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Agency and Emotion in Interactions with Technological Representatives of Organizations

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AGENCY AND EMOTION IN INTERACTIONS WITH TECHNOLOGICAL
REPRESENTATIVES OF ORGANIZATIONS

by

DANIEL BURTON SHANK

(Under the Direction of Dawn T. Robinson)

ABSTRACT

Technology often displaces humans in organizations as a representative to customers. How does the use of computer technology instead of humans to represent an organization change customers' feelings and behavior toward that organization? Drawing on attribution theory and the affect theory of social exchange, I argue that the customers' perception of agency of the computer or human representative is the primary mechanism through which customers respond differently. I theorize that agency not only mediates the computer-to-emotion and computer-to-patronage relations but also alters whether the organization or its representative is the primary target of the emotions and patronage. My central argument is that less agentic representatives, such as computers, focus more emotion and future patronage on the organization; whereas more agentic representatives, such as humans, focus more emotion and future patronage on themselves. I conducted a laboratory experiment (N=231) with ostensibly real internet-based business interactions. Its factors included representatives' human or computer identity, representatives' behavior, and representatives' constraint, based on organizational information, as an agency manipulation. The first results indicate that representatives' behavior affect both

emotions and patronage as predicted by the affect theory of social exchange. Further, computer representatives alter these processes on patronage and some emotions. Second, organizational constraint alone affected customers' perception of representatives' agency, yet it also interacted with computer identity to affect perceived agency. A final set of results signify that both representatives' computer identity and perceived agency affected customers' focus of emotions and patronage preference, but in opposite directions. Greater agency of the representatives produced a stronger focus of emotions and patronage on the representative as opposed to its organization – this included both positive (negative) emotions and more (less) patronage after a positive (negative) interaction. Computer representatives, often seen as less agentic than human representatives, produced the same effects associated with high agency: stronger emotion focus and patronage behavior. This leads to a non-intuitive conclusion: even though computers may be less agentic than humans, computer representatives shield their company by receiving stronger positive or negative emotions and the associated future business.

INDEX WORDS: Human-Computer Interaction, Customers, Emotion, Organizations, Social Interaction, Representatives

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REPRESENTATIVES OF ORGANIZATIONS

by

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May 2012

DEDICATION

To Victoria, who loves and supports me in all I do.

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Chapter 1

Introduction

Customers never interact with an organization directly. Organizations exist via symbolic boundaries – they consist of constellations of people, objects, and knowledge. Whether these boundaries are defined legally, culturally, physically, or personally, customers interact with some form of representative of the organization. The intermediacy of representatives is illustrated in the famous work of Arlie Hochschild on airline service competition in the 1970s prior to price deregulation (1983). Airlines first implemented policies and practices to select flight attendants on their gender, age, weight, and attractiveness then extensively trained the flight attendants to maintain customers' positive emotions. Attendants kept passengers calm, happy, and grateful – in general maximized positive feelings toward the airline – as a strategy to solicit repeat business. In this dissertation I examine the social-psychological processes by which representatives' interaction with customers alters the customer-organization relationship in terms of the customers' emotions toward an organization and continued patronage of that organization.

My research agenda for this dissertation, however, is both more and less specific. On a less specific and more abstract level, I frame this research to be about the consequences of second-order attributions – attributions about an entity via its representative. How does the perception of an actor reflect on outcomes attributed through that actor to that actor's superordinate group? This highest level of abstraction

connects the research herein with a variety of other types of research, beyond customers and organizations. For example, how does information or interaction with representatives of a race or ethnicity alter feelings and actions toward that race or ethnicity? Or, how does social interaction with a professional alter one's outcomes toward her profession? To address these types of questions I build on theories such as attribution theory and the affect theory of social exchange. These theories are not specific to the customer-representative-organization paradigm, but can be applied to them. In this way I situate my new theoretical developments in a larger literature.

The more specific – and therefore more substantive – component of this research focuses on computers as organizational representatives that interact with customers. The commonplace use of computer technologies – websites, automatic phone systems, ATMs, or checkout machines – to mediate the customer-organization relationship makes this a timely substantive topic for exploration of second order attributions in organizations.

Bridging these three levels of specificity (Figure 1.1) allows for me to tackle an important substantive issue using and contributing to theories of the midrange (Merton 1957). My theory within will be modeled and tested in the substantive area of customer-computer interactions in organizations, but I interpret the results in terms of customer-representative interactions in organization, and, more generally, as second-order attributions via representation. Therefore, my overarching research question is as follows: *How does the use of computer technology instead of humans to represent an organization change customers' feelings and behavior toward that organization?*

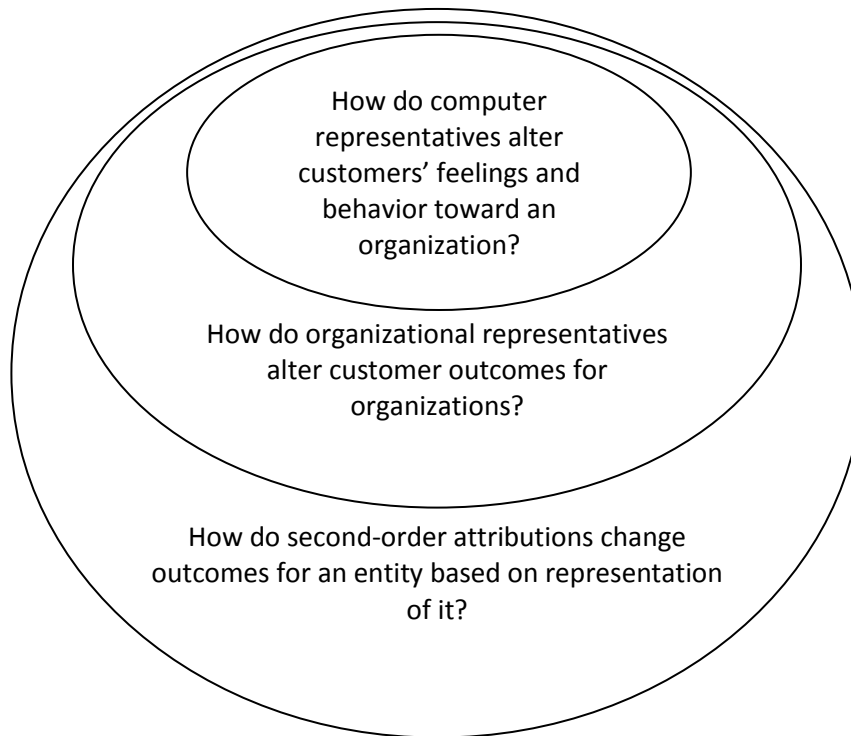


Figure 1.1: Theoretical questions at different levels of specificity

Feelings and behaviors cover a broad range of customer reactions. Specifically, I focus on how interacting with a computer representative alters five emotions of customers directed toward the organization. For behavioral reaction, I focus on how interaction with a computer representative alters future patronage to that organization. I unpack this first, broad research question by considering the importance of these outcomes in Chapter 2. While discussing emotion and patronage, I review the affect theory of social exchange research program. To understand customers' emotion and patronage toward the organization, I consider customers' emotion and patronage toward the representatives of the organization as well. To understand interaction with computer

technology in organizations, I consider research and theories of human-computer interaction in Chapter 3.

This broad research question about the reaction of customers after customer-technology interaction frames the second and third research questions – more precise research questions that consider the intermediate processes. My central argument of this dissertation is that the *customer's perception of the representative's agency* is the mediating mechanism between computer representatives and customers' emotions and patronage (Figure 1.2). This agency argument provides my explanation for the first research question, and the impetus for asking the second and third research questions.

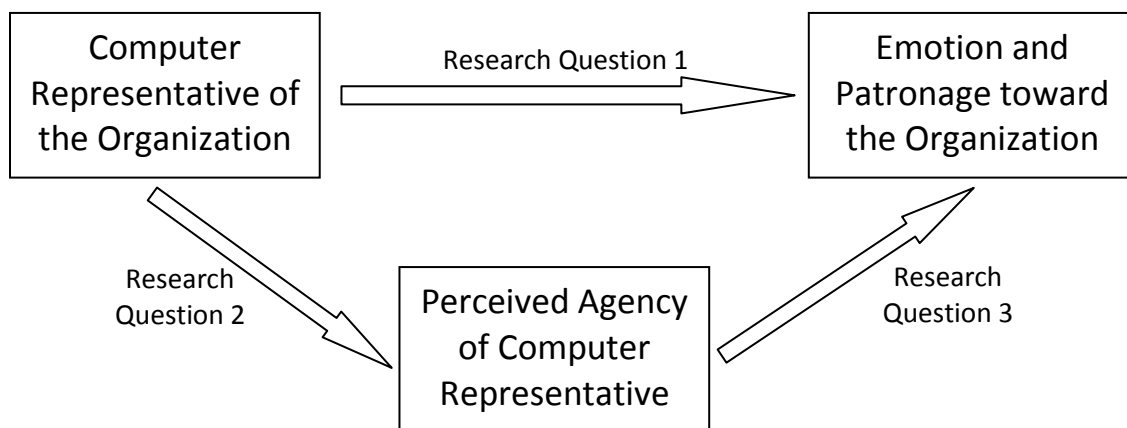


Figure 1.2. Overview of my three research questions

The second research question concerns the symbolic understanding of computers as representatives in organizations. Experimental psychology research supports a

proposition that people often treat computers and technology in a social manner (Brave, Nass, and Hutchinson 2005; Nass and Moon 2000; Nass and Reeves 1996; Nass, Steuer, and Tauber 1994; Reeves and Nass 1996). Social behavior, such as behavior toward other humans, is not homogenous and simple however. Much of sociology is concerned with revealing complex and intricate social processes that create differential behavioral, mental, and material outcomes for humans.

To investigate how these social processes may parallel or differ from interaction with humans and technology, I conducted experimental research comparing behavior and outcomes in human-human versus human-computer interaction (Shank 2008, 2012). In this research, subjects interacted with social actors that possessed no status-identity cues other than being a computer or human. I controlled for potential confounding effects by having the human and computer actors occupy the same social position, possess the same valued resources, and engage in the same behavior. The human or computer actor's cooperative behavior led subjects to perceive the human or computer as similarly nice, equally just, and therefore to react in the same way to both computers and humans. When the actor coerced, however, the subject reacted differently based on the actor's identity as a computer or human. Subjects saw humans as less just and less nice than computers when coercing and this led the subjects to respond to them more harshly: retaliating and ignoring humans more than computers (Shank 2008, 2012).

