for what an optimal decision may be given the circumstances. Several lines of research are associated with JDM (Hoffman and Militello, 2008). Researchers utilizing JDM methods focus on whether people reason by following a logical standard (e.g., probability theory or expected utility theory). They also concentrate on individuals' accuracy for judgment, regardless of their level of proficiency or experience. Additional focus areas of are an individuals' reasoning biases and their ability to understand the probabilities of the occurrence of events (e.g., Kahneman & Tversky, 2000).

The Decision-Analytic model is a method used by JDM practitioners to complete the decision-making process (Hoffman and Militello, 2008). The model has seven steps a 'good decision-maker' would follow (p. 174) and is illustrated in Figure 5:

1. Specifies all the objectives or the criteria for a solution
2. Lays out all of the alternative actions
3. Weighs the benefits versus the costs or risks of each alternative (utility analysis)
4. Conducts a multi-attribute evaluation of the alternatives
5. Orders the alternatives in terms of their satisfaction of the criteria
6. Selects one option for implementation
7. Engages in contingency planning

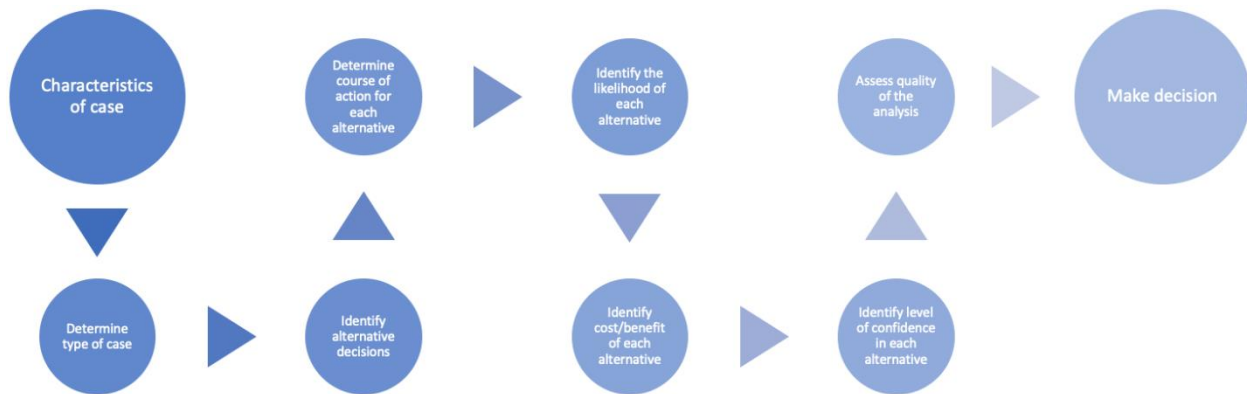


Figure 5: The Decision-Analytic Model of Decision Making

Note: Adapted from Hoffman & Militello (2008)

By the 1980s, the Decision-Analytic Model began to receive criticism for its prescriptive nature and because researchers observed that in real-world situations, individuals make decisions within contexts influenced by multiple decision points and in situations where such certainty cannot be achieved. Nor is there typically time to consider all the contingencies of each option. Further, JDM had come to be seen by many scholars as presenting a negative view of human cognition in that it supposed that people tended to seek confirming evidence and avoided seeking disconfirming evidence; it assumed people were unreliable and inconsistent; that people would only consider one or two hypotheses; and that people's ability to judge the likelihood of events was biased (Hoffman & Militello, 2008).

Hoffman & Yates (2005) provided contrast by explaining their belief that in the real world, decisions involve the assumption of intentions and purpose, and is normally about causing good things to happen. They contend that decisions are focused on bringing benefits to an individuals and groups, and that there is a difference between a decision to act and the action itself – not all decisions are carried out. They also noted that decisions among alternatives in a situation is not equivalent to a decision among consequences, as different decisions rarely lead to the same outcome.

NDM and Training in Organizations

The NDM approach emphasizes the importance of extensive experience required to make satisfactory decisions in a naturalistic setting. This experience leading to proficiency can take many months or years to develop, which creates a challenge for organizations looking to realize the benefits of a fully productive employee (Grossman et al., 2013). While there has been research on mechanisms to accelerate this process for individuals and teams alike (e.g., Salas, & Rosen, 2010), this study's focus is solely on the individual. Rosen et al. (2008, p. 216) call out nine decision-making characteristics that distinguish experienced, proficient individuals from their novice counterparts:

- They connect environmental cues and context features for decision making better than novices
- They have a more robust knowledge base that allows them to recall and use information with proficiency
- They recognize patterns based on previous experience
- They dedicate time to practice improving both knowledge and skills
- They look for opportunities to receive feedback
- They are better able to identify and define situations and associated problems or issues than novices
- They have a larger memory capacity
- They mentally prepare an action plan to handle minor deviations from expected
- They continuously evaluate their performance

Given these characteristics as goals, Grossman et al. (2013) note six ways in which organizations could accelerate the development of their individual employees: situational

awareness training, simulation-based training, metacognition training, mental rehearsal, coaching, and motivation enhancement. These different types of training dovetail with the need in an NDM setting to provide experience with naturalistic scenarios, develop proficiency, help employees recognize patterns, and consider mental models before taking action.

Situational awareness occurs as a result of the intersection of several factors: an individual's existing knowledge and expectations, environmental cues, how the individual allocates their attention, and how they assemble this information to create a response (Salas et al., 1995). Situational awareness training focuses on these elements, enabling individuals to identify the existence of cues and how those cues change in the environment in which they occur. This enables pattern recognition. Once a pattern has been recognized, an individual is free to begin to mentally model potential actions in response to the pattern (Grossman et al., 2013). Coupled with simulation-based training such as role plays, this awareness provides individuals with the opportunity to create associations related to pattern recognition within their environment, the circumstances of their interaction with other individuals, and even interaction with their own teams. The facilitator plays an important role in this process, as pre-briefings of the simulation and structured reflective feedback are valuable elements of these trainings (Endsley et al., 1998).

Metacognition training permits individuals to identify gaps in their thinking, guiding them to slow down and collect more information as needed before making a decision or taking action. Mental rehearsal allows an individual to use mental imagery to imagine themselves actually performing a specific sequence of steps without actually acting them out (Grossman et al., 2013).

l., 2013). This allows an individual to perform an unlimited number of combinations of situations and can help build experience as well. Referencing Jeannerod (1994), Grossman et al (2013) note that “the neural representations the brain builds when imagining a task and actually executing a task are thought to be functionally equivalent” (p. 293).

Coaching is used in a wide variety of development scenarios in all types of organizations, and is certainly not restricted to settings where NDM training is the focus. As mentioned, training and reflection related to NDM is not aimed at the elimination of errors from an individual’s behavior; instead, the focus is on the insight gained from the situation and the application of lessons from that experience to future situations. In developing high-potential individuals in the context of NDM, coaches focus on asking questions targeting desired behaviors. Coutu et al (2009) shared some of the benefits coaches bring to this dynamic. Coaches focus on the future of the individual in the business context, helping the coachee find their own path by focusing on the behavioral change needed to achieve their goals. They also help the coachee explore their unique experiences so they may learn from them. Finally, though not a training method, motivation enhancement is often linked to working with a coach. Because proficiency is dependent on continued practice and behaviors in which the individual actively seeks feedback, motivation is a key factor in an individual’s pursuit and achievement of proficiency. External reinforcement from a coach can encourage coachees to work on necessary behaviors and supplement their own motivation. The characteristics of motivation are important in an individual’s journey as well; individuals must believe they can achieve their goals. They must also focus on their learning goals as opposed to outcome or performance goals. Their focus should be on achieving positive outcomes instead of avoiding negative outcomes. Finally, they

must not be dependent on external rewards for their motivation in the task in front of them; instead, their motivation must come from within (Salas & Rosen, 2010; Grossman et al., 2013).

Criticism of NDM

There has been criticism of the Naturalistic Decision Making. Roberts and Cole (2018) consolidated several shortcomings called out by other researchers regarding NDM. Interestingly, many of the strengths of NDM have also been noted as weaknesses. Among these is the lack of formal constructs and metrics. Critics have also called out the limitations associated with NDM research's qualitative nature and its dependency on participants' accuracy in recalling events. They also note that individuals of different experience levels may differ in how they describe their processes associated with decision-making. Elapsed time between the actual event in which the decisions were made and when the experienced professional is interviewed may also reduce the participant's ability to adequately describe the details of the situation.

An area of disagreement among scholars is the definition of what makes an 'expert.' Shanteau et al. (2002) examined this complexity, describing nine different approaches to the attempt to identify expertise. These differing approaches include experience (the number of years someone has been on the job), certification (accreditation of course completion or acquisition of skill), social acclamation (asking others who they'd consider an expert), consistency within reliability (an expert's judgments should be internally consistent), consensus between reliability (experts should agree with other experts), discrimination ability (the ability to make fine discriminations among similar but not identical cases), common behavioral characteristics (e.g., confidence, perceptiveness), knowledge tests of relevant domain facts, and the creation of experts (through extensive training by researchers). While each of these are

indicators of expertise, Shanteau et al. noted that each comes with some form of flaw. They proposed that it was a combination of discrimination and constancy within reliability that were key to expertise. This debate continues today, and it informs the problem within this study: how more experienced sellers recognize cues and patterns that lead to decisions in what amount to novel situations. One of NDMs main goals is to demystify the intuition of experienced professionals by identifying the cues that lead to the decisions they make (Kahneman & Klein, 2009). This is one of the main goals of this study.

The Recognition-Primed Decision Model of Rapid Decision Making

Within the Naturalistic Decision Making process, Klein et al. (1989) developed a decision strategy they referred to as the Recognition-Primed Decision (RPD) model. In a 1985 study conducted for the Army Research Institute, Klein Associates investigated the decision making of firefighting commanders, finding that commanders rarely had to generate more than one option prior to making a decision (Klein & Crandall, 1996). The RPD model allows people to make decisions without having to compare options by fusing situation assessment and mental simulation into a single process. The RPD relies on intuitive cognitive processes and in many environments, such a recognitional strategy is more efficient than alternatives (e.g., JDM), and has been applied in a wide variety of fields, including fireground command, military, nursing, corporate information systems, flight crews, and more. The intuitive ability often attributed to experienced professionals is, in reality, a process of rapidly bringing the lessons of accumulated experience together to set a course of action. Whenever an individual encounters a situation, they undergo this process (Ross et al., 2005).

The RPD model begins with situational recognition. Within this step are four separate elements: recognition of relevant cues, generation of expectations, identification of plausible goals, and the recognition of typical actions. The center of Figure 6 reflects these four elements.

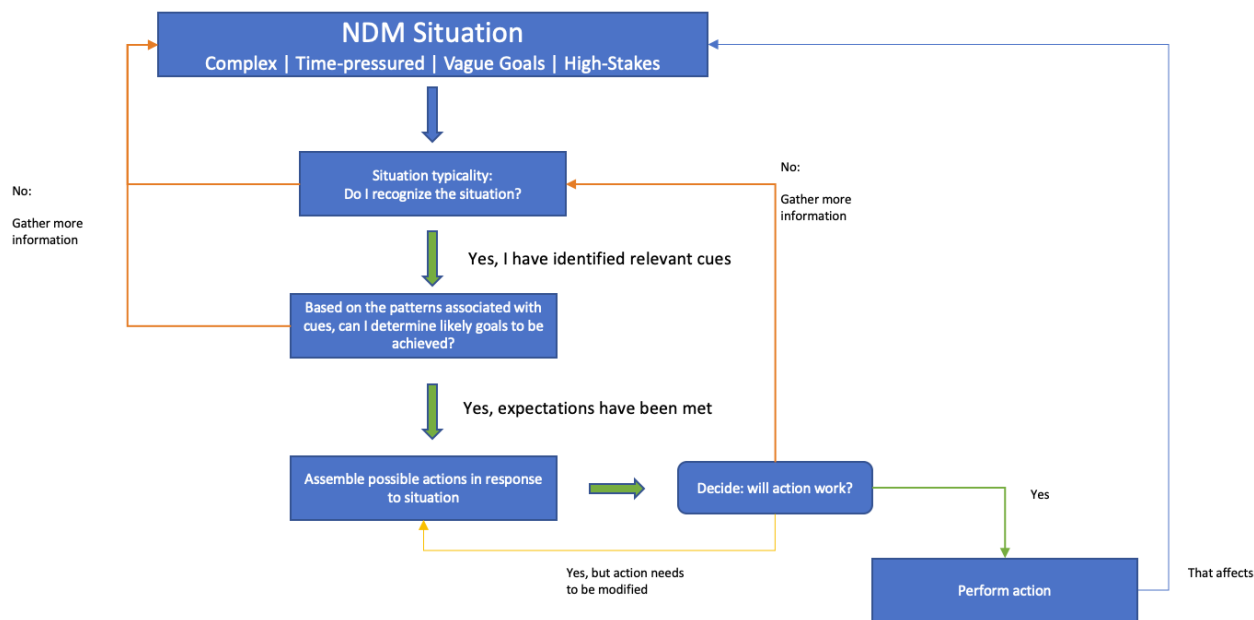


Figure 6: Recognition-Primed Decision Model

Note: Adapted from Klein, 1998

Ross et al. (2005) proposed the concept of extensive knowledge possessed by individuals with more experience as being “indexed.” This concept involves the linkage of facts and causal relationships. There are four types of links associated with indexing. First are cues, which experienced professionals use to identify that the situation likely fits some larger pattern. This may represent items that are present within a particular situation, or the absence of an item from a situation. Second are expectancies, which give experienced professionals some idea of how things are likely to unfold given the set of cues they have observed. Third are goals, which allows experienced professionals to identify typical preferred outcomes. Finally, typical actions give experienced professionals actions that allow them to achieve the goal. The sum of these four links results in an experienced professional’s mental model. Mental models are domain specific and include cause and effect relationships and technical knowledge that is sensitive to context.

When recognition occurs, options for actions are generated and evaluated serially, with the most typical course of action considered first. The evaluation process uses mental simulation

to identify potential weaknesses in the option and different ways in which those weaknesses could be mitigated. Individuals with more professional experience are often able to respond rapidly to identify a satisfactory action instead of spending time attempting to evaluate multiple options concurrently (Klein & Crandall, 1995). The goal is not to select the perfect option; instead, experienced decision makers choose a good-enough option given the pressures inherent in the situation. This is known as ‘satisficing.’

An example of the principles associated with the Recognition Primed Decision model was the “Miracle on the Hudson” in 2009. Shortly after takeoff from New York’s LaGuardia Airport on January 15, US Airways Flight 1529 hit a flock of birds at an altitude of 2,600 feet. The remainder of the flight would take just *three and a half minutes*. During that period of time, Captain Chelsea Sullenberger and First Officer Jeffrey Skiles, identified cues associated with an irregularity (birds hitting engine), established an understanding of a pattern (loss of engines and need for emergency procedures) and selection of an action after evaluating different options. Sullenberger’s initial intuition told him to attempt to return to LaGuardia. Air traffic control obliged his request, but his lack of altitude and engine power caused him to discard that option. He turned his attention to other possible landing spots in New Jersey and again, air traffic control presented him with the option of attempting to land at Teterboro. Realizing the deteriorating situation and lack of remaining options given his altitude, Sullenberger finally made the decision to attempt to land the Airbus A320 in the Hudson River. An experienced glider pilot, he drew upon his background to safely bring the aircraft down on the river with no loss of life (NTSB, 2010; Klein, 2009). In the ensuing investigation into the accident, Skiles articulated one of the key cues he and Sullenberger used to determine their options: “It’s not so much a mathematical calculation as visual, in that when you are flying in an airplane, things that— a point that you

can't reach will actually rise in your windshield. A point that you are going to overfly will descend in your windshield" (Gigerenzer, 2014, p.35).

Klein & Crandall (1995) suggest that experienced professionals rarely spend time choosing among different options. Instead, they usually identify a good-enough option as their first choice based on the pattern they recognize. This type of decision making is known as satisficing (Simon, 1957). At a high level, intuitive decision-making drives the RPD process; cues allow people to recognize patterns. Once a pattern is established, individuals consider actions to address the pattern for a given situation. Pattern matching generates a series of possible responses, or actions to be considered (Klein, 2015). People evaluate these actions through a process called mental simulation, in which they imagine the action and its impact on the current situation. The effectiveness of such simulations is heavily dependent on an individual's tacit knowledge formed through their experiences, which directly influences the tools at their disposal to address a situation. Klein (2009) notes that skilled decision makers differentiate themselves by an ability to make perceptual discriminations that allow them to judge typicality, recognize patterns, perform workarounds and use mental models. During the mental simulation portion of the RPD process, an individual may decide to perform the considered action or discard it in favor of one they believe better fits the situation at hand (Klein, 2003). One of the main goals cited by Klein and Crandall (1995) in developing the RPD model was to address the impact of time and the stress it adds to decision making. In their initial studies, nearly all of the "difficult, nonroutine, and high-risk decisions took less than a minute, and in many cases...only a few seconds" (p. 329).

In another example of RPD at work, Crandall and Getchell-Reiter (1993) share the story of a nurse team in a neonatal intensive care unit (NICU) caring for a premature baby.

Recounting the story, Klein (2003) describes two nurses, one he calls 'Darlene' and the other 'Linda.' Darlene was an experienced NICU nurse who was also in charge of training and quality; Linda, while also experienced, was new to the NICU. In caring for the baby, both Linda and Darlene were concerned with preventing infection and the constant monitoring required to ensure the baby's health and growth. While supported by a variety of physicians and other medical specialists, Linda and Darlene were leading the care for this fragile baby. One of the constant risks for infants is sepsis, an infection that can spread through an infant's circulatory system. The risk is even greater for premature babies due to the lack of a fully developed immune system. While sepsis is detectable through blood tests, at the time these events occurred, it took 24 hours to receive results, a time within which an infection could ravage a premature infant's defenses. There are other indications of the onset of sepsis that are reflected in the baby's vital signs. Nurses are always vigilant in their review of these indicators. In their care, the baby was not experiencing any major problems, ate regularly, and was not on a ventilator. One morning, the baby seemed more lethargic than normal during her feeding, but this was not unusual at such an early hour. Linda noticed while temperature was a little low, it was in the normal range. Linda turned up the thermostat slightly in the baby's incubator to help bring her temperature up. A medical technician had come to get a blood sample from the baby. This is done via a procedure known as a heel stick. When done right, a heel stick will close up almost immediately. If not done perfectly however, the heel may bleed. The baby's heel had bled a little, and the tech put a band-aid on her foot.

Darlene, having trained Linda for a while, allowed Linda to manage the baby's care, to the point where Darlene was no longer regularly checking the baby herself. However, when Darlene caught a glance of the baby, she noted that something didn't look good – that the baby

‘looked funny.’ Darlene later noted that the baby seemed ‘off color’ and ‘mottled’ and that her belly was slightly rounded. Darlene reviewed the baby’s chart, saw that her temperature had been consistently dropping and that the heel stick hadn’t stopped bleeding. The baby also had a larger than normal amount of residual food in her stomach. Darlene asked Linda if the baby had been less energetic during her shift. When Linda confirmed she had been lethargic, Darlene rushed to call the physician, who concurred with Darlene that the baby was in big trouble – and ordered antibiotics and a blood culture. Twenty-four hours later, they received a confirmed diagnosis of sepsis. Thankfully with this treatment, the baby survived.

What made this study compelling is that both nurses had access to the same set of cues – and yet their actions, when presented with those cues, were different with respect to the patterns they elicited and the urgency those patterns represented. Linda knew that each of the individual pieces of data could be indicative of a septic episode. Yet she was treating each symptom independently (as in modifying the thermostat in the incubator). She lacked the experience of being in the NICU to identify the *pattern* that Darlene was able to uncover – a pattern Darlene knew that she was under time pressure, the stakes were high, and there was still uncertainty as to the actual diagnosis. She recognized that the accumulation of cues represented a critical moment in the child’s health and required the support of additional medical staff.

Pattern Recognition in the RPD Model

Experienced professionals often detect relationships that are hidden from novices. Their intuition allows them to identify patterns that provide them with information about a particular situation’s dynamics. Yet skilled decision makers often cannot describe what compelled them to notice a particular cue or how they determine whether a situation is typical. In fact, it is often the

absence of familiarity or typicality that allows experienced professionals to adapt their behavior to accommodate a situation (Klein, 1998).

Klein et al. (1993) describe three types of cases in which RPD is employed. The simplest of these, shown in Figure 7, is a case where the individual rapidly recognizes the situation and finds the response to be implemented to be obvious. The experienced professional notices specific cues and ignores others because the situation is familiar, and the action seems obvious.

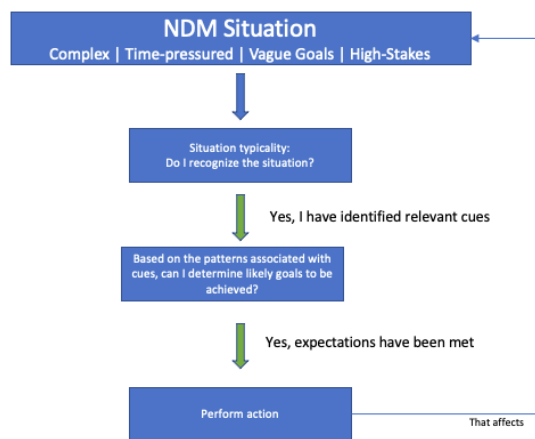


Figure 7: Simple Pattern Recognition Process for Intuitive Decision Making

Note: Adapted from Klein et al., 1993

The second case type involves the individual recognizing the situation and then performing a mental simulation of the action to be performed to determine whether the action is feasible. This requires the individual to rely on their existing mental models based on previous experience to assess the action to be performed. It often involves experienced professionals relying on their expectations to help ensure they are making a reasonable decision. These expectations allow individuals to anticipate surprises and to spend time only on relevant information. Consequently, the experienced professional does not become overloaded with features of the situation that are not important (Wiggins & Loveday, 2015). When an experienced professional encounters events matching their expectations, they can rest assured

they have correctly read the situation. When events and expectations don't match, the anomaly is clear to the experienced professional, and they are able to adapt their behavior to the new situation (Klein, 1998).

The third and most complex type involves a situation where the mental simulation turns up considerations that make the considered action inadequate. In such cases, individuals reject the initial action and move towards the next possible action to address the situation. Figure 8 illustrates a representation of this process. This reflects how the decision to pursue a particular course of action is primed by the individual's recognition of the situation and their experience with similar situational patterns.

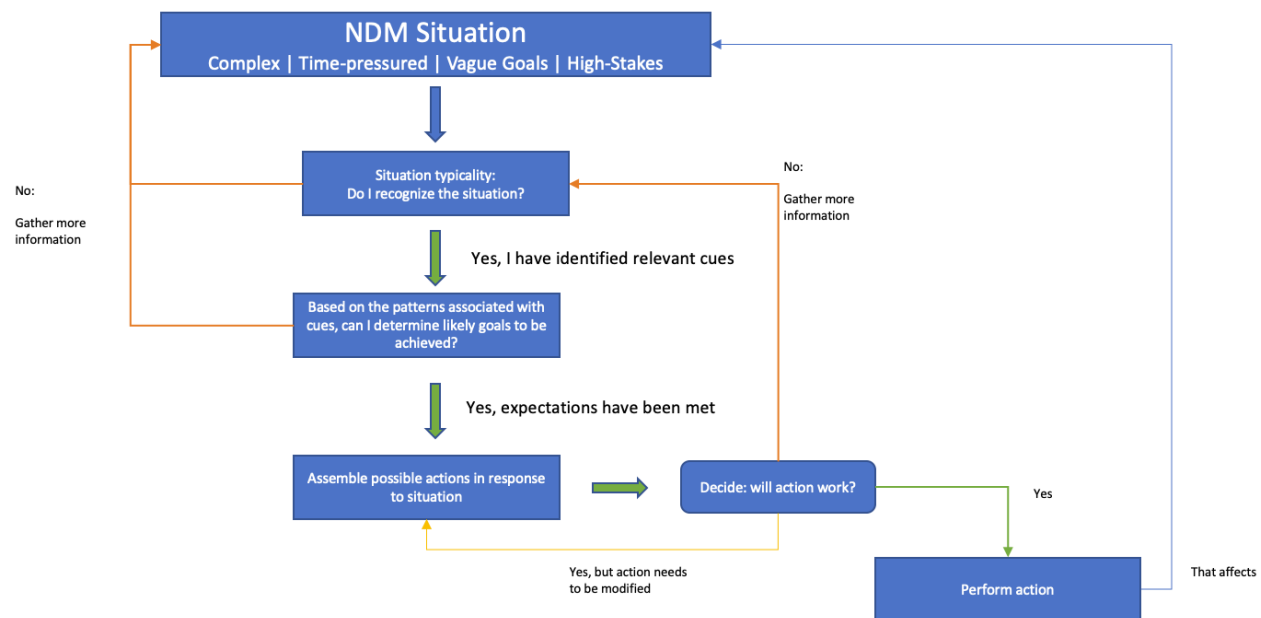


Figure 8: Recognition-Primed Decision Model for Complex Situations

Note: Adapted from Klein, 1998

Incorporating the concepts associated with dual-process theory, System 1 processes (associated with intuition and experience) play a primary role in RPD. System 2 processes come into play in support of System 1 as complexity increases and more detailed mental simulations are needed.

Mental Simulations in the RPD Model

Mental simulation in the RPD model is a System 2 process in that it requires conscious attention, inspection, and cognitive resources. Of all the RPD elements, mental simulation is most impacted by time pressure (Klein & Crandall, 1995). Other elements of the RPD model are perceptual, such as identifying cues and their typicality, and do not consume the same cognitive resources, nor are they susceptible to time pressure. When time pressure is substantially high, it can prevent the consideration of multiple options and prevent the individual from identifying weaknesses in the action plan or modifying actions to address gaps in the plan. As experience levels increase, the more likely a professional is to be able to cope with such time pressures. For relative novices to the situation, as in Linda's case in the earlier example, the more likely the wrong action – or no action – is chosen.

Chapter Summary

This study aimed to understand how experienced technology sales professionals become aware of and adapt to unanticipated customer responses during an initial sales conversation. These decisions take place in situations that are often ambiguous, time-pressured, high-stakes, and uncertain in terms of goals. To date, there has been little research completed with respect to the use of naturalistic decision-making processes in sales environments. The literature review in this section provided a conceptual framework for the study as well as examinations of four critical concepts necessary for the background of this study: dual process theory, Kolb's Experiential Learning Theory, the Naturalistic Decision-Making process, and the Recognition-Primed Decision model.

Chapter 3: Methodology

Introduction and Overview

The purpose of this study was to understand how experienced technology sales professionals become aware of and adapted to customer cues during initial sales conversations with new clients. This study examined three research questions. The main research question that guided this study was:

Q1. How do experienced technical sales professionals navigate first discovery calls?

Two sub-questions were also considered:

Q2. What customer cues do experienced technical sales professionals recognize that lead to success on first discovery calls?

Q3. How do experienced technical sales professionals interpret and respond to customer cues on first discovery calls?

Rationale for Qualitative Research Design

This qualitative study sought to understand how experienced technology sales professionals became aware of and adapted to unanticipated customer responses during a first sales conversation. Merriam and Tisdell (2016) assert that qualitative researchers focus on how individuals interpret experiences and make sense of the world and assign meaning to their experiences. I viewed this study through a constructivist lens: that is, a viewpoint that Creswell and Creswell (2018) note as one where the researcher seeks to establish the meaning of phenomena through the voices and experiences of participants. Crotty (1998, pp. 42-43) asserts that “Meanings are constructed by human beings as they engage with the world they are interpreting.”

Social Constructivism

Epistemologically, this study has roots in social constructivism. Werhane et al. (2011) note that the idea of social constructivism is fundamentally based on experience; however, instead of mirroring experience or reality, our minds “project and reconstitute experience” (p. 106) – we selectively filter and frame the data from those projections. Individuals accomplish this in their own way, depending on their experiences. The concept of mental models forms the basis for social constructivism in that our knowledge is based on the construction of the lessons from our social experiences and how we organize those lessons. Importantly, these socially learned constructs are not fixed and may be altered or changed if the individual is open to change. This allows for the correction of potential biases that might result from early social experiences in which an individual is incapable of processing all of the information that may be coming at them.

Nested within social constructivism is the more fundamental idea of constructivism. Constructivists hold that each individual constructs their own meaning, or truth, based on their interaction with different phenomena, be it social, cultural, or environmental. Lincoln and Guba (2013) note:

The relationship between the knower and the knowable (to-be-known) is highly person and context-specific. The ‘realities’ taken depend on a transaction between the knower and the ‘to-be-known’ in the particular context in which the encounter between them takes place. That transaction is necessarily highly subjective, mediated by the knower’s prior experience and knowledge, by political and social status, by gender, by race, class, sexual orientation, nationality, by personal and cultural values, and by the knower’s interpretation (construction) of the contextual surround. Knowledge is not ‘discovered’ but rather created; it exists only in the time/space framework in which it is generated (p. 40).

The constructivist epistemology aligns with the data collection and analysis methodology described in this chapter. Both the constructivist lens and the data collection and analysis

methods share the principle that there is no one ‘right’ way to interpret a situation; there are only ways in which individuals can apply their experience and reality to it.

Rationale for CDM Methodology

The critical decision method is a cognitive task analysis (CTA) technique adapted from Flanagan’s Critical Incident Technique (1954), which was originally designed as a result of studies in the Aviation Psychology Program of the United States Army Air Forces in World War II. That program focused on analysis of the reasons pilot candidates were eliminated from flight training. Flanagan (1954) defined the critical incident technique (CIT) as “a procedure for gathering certain important facts concerning behavior in defined situations” (p. 335). He defined an incident as “any observable human activity that is sufficiently complete in itself to permit inferences and predictions to be made about the person performing the act” (Flanagan, 1954, p. 327).

A key element of CDM is its orientation around specific participants’ stories about a particular event and the types of information researchers can uncover from them. According to Crandall et al. (2006), stories contain lessons about leverage points that allow experienced professionals to make decisions when encountering unfamiliar circumstances. Cues and patterns represent an example of such a leverage point. Sellers often find themselves in situations where they are trying to read a customer’s body language to determine their level of engagement. In a world where more meetings are taking place via web conference, a customer who continually glances away from the web camera could be indicating a lack of engagement in the conversation with the seller. This repeated behavior represents a pattern that might let a seller know that the customer is finding little value in their discussion. Another potential leverage point is related to the complex types of decisions sellers must make; in initial sales

conversations, sellers must determine how to manage the limited time they have with prospective customers. This is often complicated by the fact that the seller and the customer may have competing priorities for how they'd like to spend the timer on the first call. For example, the seller may want to learn more about the customer and their business, while the customer may want to learn more about the seller's products. A final leverage point relates to an experienced professional's ability to determine how typical a situation is based on their reservoir of past interactions. With respect to this phenomenon, Klein et al. (2018) note the importance of two cognitive activities that enable experienced professionals to successfully navigate atypical situations. The first of these is the ability to notice anomalies and inconsistencies in the data while diagnosing the underlying problem; and the second involves the ability of an individual to perform workarounds by thinking beyond the scope of rules or procedures to address the situation at hand.

In the context of sales, sellers may find themselves expecting to meet with just one individual to discuss business terms during a customer call, only to find that the meeting invitation has been sent to everyone on the technical staff. In this case, the experienced seller would need to pivot their plan for the call and seek out a technical resource from their team who could answer the questions that could be posed by the unanticipated audience.

CDM's goal is to understand the cues and patterns upon which experienced professionals rely on a day-to-day basis, but novices often miss due to their lack of experience (Gazarian, 2013). Klein et al. (1989) note that CDM is designed around three criteria. First, CDM addresses the foundations on which experienced professionals make decisions as described by the RPD model; second, CDM is administered with a goal to understand real-life field conditions; and it is designed for application in real-life settings such as training and development. The CDM

facilitates our understanding of how individuals with differing professional experience levels make judgments and decisions in naturalistic settings.

During a CDM interview, individuals describe personal accounts of specific experiences. The interviewer guides participants through a CDM session by asking questions that elicit recall and recounting of a particular incident and the circumstances in which it occurred (Hoffman et al., 1998). A limitation of CDM is participants' accuracy and memory may be impeded when recalling past events (Hoffman & Militello, 2008). Using CDM interviews, experienced technical sales professionals answered probing questions to identify their decision-making process during initial sales calls. This methodology provided a rich description of their cognitive and emotional states during the event.

Research Sample

Qualitative research attempts to understand a phenomenon rather than generalize the findings to a large population. (Merriam and Tisdell, 2016). The most appropriate type of sampling for this study is nonprobabilistic sampling, or what Patton (2015) refers to as purposeful sampling. Patton notes that what would be considered a bias (and a weakness) in quantitative sampling instead becomes a strength in qualitative sampling. For this study, I invited a specific set of sales professionals based on their tenure in their current role – at least 1 year - and the completion of the organization's basic and advanced sales training curriculum.

In the Critical Decision Method, sample size is not determined by the number of participants but rather by the number of critical decisions reported (Butterfield et al., 2016). Therefore, I interviewed participants and collected decisions until redundancy occurred in participant responses. Data saturation in CDM is analogous to that in other types of qualitative

research. However, saturation in the CDM is dependent on the number of decisions occurring in nonroutine situations encountered by experienced professionals.