I argued that the social process responsible for both similarities and differences in affective sentiments, justice, and behavior is primarily one of perceptions of agency leading to causal attributions (Shank 2008, 2012). People may believe computers and humans possess different base-levels of agency based on their cultural beliefs about the

nature of humans and technology. If disruptive and negative behavior requires more explanation into its cause, then the causal attributions and perceived agency may be different for humans compared to computers. Therefore, I extend this inquiry into computers in organizational settings by asking a second research question: *how do customers interpret the agency of computers and humans as representatives of organizations?*

I address this question in Chapter 4 by reviewing attribution theory and the literature on agency then showing the centrality of situationally constructed agency to causal attributions. This allows me to develop an argument about how the perception of agency is symbolically constructed based beliefs about identity and situational constraints produced by the organization. In Chapter 5, I ask how both customers' beliefs about computers and customers' knowledge of employees' organizational constraints can alter their perceptions of agency.

A third research question concerns what emotions and patronage a customer exhibits toward an organization and how the constructed perception of agency influences those reactions. Reactions, of course, are based to a large extent on the behavior of the interactant – in this case a company's representative. My previous research – based in social exchange theory – considered coercive behavior compared to a baseline of cooperative behavior (Shank 2008) because the pronounced effects of coercion have been thoroughly tested in social exchange theory research (Molm 1989, 1994, 1997a, b; Molm, Quist, and Wiseley 1993, 1994).

In this current research I am conceptually interested in common behaviors of human and computer representatives of organizations. Organizations may strive for

comprehensible, helpful, and user-friendly technology. This is not always accomplished, however; poorly-designed interfaces, software and hardware failure, and learning curves often make the interaction with computers off-putting. More importantly, companies may use technology to represent them in the exchange of products or information that is valued negatively by the customer: bills, fees, broken products, account problems, and price hikes. Therefore, I make the generalization that many interactions with a technological representative can be classified as generally cooperative or uncooperative and are interpreted by the customer as positive or negative, respectively. A positive or negative interaction between customer and representative should lead the customer to certain emotions and patronage in general independent of the representative's identity as human or computer. In Chapter 2, I develop a basis for this as a research proposition using the affect theory of social exchange.

My first, broad research question asks how computer representatives alter these positive and negative customer reactions; my third research questions asks what perceived agency's role is in that process. In Chapters 4 and 5, I propose my theoretical argument that perceived agency mediates the relationship between computer identity and customer reactions. This theorizing leads me to separate customers' responses to the representative from the organization in Chapter 6. Although the organization and representative are yoked as part of the same institution, symbolic perceptions of agency and causal attributions may uncouple the organization and representative in the mind of the customer. I consider how computer identity and perceived agency focus more emotions and patronage on either the organization or the representative. Both the meditation process and the effects on emotion focus are subsumed under my third

research question. *How does the perceived agency of a computer or human representative influence customers' feelings and behavior toward an organization?*

Theoretical and Methodological Orientation

My theory builds on and extends several theories including the affect theory of social exchange research program and attribution theory and contributes more generally to institutional theory, computers are social actors, and actor-network theory. Most of my research propositions do not formally test these theories, and when they do, or do to some extent, I indicate that. My arguments are detailed with four formal types of research statements: questions, assumptions, propositions, and corollaries. The research questions are mentioned in this chapter forming my main substantive inquiries. These are answered with propositions from existing theories, extensions of those theories, and my new theoretical arguments. Corollaries are similar to propositions in status, except that their derivation logically follows from previous propositions or corollaries. Assumptions undergird untested beliefs that are reasonable to accept in order to focus this dissertation on the research questions at hand. Chapters with propositions include summaries tables of all research statements proposed thus far.

As my interest is in abstract processes (Figure 1.2) I elect for an experimental approach. Sociologists use experiments to address research questions in a variety of different ways, ranging from large-scale field experiments to address the effects of social programs (e.g., Hannan, Tuma, and Groeneveld 1977) to laboratory experiments that recreate only the elements of a social setting deemed theoretically relevant (Lovaglia 2003). An advantage to testing theoretical explanations with experiments is that experiments control for extraneous factors found in complex naturally occurring settings

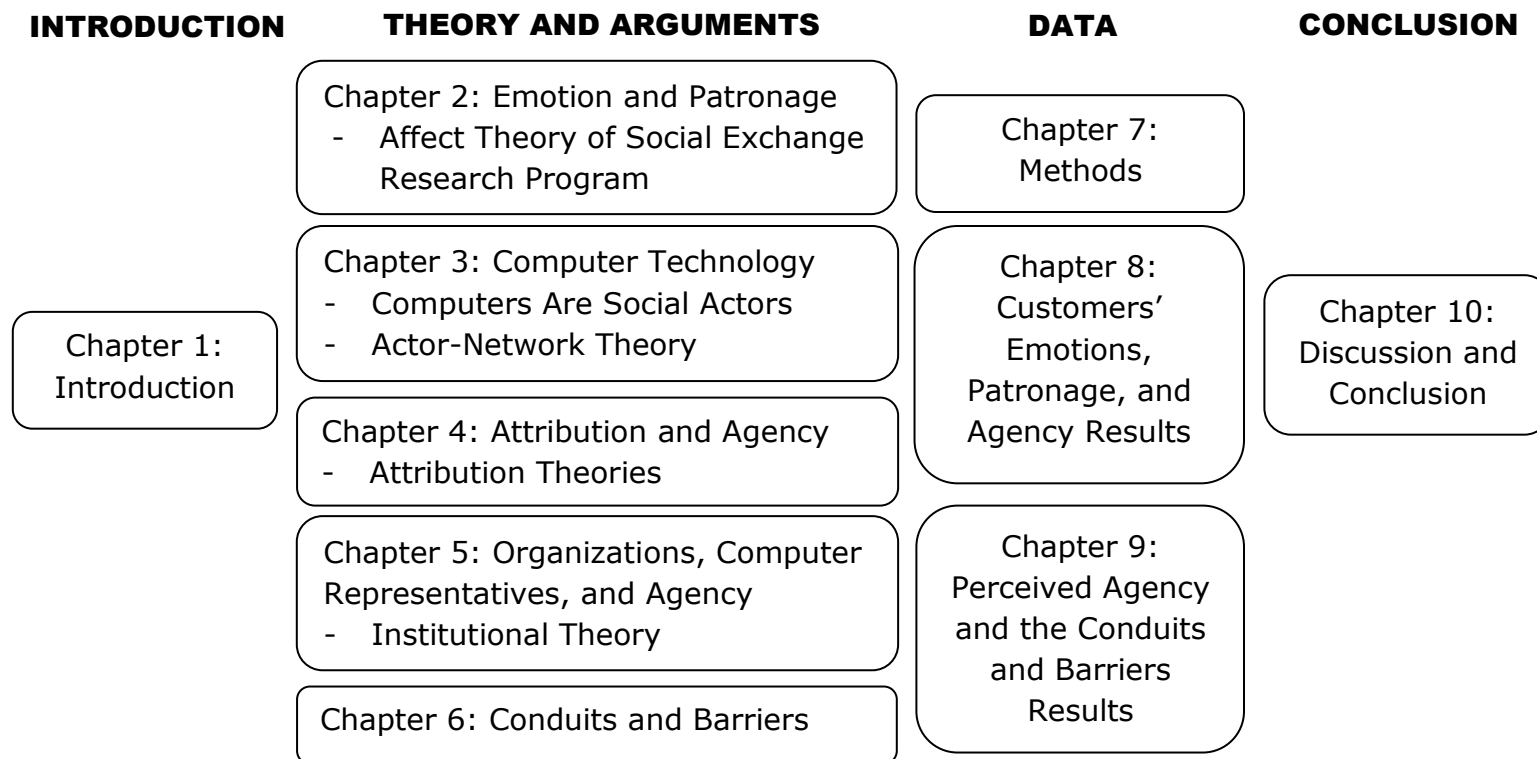
which may mask fundamental processes (Lucas 2003b; Webster and Sell 2007). Specific advantages of an experiment for my research questions are the ability both to measure and manipulate agency in a controlled sequence, and to control extraneous human and computer differences that are salient in many natural settings (e.g., fast computers or attractive humans). These data, therefore, do not have external validity nor do they generalize to a particular population of people or of organizations (Lucas 2003b). Conclusions from the data, however, speak to abstract processes, causality, and relationships that can contribute to theoretical development or be the impetus for future empirical research.

Brief Overview of the Chapters

Chapter 2 discusses the outcomes of customer emotion and patronage. Then in Chapter 3 I consider technology especially within organizations. In Chapter 4, I focus on perceived agency and how it is constructed in situations and, in Chapter 5, I apply this to computers as representatives in organizations. Chapter 6 culminates in my own theoretical argument of perceived agency's effect on customer reactions toward representatives and organizations decoupled from each other.

Chapter 7 explains the methods and material of the experiment. Chapters 8 and 9 contain first the general results and then analyses that address each proposition. Chapter 10 discusses the results in light of the propositions and theories and concludes by placing this research in a broader scholarship of sociology, emotion, technology, and organizations. Figure 1.3 shows the dissertation setup by chapter according to traditional research categories.

Figure 1.3: Overview of dissertation according to traditional research categories



Chapter 2

Emotion and Patronage

Aside from emotion being a fascinating social outcome, emotions play important roles in human processes including consciousness (Barbalet 2004; Damasio 1994, 1999), morality (Hitlin 2008; Stets, Carter, Harrod, Cerven, and Abrutyn 2008; Turner and Stets 2007), solidarity/relational ties (Collins 2004; Durkheim [1912] 1995; Lawler 2001; Lawler, Thye, and Yoon 2009), cognition (Forgas 2000; Lazarus 1984; Zajonc 1984), rationality (Kemper 2004) and, most important for the current research, customer-representative encounters. Customers' emotions have been studied less than employees' emotions (McColl-Kennedy and Smith 2006:238) although customers' emotions are important in marketing (Bagozzi, Gopinath, and Nyer 1999) and loyalty to an organization (Bloemer and Ruyter 1999; Han and Back 2008) which leads to patronage behavior (Dick and Basu 1994).

Customers who experience intense negative emotions often retaliate against organizations including calm complaints to the company or third parties, nonviolent resistance such as boycotting or spreading rumors, violent resistance such as attacking property or people, and internalizing their emotions (McColl-Kennedy and Smith 2006; McColl-Kennedy and Sparks 2003; Smith and Bolton 2002). Positive emotion can lead to loyalty (Oliver, Rust, and Varki 1997) although producing only a minimal level of satisfaction can trigger customers' switching companies (McColl-Kennedy and Sparks 2003). Too much positive emotion, however, may backfire on the company by raising the

bar to a level impossible to maintain (Rust and Oliver 2000). Any emotion experienced by a customer can result in altered outcomes for the organization and its image (Bloemer and Ruyter 1999; Han and Back 2008) – a process I investigate in the upcoming chapters.