The Participants and Context

For this study, I recruited ten experienced technology sales professionals at a global software company headquartered in the United States (hereafter referred to as ‘sellers’). The company has been in business for 14 years and consists of roughly 3,000 employees, with sales team members comprising about one third of that number. The sales team structure mirrors the one described in Chapter 1, with the least experienced team members filling sales development roles. There are dedicated sales teams focused on customer accounts of varying sizes. Some sellers focus on customer accounts with relatively small annual revenues, some sellers focus on customer accounts in the midmarket, and other sellers focus on Fortune 1000 customers, many of which are publicly listed. The technology sales professionals interviewed for this study were part of the midmarket team.

It is important to note that while sellers on different teams serve organizations of different sizes, their overall tenure in sales and their overall tenure at their current company are not necessarily indicative of their capability as sellers. Traditionally, the sales teams of this company operated in an open-office environment with desks and a communal atmosphere, where sales leaders, sellers, and their technical team members all sat within arm’s length of one another, facilitating team discussions and easy access to answers, as shown in Figure 9. Sellers on the midmarket team primarily worked with their customers via videoconferencing prior to remote work brought upon by the COVID-19 pandemic.

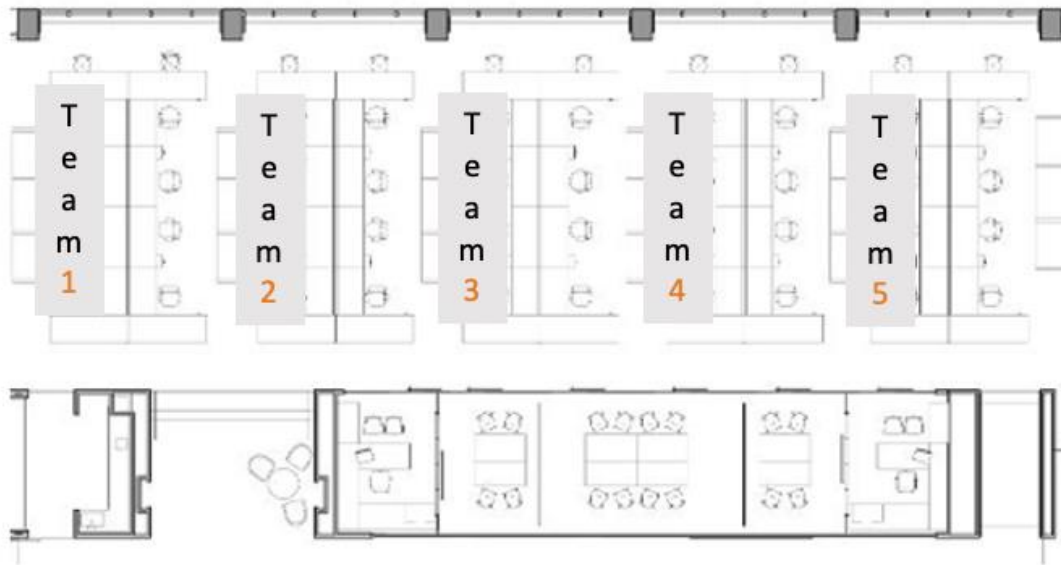


Figure 9: Example Open Office Floor Plan for Sales

Seller Training

All sellers in this study had at least one year's worth of experience in their role. To gain the experience necessary to participate in this study, sellers underwent a significant amount of training in their first 6-8 months on the job. They spent their first 4-6 weeks of employment preparing for sales “bootcamp” by taking computer-based training courses, meeting with technical sales engineers for face-to-face training sessions, and practicing what they had learned with their sales leaders and experienced sellers. Approximately 80% of the content covered in these early weeks was focused on foundational technology knowledge and product knowledge. During sales bootcamp, a classroom-style training course held over several weeks, sellers focused on what the company sold with respect to products and services, how the company sold using value-based selling techniques, and practiced the combination of their knowledge of both areas in a variety of role-playing sessions. Again, roughly 80% of the time during these sessions was spent focused on fine-tuning sellers’ understanding of technology concepts and the products and services offered by the sellers’ company. Following bootcamp, sellers completed a variety of

additional computer-based training modules designed to further enrich their technical knowledge and expand their ability to recognize contextual cues in technology conversations. After 5-7 months of employment, sellers returned for more classroom-style advanced training, designed to further expand their capacity to conduct technical conversations with prospective customers and develop their ability to lead more formal business meetings with key decision makers in their customer accounts.

Concurrent to their formal training regimens, sellers were encouraged to get on the phones to begin having introductory ‘get to know you’ conversations with existing customers as soon as two to three weeks after starting the role. These conversations were not typically focused on achieving a sale – instead, they afforded the new seller the opportunity to begin to establish relationships with existing customers in a low-risk fashion while exposing them to the types of practical discussions they’d have soon after bootcamp. These conversations were recorded on conversational recording software so the seller and their manager could review them at a pace that allowed the seller to pause, reflect, and incorporate the lessons of each call into future conversations. Once bootcamp was complete, sellers transitioned to a focus on selling additional products to existing customers before attempting to sell into new customer accounts. By the time sellers completed their advanced training at about 4-6 months in role, they had typically closed one or two small sales and had begun to schedule more meetings with new customers. As they completed their first year in the role, they had built a substantial base of accounts and generated a pipeline of anticipated sales to be completed in the coming 3 to 6 months; they would continually replenish this pipeline with new prospects and new sales opportunities as time went on. This combination of training, tenure, and experiential background made this a unique population with whom to conduct this study.

How Sellers Prepared for Customer Calls

In addition to the technology, product, and sales methodology training provided by the company, all of the sellers in this study took time to prepare for their calls before engaging with their new customers. The sellers' company provided sellers with a call planning template to prepare for the call. The first part of the document dedicated space for sellers to enter information from their research to include information about the company and anything they might be able to find out about the person with whom they'd be speaking. This research might include information from the company's website, news sites, social media, or other websites such as LinkedIn. Sellers intended to use this information at the beginning of the call in the rapport building stage. This section of the planner is shown in Figure 10.

Customer Information
Account Name:
Department:
Person(s) with whom we're meeting:
Research related to person(s) with whom we're meeting (and sources):
Title(s), Role(s), and Responsibilities of persons with whom we're meeting:

Figure 10: Call Planner: Customer Information

The call planner provided sellers with a section to fill in an agenda for their first sales call with the customer. At a high level, this agenda typically involved the seller and customer introducing themselves and agreeing to the amount of time they'd spend together, a basic plan of

action for the conversation, and some hypothetical next steps should the call prove valuable for both parties. Figure 11 represents this sequence.

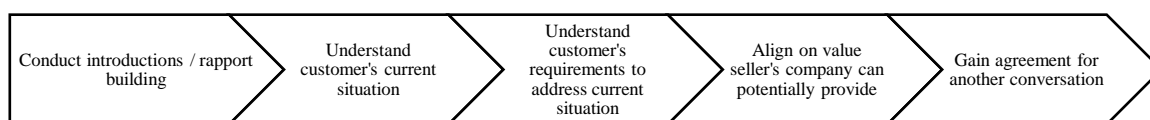


Figure 11: High level intended agenda prepared by sellers before first sales conversation

The template offered space for sellers to map out a detailed plan for the conversation with their customer, including places for them to add questions they'd like to ask and anticipated responses. An example of the structure of this section is shown in Figure 12.

Questions to Ask		Anticipated Responses
Customer's Current Situation		
Why is the customer pursuing this project?		
Why are they pursuing this project now?		
Customer Requirements to Address Current Situation		
What does the customer believe they'll need to achieve success?		
How will their requirements address their current situation?		
Customer's Business Goals		
How will the project contribute to the overall progress and success of the company?		
How would the company's leadership communicate that success?		

Figure 12: Call Planner: Example Questions

Finally, sellers filled in the call planner with questions to uncover remaining gaps in their understanding of the account and the opportunity they were looking to create. The type of

company and the customer's title often dictated the type of answers these questions were designed to elicit.

Information Needed to Conduct the Study

This CDM study focused on 10 experienced technology sales professionals from a global software company headquartered in the United States. In seeking to understand how these experienced technology sales professionals became aware of and adapted to customer cues during initial sales conversations with new clients, a main research question and two sub-questions were explored to gather the information needed. The information needed to answer these research questions was determined by the conceptual framework and CDM.

Perceptual Information

Information gathered through interviews with experienced technology sales professionals included their perceptions of customer cues and how they went about assessing the way in which those cues influenced the non-routine situations in which they found themselves. It also included sellers' decisions and associated actions related to those perceptions.

Demographic Information

Sellers were chosen through purposive sampling. To participate in the study, sellers had to exhibit the following characteristics: first, they had to have completed at least 1 year as a technology sales professional and have completed their company's basic and advanced technical and sales methodology training programs. Table 4 shows the demographic information for each seller.

Table 4: Demographic data

Seller	Gender	Education Level	Years in Current Role	Total Years in Technology Sales
S1	M	Bachelor	2	4
S2	M	Bachelor	1Y 6M	3
S3	M	Bachelor	1Y 2M	4
S4	F	Bachelor	2	5
S5	M	Bachelor	2	3
S6	M	Bachelor	1	2
S7	M	Bachelor	1Y 6M	4
S8	M	Bachelor	1Y 9M	6
S9	M	Bachelor	2	3
S10	M	Bachelor	2Y 6M	7

Data Collection: The Critical Decision Method

Cognitive task analysis is an approach that “determines the mental processes and skills required to perform a task at high proficiency levels and the changes that occur as skills develop” (Redding, 1992, p. 3). Cognitive task analysis seeks to understand the knowledge, judgment, and strategies that underlie the behavior of experienced professionals via interviews, data analysis, and knowledge representation (Gazarian, 2013). The critical decision method (CDM) is a form of task analysis used to collect data for this qualitative study. Klein et al. (1989) describe the CDM as “a retrospective interview strategy that applies a set of cognitive probes to actual nonroutine incidents that required expert judgment or decision making” (p. 464). A cognitive probe is an interview question designed to understand the story being shared by the participant more deeply.

The Critical Decision Method interview can take as long as two hours. Crandall et al. (2006) describe the CDM interview process as a set of four distinct data gathering passes, which they term “sweeps,” to gain an increased understanding of the situation and details of the seller’s decision process. By approaching the story using different types of interview probes, I was able

to encourage sellers to share and modify specific details in each successive sweep that were not shared in their initial description of their customer interaction. This allowed for the construction of a much more comprehensive view of the situations described by the sellers, their assessment of those situations, their decisions based on those assessments, and the actions (or lack thereof) they took as a result of those decisions.

The sections below describe the four sweeps in the CDM interview process and provide samples of each step's interview protocol. Interviews were recorded in Zoom and recordings were immediately transcribed at the end of the call using Otter.ai software. Following transcription, I reviewed each transcript for accuracy and any readability or spelling errors. I captured interview notes on a tablet device.

Critical Decision Method Interview Sweep 1: Incident Identification

The interview's initial step involved working with the seller to identify a sales call that was challenging or unusual. Research suggests that nonroutine calls that require multiple decisions are the most fruitful for CDM research (Gazarian, 2013).

In the first sweep, the goal was to uncover an incident that was worthy of investigation. I encouraged sellers to identify a nonroutine call in which they perceived their decision making as key to the call's successful outcome. In one interview, I asked the participant to consider a different event when the participant began to recount a call that was so unusual that it would not likely have been usable in the study. The participant was able to do so. In the context of this study, an example of a decision point for a seller could involve the choice to pivot from one topic (e.g., the customer's business goals) to another topic (e.g., the seller's product features) based on the customer cues perceived by the seller. The goal of this first sweep was for the seller and me to have a common understanding of the customer call.

Crandall et al (2006) note that “What the person tells you gives you the content of the story. How they tell you the incident gives you the ‘bones,’ the basic structure for the entire interview” (p. 75). They encourage the researcher to focus on the way in which the participant tells the story itself: the sequence of events, the structure, and the rhythm. Researchers should pay attention to transitions, voice pitch, and pauses as cues to important indicators of story points to be captured. It is up to the researcher to help the seller maintain a focus on the story and to keep the interview on track. Hoffman et al. (1998) suggest that researchers minimize questioning during this step. This is so sellers may provide an uninterrupted account of the events. During this initial sweep, sellers frequently offered more detail than warranted in the overview. I guided the sellers to limit their responses and avoid elaboration when their descriptions in this sweep began to become too specific. The questions related to this sweep of the interview are shown in Table 5.

Table 5: Interview Protocol Questions, Interview Sweep 1

Account of Incident (Sweep 1)
Please share a specific call in which you encountered a nonroutine situation.
Please select a call where it was your first time speaking with a customer in a particular account, from the beginning of the call until the call ended.
Why did you choose this call?

At the conclusion of this sweep, I repeated the participant's high-level account to correct any misunderstandings I may have had, as suggested by Hoffman et al. (1998) and Gazarian (2013). This reflection provided a segue for the second stage of the interview.

Critical Decision Method Interview Sweep 2: Timeline Verification

Sweep 2 of the interview involved creating an approximate timeline of important events that occurred during the first customer call. During this phase, I collaborated with the seller to

construct the timeline diagram (example in Appendix F) using the Zoom whiteboard feature. This activity allowed the seller to confirm the events' sequence and prompted them to recall additional information that was omitted in the first sweep (Klein et al., 1989; Hoffman et al., 1998; Crandall et al., 2006). The goal of sweep 2 was to identify key decision points in the call. Hoffman et al. (1998) suggest these decision points typically result from something that happened during the call (objective), something that the seller noticed during the call (subjective), or are due to the time constraints of the call (pragmatic). The questions related to this sweep of the interview are shown in Table 6.

Table 6: Interview Protocol Questions, Interview Sweep 2

Timeline of Events and Decision Points (Sweep 2)
On the basis of the above description, please help me construct a timeline showing how various events happened from the time the call began until it was completed
On the timeline, identify the points where critical decisions were made during the call

The data provided greater depth to that offered in the first sweep and provided insights into the sellers' cognitive and emotional state during the call.

Critical Decision Method Interview Sweep 3: Deepening

The goal of sweep 3 was to get the 'story behind the story' and more deeply understand the seller's role in the customer conversation. Crandall et al. (2006) suggest finding out "what did they know, when did they know it, how did they know, and what did they do with what they knew?" (p. 78). In reviewing the seller's story for the third time, I asked them about the cues that influenced each decision point within their account. I then probed for information about the cues themselves, their meanings, and the sellers' expectations upon identifying the cues. This sweep includes discussing potential actions available to the participant upon cue identification (Hoffman et al., 1998). This information was particularly relevant to this study, as my research

question focused on how experienced technology sellers navigated first customer calls and the cues that ultimately influenced their decision-making and subsequent actions.

The probing questions in Sweep 3 were critical to gain a deeper understanding of the decisions that occurred during the initial call. The questions related to this sweep of the interview are shown in Table 7.

Table 7: Interview Protocol Questions, Interview Sweep 3

	Cognitive probes and progressive deepening (Sweep 3)
Cues	<p>Please describe the features or cues you noticed as you progressed through the call.</p> <p>Which cues did you pay attention to? Which cues did you notice, but disregard?</p> <p>Which cues caused you to take action?</p> <p>How did you know when to take action relative to a cue? How did you arrive at that decision?</p>
Knowledge	<p>Was there any information you used in making this decision? Please explain.</p> <p>How was it obtained?</p>
Analogues/Prototypes	<p>Were you reminded of any particular previous experience in which a similar decision was made? Please describe.</p>
Standard Or Typical Scenario	<p>Does it fit a scenario you were trained to deal with?</p> <p>Were you following any rule or process? Please elaborate on the rules or process you were following.</p>
Goals	<p>Were you pursuing any specific goals and objectives at the various decision points? Please elaborate on these goals.</p>
Options	<p>Were there other alternatives available to you other than the ones you chose? Please explain.</p> <p>What options did you consider?</p> <p>Why did you choose this option?</p> <p>Were there other options you didn't consider?</p> <p>Why were these alternatives considered inappropriate?</p>
Experience	<p>What specific training or experience was necessary or helpful in making this decision?</p> <p>Did this remind you of any previous experience?</p> <p>What training, knowledge, or information might have helped make the decision better?</p>
Situation Awareness	<p>If you were asked to describe the situation to a new seller at this point, how would you summarize the situation?</p> <p>What might you direct the new seller's attention to? What would you encourage them to discard?</p> <p>What was the most important piece of information that you used to formulate the decision?</p>
Decision Making/ Time pressure	<p>How long did it take to make this decision?</p>
Errors	<p>What mistakes are likely at this point?</p> <p>How might a less experienced seller have behaved differently?</p>

The responses to these questions provided rich information about the sales professionals' decision-making processes during the initial call. Not only did the sellers provide explicit data about their cognitive functioning, they expanded my understanding of the contextual subtleties associated with their evaluation of the call.

Critical Decision Method Interview Sweep 4: “What If” Queries

The final step in the CDM interview process allowed me to dig into the participant's reasoning behind their actions. Hypothetical “what if” questions were designed to achieve this goal. While the overall story is the starting point for these questions, the CDM allowed me the flexibility to examine any aspect of the incident in more detail (Crandall et al., 2006; Gazarian, 2013). The purpose of this sweep was to contrast the way experienced technology sales professionals approached decisions with the way their novice counterparts may have hypothetically approached the same situation. Sellers were encouraged to consider potential errors that could occur for each decision point as described by Hoffman et al. (1998). Crandall et al. (2006) offer four categories of probes researchers could use in sweep 4. These include experienced professional-to-novice contrasts (e.g., if a novice had been in this incident, what could they have missed?); hypotheticals (e.g., if the incident had been different in [a specific way], how might it have changed your decisions/actions?); experience (e.g., what training or additional background could have made a difference?), and aids (e.g., what technologies could have helped with assessing a situation or making a decision?). This study investigated two hypothetical lines of questioning; the experienced professional-to-novice contrast and the experience probe that queried what training or additional information could have made a difference. The questions related to this sweep of the interview are shown in Table 8.

Table 8: Interview Protocol Questions, Interview Sweep 4

Hypothetical Scenario (“What ifs”) (Sweep 4)
Briefly explain what you would do if you were to get on an initial customer call and find out you have very little information about what is happening, and yet you have to make decisions as how to conduct the call.
Imagine yourself back when you were a novice seller; what mistakes would you have been likely to make? What additional knowledge or information do you wish you would have had? What additional training could have made a difference?

A challenge noted by Crandall et al. (2006) is how to allocate time for this last sweep. They acknowledge that sweep 4 is not always essential to achieving the goals of a project. For this study, I used all four sweeps. As a new CDM researcher, I wanted to be as thorough as possible in capturing the details of the calls the sellers provided. However, it was evident that many of the sellers were experiencing some fatigue by this point of the interview. I did my best to keep this sweep short to accommodate the comfort of the sellers.

Data Analysis

Creswell and Creswell (2018) note that data analysis is akin to peeling the layers of an onion: researchers must separate and organize the data from its most raw form before reassembling it with some meaning attached. Wong’s (2004) description of the CDM data analysis process was the primary guide for this study. I also incorporated lessons associated with data analysis from CDM studies by Harenčárová (2015) and Blandford & Wong (2003). Wong notes that there are two approaches to performing data analysis: the structured approach, which employs an “a priori framework of decision making,” and the emergent themes approach, which “allows concepts to emerge from the data and to subsequently structure their relationships so that they become meaningful” (p. 329). I used the structured approach for CDM data analysis, reflected in Figure 5. Importantly, the selection of categories for the a priori framework described by Wong is reflective of the constructivist approach. I made use of a combination of

my professional experience and the information uncovered in the literature review to craft the framework categories used in this study. The structured approach relies on five stages: the decision chart, the incident summary, the decision analysis table, the assembly of items of interest shared by multiple incidents, and the collation and comparison of items across cases. The first four stages were conducted independently for each interview; the fifth stage brought together items from across all of the cases.

Stage 1: Decision Chart

The decision chart is a visual representation of an incident and the participant's decisions during the incident. The chart is presented in chronological order and is created by using the timeline chart created during Sweep 2 of the CDM data collection process (Harenčárová, 2015). I used MindMeister mind mapping software to create the decision chart. An example of a decision chart constructed for this study is shown in Appendix G.

Stage 2: Incident Summary

While the decision chart provides an overview of the events in an incident, the incident summary provides a short story of the incident as well as the connections between the main events. This narrative clarifies the key relationships between the data points associated with the incident (Harenčárová, 2015). The incident summary makes it easier for a researcher to review an incident without having to spend hours wading through interview transcripts, especially when a study includes multiple incidents (Wong, 2004). An example of a call summary constructed for this study is shown in Appendix H.

Stage 3: Decision Analysis Table

The decision analysis table provides detailed information about the decisions that were made over the course of a first customer conversation. It reflects a process in which the decision

maker is presented with situational cues, how they process and make sense of the information, and ultimately how they assess the situation. From this assessment, the decision maker's mental model leads them to create a course of action which they implement.

The decisions and subsequent actions are based on a rationale, which answers why the action was carried out. Finally, the table captures the purpose, or ultimate goal, of the action that was performed (Wong, 2004). An example of a decision analysis table constructed from this study is shown in Appendix I.

Stage 4: Items of interest

In the next stage, relevant items of interest were consolidated by creating a table, collating similar statements and giving each grouping a label. Items of interest could include goals, cue information, decisions, or situational assessments.

Stage 5: Collation and comparison of items across cases

The final stage involved the comparison of specific items of interest across multiple cases. The researcher creates a table that can be used to make sense of the data by identifying common goals and themes across cases. The table affords the researcher the ability to view how data from multiple cases support a concept. It also provides a basis for inferring the representativeness of the concepts the researcher has identified (Wong, 2004). Appendix J contains an example of this stage.

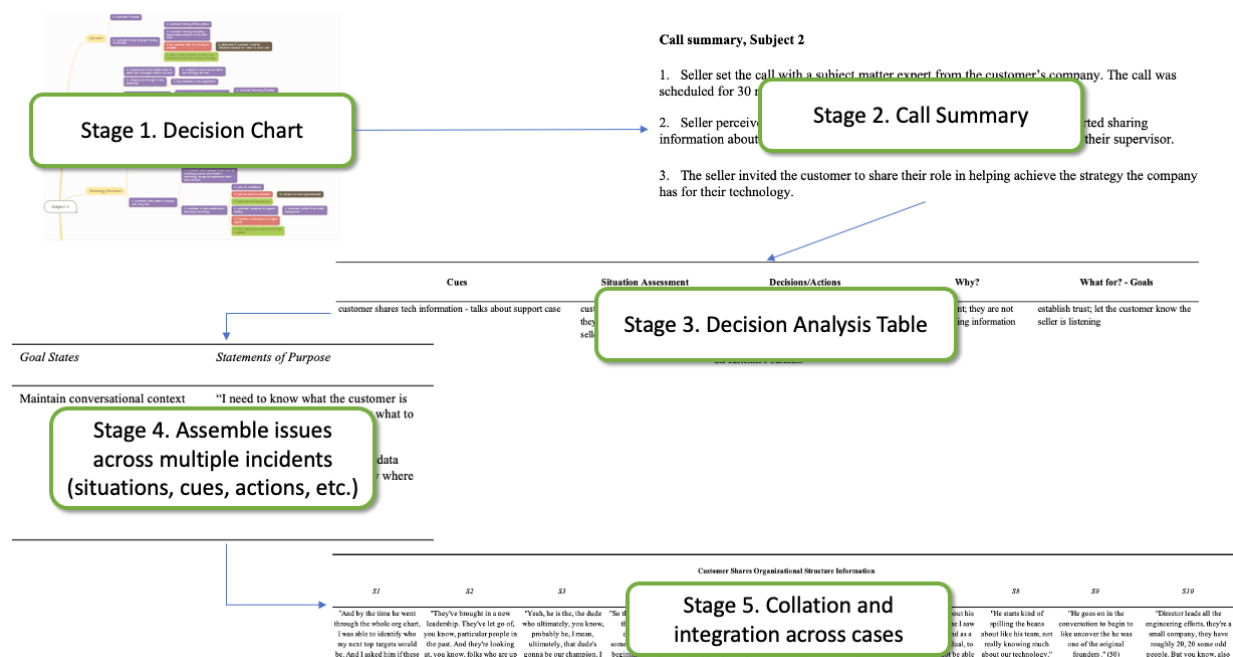


Figure 13: Structured approach for analyzing CDM data

Note: Adapted from Wong (2004)

I used Saldana's (2016) *Coding Manual for Qualitative Researchers* to assist with coding and categorizing interview data based on the critical decisions the sellers identified. I used MAXQDA qualitative data analysis software to assist with the organization of this analysis. Once I identified categories from participant interviews, I rank-ordered them in terms of frequency of occurrence. Categories that frequently occurred together were noted, both within the same interview and across interviews (Stitt-Gohdes et al., 2000). The unit of analysis for this study was the interview responses about a sales professional's customer conversation. Though the CDM analysis process described by Wong does not require this step, it was helpful in determining the frequency of different themes in the study and to identify interview excerpts that represented different themes.

Ethical Considerations

This research aimed to understand how experienced technology sales professionals become aware of and adapt to unanticipated customer responses during an initial sales conversation. The research involved interviews with sales professionals. Sellers were selected based on their position and tenure at the organization, and no sellers were excluded based on age, gender, ethnicity, race, health, literacy level, or socioeconomic level. I asked sellers in writing to participate in this study, with an explanation of the research question and the reason they were being asked to participate (Appendices A & B).

Sellers invited to participate in the study were informed that their participation was voluntary. If they chose to participate in an interview, they could end the interview at any time without penalty. No incentives were offered to sellers to participate in the study.

This study was presented to the University of Arkansas Institutional Review Board (IRB) for approval to conduct this doctoral dissertation research. Only I and my faculty advisor shall have access to the research data. The research study did not explore any future plans of individual sellers nor of the organization as a whole that could be considered sensitive or potentially damaging if they were unintentionally publicized.

Issues of Trustworthiness

A debate exists in terms of researchers' ability to distinguish between a high-quality cognitive task analysis (CTA) study and a poor-quality study (Hoffman & Woods, 2000). The CDM is a type of CTA. The CTA method used has only needed to meet 'satisficing' criteria – that is, it has only needed to meet the researcher's expectations with respect to the study being conducted to be considered 'good enough.' It should also be acknowledged that some researchers have questioned the retrospective nature of the data collected within CDM. With

respect to the seller's recollection of an event, it is important to note that it is impossible to recreate the exact events of the episode. Furthermore, the recollection of the event has the potential to further alter the memory of the event itself (Klein et al., 1989). The researcher may also differ from others in their ability to extract decision points from the interview. This can impact CDM studies that rely on multiple interviewers.

Harenčárová (2015) explained that for her structured approach CDM study of paramedic crew decision-making, she found that it could be difficult to decide what should count as a decision versus what should count as an action. She decided that each action had an implied decision immediately preceding it. She also noted that not every decision needed to be followed by an action. For the purpose of this study, I followed a similar approach.

Hoffman et al. (1998) note that the method of data acquisition and temporal distance from the event itself can be central to reliability. Within CDM, two considerations have repeatedly been cited with respect to how reliability is achieved. The first relates to whether consistent meaning can be extracted when a participant recounts the same case a second time. Could sellers identify the same or nearly the same decision points, cues, patterns, and actions after several weeks or months? The second consideration involves intercoder agreement – whether different coders would arrive at similar classifications when reviewing similar transcript data.

The CDM seeks to minimize these potential limitations through the data collection method previously described: by using multiple sweeps through the incident, variability in responses and researcher incident identification are minimized. A key tool in helping to reduce concerns of reliability is the set of cognitive probes associated with the RPD model developed by Klein et al. (1989) and revised by others (e.g., O'Hare et al., 1998). Blandford & Wong (2004) discuss the fact that the CDM interview makes use of triangulation techniques to make the

recalled information more reliable. By taking advantage of the incident timeline and other resources, sellers could better recall incidents, cues, patterns, and actions. This has been demonstrated in studies across multiple disciplines (e.g., O'Hare et al., 1998; Wong, 2004; Gazarian, 2013; Harenčárová, 2015), and was employed in this study as well.

Credibility

I attempted to maintain credibility in several ways. The first of these were member checks or respondent validation (Merriam & Tisdell, 2016). Maxwell (2013) notes “This is the single most important way of ruling out the possibility of misinterpreting the meaning of what participants say and do and the perspective they have on what is going on, as well as being an important way of identifying your own biases and misunderstanding of what you observed” (p. 126-127). For this study, summaries were shared with sellers with an invitation for them to provide additional comments or edits in the form of the call summaries and decision charts. This was to ensure that my perceptions and accounts of the sellers' stories were accurate. In this study, all sellers confirmed the summaries provided by me. Creswell and Creswell (2018) note that the member check does not mean taking the raw transcripts but sharing “parts of the polished or semi-polished product” (p. 200) with the sellers.

The second way in which I aimed to achieve credibility and to reduce the risk of researcher bias was the use of peer debriefing sessions with three senior executive technology sales leaders. These sessions, as suggested by Creswell and Creswell (2018) were designed to give these experts the opportunity to ask questions about the study to ensure that the content would be of value to someone other than the researcher. These sessions involved sharing excerpts from anonymized interview transcripts and asking the experts to share their interpretations of what the transcripts meant in the context of a first sales call. Two of the

experts were in complete agreement with my categorization of the excerpts. The third expert agreed with 80% of my categorizations.

Finally, because I had an in-depth understanding of the phenomena by working in the field being studied and I have “spent prolonged time in the field” as suggested by Creswell & Creswell (2018, p. 201), I had the opportunity to provide more accurate and valid findings.

Dependability

The extent to which research findings can be replicated has traditionally been synonymous with the concept of reliability. Merriam & Tisdell (2016) call out that “replication of a qualitative study will not yield the same results, but this does not discredit the results of any particular study; there can be numerous interpretations of the same data” (p. 251). They contend that it is the degree to which the results are consistent with the data collected that is important. Instead of demanding that the same results be achievable by other researchers, it is more important that the results make sense for the data that was collected (Lincoln and Guba, 1985). Bloomberg & Volpe (2019) noted that a clear record of how the data were collected and analyzed, or “audit trail” also supports the dependability of a study. For this study, the CDM process of data analysis described in Figure 13 provided such an audit trail, showing how the timeline created during the interview itself evolved into a decision chart, a call summary, a decision analysis table, an items of interest table, and then a consolidated of items of interest table. All field notes, recordings, and transcripts were preserved for this purpose as well.

Transferability

Generalizability is not expected to be achieved with qualitative research; however, transferability, or the ways in which a particular context and the phenomena observed in that context are transferable to another context. In this study, context provided around the type of

sale, the use of both technical and value based behavioral sales skills training, the tenure of sellers within their current role and in the sales profession as a whole, and the fact that the study was focused on first sales calls with new customers all provided as much context as possible to provide for transferability. This, along with the direct quotes from sellers in Chapter 4 and the limitations acknowledged in the next section, was designed to permit the reader to determine if the procedures in this study could be used in another study with a similar context (Bloomberg & Volpe, 2019).

Limitations

Though I made every effort to avoid them, some limitations were encountered during this study. While I originally intended to conduct participant interviews face-to-face, the emergence of the COVID-19 virus at the time of this study caused me to reconsider my approach to this key aspect of data collection. Instead, I opted for Zoom video conferencing.

Patton (2015) offers several considerations for research involving the data collection methods intended for this study. First, interview data may contain responses influenced by respondents' own biases, anger, anxiety, interpersonal politics, or a lack of self-awareness. Interview data may also be impacted by the emotional state of the person being interviewed, as well as issues related to recall, relationship issues with the interviewer, and responses the participant may provide that are designed to be self-promoting. Second, with respect to observations, Patton notes that the researcher may affect the situation associated with the observation, especially with respect to the fact that participants who know they're being observed may participate differently. Third, documents themselves, even those directly constructed by the researcher, may be subject to limitations. Documents might contain inaccuracies, interpretations, or may be incomplete. While each of these techniques carries

potential limitations on their own, their combined strengths and diligence of the researcher are intended to offset any such limitations.

Throughout the study, it was my intent to be self-reflective; I attempted to acknowledge my own biases and accepted the multiple perspectives encountered. Patton (2015) calls on the researcher to be diligent in “taking seriously the responsibility to communicate authentically the perspectives of those we encounter during our inquiry” (p. 137).

Chapter Summary

This chapter offered a detailed description of the research methodology used in this study. An overview of the study was provided along with the study’s research questions. A rationale for qualitative research and the use of the critical decision method was provided, along with a discussion of the research sample. The research design was provided, as well as a look at the role I played in the study. Data collection methods, data analysis and ethical considerations were provided. With respect to trustworthiness, the chapter reviewed the considerations and measures to be taken for CDM. Finally, considerations related to the limitations of the study were examined.

Chapter 4: Findings

The purpose of this study was to understand how experienced technology sales professionals become aware of and adapt to customer cues during initial sales conversations with new customers. This chapter presents the key findings obtained from individual interviews with ten experienced technology sales professionals. The main research question that guided this study was:

Q1. How do experienced technical sales professionals navigate first discovery calls?

Two sub-questions also were considered:

Q2. What customer cues do experienced technical sales professionals recognize that lead to success on first discovery calls?

Q3. How do experienced technical sales professionals interpret and respond to customer cues on first discovery calls?

For the purpose of this chapter and for clarity, participants in the study will be referred to as sellers. I developed a list of questions to guide the semi-structured interview. The questions in the interview protocol were influenced by other CDM studies (e.g., Klein et al., 1989; Hutchins et al., 2004; Crandall et al., 2006) and allowed me the flexibility to ask follow-up questions as necessary. This allowed me to capture detailed responses about the sellers' personal experiences.