The managing of customer emotions occurs by organizational representatives as diverse as airline attendants (Hochschild 1983), bill-collectors (Sutton 1991), physicians (Locke 1996), medical students (Smith and Kleinman 1989), support group leaders (Francis 1997), and search and rescue workers (Lois 2003). Many of these studies have shown that particular role-identity or status characteristics such as gender (Hochschild 1983; Lois 2003), authority (Francis 1997), and seniority/position (Smith and Kleinman 1989) alter customers' emotions.

In this chapter I situate emotion research within sociology and also define important terms. I then hone in on the affect theory of social exchange research program, applying it to the emotions of customers. Finally, since much research on both emotions and customers focuses on customers' patronage behavior, I conclude by considering how patronage parallels emotions as an important outcome.

Emotion Research, Background, and Definitions

Sociology, like other disciplines, was influenced by modernism and rational choice theories which traditionally eschewed the study of emotions until challenged by neurological and biological evidence on the value of emotions (Lane and Nadel 2000). This led to sociology's "systematic study of emotions" including both theories and empirical research launching in the 1970s (Turner and Stets 2005:1). Sociology's attention toward emotions, though not always called the sociology of emotion, has its root in classic theorists. Durkheim's ([1912] 1995) religious rituals enable high emotional

energy which leads to societal solidarity. In relation to suicide, anomie, and forced division of labor, Durkheim ([1897]1951) often considers that societal systems influence other societal systems through processes involving emotions, affective bonds, and norms. Weber's (1946) interest in emotions focused on the disenchantment of bureaucracies and Western society – a purging of emotion in favor of rational systems. Homans ([1961] 1974), Kemper (1978), Hochschild (1979, 1983), Heise (Heise 1977, 1979), Scheff (1979) and others ushered in the modern study of the sociology of emotions that eventually developed into several approaches to emotion including dramaturgical, cultural, ritual, symbolic interactionist, social exchange, structural, and evolutionary (for overviews of each approach see Stets and Turner 2007, 2008; Turner and Stets 2005, 2006).

There is not one agreed upon definition for emotion, and the concept varies by discipline. I follow a widely accepted conceptual definition by Peggy Thoits. She argues emotions typically possess four components, although not all have to be present for the existence of an emotion (Thoits 1989). They are (1) an appraisal of a situational stimulus, (2) physical sensations, (3) gestures conveying expression, and (4) cultural meaning applied to the first three components. This fourth component makes this definition appealing to sociologists who focus more on more social emotion processes as opposed to emotion's biological underpinnings. I make distinctions between emotions and related terms following definitions by Smith-Lovin (1995). *Affect* is the umbrella term for evaluations toward objects. These include emotion as defined above, sentiments, and moods. *Sentiments*, culturally imbued meanings of social elements, are more socially enduring, socially constructed, and latent compared to emotions. *Moods* like sentiments

are more latent and enduring. Like emotions, however, they are affiliated with individuals, not with general cultural meaning. In this way, moods can be conceptualized as transituational, non-directed feelings. Emotions, unlike moods, can be directed at social objects. One may be angry in general, or at an organization or its representative. Many social emotion theories – including ones I draw on – use directed emotions as part of their theoretical framework (e.g., Collins 2004; Kemper 1978; Lawler 2001).

Discrete emotions, also called specific emotions in some theories, are those labeled with a language term as opposed to emotions on continuums. An example of emotions on a continuum would be the traditional form in psychology of rating emotion from positive to negative valance – how good or bad one is feeling. In contrast, discrete emotions such as happy, upset, or angry may or may not be conceptualized as being on a continuum. Many theories draw on both emotion continuums and discrete emotions. Kemper's theory of social interaction (1978) relies on dimensions of power and status to predict general emotional tendencies including discrete emotions. Affect control theory (Heise 1979) uses labeled emotions that vary on power, status, and arousal continuums. The affect theory of social exchange (Lawler 2001) – detailed below – suggests an internal sequential process by which unlabeled emotions, called *global emotions*, are labeled as discrete emotions according to structural properties of an exchange situation.

Affect Theory of Social Exchange Research Program

Edward J. Lawler, Shane R. Thye, and Jeongkoo Yoon, in their affect theory of social exchange and related research, consider the relationships between groups, networks, exchange behaviors, commitments, and directed emotion. The affect theory of social exchange offers insights into the conditions in which one will direct emotions

toward another individual or a group, and so is applicable to organizations and their representatives. Briefly, the theory suggests that global emotions occur during social exchange and these are positively or negatively valenced based on the success or lack of success of the exchange. Based on insights from attribution theory (Heider 1958; Kelley 1967, 1972; Weiner 1980, 1985, 1986), the affect theory of affective-attachments (Lawler 1992, 1997; Mueller and Lawler 1999), and relational cohesion theory (Lawler and Yoon 1993, 1996, 1998; Thye, Yoon, and Lawler 2002), these global emotions are attributed to social objects in the exchange. Particularly, the global emotions are labeled, becoming specific emotions when directed at a social object such as the self, the other actor, or the group.

The research program of Lawler, Thye, and Yoon contains several overlapping, yet independently specified, theories – which as a collective I refer to as the affect theory of social exchange research program. In approximate historical order these are the theory of affective-attachments, relational cohesion theory, the affect theory of social exchange, and the theory of social commitments. After I briefly overview the first two theories, I culminate with the affect theory of social exchange which expands and draws on concepts from these first two. The theory of social commitments (Lawler, Thye, and Yoon 2009) applies the previous theories to perennial sociological issues such as the Hobbesian problem of social order (Hobbes [1651] 1985) and micro-macro linkages. As such, I do not review it separately.

Theory of Affective-Attachments

The theory of affective-attachments (Lawler 1992, 1997; Mueller and Lawler 1999) explains how a sense of personal control and choice, enabled by membership in a

group, increases affective attachment to that group. The theory details how an individual in both a subgroup and larger encompassing group can develop differential levels of attachments to them. Lawler argues that positive emotions produced by having choice options and negative emotions produced by having choice constraints create attachment to the groups that enabled or constrained the choice. The emotions produced by this sense of choice create a sense of attachments to any group, yet this process is theorized to be stronger for more proximal groups compared to more distal groups (Lawler 1992). The theory has received empirical support (Mueller and Lawler 1999).

Relational Cohesion Theory

The main tenet of relational cohesion theory is the process by which social structure leads to commitment behaviors, through first emotion and then a perception of cohesion in a relationship (Lawler and Yoon 1993, 1996, 1998; Thye, Yoon, and Lawler 2002). The process begins with an Emersonian view of micro social structure, the network of potential exchange partners and power-dependence in those relationships (Cook, Emerson, Gillmore, and Yamagishi 1983; Emerson 1962). Within this structure occurs positive or negative exchange. Frequent positive, successful exchanges lead to mild, but steady, positive emotions. Frequent negative or unsuccessful exchange lead to mild negative emotions.

The basis for a common interaction like social exchange to cause an affective reaction is in an argument by Randall Collins that builds on Durkheim. Durkheim ([1912] 1995) argued that rituals, especially religious, could lead to strong emotion when there was copresence, a common focus of attention, and a common mood. Collins's (2004) has argued the same process applies to weaker emotions and to simple interaction rituals.

These may be everyday rituals that when repeated take on symbolic qualities that are reflective of a group. Simple interactions and exchanges, provided they are successful, lead to mild positive emotions (as well as imbuing group symbols with meaning), but on failure drain one's emotional energy and lead to negative evaluations of the group.

Relational cohesion theory takes this idea and applies it to exchange situations.

Next in the theory, the positive emotions experienced lead to perceptions of cohesion for the relationships in which the positive exchange occurred. Through the emotions, one comes to attribute the result to the collective efforts of oneself and one's exchange partner(s), perceiving this relation as a cohesive unit – a group. Finally, this perception leads to behaviors that – unlike the self-interested and often presumed rational behavior of exchange – orient around commitment to the new cohesive relation. These commitment behaviors include gift-giving, staying in spite of better alternatives, and contributing to joint venture (Lawler and Yoon 1996). This theory contributes to understanding how purely instrumental exchange morphs into affective or expressive exchange (Lawler and Yoon 1993).

Affect Theory of Social Exchange

The unique and most fundamental question posed by the affect theory of social exchange is: Under what conditions do actors attribute their emotional experiences to a social unit? The social unit may be a relation, group, network, firm, organization, community, or even a society. The theory puts forth a general process that, in principle, should apply to any social unit of import to the interactions of actors. (Lawler, Thye, and Yoon 2008:537)

The affect theory of social exchange (Lawler 2001) explains how individuals based on their position in a network and the network's structure generate relational ties to other individuals or groups. The social structure, including form of exchange and frequency of exchange, alter the process by which emotions are codified and attributed

altering the relational ties to others. The four primary types of exchange (Molm 2003b) are productive, negotiated, reciprocal, and indirect. That order, Lawler (2001) argues, produces the highest nonseparability, or jointness, of task. The nonseparability of a task consists of how the task's structure precludes a clear demarcation of the contributions of individuals to that task.

An example of productive exchange would be if many people raised money in the community for a fund to build a new library they could all use. In contrast, indirect exchange would be if one philanthropist funded a library in one city, and used a library that another person funded in another city. Lawler's argument about nonseparability is that in the former case, it is difficult to separate the contributions of the funders, and in the latter case it is simple.

In the next step of the theory, the nonseparability leads to perceptions of shared responsibility. The nonseparability is a structural property, whereas the perception of responsibility is a symbolic property. In the library examples, all those who contributed or collected money for the funding of the library in the productive exchange scenario would perceive that this group contributed to the success of the project. In the indirect exchange scenario the philanthropist should feel little shared responsibility as the libraries she funded and visited are not connected. She is responsible solely for one, and not at all for the other.

Emotion is produced in all types of exchanges. The theory proposes that global emotions occur from the success or lack of success in exchange, which in the context of companies' representatives and the customers forms straightforward predictions about the effect of representatives' behavior on emotions. A positive interaction should lead to

customers' positive global emotions, whereas negative interaction should lead to customers' negative global emotions. Further, the affect theory of social exchange also predicts these global emotions are transformed in specific emotions as they are directed toward different social objects. Positive interactions lead to positive global emotions that are attributed as discrete positive emotions. Similarly, negative interactions lead to negative global emotions that are attributed as discrete negative emotions.