Summary of the Findings

1. Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate the first customer calls
2. Contextual cues about customer's organizational structure and strategy were the primary mechanisms that influenced sellers' decision making

3. Customer behavioral cues were the primary mechanism that informed sellers about customer interests
4. Sellers' decision making was influenced by a consideration of the value of the conversation to their customers
5. Product training was not a critical element of success in navigating a first customer call

While these findings may appear obvious or simplistic, the CDM provided rich insights into the meaning of the findings. The discussion that follows explains the nuances that sellers expressed when they described the dimensions of their experiences within their first sales calls with new customers.

Finding 1: Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate the first customer calls

All of the sellers described the importance of past customer interactions in shaping their ability to perceive, recognize, make sense of, and determine a course of action during their first calls with new customers. This experience allowed the sellers to interpret customers' motivation and goals and identify the priority issues that customers described. While the calls described by the sellers occurred over Zoom, only nine sellers described the importance of customer body language in informing the call. In one instance, the customer chose not to use video, and the seller was unable to use behavioral cues.

The First Customer Call – The Beginning Nuance

The first step sellers described was initiating customer conversations with rapport-building and a review of the agenda. This strategy provided sellers with an understanding of the

customer's position (rank, status, sphere of influence etc.) within the organization and allowed the seller an opportunity to describe their experience working with similar projects.

While all ten sellers expressed their desire to follow some version of this approach, eight of the ten reported that their conversations started in a nonroutine way, requiring them to pivot their approach in the first minutes of the call. One seller discussed the way they approached a call where their customer conversation deviated from the planned call:

I had to adapt to what he was willing to share Okay, wow, you want to talk about how you're moving over to another product because the team no longer wants to build applications in-house. I like that. I have questions I can ask around that. I guess a lot of it was just, you know, what was I equipped with? What experience of experiences have I had in the past with customers in similar situations where I got value out of those situations that I could repeat? (Seller 1, 110)

Other sellers described their willingness to let the customer dictate the conversation, but only to a point. If the customer started to go off the topic, sellers tried to refocus the conversation:

I don't like to cut people off. Even if I want to, it's just not something one, I'm comfortable doing. And two, I just, you know, I don't want them to feel like I'm putting what I want to learn above, like, what they're trying to get out of it. And so anytime I'm in that situation, I'm pretty sure I'd just let him finish his spiel. And then it's like, hey, I appreciate you giving me that information. That's super helpful for me to know as we try to work together, but I'd like, just want to pull it back for a second. And take you through kind of what I had in mind for today, what I was hoping to cover, and then you know, map that towards, you know, what you're hoping to learn and make sure that we come out with a productive call essentially. (Seller 3, 86)

The First Customer Call – The Middle Nuance

Once sellers moved past initial rapport and agenda setting, they relied heavily on their experience recognizing customer cues to determine how much leeway to give the customer in talking about a particular topic. This situational awareness and pattern recognition are hallmarks

of RPD. The action described by the following seller illustrates a decision not to act by resisting the desire to pitch their products:

The analogy I'll think of is you have a fish on the line that the last thing you want to do is pull too hard. Like I knew that I had a great opportunity here. I had made the mistake earlier of getting too excited, of trying to wrap up everything in five minutes and get an order form. Strategically in my head, I was thinking, I know there's a good opportunity, how can I make it better? And what that meant is that I want to keep doing discovery around what he's doing because he's willing to give me all this information. (Seller 8, 41)

Time – a Limitation Nuance

In all of the interviews, sellers described how their experience with time pressure was a factor in how they navigated their conversations, especially concerning setting up the next step with the customer:

Time definitely got me to pick my head up and say, okay, I've talked enough about our products, we need to get back into some discovery and come to a conclusion here, a natural conclusion that's going to yield another call. So that definitely got me to limit the amount of presentation time on our products and start asking him questions again. Okay, because I knew I only had like, five, six, seven minutes left that point. And then we had like, two minutes left, and I was thinking, Okay, we need to figure out next steps here. Because we're coming to a close. How can I summarize what we've heard, and then use that as an excuse to get another call going? (Seller 5, 292)

Time – an Advantage Nuance

In two of the interviews, the sellers described how they used time to their advantage. Interestingly, they used a lack of remaining time on the current call to justify scheduling a second call with the customer:

Knowing that I have at least seven more minutes left, but I don't want to actually solve his problem yet; I want to let them know that I think I have a solution, I did want to make sure that he walked away from the call excited about something, and I felt like I had something excitement worthy to share with him, or at least at surface level to share with him. And that's that level of excitement, that thin layer of like, apparently, the seller can solve all my problems... That was the perfect layer, I want to leave him with just enough. (Seller 8, 60)

I have enough experience with 30-minute calls, that I know that typically when I'm trying to sell a simple product, I only need the last like, maybe four to six minutes to, to kind of pitch and close...but to dive into this product was going to take way longer, right... The time aspect definitely played to my advantage, because it gave me an opportunity to schedule the next call, step away, review the call, ask more questions and prepare. (Seller 6, 404)

All the calls that the sellers described were successful in that a next step was established while still on the call or an agreement was made to establish a next step in the days following the call. However, one seller described a conversation where they were unsure how to navigate once the call was underway. Their experience is an example of Klein and Calderwood's (1996) assertion that if "if the case is somewhat atypical, the decision-maker will attempt to understand the situation by analyzing its features for a 'best fit'" or best solution (p. 8). In this interview, the seller described the process in the following way:

When I think about my routine, I often feel like if someone is a coherent human being, I can pivot. Enough to think through their meaning. If they're rude, I can try to use charm or things to help break the ice. Or I can point them back to what they care about and start to listen to what they care about enough over time, in the call to like, try to bring them back to show that I'm providing value versus them talking to another salesperson. And so with this person, I felt like there was no opportunity to do that. (Seller 9, 86)

The First Customer Call – The Ending Nuance

In all the calls, sellers tried to create an opportunity to continue the relationship by setting a next step with the customer. This included setting a date for another call, agreeing to contact the customer later to set up another call, or getting an introduction to someone else within the customer's organization. This readiness to continue the sales journey with the seller was a key indicator of success on these first customer calls, though the way in which each customer indicated their readiness differed.

In one call, the seller was able to determine that the customer needed to continue the conversation with the seller, as the alternative would be too painful for the customer.

He just basically said, “we’re going to have to do a lot of product work. We’re going to have to spend a lot of time rearchitecting our solution, and ultimately, changing the way things are set up currently. And we don’t know where to attack or where to start on that front.” I asked, “why don’t you just move to another technology?” and challenged him on that. Finally, he said, “Well, I don’t want to go to my board and explain this to them. We’d have to spend so much time just having to rip out what’s currently there and replace it.” That’s not something that he wants to focus on or has the time or ammunition for now. (Seller 7, 80)

In one of the calls, the customer was more than willing to set the next step in motion, in this case on behalf of the seller in making an introduction to another key decision maker.

I was like, okay, really appreciate your time, I thought that’s where we were going to cut it off. And then again, just to confirm, next steps and said, hey, you know, I really appreciate you, you know, helping me out here, as you know, as I wanted to do was just understand a little bit more about your role responsibilities and who I might be reaching out to, to understand where our product fits. And I asked them again, as to, hey, are you okay if I use your name for this introduction? And then can I continue to reach out to you if there’s something of value? And he said, Sure, absolutely. And then he said, you know, nice meeting you. (Seller 1, 98)

One of the sellers described a customer who became uncharacteristically reluctant when they approached the topic of setting up a next step. It was up to the seller to help guide the customer to the rationale for the next conversation:

If he was going to refuse the next meeting, he was going to do it in the face of his own words...he was going to have to tell me that the past 30 minutes that he spent telling me all these issues are not in fact issues that he wants to solve anytime soon, despite every evidence being towards the contrary. I was going to make him talk himself out of solving the issues he wants to solve. I think it comes down to holding the customer accountable. Sometimes we forget that, like, they need to hold themselves and we need to hold them accountable. Because they are real people. And we have the power to do that too. We have the right to drive accountability, the same way that you know, they do if they need something. (Seller 8, 64-68)

Finding 2: Contextual cues about customer’s organizational structure and strategy were the primary mechanisms that influenced sellers’ success on first sales calls

Sellers in all ten of the interviews shared that they were able to uncover information related to the customer’s organizational structure and the customer’s organizational strategy. This information emerged at different stages of the conversation, in some cases before the seller had the opportunity to run through their prepared agenda. Figure 14 shows the approximate number of minutes into a first customer call when information related to organizational strategy and organizational structure first emerged. In some calls, both types of information were uncovered within minutes of one another. In other calls, sellers noted that one type of information was uncovered rapidly, but they had to work hard to determine the other type of information over the duration of the call.

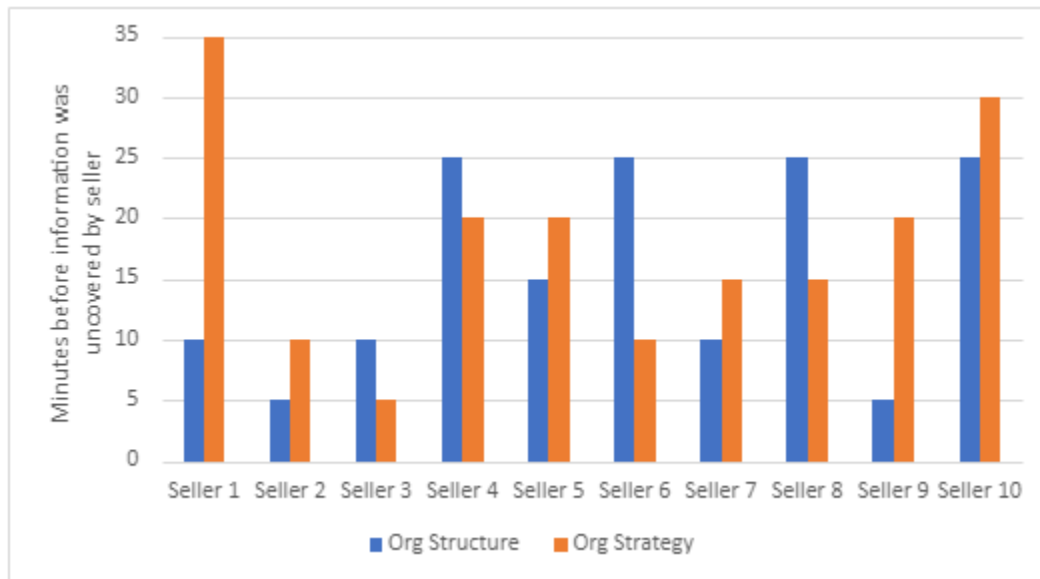


Figure 14: Approximate number of minutes to uncover information related to organizational structure and organizational strategy on first customer calls

Customer Contextual cues: Organizational Structure

In eight of the ten CDM interviews, sellers focused on gathering information about their customer's organizational structure and decision-making hierarchy regarding technology sales.

In two interviews, sellers recounted their customers directly sharing information about the decision-makers in their organizations. This was a nuance of identifying organizational structure information.

Identifying Decision Makers: Nuances

In one conversation, the seller noted that the customer began sharing their background and organizational information almost as soon as the call began. This required the seller to pivot from their original plan for the call and focus on gaining an understanding of the power structure and decision makers in the customer's organization.

He's definitely frazzled. Definitely kind of like an open book, where he does want to tell me, all the political stuff that's going on, all the things that he's been asked to do, and kind of, he's not explaining the frustration, but his body language, and everything is showing the frustration to some degree... my objective kind of immediately becomes, I'm going to let him talk for as long as possible and not get in the way. And kind of let him let him go. The first, you know, question that I can ask him is, you know, how are you involved? And, and what's, what's the background? They've brought in new leadership. And they were looking at, you know, folks who are up and coming like himself and others to lead the way. And in that process, he starts you know, pinpointing key players in the organization, key decision-makers in the organization, who he's going to be working with, and kind of giving me the entire org chart, which as a seller, I think is, is great to know. (Seller 2, 49)

Another conversation required the seller to make inferences about who the decision maker would be based on the clues provided by the customer. Before the call, the seller believed the person with whom they would be speaking would be the decision maker. However, by the middle of the call, it was clear the seller would need to have a conversation with another one of

the customer's colleagues based on the way the customer described their responsibilities in making the project a success.

It was like a little bit of reverence. Like, he had a ton of respect for this dude, and where he came from and what he accomplished. You know, it was very much like reverence, like he had a ton of respect for the guy. It wasn't like, oh, we're going to have to run this through this guy. It was like, we get to run it through this guy. (Seller 3, 198)

Customer Contextual Cues: Organizational strategy

Sellers also noted the importance of organizational strategy information in helping them to prioritize their discovery. For the purpose of this study, I relied on a description from Peppard and Ward (2016) to categorize a participant's description as being related to organizational strategy: "any organizational strategy must define where the company wants to be in the future and objectively evaluate where it is now to decide how to get there; taking into account the options, alternatives, available resources, and the needed changes" (p. xiv). Eight of the ten interviews reflected the seller's focus on this information as being valuable in helping them to achieve a successful outcome to their first sales calls.

They've recently started to scale their team, then they secured funding towards the end of last year, and then essentially doubled the team the last three months, which brings on new challenge from a technology perspective. (Seller 10, 76)

He was giving me important information. It wasn't like, it wasn't like he was just diving into what he'd been building using our products and all the different features he was trying to use. This was all very much the actual project and who was involved on their end and the customers that could be affected. It was much more business-oriented. And so, this is all stuff I want to know. (Seller 3, 218)

Not every interview involved a customer who was so willing to help guide the seller to the most important project or goal. In the two calls where the customer did not offer information about their organizational structure, sellers noted that their perceptions of the customer's

organizational power played a role in how they navigated the conversation. One of the sellers noted:

He kept kind of coming in, as you know, that strong CTO personality, like why are we talking about this, we need this information. This is the sizing info we need. We only have 30 minutes on this call. (Seller 4, 66)

In one customer conversation, the organizational information provided by the customer let the seller know they were unprepared or unsure about how to take the next step in executing their own project. In this situation, it was up to the seller to figure out how to achieve a next step in the process that would benefit both the customer and seller.

From there, we started talking about different types of aspirations, certain types of functionality, where he wants to go in his role and it seemed kind of clear that as we were talking, he was kind of realizing some of the things he wanted to do. So, it was interesting, it seems like he had never really thought about how to execute on his own agenda. And he had these things that he that he wanted, but he kind of felt like he didn't know how to do them. (Seller 8, 23)

Finding 3: Customer behavioral cues were the primary mechanism that informed sellers about customer interests.

Sellers focused on customer behavioral cues to guide their conversations during the first customer calls they described. Specifically, the sellers mentioned the impact of identifying signals from customers that indicated enthusiasm for a topic as an indicator that the seller should probe for more information.

Customer enthusiasm and excitement. In nine of the ten interviews, sellers remarked that customer enthusiasm and excitement let them know they were on the right track in a first customer call. This was reflected in a variety of ways. Sellers noted their perceptions of customer enthusiasm in different ways. In some cases, it was the way customers spoke about a topic; in

others, a smile or chuckle was the indication that the seller had found an area the customer was willing to investigate with them:

I don't think he could ever hit a roadblock with talking, but if he lit up or he smiled about it, I knew there was something behind it like a story. And so, feeding off of emotion, that was helpful. I was feeding off (things that were) primarily emotional and like, the way his voice would change. And then how in depth he would talk about them. I was like, good. Like, these are good areas to poke at. I guess I essentially had those keys already figured out and I guess, in the back of my head I might have waiting for him to say these things. But I wasn't necessarily steering him. (Seller 1, 186)

You could tell whenever I started, at the beginning, the customer kind of lit up whenever I started asking about his background, like why he ended up here like, what kind of vision is does he have since I guess they're all technically co-founders. (Seller 10, 598)

Sometimes he would just laugh when I asked a question. And I think, you know, typically, you either laugh if you've uncovered something that you thought would go hidden, or you are not thinking that you're going to talk about it so early. There's always a reason when you chuckle or say something, right. So there were quite a few of those instances, and that kind of gave me the impression that I'm onto something, you know, I'm onto something. (Seller 2, 211)

In one interview, the participant noted that engaging the customer by asking for help walking through the customer's website created enthusiasm from the customer. The seller even perceived a change in the customer's posture:

He liked that I screen shared. And I could tell that he liked it. And so I was clicking around as he guides me, and that was like intentional. And then when he would like, tell me about another app, I'd say, where can I find that one? And so I did make an intentional did and then he would like give me a URL and I'd type it in. And so I was like, definitely intentionally letting him like, walk me around and tell me about certain things... I don't know if it felt this way, or if he did it, but I, it felt like he leaned forward. And I know that's cliché. Like we talked about them leaning in, but like, it felt like he leaned forward, and maybe it was just to see the screen. Yeah. But regardless, like I was, it seemed like he was happy to engage to help me understand. (Seller 6, 224)

Finding 4: Sellers' decision making was influenced by a consideration of the value of the conversation to their customers

While the primary purpose of the sellers was to qualify whether there was an opportunity to continue the conversation with their customers with the goal of making a sale, all of the sellers indicated a desire to provide their customers with a positive experience during their first conversation. However, they expressed different motivations for this goal. Some sellers reported transactional reasons for their goals, while others seemed to value human exchange and problem-solving.

I was, in a sense, listening to the customer. Not just his words, but also his actions, his reactions and the tone of voice and such; and then giving him what he wanted, or what I thought he wanted and pivoting along the way to try to find exactly what it is this guy was going to get that would make him satisfied. (Seller 5, 440)

One seller mentioned their motivation to provide a positive experience as being directly linked to their goal for the overall conversation:

I knew I had to give them something, to keep them interested and entertained to get me to that next call. (Seller 4, 186)

Another participant noted their motivation as being beyond just the scope of the call; they believed their role was tied to a higher purpose:

My personality is I like to solve problems, I like to alleviate people's pain. I'm like a coach personality. So ideally, every conversation I ever have with a human is, where are you now? Where do you want to go? What's holding you back? How can we get you there? How can I help? (Seller 6, 304)

Finding 5: Product training was not a critical element of the first customer call

An irony of the findings of this study was the relatively small part played by seller's product knowledge in helping them achieve their goal of setting up a next step with their

customers. Given the amount of time sellers spent in their initial and intermediate training at the company focused on technology and product training, none of the sellers spent significant time discussing their products during their initial customer conversations. In fact, some of the sellers intentionally avoided discussing their products.

I spent some time just talking to them about our product and that yes, we have it. Yes. It's something that, you know, seems like it'd be a good fit. It seems like it's something that he mentioned he's done some research on and I let him ask a few questions about it. But I was careful not to go too far into our products, I didn't really want to end up in a technical discussion yet. (Seller 8, 23)

In another conversation, the seller described their lack of confidence in having a product or technology discussion. They used the customer's desire to discuss technology as a vehicle to justify their next meeting with a technical team member present from the seller's company.

Like he was trying to ask about some security type stuff, like, why is our product the best for microservices? Like, what are some things I can think about in building this? Like, pretty technical questions. I kept trying to tell him, hey, I will get you with a technical resource to talk about these things. I'm not the person to talk about them. And I guess you could say, I was making a decision to let him continue to ask me these technical questions. Because to me, that was also a carrot to the second meeting. It was like, okay, you have all these questions that I don't have the answer to, but they seem important to you. Let's set up a call with our technical resource to help you start to answer these questions. (Seller 3, 174)

Reflection: Novice Mistakes

The CDM provided an opportunity for the experienced sellers to offer input related to the expected behavior of novices in the situations they just recounted. At the end of each interview, I asked sellers about the mistakes they believed a novice seller might make in the same situation. Such questions provide insights into the level of expertise and the challenges presented by the incident (Blandford & Wong, 2004).

Five of the sellers mentioned that novices would likely focus too much on technology or would want to pitch their products to the customer. One seller noted they would advise a novice to actively avoid technical details.

Don't worry about the technical details of the call, that's something you don't necessarily need to be equipped with to answer on day one; we have technical specialists for that. And you can get away with not giving him technical information and still making him happy by asking him those questions that I mentioned before. (Seller 5, 432)

In thinking about their time as a new seller and the mistakes they would have made in a similar situation, two of the sellers talked about how they would have jumped into attempting to discuss their products before understanding the customer's situation.

I would have pitched. As soon as I heard him talking about his issues, I would have gone to the, to the jargon of, oh, yeah, our products can help you do this, they can get you to a better state ... I would have probably forced my slides on to him, when in reality, he could have cared less about it. (Seller 7, 440)

Pivoting too quickly to the, oh yeah, well, let me tell you all about our product and our technology and how we can help you. Without a proper and firm understanding, you can kind of lose control the call there and not be able to, to really provide all that much value. (Seller 10, 1018)

Other sellers remarked how they would expect novices to try to stick too rigidly to the originally agreed upon time and to the agenda they had prepared.

I could have, like, after getting to know each other, have pulled up the agenda and like, not really asked for some background context...I could have just avoided that and, and gotten into my agenda and made sure I spent, like, I have 30 minutes, and the call has to be done in 30 minutes. So let me make sure I covered my agenda and get as much info as I could. (Seller 2, 375)

One seller was more reflective in considering the mistakes a new sales professional might make in pitching their products too soon, relating it to their own experience.

It's hard to put a price on a learned experience, right, on like doing it wrong. And like, this is so much more than sales for me, like nothing will replace me swinging a hammer and hitting my own thumb, you know, like, the number of times after that you swing a hammer and you keep your hand away from the nail is infinite, right? Very few things can replace your feeling of getting super excited about a deal and blowing it because you shared too much. And you tried to get a demo. I think it's tough to fully replace these experiences of failure that you have, or at least for me, because I learned really well from what not to do sometimes. (Seller 8, 69)

Chapter Summary

This chapter described the findings of ten interviews conducted with experienced technology sales professionals. The findings relate to the main research question, “How do experienced technical sales professionals navigate first discovery calls?” and two sub-questions, “What customer cues do experienced technical sales professionals recognize that lead to success on first discovery calls?” and “How do experienced technical sales professionals interpret and respond to customer cues on first discovery calls?” Five findings were presented after analysis of CDM interviews investigating sellers’ first discovery calls with new customers. Direct quotes from the interviews were provided throughout the chapter to allow the reader to have direct access to the words used by the ten sellers themselves as they recounted how they navigated nonroutine experiences. Nuances associated with the difference in what occurred versus what sellers might typically prepare for were also provided.

Finding 1: Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate the first customer calls. The first finding from this study was that sellers primarily relied on the lessons learned via experience with other customers on previous calls to navigate first customer calls. For context, sellers believed this experience was more important than formal training, formal processes, or other materials to which they had access. While they acknowledged the value of these other resources, they noted the power of their previous experience in allowing them to identify customer cues, assess situations, make

decisions, and act. There were nuances associated with the beginning, middle, and ending of these first customer conversations, as well as nuances related to the advantageous and disadvantageous impact time had on their discussions. In two of the interviews, sellers noted the way they leveraged remaining time to justify a next step with the customer.

Finding 2: Contextual cues about customer's organizational structure and strategy were the primary mechanisms that influenced a seller's ability to craft a justification for continuing their conversation with the customer. This included an agreement to advance the discussion with the same individual from the first call, or to start a conversation with a different member of the customer's organization. In eight of the ten interviews, sellers indicated the key role cues related to organizational structure played in their ability to navigate a first sales call. In the remaining two calls, sellers acknowledged that their perception of the customer's organizational influence or lack thereof played an important role in how they navigated the conversation. In all ten interviews, sellers mentioned the importance of customers sharing organizational strategy information in their ability to navigate the calls and to craft a meaningful next step with the customer.

Finding 3: Customer behavioral cues were the primary mechanism that informed sellers about customer interests. Sellers described the part played by customer behavioral cues related to enthusiasm and excitement about a particular topic. Nine of the ten sellers mentioned ways in which they detected this enthusiasm: customer's facial expressions, a laugh, voice tone, and, in at least one conversation, the perception of the customer physically leaning in towards the screen. These cues helped sellers determine what the customer was interested in discussing and how to spend their time.

Finding 4: Sellers' decision making was influenced by a consideration of the value of the conversation to their customers. The fourth finding was related to interpreting and responding to customer cues. All of the sellers described ways in which they were wanted to provide the customer with an experience that provided value to their customers. Sellers also described different motivations for this goal. Some sellers described wanting to ensure they were delivering value by the way they provided information; at least one was focused on maintaining engagement for the sole purpose of landing a second conversation. One described their motivation as being independent of sales itself – that their goal was associated with helping another human being find success.

Finding 5: Product training was not a critical element of success in navigating a first customer call. Despite the considerable amount of time spent by sellers on product training provided by their organization as part of their primary and intermediate sales training, it did not play an important role in helping sellers achieve a next step with new customers. In fact, sellers intentionally avoided product discussions altogether on several of the calls. In at least one of the calls the seller used a product discussion with someone other than the seller as leverage to justify a second meeting with the customer.

A discussion associated with the findings of this study, implications for research, and recommendations for future investigations are provided in Chapter Five.

Chapter 5: Discussion and Recommendations

The purpose of this study was to understand how experienced technology sales professionals become aware of and adapt to customer cues during initial sales conversations with new customers. Specifically, the study identified the customer's behavioral and informational cues that are recognized by the seller and consequently influenced decision making during the initial exchange. By understanding how experienced sales professionals accurately perceive and judge customers' needs and how they learn to adapt their approach during the high pressure, ambiguous, and often high-stakes circumstances that characterize first discovery calls, sales training professionals and sales managers can help new sales professionals accelerate their training and development to become productive contributors to their customers and to the goals of their organization. This study illustrated how the application of the frame of Naturalistic Decision Making (NDM) and the Recognition-Primed Decision (RPD) model can be applied to the sales discipline.

This chapter includes inferences about the findings, implications for sales organizations in helping new sellers develop more rapidly, implications for the field of adult learning, a discussion about the limitations and assumptions of the study, and recommendations for future research.

Discussion of the Findings

The five main themes that emerged from the study are listed below. A discussion follows each theme that offers possible explanations for and insights into these findings. The narrative includes implications for practice, relevance to the literature, and recommendations for future research. Figure 15 illustrates the five findings of the study.

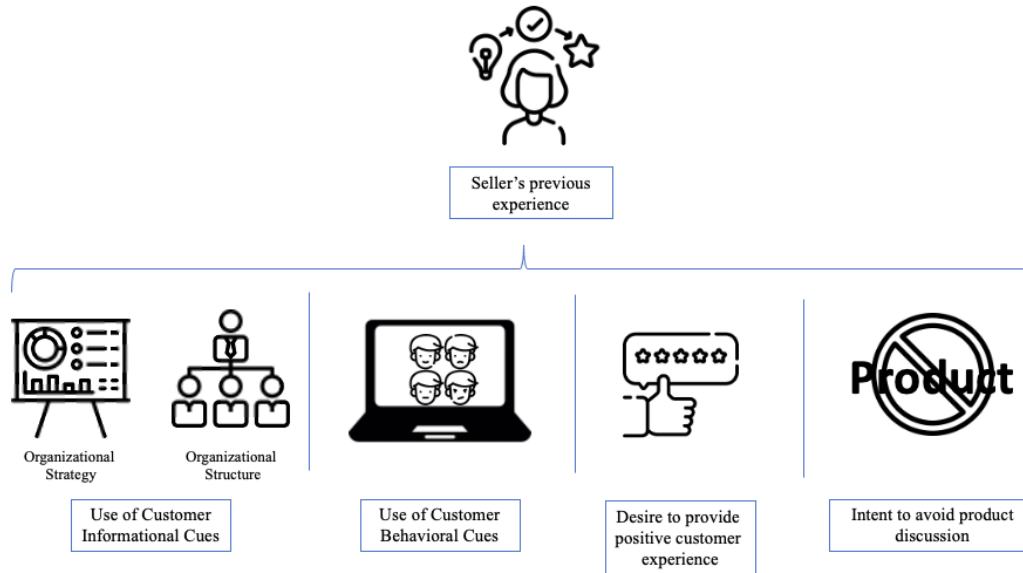


Figure 15: Main factors contributing to first call success with a new customer

Finding 1: Previous customer experience was the primary factor that sellers reported in facilitating their ability to navigate the first customer calls

With respect to the main research question, “How do experienced technical sales professionals navigate first discovery calls?” all of the sellers communicated the substantial importance of their prior experience with other customers in being able to navigate first customer calls. While none of the sellers explicitly called out the four stages in the process of experiential learning, such a process was inferred from their accounts. The CDM itself is a retrospective technique designed to encourage reflection on experience, one of the four key stages in the experiential learning process described in Chapter 2. When sellers encountered the novel situations described in the interviews, they possessed a catalog of experiences they could use as possible analogs and a repertoire of possible options they could use to manage the situation with which they were presented. This ability to recognize patterns associated with a situation is a key characteristic of NDM and the RPD model. Sellers did not describe any point during their

customer conversations when they had to stop to think before taking the next action. One seller described the impact of their prior experience and training in influencing how they navigated the first sales call:

I would say almost boundaries, guardrails, if you will forks in the road...to me, I felt like this could have been you know, a winding, a winding road, like, you know, bunch of forks in the road, a bunch of different turns. And at each of these triggers, it felt like the training that I had received, the experience that I've had led me to slow down and not just blindly pick, you know which of these turns I'm going to go at. I think the fork in the road analogy, if I take that a step further. I don't remember any of them being intersections with stoplights, right, like the car never stopped moving. A lot of them were yields. A lot of them were like, you know...a couple of turn offs. But I don't remember the car stopping sitting at an intersection deciding which of the three directions to go. (Seller 8, 77)

I believe this is the first study investigating the use of NDM in a technology sales context and the first study to evaluate whether experienced technology sales professionals appear to use the recognition primed decision model. Based on the findings of this study, there is evidence that the field situations in which sellers find themselves meet the criteria associated with NDM: real-time situations that are dynamic, time-pressured, uncertain, in which decisions must be made, and in which wrong decisions have significant consequences to the individual and the organization (Klein, 1998). NDM studies involve interviewing experienced professionals working in these settings to examine how they determine the types of situations they have encountered, the issues they need to address, make choices, and take action. There is also evidence that sellers employ the stages defined in the recognition primed decision model. Based on the interviews, experienced technology sales professionals reflect upon and modify their actions based on each customer conversation they complete; these are the hallmarks of adult learners using the experiential learning process, even if it happens informally.

Discussion and Implications for Sales Training Programs

It is reasonable to suggest that that sales training and onboarding programs could benefit from incorporating experiential training into the early curriculum of a new technology sales professional. Success among experienced technology sales professionals rests on the ability to draw upon a well of previously experienced situations. Educating sales professionals about the experiential learning cycle would provide them with context, as adult learners, to better understand the rationale behind the reflective practice, taking the time to incorporate that reflection into their repertoire, and augment their behavior on sales calls with that new information. Returning to the theme mentioned by Klein earlier in the study, the goal of these experiences should not simply be the elimination of errors; sellers should feel free to reflect and appreciate the insights gained from their continued experience.

Critically, it could help sellers segment their calls into beginning, middle, and ending segments and pay attention to the positive and negative implications of time on each section of the first customer call. Bringing awareness to the leverage points available to sellers in their use of time could allow them to more rapidly qualify whether a prospective customer is likely to continue the journey with the seller. Likewise, Kolb's experiential learning cycle could play a role in enhancing and accelerating seller proficiency in this respect. By using the reflective observation step in Kolb's experiential learning cycle, sellers and sales managers could evaluate what the seller prepared in anticipation of the meeting and compare it to what actually occurred in the meeting and how the nuances which differed from what the seller anticipated affected the meeting's outcome. Likewise, the lessons taken from the reflective observation step could be applied as new rules in the abstract conceptualization stage of the experiential learning cycle and then applied in the active experimentation phase as the seller conducts their next initial customer

conversation. The cumulative effect of these lessons could potentially reduce the amount of time it would take for new sellers to ramp as they would have access to the lessons of sellers who went before them.

Finding 2: Contextual cues about customer's organizational structure and strategy were the primary mechanisms that influenced sellers' success on first sales calls

Nearly all of the sellers prioritized identifying where the organizational power structures were in their customer's accounts. They used this information to tailor their discovery to the individual's role within the organization, then focused on information related to organizational strategy. If they were speaking with someone with a more technical role, sellers could use that knowledge as a conduit into conversations associated with technology and a justification to suggest a conversation with a technical member of the seller's team; for those with a more business-oriented role, sellers could pivot to a deeper focus on the goals of the business. While sellers wanted to determine whether to continue speaking with the customer after the first call, there was an equally clear drive to identify other individuals within their customer's accounts who held decision-making power. This realization indicates experienced sellers are looking for individuals whose role is tied to the execution of the organization's strategy, and that the customer actually knows how their role is tied to the organization's strategy. This is supported in research by Maddox (2008). Referencing Boswell's (2000) concept of "line of sight," in which employees understand an organization's strategic goals and how their role relates to its achievement, Maddox notes, "strategic alignment is achieved whereby employees have a direct view of how what they do relates to the organization's strategies. This direct view links employee's tasks to higher, broader, organizational strategies" (p. 36). Two challenges arise from this with respect to experienced sales professionals: the first is finding someone in the customer's

organization who has a clear grasp on organizational goals; the second is finding someone in the customer's organization who understands all of the links between the project on which they are working and the broader goals of the organization.

Discussion and Implications for Sales Training Programs

Sales professionals must qualify how they spend their time; they must qualify a prospective customer as having the potential or lacking the potential to generate revenue for their company as quickly as possible. The challenge, as mentioned, is finding someone with a bias for change within the customer's organization who also possesses a level of authority to make that change happen. This, again, is not necessarily the focus of sales training programs, especially for new sales professionals. There appears to be merit in spending more time helping sales professionals learn to navigate organizational complexity, even at the expense of additional product training or other differentiated offerings an organization may have to sell. More on this in the discussion of Finding 5.