An individual attributes their positive or negative global emotions based on their perception of responsibility for the outcome. Lawler and colleagues (Lawler 2001, 2006; Lawler, Thye, and Yoon 2009) suggest three social objects¹ of the self, other, and social unit. Positively-valenced global emotions become pride when attributed to oneself, gratitude when attributed to others, and affective attachment when attributed to the social unit. Negatively-valenced global emotions become shame when attributed to oneself, anger when attributed to the other, and affective detachment or alienation when attributed to the social unit. Below I specify the discrete emotions important in my research, but for now, I focus the intuitive global emotions predictions straight from the affect theory of social exchange. Namely,

P2.1. Behavior to Global Emotions Proposition. Representatives' positive (negative) behavior leads to customers' positive (negative) global emotions.

For a time the affect theory of social exchange had not been empirically tested (Lawler 2006:261) until Lawler, Thye, and Yoon published a experimental test (2008). They found overwhelming support for the mechanisms and process of the affect theory of social exchange. Further, they found some evidence of the predicted order of form of

¹ In the first statement of the affect theory of social exchange (Lawler 2001) *task* is included as a fourth social object, but is not present in later statements of the theory.

exchange leading to more group-directed emotion and thus a stronger micro social order. Productive exchange produced the greatest group-directed emotion and generalized exchange producing the least. As predicted the two direct forms of exchange, reciprocal and negotiated, fell between productive and generalized. However, there was no evidence for the predicted order between reciprocal and negotiated, and predicted order of these outcomes is the subject of theoretical debate (Kuwabara 2011; Molm 2003a, b, 2008).

Emotions in the Current Research

Although limitless numbers of discrete emotions could exist (Kemper 1987), I will examine emotions relevant to the affect theory of social exchange and the literature on customers of organizations. Some negative emotions, even primary ones such as fear and disgust (Kemper 1987), may not be typical emotions for a customer in an organizational setting. Likewise, a customer's shame or guilt would occur in a customer-representative situation only when the customer was to blame for his own outcomes. My research will examine the discrete emotions of anger, upset, gratitude, calmness, happiness, along with global positive and negative emotion.

The affect theory of social exchange predicts anger as the discrete emotion directed toward others after negative encounters. Anger is a primary emotion (Kemper 1987; Turner and Stets 2005) and a common reaction in service encounters with organizational representatives (McColl-Kennedy and Smith 2006; Scherer 2004). The most frequently mentioned situation that evoked anger in the 1996 General Social Survey was a customer situation – waiting in line at a grocery store (Smith-Lovin 2009:165).

Many times customers are upset or dissatisfied with their customer service encounter without being so aroused as to be angry. Upset, grouped often with depression

and sadness, is also a primary emotion (Kemper 1987; Turner and Stets 2005), cross-culturally recognizable (Ekman and Friesen 2003; Ekman, Friesen, and Ellsworth 1972), and a part of the daily emotional experiences of individuals (Lively 2008; Lively and Powell 2006). Furthermore anger can lead to depression\sadness over time (Simon and Lively 2010) and in some customer research anger and upset are combined (i.e., Westbrook and Oliver 1991). Many studies of customers do not combine anger and upset but use a scale from emotion concepts like satisfied and happy on one end, to upset, dissatisfied, or sad on the other (Liljander and Strandvik 1997; McColl-Kennedy and Smith 2006; Smith and Bolton 2002). I choose to separate out upset and happy feelings as not being on the same bipolar scale, but measure them on their own unipolar scales.

In terms of positive emotions, the affect theory of social exchange predicts gratitude as the emotion directed toward others. Gratitude is used to repay others for emotions, effort, and gifts contribution to stronger relationships (Clark 1987; 1997:176-179). Simmel also has theorized on the exchange-based nature of gratitude and the establishment of relational ties (1950:379-395). Gratitude and anger often fill opposite roles in customer-representative interaction such as feeling angry for lack of gratitude (Stein 1989).

I would argue that gratitude is not the only “opposite” of anger in customer service situations. Certainly for important encounters failed service from the organization can lead to anger, whereas excellent, above-and-beyond service may induce gratitude. What about neutral or just satisfactory service? Calmness, I argue, also has opposite properties of anger. Since customers are often irritated and angered by negative encounters with representatives, calmness may tap into the positive emotions produced or

disruptions in that positivity. Organizations value calm customers and train their representatives to calm those that have been angered or upset (Morgan 2009).

Happiness or some form of it often is regarded as an opposite of upset/sadness and it was found to be a primary factor in daily emotion experiences (Lively 2008; Lively and Powell 2006). Happiness is also considered a primary emotion, often the only positive primary emotions (Kemper 1987; Turner 1999, 2000). Some customer research goes beyond looking at a satisfaction-dissatisfaction dichotomy and examines emotions such as happiness and delight (Oliver, Rust, and Varki 1997; Rust and Oliver 2000). In summary, I find that angry, upset, grateful, calm, and happy then represent a range of emotions predicted by the literature on customers and the affect theory of social exchange.

In the affect theory of social exchange global emotions become specific, directed emotions and their specificity and direction are due to perceptions of responsibility. The question answered by this theory is how various structural conditions increase emotion directed toward one unit over another. Although these discrete emotions may differ, the affect theory of social exchange suggests the global emotions felt are of one character: either a general positive or negative feeling that then gets labeled as attributed to various social entities. In Chapter 6, I will make arguments about directed emotions being more or less focused on an organization or its representative. For now, I want to suggest that the positive or negative discrete emotions, regardless of how they are directed, will follow the global emotions. In other words, when one feels bad from unsuccessful exchange (i.e., global emotions; P2.1) that negative global feeling becomes directed at both the representative and the organization. When one feels good from a successful

exchange that positive global feeling is also directed at both the representative and the organization. I propose for the five chosen discrete emotions – each clearly classified as negative or positive – the following²:

P2.2. Global Emotions to Discrete Emotions Proposition. Customers' positive (negative) global emotions lead to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization.

Based on exchange behavior leading to global emotion and global emotion leading to discrete emotions, the affect theory of social exchange predicts this corollary:

C2.3. Behavior to Discrete Emotions Corollary. Representatives' positive (negative) behavior leads to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization. [From P2.1 and P2.2]

Patronage

An important outcome for organizations is future patronage. Whether we are considering for-profit organizations or informal social organizations, their existence is only sustained with the support of members, patrons, or constituents. Negative emotions brought on by poor service by an organizational representative have been found to be extremely influential in altering the customers' future relationship with the company (Foxall 2005; Foxall, Goldsmith, and Brown 1998; McColl-Kennedy and Smith 2006). Many literatures suggest that one's emotion and behavior are interrelated (e.g., Burke and Stets 2009; Heise 1979; Hochschild 1979; Isen and Levin 1972; Jasper 2011; Jasso 1993; Markus and Kitayamy 1991; Turner 2000; Weiner 1986); however I primarily draw from

² Only the gratitude and anger in the discrete emotion propositions reflect affect theory of social exchange predictions proper. Happy, calm, and upset predictions are my own extension.

the affect theory of social exchange research in discussing commitment in terms of future patronage.

Throughout the affect theory of social exchange research program there are several focal outcome variables. In an empirical test of the affect theory of social exchange, Lawler, Thye, and Yoon (2008) measured the effect of exchange behavior and conditions altering one's emotion, which in turn affect one's internal perception of group cohesion. Lawler and Yoon's empirical tests of relational cohesion theory (1993, 1996) included three commitment behaviors: staying with a partner in spite of alternatives, giving small token gifts, or – included in the 1996 article – contributing to a joint fund. Lawler and Yoon's internal perception of group cohesion led to *commitment behavior* manifested in these three behaviors. Accordingly, these theories form a cycle of behavior to emotions to perceptions to behavior. Exchange behavior leads to emotion and relational cohesion which leads to commitment behavior. Therefore, global emotion plays an important mediating role in behavioral outcomes.

Commitment behavior is important in keeping a group together, creating new ties to individuals or groups, and maintaining social order in society. In *Social Commitments in a Depersonalized World*, Lawler, Thye and Yoon (2009) apply the affect theory of social exchange research program to the development and maintenance of commitments of different types and to different units. They consider how instrumental, normative, or affective ties may lead to the others, and they often use organization examples. One such example is how one may frequent a coffee shop for instrumental reasons and then develop an affective attachment to it. An attachment to a coffee shop could be a precursor

to attachment to other social units, such as baristas or patrons of the coffee shop, manifested by commitment behavior.

Commitment behavior is especially important for organizations who would like to have loyal employees, repeat customers, and a good image and reputation. Although relational cohesion theory includes three types of commitment behavior, only one is an obvious choice for both customer-representative and customer-organization relationships. Symbolic gift giving and joint ventures make sense in the context of actor-to-actor ties, especially as these ties are more affective and friendly. There are of course acceptations including joint ventures and gifts to volunteer, political, and religious organizations. Are those who do that really still *only customers* of that organization, or would they be more accurately described as members, advocates, or parishioners? For those whose relationship with an organization remains solely as a customer, patronage behavior is the major form of behavioral commitment (Dick and Basu 1994). Following relational cohesion theory, I make predictions about choosing to interact with an organization in spite of other alternatives, or future patronage. Likewise, patronage can work just as well for individual actors; one continues to patronize (or “stay with” in relational cohesion theory terms) the individual. Therefore, I hypothesize based on the theoretical process set forth in the affect theory of social exchange research literature:

P2.4. Global Emotions to Patronage Proposition. Customers’ positive (negative) global emotions increase (decrease) customers’ future patronage of (a) the representative and (b) the organization

Also, I consider the theoretical process from exchange behavior to patronage behavior through emotion:

C2.5. Behavior to Patronage Corollary. Representatives' positive (negative) behavior increases (decreases) customers' future patronage of (a) the representative and (b) the organization. [From P2.1 and P2.4].

Summary

This chapter defined two major customers' outcomes as variables of interest. I overviewed research on emotions, including definitions, literature, and theory, then selected five discrete emotions of importance for customers. After reviewing the affect theory of social exchange and related research, I applied the theories to the customer-organizational representative relationships making three propositions and two corollaries. This background including the affect theory of social exchange is used for direct propositions (see Table 2.1) and as a foundation for my own theoretical advances in the upcoming chapters. Now that I have discussed the general processes that alter customers' outcomes after interaction with organizational representatives, I turn to the question of these representatives being computers.

Table 2.1: Summary of Research Statements through Chapter 2
Research Questions, Propositions, and Corollaries

Research Question 1: How does the use of computer technology instead of humans to represent an organization change customers' feelings and behavior toward that organization?