Finding 3: Customer behavioral cues were the primary mechanism that informed sellers about customer interests

Web conferencing, the modality over which sellers met with their customers, has been around for some time. The part that seller's perceptions of customer behavioral cues played a part in their ability to successfully navigate first sales calls is interesting in that the sales professionals had never met nor seen, save for perhaps a still picture, the individuals with whom they met. In nine of the ten calls recounted by sellers, customers had their web cameras turned on. While there were only two calls in which the sellers reported any sort of rapport in the sense described in Chapter 1, the fact that most of the customers and sellers turned on their cameras indicated an early effort at partnership and trust. While the cues that sellers called out were most

frequently related to enthusiasm and excitement, it would be inaccurate to say these were the only cues to which the sellers paid attention. Cues related to enthusiasm and excitement appeared, however, to be key indicators of engagement on these first customer calls. I anticipated this being one of the more difficult things to gauge via a meeting over web conferencing software, though all of the sellers indicated some awareness of it. Feeding that engagement, as in the example of Seller 6 in Chapter 4 who invited the customer to give them a tour of the customer's website, was an indicator the seller was connecting with their new prospect. Results from research by Shannahan et al. (2015) bears this out. They indicated that "A salesperson's perceptions and interpretations of the customer's participation and involvement in a relational selling context are important factors in their individual behavior and ultimate performance" and that "the reciprocal interdependence of the customer–salesperson relationship...can help 'clear the path' so salespeople can focus on meeting customer wants and needs, on cocreating value, and on realizing their own performance goals" (p. 110).

Discussion and Implications for Sales Training Programs

As described in Chapter 1, successful rapport on customer calls matters, and there are a variety of ways experienced sales professionals achieve and maintain that engagement. Importantly, in order to be able to muster the ability to devote attention to customer body language via web conferencing, sellers need practice. This is another area where formal experiential learning activities may assist sellers in more rapidly developing skills where they not only devote attention to customer body language cues but can also manage the competing priorities of managing the call, listening actively to the customer, asking questions, capturing notes, and planning for next steps. Web conference recording software that allows sales leaders and sales coaches to go back and review sales calls with their sellers can provide an opportunity

to reflect on the call, identifying gaps and insights gained by reviewing the conversation step-by-step, and using those lessons to craft goals for the next call.

Finding 4 Sellers' decision making was influenced by a consideration of the value of the conversation to their customers

Only two of the ten calls described by sellers started off in a fashion reflective of the way in which sellers prepared, with the seller setting the overview for the meeting, including an agenda. Despite their new customers getting on the call and diverting from the intended plan of the seller, sellers maintained a focus on making the call a valuable experience for the customer. I did not anticipate the strength of this influence. However, it is congruous in light of the other findings related to the importance of seller experience and the priority placed on establishing relationships with individuals in the customer's organization who possessed line of sight to organizational objectives and decision making. While all of the sellers noted that their calls achieved a successful outcome in that they all involved an agreed to next step with their customers, they also described a variety of personalities, some more difficult than others. Nevertheless, there was a consistent focus on providing the customer value in some fashion in the time they had together.

Discussion and Implications for Sales Training

Sellers who possess the emotional intelligence to remain focused on their customers are likely to engender trust on initial sales calls; however, without the appropriate training, sellers are left on their own to determine which customer behaviors represent a slight delay to the intended plan for their call and which behaviors represent threats to the seller achieving a positive outcome for the time they are sharing with their customers. While training programs can help sellers recognize customer cues and the set of behaviors needed to address and manage

their first sales calls, there is the potential for something more. By educating sellers on the principles of the experiential learning cycle and naturalistic decision making, they can be equipped to guide their customers through the reflective process, the conceptualization of lessons from that process, and the willingness to step outside of their status quo to experiment with the lessons of their experience. This would extend the reach of adult learning principles by making the student, or seller in this case, an educator for their customers. If sellers are able to frame the customer's situation in the context of the experiential learning cycle, they might have the opportunity to drive a greater degree of engagement and collaboration with their customers.

Finding 5: Product training was not a critical element of the first customer call

Though I have decades of experience in both the technology and sales disciplines, I expected that a focus on the seller's promotion of their product features and benefits would supersede a focus on organizational structure or strategy on first sales calls. This expectation was shaped by the relative importance the sellers' organization placed on technology and product training, as discussed in Chapter 3. In order for sellers to successfully navigate first customer calls with a technical customer, they must have some background in and facility with the technological terminology and use cases their customers employ. Given the relatively short time allotted to these first sales calls (all but one was scheduled for 30 minutes; in the other, the customer had only committed to 15 minutes), sellers have a choice to make: focus on the customer or focus on their own products. Rarely is there the opportunity to achieve both goals in any substantial way in the available time. The sellers in this study all made a conscious choice to focus on the customer's organization and strategy as an avenue to determining whether their products and services could be of any value, and if so, how.

Discussion and Implications for Sales Training

Finding 5 has significant implications for sales training. In many sales organizations, when the question is asked about how much product training is needed for sellers, the answer is invariably some form of “more than we’re doing now.” However, what this study has shown is not only do experienced sellers intentionally avoid discussing their products, they actively use the desire of the customer to discuss product information as justification for getting a technical resource from the seller’s organization involved, not only because of the seller’s own lack of confidence in discussing the technology, but because of their desire for their customer to derive value from their interactions.

It might be suggested, therefore, that organizations such as the one referenced in this study reconsider the 80% or more of the time spent on technology and product training and instead devote that time to helping sellers identify the characteristics and cues associated with identifying key decision makers and organizational strategies that the seller’s products and services could potentially support. Most companies involved in the creation and sale of technology have no shortage of employees with expertise when it comes to discussing their technical differentiation. Devoting time to training sellers on key cognitive activities described by Klein et al. (2018) (e.g., the ability to make accurate and timely decisions, quickly sizing up customer situations, identifying unanticipated nuances in the customer conversation, identifying priorities for customers with competing demands, dividing attention among different focus areas, anticipating instead of assuming, and conducting workarounds) would arguably be a better place to devote the 80% of time currently spent digesting technical information.

This is not to suggest that technology sales professionals abandon training on technical or product topics – far from it. To do so would be to eliminate their ability to contextualize their

customer's situations and would vastly reduce their credibility on an initial customer call. Instead, I would suggest that the depth of technical and product understanding required for a technology sales professional is determined by their ability to successfully diagnose a customer's basic use case and some fundamental requirements before involving a technical or engineering resource to craft an appropriate solution.

Implications for Adult Learning

NDM focuses on the behavior of experienced professionals in inherently ambiguous situations where goals are poorly defined, stakes are high, and time pressure is a factor. With respect to Finding 1, which responds to the main research question of the study, there is an intersection of the theoretical constructs I was unable to uncover during the initial literature review, and which does not appear to have been studied in the past. This is the intersection between the Active Experimentation to Concrete Experience process in Kolb's Experiential Learning Model and the process involved with the Recognition Primed Decision Model, as shown in Figure 12. Based on the findings of the study, it would appear that a part of a seller's active experimentation in new situations involves the type of processing described by the recognition-primed decision model.

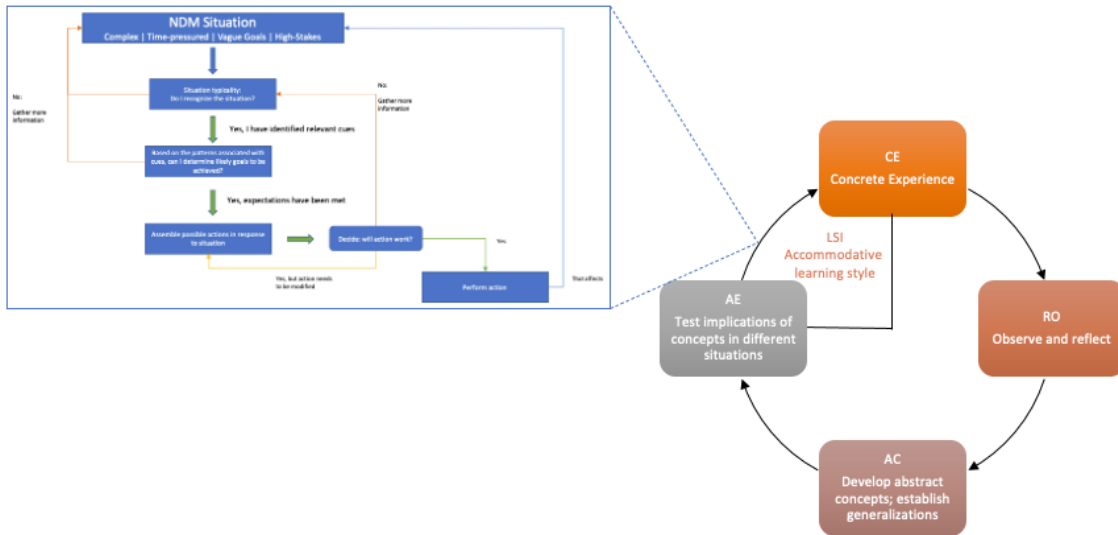


Figure 16: ELT Accommodative Learning Style: Potential Relationship to NDM and the RPD model

As described in Chapter 2, Kolb (2015) described Concrete Experience as a process of apprehension and Active Experimentation as a process of extension. An opportunity for future research with experienced sales professionals could be the investigation of an individual's learning style based on Kolb's Learning Style Inventory (LSI), combined with their success in novel customer situations in which they would employ the RPD model. The LSI is a nine-item questionnaire in which individuals are asked to describe their learning style and measures the degree to which they emphasize each of the four modes described in the experiential learning process (CE, RO, AC, and AE), as well as the individual's place on the CE <> AC and RO <> AE continuum.

Based on learning styles, it might be expected that individuals with learning styles associated with the CE and AE learning styles would be most adept at NDM situations. The combination of the CE and AE learning styles is called the Accommodative learning style. This learning style emphasizes situations in which an individual has to adapt to circumstances that are changing in real time; in fact, those with this learning style are comfortable discarding an

original plan or theory and tend to rely on intuition and other individuals for information as opposed to analysis (Kolb, 2015).

Regardless of the learning style, input from sellers in this study indicated that they all benefited, at least in some part, from the informal experiential learning process that comes from interacting with customers. For organizations across disciplines that rely on training programs to help bring new starters up to speed, an awareness of the intersection between formal experiential learning practices and an understanding of the RPD model could have profound effects on enabling new professionals to more rapidly gain expertise. By providing simulations in controlled experiential learning environments followed by reflection facilitated by instructors, new employees might have the opportunity to repeat multiple, complex scenarios involving multiple, intersecting informational and behavioral cues. They would then be able to discuss the patterns they each identified based on these cues, describe how they might modify their behavior given this new collective insight, and then repeat the scenarios again. Repeated execution would provide these learners with a reservoir of actions from which they could draw in unfamiliar situations where satisficing is sufficient for continued positive outcomes. Educating adult learners about the RPD could also assist in reducing ‘analysis paralysis’ in which learners may become focused on identifying the perfect option instead of a good enough, but satisfactory option given an ambiguous, time-pressured situation where stakes are high and goals are poorly defined.

Limitations

Chapter 1 listed limitations that were present at the beginning of this study and may limit the transferability of this CDM investigation. Due to human resource or regulatory restrictions, individuals from all geographies were not able to participate. As a result, the population

involved in the current study focused only on team members within a single technology company located within the US. This meant that the phenomena described by sellers could be localized to this geography and that the lessons of the study may not be transferrable to other regions or cultures. Additionally, due to COVID -19, interviews had to be conducted entirely online using Zoom videoconferencing software. As this is being written, concern for the safety of both the sellers and researcher prevented me from being able to conduct interviews in person. This may have limited the interactive nature characteristic of face-to-face CDM interviews. It may have also limited my ability to capture body language cues from the sellers that may have further enriched the study.

Delimitations and Assumptions

Only technology sales professionals who had been at the company in their current roles for at least one year and had completed both the basic and advanced sales training courses provided by the company were considered for the study. This may limit the transferability of this study to non-technology sales roles or to experienced sales roles who lack a formal sales training curriculum focused on value-based sales skills and the application of technology knowledge for new and advanced sellers alike.

As mentioned in Chapter 1, there was the potential for respondents to fail to answer with candor, and consequently, results might not accurately reflect the opinions of all members of the included population. As the interviewer for the study and a point of contact for the sellers in the sales training function for my company, I addressed this by attempting to remain neutral in my responses while creating a comfortable environment for the sellers, encouraging them to share as much as they were comfortable sharing. I resisted the use of body language to the best of my ability.

Recommendations for Future Research

One obvious recommendation for future research would be to repeat the study within and across cultures and within and across genders. Within my organization, sellers receive the same training regardless of geography, but the expectation of seller-customer interactions, customer behavioral cues, and other cultural norms may provide insightful contrasts to the results of the study conducted here. Similarly, research could be conducted among sellers in other industries.

Another obvious area of research could be to approach this study from the technology buyer's perspective. Understanding the cues that allow them to determine the sales professionals with whom they would like to continue to work after a first sales call could help sellers and buyers alike establish trust more rapidly and move towards mutually beneficial relationships.

Research could also focus on conducting CDM studies in sales contexts where the products being sold are a commodity and don't represent a potential differentiation for the customer making the purchase, or in which there is urgency but no expectation of nor goal for a continued relationship between seller and customer.

Further research might also explore the intersection of the RPD model and Kolb's experiential learning cycle. The intentional application of the principles of the learning cycle and the role RPD plays in the AE > CE transition could be a powerful area of study for the sales discipline and others.

Chapter Summary

Chapter Five includes a summary of the four findings from this study, conclusions from the findings, implications for sales training, implications for adult learning, and a discussion of the limitations, delimitations, and assumptions of this study. Recommendations for future research were also provided.

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Appendix

Appendix A: Letter of Invitation to Head of Global Sales

Naturalistic Decision Making in First Sales Calls: A Narrative Study of Experienced Technical Sales Professionals

Date:

<Name of Head of Global Sales>

<Business Address>

<Business Address>

Dear <Head of Global Sales>

I am writing to invite your sales professionals to participate in my research study. I am a doctoral candidate and I will conduct my study to complete my requirements for my EdD degree. My study is supported by the University of Arkansas, College of Education and Health Professions, faculty of Adult and Lifelong Learning.

The purpose of the research is to understand how experienced technology sales professionals become aware of and adapt to unanticipated customer responses during an initial sales conversation. From this, a set of recommendations will be generated that can be used by sales organizations to strengthen sales professional development programs and achieve more successful first conversation interactions with prospective customers.

The sales professionals will be asked to participate in an interview with the researcher for approximately 1-2 hours. I will ask questions about their customer conversations and the incidents the sales professionals identified. The names of participants will remain completely confidential. No participants nor the organization will be identified in any published materials. I will be the only person with access to my notes and records, and they will be destroyed at the conclusion of the study.

Sales professional participation is completely voluntary. Sales professionals will not be asked about any confidential or company information that could be considered sensitive. Sales professionals may ask me questions at any time. It is important that they do so before they agree to participate in the study and before they sign the consent form. Sales professionals may end the interview at any time to ask questions. Sales professionals may also withdraw from the study and end their participation in the study at any time. A summary of the results will be available to participants and if they are interested, I will be happy to share and review the results of the study.

Should any of the sales professionals have questions about their rights as participants, they can contact the University of Arkansas Institutional Research Board. I respect the privacy of the participants and I will follow any additional research ethics protocol of your organization. You may send my email and contact information to the sales professionals [REDACTED].

I appreciate you considering my request and I appreciate your guidance in arranging interviews for my study. Should you have questions, please contact me.

Sincerely,

Doug Williams, EdD Candidate
University of Arkansas

Appendix B: Letter of Invitation to Sales professionals

Naturalistic Decision Making in First Sales Calls: A Narrative Study of Experienced Technical Sales Professionals

Date:

Dear <Sales professional>

I am writing to invite you to participate in my research study. I am a doctoral candidate and I will conduct my study to complete my requirements for my EdD degree. My study is supported by the University of Arkansas, College of Education and Health Professions, faculty of Adult and Lifelong Learning.

The purpose of the research is to understand how experienced technology sales professionals become aware of and adapt to unanticipated customer responses during an initial sales conversation. From this, a set of recommendations will be generated that can be used by sales organizations to strengthen sales professional development programs and achieve more successful first conversation interactions with your prospective customers.

You will be asked to participate in an interview with the researcher for approximately 1-2 hours. I will ask questions about your customer conversations and the incidents you identify. Your name will remain completely confidential. Neither you nor the organization will be identified in any published materials. I will be the only person with access to my notes and records, and they will be destroyed at the conclusion of the study.

Your participation is completely voluntary. You will not be asked about any confidential or company information that could be considered sensitive. You may ask me questions at any time. It is important that you do so before you agree to participate in the study and before you sign the consent form. You may end the interview at any time to ask questions. You may also withdraw from the study and end your participation in the study at any time. A summary of the results will be available to you and if you are interested, I will be happy to share and review the results of the study.