P2.1. Behavior to Global Emotions Proposition. Representatives' positive (negative) behavior leads to customers' positive (negative) global emotions.

P2.2. Global Emotions to Discrete Emotions Proposition. Customers' positive (negative) global emotions lead to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization.

C2.3. Behavior to Discrete Emotions Corollary. Representatives' positive (negative) behavior leads to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization. [From P2.1 and P2.2]

P2.4. Global Emotions to Patronage Proposition. Customers' positive (negative) global emotions increase (decrease) customers' future patronage of (a) the representative and (b) the organization.

C2.5. Behavior to Patronage Corollary. Representatives' positive (negative) behavior increases (decreases) customers' future patronage of (a) the representative and (b) the organization. [From P2.1 and P2.4]

Research Question 2: How do customers interpret the agency of computers and humans as representatives of organizations?

Research Question 3: How does the perceived agency of a computer or human representative influence customers' feelings and behavior toward an organization?

Chapter 3

Computer Technology

Today, in 2012, interaction with technology is commonplace and ubiquitous, happening with specific technological entities like robots, personal computers, and handheld devices as well as non-physical technologies like traditional software, websites, and social network interfaces. In this chapter, I first summarize the broad impacts of technology, then focus on the history and impact of technology on customer service in organizations. After this overview I turn to a review of research and theory that informs a social science – and specifically sociological – view of human-technology interaction.

The Influence and Development of Technology

The brief history of computational technology crams fantastic and unprecedented developments into half a dozen decades. The first electronic computer was the ENIAC (Electronic Numerical Integrator and Computer) by most accounts (Burks and Burks 1981) debuting in 1946 and filling multiple rooms. Computers since then follow the well-known *Moore's Law* (Moore 1965) stating that the number of transistors and thus capacity on a given circuit board doubles every two years while the price and physical space of the circuit board remain the same. This trend has been demonstrated to generalize to many other aspects of technology development (Kurzweil 2000, 2005). Based on this increasing capacity, technology has progressively altered the world, most notably with the personal computer of the 1980s, the expansion of the internet from the late 1980s and 1990s and the dotcom bubble of the late 1990s. Expanding in multiple

directions, mobile devices, ubiquitous computing, social networking, social media, massively multiplayer gaming, crowdsourcing, and web 2.0 have been the monoliths of the past decade.

Computer technology alters people's behavior: for example, many people's jobs are replaced with technology (Kurzweil 2005) including life or death jobs such as military positions (Bergen and Tiedmann 2010). Computer technology alters how people think: what people believe about humans (Christian 2011), one's self (Turkle 2005[1984]), and deities (Herzfeld 2002). Computer technology can alter cognition: both through standard learning processes (Restak 2003) and through technologies that directly interface with the nervous system (i.e., cyborgism; Clark 2003). This technological alteration of human cognition has repercussions for ethics and sociopolitical regulations (Fukuyama 2002). Computer technology alters how people use their time: spending their leisure immersed in technologically created worlds (McGonigal 2011) and forming relationships with technology instead of people (Levy 2007; Turkle 2011). There are few areas of contemporary life untouched by technology.

Organizations have long used technology as a way to supplement human labor: to add convenience or features not feasible without the technology, to streamline processes that involve human fatigue or subjectivity, and to replace humans with technology. This replacement practice dates back to before 1811 – the year that began Britain's infamous Luddite movement, a rebellion against using technology to replace people as laborers (Bailey 1998). The industrial revolution was an early shift in the relation of organizations to the humans and technologies used in production. Human laborers were deskilled and

worked directly on assembly lines, technologies that streamlined the complexity of product-creation (Form 1987; Nicholas and Nicholas 1992).

In spite of the massive changes brought about by the industrial revolution, *customer interactions* with organizations were not fundamentally altered. Humans, not computers, still sold products, provided services, responded to problems, and remained the representatives of organizations. By the late 1800s, however, there were cases where technology replaced humans as the mediators between customers and organizations. Sears, Roebuck, and Co. began to remove human contact from the sales process with the noncomputational technology of catalogues dating back to 1888 (searsarchives.com 2006). Since then, a series of technological advances have made replacing humans even more feasible in organizational settings for customer service, sales, and other interpersonal jobs.

Technology now has the capacity to fill many traditionally human social roles (Kurzweil 2005). In contemporary organizations there are many examples of technologies filling roles also filled by human workers. Banks include ATMs and human tellers, stores use self-checkout machines and cashiers, airports contain check-in kiosks and check-in airline personnel, and companies employ automatic phone systems instead of customer service representatives. Many companies offer web-based services that often allow, and sometimes force, interactions to be completely or primarily automated. Companies struggle in choosing when and what to automate to save money, and the effects that will have on their image. A common strategy involves maximizing customer options to interact with technology and people, as is illustrated by the logo of the company *esurance*, “People when you want them; Technology when you don’t”

(esurance.com 2010). Technology-use in organizations can affect customers by changing their sentiments about an organization's identity (Ravasi and Canato 2010) or by allowing customers to be involved in decisions (Ansari and Munir 2010).

By the end of 2007, approximately 70,000 self-checkout units were used in stores worldwide, predicted to reach 282,000 by 2011, although the majority of the units will still be in North America (68 percent) or Europe (24 percent) (Retail Banking Research 2009). The number of Automatic Teller Machines (ATMs) currently exceeds 2.3 million³ and is growing (ATM Industry Association 2011). Even though one might not label those who interact with the police as "customers," the 539 communities in the United States with red-light traffic enforcement cameras are another example of organizational patrons interacting with technologic representatives (Highway Loss Data Institute 2011).

Research on Technology

Research on technology, and more specifically on human-technology interaction, comes from dozens of perspectives including sociology, computer science, informatics, information sciences, communication, psychology, anthropology, history, engineering, economics, business, library science, and a number of hybrid and interdisciplinary perspectives that have emerged from these areas. A major interdisciplinary area emerging as a subfield itself is human-computer interaction and its less-developed sister program human-robot interaction. Human-computer interaction emphasizes the design of computer systems, robots, and interfaces to make interaction simple, "natural" and effective. In the last decade these researchers have become more aware of emotional and social processes following Rosalind Picard's pioneering work on affective computing that

³ The "Global Clock ATM" provides an instant update on the ATM Industry Association's current count of ATMs: <http://www.atmia.com/mig/globalatmclock/>

demonstrated the importance of socio-emotional processes in human-computer interaction (1997).

Based in psychology and communication research in human-computer interaction, one research paradigm called *computers are social actors* suggests that technological actors are treated as social when they act socially or fill a social position (Reeves and Nass 1996). This research further suggests that interaction with technological actors not only influences behavior but emotional outcomes (Brave and Nass 2008; Brave, Nass, and Hutchinson 2005). Automaticity (also called mindlessness) is the primary theoretical mechanism that causes people to act toward technology as they do toward humans (Nass and Moon 2000). The empirical research of *computers are social actors* supports their central claims demonstrated with studies using different technologies, different psychological processes, and different experimental methodologies (Brave, Nass, and Hutchinson 2005; Ferdig and Mishra 2004; Groom and Nass 2007; Isbister and Nass 2000; Moon and Nass 1996; Nass, Fogg, and Moon 1996; Nass and Moon 2000; Nass, Moon, Fogg, Reeves, and Dryer 1995; Nass and Reeves 1996; Nass and Steuer 1993; Nass, Steuer, and Tauber 1994; Reeves and Nass 1996; Shinozawa, Reeves, Wise, Maldonado, and Naya 2002).

Evidence from this perspective bolsters an important assumption I make:

A3.1. Computer Are Social Actors Assumption. Individuals respond to computers in social roles with the same types of cognitive, affective, and perceptual processes as in other social encounters.

This assumption is paramount in using theory developed for social interaction to understand technology: that at some level – in the minds of the customers – the

technology is social. As such, this assumption relaxes the scope conditions of the theories used within, and evidence applicable to the theories therefore must be considered in terms of the validity of this assumption.

One of my key arguments is that the social interaction process in human-human interaction and human-technology interaction shares some similarities, but is significantly altered by the perception of agency of the human or computer. In this way, I build on the more psychologically-oriented *computers are social actors* paradigm to a more sociological-oriented comparison of how computers and humans differ as social actors. For this, I turn to sociology research.

Sociologists, who are underrepresented among scholars of human-computer interaction, have been more likely to study technology as a concept, medium, or movement, rather than as a social actor. This may come as no surprise given the influence of Karl Marx's view of bourgeois as wielding the means of production, technology, by "revolutionizing the instruments of production...and with them the whole relations of society" (Marx and Engels [1848] 1978). Areas of sociological study include human-human interaction mediated through computers (Silver, Cohen, and Crutchfield 1994) and telephones (Smoreda and Licoppe 2000), the internet as a cultural domain (DiMaggio, Hargittai, Neuman, and Robinson 2001; King 2001), technology's general impact on work and organizations (Burris 1998; Carley 2002; Liker, Haddad, and Karlin 1999), technology as mediating knowledge (Thurk and Fine 2003), computer networks as social networks (Wellman 2001), technology's influence on societal development (Nolan and Lenski 1996) and society's influence on technological development (Feenberg 1990). Further, nonhuman actors – including technological actors – are becoming a more

important consideration in sociology (Cerulo 2009) and modern technology increasingly alters how humans view their own role in society (Wolfe 1991). Few sociological theories include technology interaction as a major component, with actor-network theory as the primary exception.

Actor-network theory is a major theory in the area of science, technology, and society (*STS*). Science, technology, and society scholars study the relationships between the scientific world, technological products, and society's norms, culture, and interaction with these technologies (Bauchspies, Croissant, and Restivo 2006). Actor-network theorists (Latour 1996, 2005; Law and Hassard 1999) consider technology as a legitimate actor in social life affecting networks and action like human actors do (Latour 1988; Saito 2011). They argue that causal chains of events include humans and technologies as well as networks of humans and technologies – such as organizations. These causal chains also include humans and technologies as networks – such as computer components or human organs. This socio-philosophic approach encourages deconstructing a traditional view of humans and technologies existing in separate worlds and reconstructing views that correspond to new *actor-networks* as the center of social analysis (Latour 1996, 2005).

The theory's thick descriptions and deconstructions are often used for understanding a particular technology in a natural setting (e.g., Latour 1996). In contrast, my research questions ask about the structured identity of technology (e.g., computer as an identity of a representative in an organization) and the general mechanisms in the technology interaction process. To best suit my research questions I chose an artificial controlled setting and methodology (e.g., laboratory). Therefore, I draw upon the actor-

network perspective in Chapter 4 when discussing how agency is established when defining a situation through symbols, but do not use a methodology corresponding to actor-network theory.

Specifying Technology in this Study

I specifically consider one type of technology, the computer or the computer program. Most advanced technologies – including coffeemakers, watches, automobiles, and vending machines – include embedded digital computers. The terms *invisible computing* and *ubiquitous computing* both refer to the idea that people are constantly interacting with computers and computer chips embedded in the physical space around them. The term *computer* is also a stand-in for computer programs, especially those that perform specialty functions such as *bots* or *agents* (e.g., “Were you outbid on eBay by a human or computer?”). Because of the encompassing uses of the identity *computer* I elected to use it as a representative identity of modern technology that is not specific to one domain.

Computers versus Humans

My research on exchange with computers instead of humans (Shank 2008, 2012) – briefly mentioned in Chapter 1 – led to an unexplained finding and a proposed solution. The finding is this: after behaving negatively, computers received less negative evaluations than humans who behaved negatively. Coercive computers did not seem as bad or as unjust as coercive humans. One immediate explanation would be that computers always seem better and more just than humans. This was not the case because in the baseline cooperative condition, people perceived cooperative computers and cooperative humans as similarly good and just. In those papers I briefly proposed the

solution of perception of agency as the mediating and explanatory mechanism. I argued that perceptions of agency could strengthen or weaken the attributions to the computer actor and the outcomes toward it. In this dissertation, I continue that line of research by fully fleshing out and expanding that argument in the upcoming chapters and then empirically testing it. Currently, I want to focus on the different customers' outcomes and what they suggest about interaction with computers.

In my previous experiment (Shank 2008, 2012), the behaviors included a coercive punishment strategy – an extreme negative behavior – and a cooperative tit-for-tat strategy – a more neutral strategy which is the modal strategy for humans in reciprocal exchange (Molm, Quist, and Wiseley 1993). These strategies were used in part to replicate and extend work by Linda Molm and colleagues (Molm 1997a; Molm, Quist, and Wiseley 1993, 1994). In both my and their research, the cooperative strategy was used as a baseline for comparison to other strategies. As such, that cooperative strategy would be characterized as neutral in valence and expected in reciprocal exchange. Further, my experiment included two exchange partners where one always used the cooperative strategy and the other used a cooperative or coercive depending on the experimental condition. Subjects may have seen the cooperative strategy partner as a comparison standard reinforcing the normality of cooperation and the negativity of coercion.

Since the present research builds on the affect theory of social exchange, I focus on cooperative exchange encounters that are viewed as positive, not neutral, and uncooperative exchange encounters that are viewed as negative. As such, I do not include a neutral baseline exchange behavior as the affect theory of social exchange only predicts

emotion after a relatively positive or negative set of exchanges. This positive beneficial cooperation differs from my previous experiment's tit-for-tat cooperation. Therefore, I suggest the finding from my previous research will be reproduced differently in the current study.

If perceived agency alters attribution processes and perceptions of human and computer agency differ, then after more extreme behaviors will be where computer identity alters attributed outcomes. Neutral behavior neither solicits attributions, nor leads to non-normative outcomes. Positive and negative behavior will lead to interesting outcomes triggering an attribution process. Computer identity, therefore, could mitigate attributions after both positive and negative behavior: less positive after positive and less negative after negative. This explanation is, therefore, consistent with the results from my previous research, while remaining untested. Further, I did not measure discrete emotions in the previous research, but the logic I have developed from it is that weakened attributions will lead to weaker emotion (Lawler 2001; Weiner 1985). Therefore I suggest,

P3.2. Computer to Discrete Emotion Proposition. Representatives' positive (negative) behavior increases customers' discrete positive (negative) emotion, while computer representatives reduce the strength of that effect toward both (a) the representative and (b) the organization.

In this previous research I measured behavioral reactions: those that perceived computers or humans as less just also retaliated towards and resisted against them. As I argued in Chapter 2, emotions and patronage are co-occurring results of the customer-representative interaction process. So I make a parallel proposition for patronage:

P3.3. Computer to Patronage Proposition. Representatives' positive (negative) behavior increases (decreases) customers' patronage, while computer representatives reduce the strength of that effect toward both (a) the representative and (b) the organization.

Summary

Chapter 1 laid out research questions concerning the process by which computer representatives alter customer reactions to organizations. Chapter 2 established the customer reactions of emotion and patronage, and overviewed the affect theory of social exchange. In this chapter I reviewed the development of technology and technology use in organizations. Further, I detailed the impact of and research on technology, especially honing in on sociological perspectives toward technology. To that end, I overviewed different approaches including different paradigms of human-computer interaction such as *computers are social actors*, actor-network theory, and my own research on computers in exchange. Now that these first three chapters have reviewed the literature and established grounded propositions (Table 3.1), I move into my central theoretical mechanism: perceived agency.

Table 3.1: Summary of Research Statements through Chapter 3**Assumption**

A3.1. Computer Are Social Actors Assumption. Individuals respond to computers in social roles with the same types of cognitive, affective, and perceptual processes as in other social encounters.

Research Questions, Propositions, and Corollaries

Research Question 1: How does the use of computer technology instead of humans to represent an organization change customers' feelings and behavior toward that organization?

P2.1. Behavior to Global Emotions Proposition. Representatives' positive (negative) behavior leads to customers' positive (negative) global emotions.

P2.2. Global Emotions to Discrete Emotions Proposition. Customers' positive (negative) global emotions lead to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization.

C2.3. Behavior to Discrete Emotions Corollary. Representatives' positive (negative) behavior leads to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization. [From P2.1 and P2.2]

P2.4. Global Emotions to Patronage Proposition. Customers' positive (negative) global emotions increase (decrease) customers' future patronage of (a) the representative and (b) the organization.

C2.5. Behavior to Patronage Corollary. Representatives' positive (negative) behavior increases (decreases) customers' future patronage of (a) the representative and (b) the organization. [From P2.1 and P2.4]

P3.2. Computer to Discrete Emotion Proposition. Representatives' positive (negative) behavior increases customers' discrete positive (negative) emotion, while computer representatives decrease that effect toward both (a) the representative and (b) the organization.

P3.3. Computer to Patronage Proposition. Representatives' positive (negative) behavior increases (decreases) customers' patronage, while computer representatives reduce the strength of that effect toward both (a) the representative and (b) the organization.

Research Question 2: How do customers interpret the agency of computers and humans as representatives of organizations?

Research Question 3: How does the perceived agency of a computer or human representative influence customers' feelings and behavior toward an organization?

Chapter 4

Attribution and Agency

I introduce agency as an important factor for attributing responsibility to social units such as organizations or their representatives. In this chapter, I begin with attribution theories and then overview a sociological concept of agency. Then, I consider how a customer's perception of a representative's agency could mediate interaction with that representative and the emotion and patronage a customer has toward that represented organization.

Attribution Theories

There are many attribution theories (Crittenden 1983) beginning with Heider's classical statements on attribution (1958), but perhaps no variant of attribution theory has received as much acclaim and empirical support as the work of Bernard Weiner. Weiner's work connects many concepts including human motivation and achievement (Weiner 1974, 1980), emotion (Weiner 1985; Weiner, Russell, and Lerman 1979) and has been applied not only to attributions of one's self, but also to others (Lawler 2001; Weiner, Perry, and Magnusson 1988). After an outcome occurs, individuals – either the actor or an observer – engage in a spontaneous search for a cause and with the information they have available make an attribution as to what caused the outcome. The answer to “why did this outcome occur?” is a causal attribution.

Different attribution theories focus on how the naïve observer then makes inferences about the disposition of the actor (Jones and Davis 1965; Jones and McGillis

1976) or qualities of a social or environmental object (Kelley 1967) while others focus on motivation and achievement (Weiner 1980, 1985, 1986). Originally Heider's formulation (1958) posed attributions as how people make sense of and respond to behavior. Weiner's expansion of attribution theory (1974; Weiner, Russell, and Lerman 1979) developed the theory in both directions: backward, to the precursors to the causal dimensions, and forward, to the outcomes of the causal attribution on future behavior (Crittenden 1983). Kelly's version of attribution theory (1972) integrated attributions with causal schemata, allowing for attributions in the face of missing information.

Paralleling the peak of attribution theory in psychology, attribution theory in sociology had short heyday in the 1970s (Crittenden 1983). There have been, of course, different uses of it since then, and – most relevant to my theoretical perspective here – the affect theory of social exchange research has made use of Weiner's attribution theory of motivation and emotion. Attributions, like symbolic impressions and symbolic interactionism, have overlapping assumptions, such as people's interpretation of their environment, and their reactions based on those meanings. Stryker and Gottlieb (1981) have criticized attribution theory suggesting it could be subsumed under symbolic interactionism.

To understand why people make certain causal attributions and not others attribution theorists ask: what do individuals consider when deciding the cause of an outcome? Five causal dimensions were suggested as potential answers to this question (Weiner 1985), but decades of empirical work led attribution theorists to conclude that three dimensions are the most important in the process (Kent and Martinko 1995; Weiner 1985, 1986): stability, locus of causality, and controllability.

Stability refers to the amount of variation in outcomes over time or over a series of encounters. For example, if a student fails an exam it could be attributed to a factor that is stable such as the student's lack of intelligence, the class's general difficulty, or the student's learning disability. In contrast, unstable factors could include the student's illness, fatigue, or mood, studying the wrong material, a particularly difficult test, or a distraction during the exam such as loud noise.

The second attribution dimension is the *locus of causality*: whether the cause of the outcome is thought to reside within the actor. Internal attributions would include the physical and mental attributes of the individual (Kent and Martinko 1995), whereas external attributions include any situational factor. Continuing the exam-failure example, a student's low aptitude for the material, illness, or lack of studying would all be internal loci. However, a difficult class or blaring noise outside the classroom would be external loci.

The third dimension is *controllability*, the intentionality of the choices under the volitional control of the individual. Controllability as a dimension has received reasonable support, but not the overwhelming empirical support received by the first two dimensions (Kent and Martinko 1995:23-24). A distinction on controllability is illustrated by comparing effort exerted studying with current mood as potential attributions of exam failure. Both are internal and unstable, however mood is less controllable compared to effort exerted.

These dimensions are associated with different emotions. *Stability* changes lead to expectant emotions of hope and helplessness, *locus* attributions are related to esteem-based emotions such as pride and envy, and *controllability* attributions alter social-related

emotions like guilt and shame (Weiner 1992:270-286). Most empirical research applying attribution theory in organizational settings focuses on work-groups, management, employee relations, and employee performance (Martinko 1995), neglecting customer's attributions.