Should you have questions about your rights as participants, you can contact the University of Arkansas Institutional Research Board. I respect the privacy of the participants and I will follow any additional research ethics protocol of your organization. My email and contact information:

██████████ ; ██████████.

I appreciate you considering my request! Should you have questions, please contact me.
Sincerely,

Doug Williams, EdD Candidate
University of Arkansas

Respondent's statement:

The study described above has been explained to me.

I have had the opportunity to ask questions.

I agree to participate to the study, and I have received a copy of the consent form.

I am 18 years old or older.

I permit the researcher to record my interview: Yes _____ or No _____.

If no, I permit the researcher to take notes during my interview _____.

Respondent: _____ Date: _____

Appendix C: CDM Interview Protocol

Participant #:	Title:
Date Time of Interview:	Team:
Agree to review results when complete? Y N	Date of Follow-up meeting:

Pre-Interview Checklist

✓	Task
Introduce researcher; signing of consent by the participant	
	Communicate appreciation to the participant for agreeing to the interview
	Review the content in the consent form and give the participant the opportunity to ask questions and clarify any information
	Explain to the participant the importance of them feeling comfortable during the interview and that he or she may: ask any questions at any time; or end the interview at any time; or decide not to answer a question by telling the researcher to skip that particular question.
	Explain to the participant that this is not a test of any kind, and that his or her viewpoint is most important
	Ask the participant will be asked to sign both copies of the consent form and he or she may keep a copy of the consent form
Demographic questions and tasks related to position	
	Ask the participant to share their title
	What is your role and your principal responsibilities?
	How long have they been in their current title?
	How long have they been at the company?
	Gender M / F
	What is your educational and professional background? How long in sales

Appendix D: Researcher's Current Professional Role

In my current professional role, I work with sellers of varying experience levels on a daily basis. I focus on developing their sales acumen across a breadth of competencies, which include product knowledge and technical understanding as well as behavioral elements related to the ways in which they interact with prospective customers. The combination of these multiple orientations to delivering customer value allow the seller to reduce the time that it takes to be productive in their roles and to become a contributing member of their team. There are multiple modalities employed in the pursuit of these outcomes. My organization makes use of a learning management system (LMS) to deliver curated, role-specific, and tenure-specific training to all customer-facing employees. These modules integrate audio and video presentations with assessments to provide sellers with information across a wide spectrum of topics. Sellers attend in-person synchronous training with subject matter experts in a traditional classroom format during which they receive traditional discussion-based sessions interspersed with group exercises that include the opportunity to test their knowledge with on-the-spot role plays. Our team also employs a variety of training activities that allow sellers to gain experience with different types of scenarios they may encounter when dealing with customers. This is accomplished through the use of software that allows sellers to review real-life sales calls where video can be stopped, rewound, and reviewed to better understand the types of cues and patterns sellers may miss when learning to perform the role for the first time. Regardless of the format, be they scenarios, case-studies, or role-plays, each training session is followed by an extensive debrief that includes self-reflection on the part of the seller along with feedback from a coach. This feedback is communicated to sales leadership, who can tailor and reinforce skill development for their individual sellers.

For these reasons, it is important that the reader consider my background and experiences when reviewing my interpretation of the data collected as a part of the study. While I will take every precaution to knowingly avoid bias, it is nonetheless something to acknowledge as a potential limitation.

Appendix E: University of Arkansas Institutional Review Board



To: Douglas Williams
From: Douglas J Adams, Chair
 IRB Expedited Review
Date: 01/06/2021
Action: **Expedited Approval**
Action Date: 01/06/2021
Protocol #: 2011299212
Study Title: Naturalistic Decision Making in First Sales Calls: A Narrative Study of Experienced Technical Sales Professionals
Expiration Date: 12/08/2021
Last Approval Date:

The above-referenced protocol has been approved following expedited review by the IRB Committee that oversees research with human subjects.

If the research involves collaboration with another institution then the research cannot commence until the Committee receives written notification of approval from the collaborating institution's IRB.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date.

Protocols are approved for a maximum period of one year. You may not continue any research activity beyond the expiration date without Committee approval. Please submit continuation requests early enough to allow sufficient time for review. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study closure.

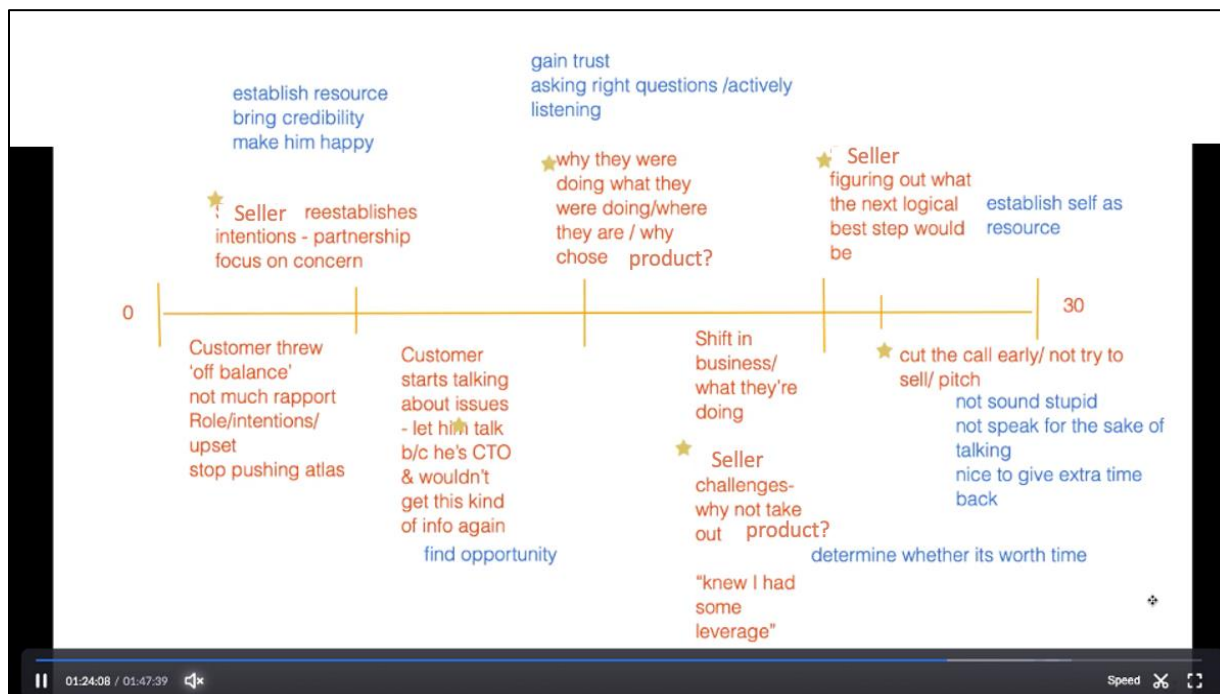
Adverse Events: Any serious or unexpected adverse event must be reported to the IRB Committee within 48 hours. All other adverse events should be reported within 10 working days.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, study personnel, or number of participants, please submit an amendment to the IRB. All changes must be approved by the IRB Committee before they can be initiated.

You must maintain a research file for at least 3 years after completion of the study. This file should include all correspondence with the IRB Committee, original signed consent forms, and study data.

cc: Kit Kacirek, Investigator

Appendix F: CDM Interview Timeline Constructed in Sweep 2 - Example



Appendix G: CDM Decision Chart

Participant #8	
Call start	<p>C. building rapport - similar backgrounds → G. build common ground</p> <p>C. seller conscious of time spent on rapport</p> <p>D. need to get into the agenda/presentation</p> <p>A. start agenda/presentation</p>
Customer detour	<p>C. customer is excited</p> <p>C. customer interrupts before seller can complete agenda</p> <p>C. customer into 'rabbit hole' about how excited they are to use the seller's products</p> <p>C. customer shares desires/expectations related to products for 2 minutes</p> <p>D. need to reset context around the meeting → G. regain control of meeting; understand customer's business</p> <p>A. pivot focus to customer's business</p>
Business focus	<p>C. customer shares information about business and how they make money</p> <p>C. customer shares the types of data they ingest, how it is ingested, and who is involved in the process</p> <p>C. customer shares the products for which the customer's company uses seller's products</p> <p>C. customer answers getting shorter</p> <p>C. customer confused why we'd spend time on all of the business questions when they clearly want our products</p> <p>D. need to discuss rationale for how discovery is conducted → G. re-engage customer and set expectations for conversation</p> <p>D. need to engage the customer with conversation that matters to them</p> <p>A. explain rationale</p>
Customer challenge	<p>C. time pressure - 23 minutes</p> <p>D. need to ask for more time → G. first, test if there's commitment from customer; second, get more info</p> <p>A. Ask for more time</p> <p>C. customer grants request, but conversation 'contentious' - customer becoming a little impatient</p> <p>C. customer wants to talk about seller's products</p> <p>D. discuss seller's products without pitching solution → G. transition into conversation that could provide more value for customer</p> <p>A. pivot discovery towards seller's products</p>
Focus on value offered by seller	<p>C. conversation develops more 'momentum'</p> <p>C. "its the customer's wheelhouse, but they're not very good at their wheelhouse"</p> <p>C. customer acknowledges the team isn't ready to manage everything they need to manage → SA. customer trusts seller</p> <p>D. need to recap what customer has shared; let customer know that seller has the products to satisfy their requirements</p> <p>A. recap what's been shared by customer and pivot to high-level product functionality / value discussion</p> <p>D. keep the conversation high-level for remainder of call</p> <p>G. have customer walk away from call excited by what was discussed</p> <p>G. balance providing enough information to make customer want more and not giving up too much</p> <p>D. Encourage customer to think, "I know the seller can solve my problems; I don't know exactly how, but excited that they can"</p> <p>A. tee up next steps with the customer for next call ASAP</p>
Next steps	<p>C. after seller's recap, customer says they could probably do the next call in 2 months</p> <p>C. customer implies lack of urgency → SA. possible fear of moving forward?</p> <p>D. slow down; need to recap (again) what was just covered by the customer in terms gaps, goals, and urgency</p> <p>G. hold customer accountable for the story they just shared w/the seller</p> <p>D. re-establish urgency customer already shared</p> <p>A. remind the customer of everything they shared that indicates real urgency to get something done</p> <p>C. customer agrees to meet in 1-2 weeks</p>

Appendix H: CDM Call Summary Example

Call summary, Participant 2

1. Seller set the call with a subject matter expert from the customer's company. The call was scheduled for 30 minutes.
2. Seller perceived customer to be frazzled and frustrated. The customer started sharing information about office politics and everything they've been asked to do by their supervisor.
3. The seller invited the customer to share their role in helping achieve the strategy the company has for their technology.
4. The customer shared that the company had tried multiple times to adopt new strategies but had little success to date. The customer believed that their company was serious about pursuing a new strategy this time around.
5. The customer mentioned that the company had brought in new leadership to attempt to pursue a new strategy; the customer also shared the names of the individuals involved in the new strategy.
6. The customer shared their own background in the company.
7. The seller noted that as the customer was sharing all of this information, the frustration the seller perceived at the beginning of the call had transformed into a more friendly demeanor. The seller noted that the conversation had taken on a more familiar tone, as if the seller and customer had worked together for years.
8. The seller asked the customer for their opinion of the strategy.
9. The customer has years of experience with technology that competes with the seller's products. The customer did not have a good perception of the seller's technology, thought they heard about the seller's company years ago.
10. The customer's company brought the seller's technology into their environment by individuals who had no experience with the seller's products. The customer with whom the seller was speaking on this call was not involved with the selection of the seller's technology for the customer's company.
11. The customer knew that the seller's company was doing well and acknowledged there must be something positive about the seller's technology, despite his less than positive experience.
12. The customer was open minded about discussing the seller's technology, which the seller took as a vote of confidence.
13. The seller took this opportunity to share their personal background. The customer was receptive to this rapport, and shared that their background was similar to the seller's.

14. The seller started talking about the agenda. The customer shared seven or eight items they wanted to cover.

15. The seller asked the customer to go through each item one at a time. The customer spent time explaining each item. As they were doing this, the customer shared how they were using the seller's technology, where they were getting stuck with the seller's technology, and what the customer did not understand about the seller's technology.

16. For each item, the seller asked whether the item was truly important to address. The seller also asked how the item impacted the customer, their team, and the customer's business. This yielded four high priority items.

17. Though the call was originally set for 30 minutes, the seller and customer had been talking for an hour and five minutes. The seller took this to indicate that the customer cared enough to spend time on the four high priority items and was motivated to participate in the company's new strategy.

18. The seller asked the customer who they should bring into the next conversation. The customer recommended meeting with a senior leader from the technical team within the company.

Appendix I: CDM Decision Analysis Table Example

Cues	Situation Assessment	Decisions/Actions	Why?	What for? - Goals
customer shares tech information - talks about support case	customer has an urgent concern they feel the need to discuss with seller	call moving too far too quickly - but important to let customer talk before taking action. Need to step back and do discovery about customer's business. Seller asked customer questions about the customer's business	let customer vent; they are not upset, just sharing information	establish trust; let the customer know the seller is listening
customer body language - has laid back demeanor - likes to speak with his hands, lots of eye contact				
customer shares org structure info - they are one of the cofounders		show customer that seller is making effort to learn about seller's business; seller shared screen showing customer's website	customer engagement	grasp degree to which seller's technology is intertwined with customer's focus
customer body language liked the screen share - it was clear customer liked it	customer is interested/engaged by what seller is showing			
customer body language 'leaned forward' perceptibly	customer beginning to trust seller;	change discovery orientation from being services-focused to product and services focused. focus on how they are deployed, who is responsible for it and the associated processes, and what led to the support issue;	customer no longer only focused on support case from beginning of call	determine whether there is a much larger potential opportunity than originally anticipated
customer shared tech information problems they faced	allowing seller to guide conversation	hone in on people in teams, their expertise, and then the process - how they're doing things; seller asked about the teams	understand if team is capable of managing seller's products	
customer shared org strategy information - high-level business information about application	customer has a specific application in mind on which they want to focus	focus on functionality that is important to customer. need to determine customer's familiarity with products seller could propose; seller asked about rationale behind need for relevant functionality and customer's familiarity		continue validating that there is a much larger potential opportunity than originally anticipated
customer shared tech information - high-level info about how they are set up/tech stack		seller needed to start thinking about next steps and propose reason for customer and seller to get back on the phone: "I need to wrap this up; I need to get something on the calendar." seller proposed that they discuss the seller's products	do right by customer; move opportunity forward	parlay time spent with customer into a conversation focused on seller's products & how they could help customer
customer shares org information - dev team size	time pressure			
customer shares org strategy information - brings up specific application on which they are focused	customer has not forgotten original discussion on call; wants to continue to solve			
customer shares tech information - mentions lack of needed functionality	customer has urgency to continue to pursue solution			
5 minutes remaining				
customer shares tech information - brought up support				
customer agreed				

Appendix J: CDM Consolidated Items of Interest across Interviews - Example

Customer Shares Organizational Structure Information				
<i>S1</i>	<i>S2</i>	<i>S3</i>	<i>S4</i>	<i>S5</i>
<p>"And by the time he went through the whole org chart, I was able to identify who my next top targets would be. And I asked him if these were the right people. And I asked him ... if he would also be interested in making the introductions since they know each other so well. He said, gladly." (98)</p>	<p>"They've brought in a new leadership. They've let go of, you know, particular people in the past. And they're looking at, you know, folks who are up and coming like himself and others to lead the way. And in that process, he starts you know, pinpointing key players in the organization, key decision makers in the organization, who he's going to be working with, and kind of giving me the entire org chart, which as a seller, I think is, is great to know. It's purely, you know, business level impact, sort of conversation. Now, we're going through all of this, he's also describing his background on how he, you know, grew in the company, what his roles and responsibilities were in the past, and then how they have evolved over time." (49)</p>	<p>"Yeah, he is the, the dude who ultimately, you know, probably be, I mean, ultimately, that dude's gonna be our champion. I thought that maybe like, early in the call, I'm thinking maybe he is a champion, because he'd been there just long enough to maybe have some influence. It seemed like he'd been charged with this project and had ownership of it. You know, and so early in the call, I'm thinking like, he's the potential champion." (194)</p>	<p>"So the three or four other people that were on the call were definitely, actually like, somewhat friendly, I'd say in the beginning, but you know, they, and they did ask questions, and the CTO didn't really ask too many questions, unless he felt like he was supposed to step in and do that. But it was definitely real hierarchical, okay? So like, he's obviously above everybody. You could kind of tell like, there was this sense of, you know, he's in charge. If he starts speaking, we shut up. You know, if he asked us to direct questions, like, uh, you know, that's the kind of reaction and stuttering in their voices that I was hearing." (234)</p>	<p>"It was like, yeah, we actually haven't really thought about that. And he, like, said it in a way where he knew that he probably should. But I like, brought something to mind to him that like he should have thought about himself as the VP of engineering, and yeah, so I guess the tone reflected that sentiment?" (268)</p>