Although attribution theory has been applied to self-attributions after computer tasks (Rozell and Gardner 1995), to my knowledge it has not been used to examine computers as social entities. Currently, people interact with computers that dole out and restrict valued resources, and, within organizations, computers are the intermediary and representation of the company. The question of computer attributions is a pressing empirical inquiry important for attribution theory and understanding customer and organizational outcomes.

To explore this issue, I consider each dimension and how it might operate for computer representatives. *Stability* orients to repeated transactions or interactions that have a component that could be explained by examining outcomes over multiple, separated interactions. Because my research focus is on one set of encounters, stability is not as important in terms of encounters. One's approach to computers, compared to humans, may include different expectations about stability. Computers tend to be designed to repeat processes in a similar, predictably, and consistent manner; whereas humans both engage in creative elaborations of their actions and fail to perform due to fatigue and environmental factors. In a similar way, computers do not always meet expectations and when malfunctioning tend to obviously underperform (e.g., crash or break). In an organization, however, both humans and computers will possess some stability due to that setting. An ATM and human teller, for example, each have a stability

related to the culture of banks. In other words, there is some stability associated with the role of “teller” in the domain of bank organizations, and this stability is part of the routines and schemas, not tied to the individual enacting that role.

The *locus of causality*'s relevance is in distinguishing between a representative versus an organization as the most relevant cause of an outcome. External loci are generally thought to be any environmental factors that are not within the person in question, but a representative's environment is its organization. For a representative constrained by its organization the locus of causality may not be internal, or be less internal. In considering computers, this dimension may also apply in specific ways. If one believes a computer is not the source of a behavior, external loci may be considered in the attribution process. For example, either the programmer or the limitations of the computer's environment could be considered external loci for a computer's behavior. Evidence exists from *computers are social actors* research, however, that people do not attribute computer behavior to the programmer even when they know that the computer is a programmed device (Reeves and Nass 1996). When considering computers as representatives of companies, I suggest that computer representatives shift the causal locus away from themselves and to the organization.

Controllability can be either a function of the organization or a property of the individual representative. As a function of the organization, *controllability* parallels *locus of causality* because the control a representative possesses stems from the organization. Some situations outside the control of both the representative and the organization do not affect customer-representative interactions. For example, a customer wants to know whether a particular popular Christmas item is available, yet neither the representative

nor the organization has any control over obtaining that item (e.g., the suppliers have not shipped it). This sort of situation has little bearing on the representative, as attribution is at the organization level. Yet if a customer asks a representative for this Christmas gift and the representative is not allowed to check the inventory, then the situation is uncontrollable for the representative due to and as a function of the organization. As a function of the organization the controllability and the locus of causality dimensions are similar. The lack of either control or locus for the representative suggests the attributed cause to be the organization. In sum, an organization enables a representative's causality, allowing the decisions to reside within the representative. The representative then has control over that decision.

A second way that *controllability* is important is a difference in identity-based assumptions – in this case, computer and human identity and beliefs about them. Controllability is constituted by internal control, responsibility, agency, and intentionality (Weiner 1985); therefore is much closer to a naïve observer's philosophy of the mind than the other dimensions. One may observe external distractions leading to loci of causality attributions. Likewise, attributions rooted in the stability are based on social context observations (e.g., one's past performance becomes one's reference standard). Controllability, however, requires assumptions about another's mind. The classic example of controllability that I used above is mood versus effort; consider that although both may manifest outward signs, neither is actually observable. To make attributions on this dimension, an observer has already made some inferences about the mind of the person (or computer) in question.

It is no surprise that controllability also receives less empirical support than the other two dimensions (Kent and Martinko 1995:23-24): it is often difficult to infer information about a person's state of mind. My argument is this: attribution theory has found less support for controllability because attribution theory was primarily created for attributions about humans. People think of computers' minds differently than they do for humans. I do not argue that controllability is easier to distinguish among computer attributions, only that attributions to computers differ substantially from attributions to humans on this dimension. Regardless of the actual capacities of computers, most people understand that computers' capacity is not affected by mood or effort. Computers, at least compared to humans, are not considered as intentional and responsible for their actions.

This difference in the controllability dimension also allows for a change the attribution sequence. Most attribution theories were developed to explain causation of *events*, not differences in fundamental *identities* between social actors. Identities are often available prior to behavioral outcomes. If my supposition about computers is true, then this difference in controllability would be present pre-interaction. This formulation does not violate the spirit of attribution theory, but suggests that some attributions – namely computer versus human identity attributions – begin before interaction. An empirical benefit of considering pre-event attributions based on identity is that identity-based effects are detached from behavior-based effects. In this next section, I expand the idea of pre-event controllability attributions as part of a larger construct of perceptions of agency.

From “Structure versus Agency” to Constructed Agency

Philosophic and social debates contend the differences between technology, humanity, and other actors (e.g., animals) are not based on the attribution of events to them, but rather to the fundamental differences and ontological assumptions. The philosophic debate is free will versus determinism, while the sociological debate is structure versus agency. The structure versus agency debate has roots in the philosophic individualism of the Enlightenment, but manifests in modern social sciences both empirically and theoretically. Arguing the underconceptualization of agency, Emirbayer and Mische define agency as

the temporally constructed engagement by actors of different structural environments – the temporal-relational contexts of action – which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures in interactive response to the problems posed by changing historical situations. (1998:970)

They further argue that this relates agency to the temporal nature of actors who construct action with an orientation to the past, present, or future. This concept of agency preferences an individual as a complex decision-maker that cannot be studied without reference to time (Flaherty 2011) because she orients herself to different timeframes and agentically manipulates the use and perception of time (Elder 1994; Flaherty 1999, 2011; Morewedge, Preston, and Wegner 2007; Zerubavel 2004). Emirbayer and Mische conclude that this individual cannot be predicted by social structure, because both habit and imagination transform social structure. An orientation around agency presumes that humans are the agent, and that humans have complex psychological underpinnings to their behavior (Homans 1974), a higher order conscience (Damasio 1994, 1999), and that

social structure is a reflection of many interactions between agentic actors (Emirbayer and Goodwin 1994).

In contrast, many privilege social structure over individual actions or propensities. Mayhew (1980) contends that individual agency is primarily the domain of psychologists, not sociologists, and that reduction ignores the stability and causal primacy of social structure. Black (2000) argues that the structural geometry – the relation of one social structure to another – determines social outcomes without including individuals or their characteristics in the process. To social structuralists interest in agency is an interest in the noise produced by individual idiosyncrasies.

This agency versus structure debate in some ways is reproduced within individuals who consider whether another is responsible or intentional – in other words, make causal attributions. Unlike the more ontological and philosophic agency versus structure debate, individuals' "internal debate" for a particular situation uses symbolic and situational cues to constrain and enable their perception of agency. This means that *perceived agency* is situationally constructed and therefore not a constant property of an entity. Though young children are not held responsible in a court of law, their parents may hold them responsible for cleaning their room. An excellent co-worker may not be held accountable for helping with inventory due to her physical disability. In a foreign culture, a visitor may be excused for his seemingly rude gesture. In these examples, agency is a symbolic property constructed with a situation transforming into a coherent meaning system. In all three, agency is not bound to the individual, but is interpreted within the definition of a situation. "Agency is a theoretical construct in sociology, but it is more than that. Agency is also, in practice, a set of understandings, ascribed to a set of

behaviors, deployed to grasp the meaning of interactions” (Rodriquez 2009:165). Based on attribution theory’s controllability dimension and the temporal nature of agency as per Emirbayer and Mische (1998), I define *perceived agency* as one person’s inference that another exudes control and responsibility over time in a social action.

Rodriquez (2009) found that nursing home staff imbued agency to dying patients and denied agency to aggressive patents creating situations that confirmed the meaning system they wanted to place on the situation. Patients chose when they died and outbursts were explained away as being caused by the mental illness. Weinberg (1997) considers the flipside of this problem studying agency attributed to mental illness. He argues that nonhuman entities, such as mental illness, may be perceived as agentic and as a cause of behavior. What both Rodriquez and Weinberg have in common is the use of perceived agency as an account for a situational behavior (Scott and Lyman 1968). Following my pre-event identity-based attribution argument above, I contend that people not only use agency to account for interaction, but also construct agency as fundamental in establishing a definition of the situation. I argue that agency is a symbolic element of a situation – present even when an account is not given, present before attributions are made as to the cause of an outcome, and present even before action and resulting outcomes.

This construction of agency deals less with the ontological debate on the agency of an actor – and in current domain, the agency, sentience, and personhood of technology – and more with the constructions of a social reality (Berger and Luckmann 1967) and interaction based on symbolic meaning (Blumer 1969; McCall 2006; Mead 1934). Constructing agency begins by defining what constitutes “the other.” The concept of

symbolic interaction relies on humans as symbolic processors that make meaning out of the sensory inputs of the world around them as well as the conceptual understanding of cultural symbols (McCall 2006). In order to determine what interaction means, one must process symbols present in the situation. Perhaps even more fundamental to processing interaction is defining who constitutes as an interactant. Is the person on TV an interactant? What about an incapacitated person? Where are the defining boundaries of an actor? For example, someone might want to pick up a stick as a part of a means to a goal. If the stick moves it may cause the individual to redefine the stick as a snake, simultaneously altering one's perception of the stick/snake to something that has agency. In fact, movement at near-human speeds triggers attributions of presence of mind and intention to nonhumans (Morewedge, Preston, and Wegner 2007).

Actor-network theory (Latour 2005; Law 2003[1992]; Law and Hassard 1999) suggests that social action occurs based on a number of actor-networks, not simply humans as actors. A human may be a part of a network of other humans, or humans and technology, and those networks are in themselves actors, i.e., actor-networks. Likewise, a human is a collection – an actor-network – of organs which are actor-networks of cells. These actor-networks illustrate how social action can both cause and be caused by different chains of actors. Establishing that one person is the causal actor ignores the effects of the networks (also actor-networks) or subsets or supersets of that actor. Actor-network theorists argue that there are no actual boundaries between units of analysis, only abstractions that simplify, and thus miss the complexity, of the social world. More formal modeling of actors and networks also supports this view of a duality and inseparability of actors embedded in networks (Breiger 1974).

My argument takes this idea and transports it from an ontological context to a symbolic interaction context. In spite of the actual state of separability or inseparability between units of analysis, people do separate them in order to define and understand a situation and act and react to it. This separation determines of who and what is or could contend to be an agent in a situation, and the level of agency of that entity (i.e., agent). Essential to individuals' sense making of the world is the construction the agency of others.

In socially constructed environments, such as organizations, individuals will attend to cues that define the situation. Those may be cues that generally define situations, pulling widely accepted cultural meanings into the organization setting, or they may be organization-specific, either an organizational subculture or structural properties of the organization. Based on Giddens' concept of structuration (1979, 1984), Scott considers agency within an organizationally constructed context: "All actors, both individual and collective, possess some degree of agency, but the amount of agency varies greatly among actors as well as among types of social structures. Agency itself is socially and institutionally structured" (Scott 2008[1995]:78-79). Situational factors within an organization should be paramount in the construction of agency.

Constructing Agency

I made an argument *that* agency is constructed, and now I address *how* agency is constructed. I reverse engineer the attribution theory sequence to arrive at my theoretical answer to this question. Attribution theory asks what people attend to when determining the cause of an outcome. This implies that the attributing individual has access to some knowledge including the way an action plays out (e.g., the failure on the test, the lack of a

Christmas item at the store, or the results of a wedding planner's services). Attribution theory typically refers to post-interaction explanations; however attribution theory can also form expectations. In the failed exam scenario, no matter what the final attributed reason – mood, loud noises, lack of studying, lack of intelligence, a hard professor, or a particularly tricky exam – there are expectations made about the outcome along the way. One only needs to know what information is available to predict how the attribution or expectation might vary throughout the sequence.

Attribution theory's *modus operandi* is that each dimension provides another opportunity to *not* attribute the result of an action to the focal actor. Did someone fail an exam? The default assumption is that failing an exam tends to imply that an individual cannot master a particular subject matter, but really only one explanation is available that would indicate that. The reason I call this the default is that individuals presume this is the attribution others make, at least until given additional information. Often it is said, "I just did poorly on this exam because of..." then an excuse, and rarely do we hear the opposite, "Despite what you think, this exam really shows that I cannot master this class." Most people occupy primarily positive identities (MacKinnon and Heise 2010) and engage in and interpret events in ways to confirm their positive identities (Burke and Stets 2009; Robinson and Smith-Lovin 1992; Smith-Lovin and Robinson 2006).

This default attribution is *internal*, *stable*, and *uncontrollable*. Each dimension essentially provides an account or excuse for why the failed exam does not equal to lack of mastery. The explanation may be that there was an external cause (e.g., a hard professor), an unstable cause (e.g., the student was unusually busy and did not study), or controllable cause (e.g., the student put minimal effort into studying). Basically, there are

a number of excuses or accounts people can make (Scott and Lyman 1968), or a lot of different pieces of information that will excuse the attribution of the behavior. Although people often use schemes and heuristics to draw conclusions without full information (Kelley 1972), only one piece of valid information is required to shift the attribution away from an individual, consistent, and unchangeable cause.

For perceived agency, I argue, the same process occurs prior to the event. I have argued that the controllability dimension of attribution theory incorporated in my definition of perceived agency is understood in part before interaction. I have further argued that this is especially important when considering how identity alters perceived agency of attributions. In the next chapter, I apply this idea of constructing agency to computer representatives in an organizational setting. This separates my theory from traditional attribution theories in three ways: (1) incorporating identity as contributing to attributions, (2) understanding an attribution process as pre-interaction and pre-outcome, and (3) considering the specific case of representatives of organizations. As foreshadowed in this chapter, in the next I argue that perceived agency is affected by identity status as a computer or human, and it is the explanation of differences between human-interaction and computer-interaction in customer outcomes.

Summary

In this chapter I overviewed attribution theory, reviewed the structure versus agency debate, and showed how perceptions of agency are constructed in line with symbolic interactionism and actor-network theory. From attribution theory, I both incorporated the dimension of controllability in my definition of perceived agency and borrowed the logic from attribution theory to show how agency is constructed. Next, I

take the concept of agency into the organizational setting where I differentiate it from the important organizational concept of legitimacy. Then I show how customers construct agency for computer representatives of organizations.

Chapter 5

Organizations, Computer Representatives, and Agency

Agency is an important concept in organizations that are sometimes called agencies, and with their representatives that are sometimes called agents. It is especially important when a company uses a computer, a computer program, or a computerized device to interact with customers as the company's representative. This could be a self-checkout machine at the grocery store, an ATM at the bank, or an automated phone system when calling customer support. In this chapter I argue that perceived agency is constructed in these organizational settings through information about the representative in the context of the organization and by expectations about computers. First, I discuss the literature on organizations and customers, distinguishing between legitimation and agency processes. Then I show how agency is constructed, first, through representatives' organizational constraint, and, then, through representatives' computer identity. By doing this I bolster my theoretical argument of perceived agency's mediating role in the relationship between representatives' computer identity and the customer outcomes. This chapter further situates that argument in the context of organization by drawing from literature on organizations and customers.

Many organizational theories in sociology tend to eschew the study of individuals and interpersonal interaction, although important connections between symbolic interactionists and organizational scholars have existed since the Chicago School (Abbot 2009) including sociology of organization connections with symbolic interactionists

founders George Herbert Mead and Herbert George Blumer (Hallett, Shulman, and Fine 2009). Recent work – some which I detail below – often looks at social psychological processes such as legitimacy within organizational settings or in interaction with organizations (e.g., Johnson 2004; Murnighan 1993). First, I introduce institutional theory and research therein related to legitimacy.

Institutional Theory and Legitimacy

Institutional, and later neo-institutional, theory (DiMaggio and Powell 1983; Meyer and Rowan 1977; Meyer and Scott 1983; Scott 2008[1995]) focuses on how organizations are legitimated by adopting features to make themselves more isomorphic or similar with other organizations in their respective organizational field. The primary elements of the theory are that organizations do not develop in isolation, but are influenced by an organizational field – a group of organizations selling the same product, offering the same service, or connected to the same regulatory bodies. Within these fields, organizations survive in part by maintaining legitimacy within the environment and within the organization (Archibald 2004; Suchman 1995). To achieve this goal, organizations will adopt practices, structures, symbols, etc. from other organizations in their field. This process leads to overall similarities in the organizations within an organizational field. Institutional theory has both been praised (Aldrich and Ruef 2006; Scott 2008[1995]) and criticized (Heydebrand 1989; Hirsch and Lounsbury 1997) for its wide breadth. One such criticism was the lack of connections and bases for micro-level actions and organizational change (Hirsch and Lounsbury 1997), although below I review some relevant work that does foster this connection (i.e., Lucas 2003a; Lucas and Lovaglia 2006).

Research on perceptions of agency within organizations is sparse. There is research about agency itself within organizations, but much of it concerns how those within the organization are agentic in changing the organization (DiMaggio 1988) or how entrepreneurs are agentic in shaping the organizational field (Weik 2011). Although attention to agency is not as common in this sort of research, consideration of legitimacy is common, and such consideration provides a link between interaction-level processes and organization-level processes (Johnson 2004). Suchman (1995:574) defines legitimacy as a "...perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions."

Richard Scott's landmark work (2008[1995]) helped establish an institutional approach within the sociology of organizations by explicating the three "pillars of institutions" constructive in explaining organizational stability, conflict, and change. The regulative pillar is focused on rules, laws, and legal sanctions; the normative pillar is focused on morality, norms, and appropriateness; and the cultural-cognitive pillar is focused on shared meanings, schema, and cultural support. Scott shows how the pillars cross-cut disciplines, yet have oft unspoken ontological assumptions that separate them from each other (2008[1995]). Within the cultural-cognitive pillar of institutionalism meaning is constructed and practices are seen as symbolic indications of legitimation. Many institutional rules come from a process of formalizing myths in order to gain legitimacy (Meyer and Rowan 1977) and legitimacy through isomorphic processes is a driving force of institutional change. Legitimizing forces often originate outside of the organization's boundaries (DiMaggio and Powell 1983), although this in no way implies

that organizations cannot change from within (DiMaggio 1988). As practices lose favor in the larger field, organizations that continue to adopt them are delegitimized in a process referred to as deinstitutionalization (Davis, Diekmann, and Tinsley 1994; Oliver 1992).

An institutional theory perspective on computer technology frames technology adoption as part of legitimating an organization within a larger field. For example, individual banks would only be isomorphic with the field of banks if they have ATMs as ATMs become a sign of legitimacy for banks. Not all organizations or organizational fields adopt computer technology, or adopt it to the same extent. While depositing money into an automatic teller machine at the bank is commonplace, contribution money to a church through an ATM – “automatic tithing machine” – or “giving kiosk” is not normative, but growing in popularity (selfserviceworld.com 2011). Institution theory, therefore, helps frame the organizational conditions that situate computer technology within organizations and institutions.

In this process of organizations gaining legitimacy through isomorphic technology adoption, one would expect that technology’s legitimacy to increase. In other words, legitimacy of the ATMs and the legitimacy of the bank that adopts the ATM would be interrelated. However, for the “giving kiosk” and the church that adopts it, there may not be legitimacy for the technology, because of the organizational field. Most churches have not adopted that technology. Institutional theorists focus more outcomes at the level of organizations or organizational fields; however some research has considered this link between organizational legitimacy and legitimacy within an organization. This connection not only contributes to understanding technological representatives, but

connects institution theory to symbolic interactionism – and organizational and interpersonal analyses, respectively, through the concept of legitimation.

Legitimation is not only important in institutional theory, but as a symbolic interpersonal concept (Clay-Warner, Hegtvedt, and Roman 2005; Ford and Johnson 1998; Johnson 1994; Johnson and Ford 1996; Johnson, Ford, and Kaufman 2000; Lucas 2003a; Lucas and Lovaglia 2006). Noting this connection, Lucas (2003a; Lucas and Lovaglia 2006) argued that interpersonal legitimacy and inter-organizational legitimacy have parallel processes. In institutional theory the field of organizations legitimates a practice and those that institutionalize that practice are seen as legitimate. These practices also can legitimate individuals in encounters within an organization (DiMaggio 1988). Lucas tested this with a video that promoted women as leaders in specific small groups, thus legitimating the practice of female leaders as institutionally normative (2003a). This affected subsequent interactions with other women, who were then seen as legitimate leaders. The scope conditions of Lucas' study were that of status characteristics theory (Berger, Cohen, and Zelditch 1966; Berger, Fisek, Norman, and Zelditch 1977): that there was a collectively-oriented group that was task-focused. I speculate beyond this scope in considering the legitimacy process in competitively-oriented and exchange-focused customer-representative encounters.

The condition that allowed for the most influence by female leaders was when female leadership was institutionalized and leaders were assigned on ability (Lucas 2003a). Although my research is not focused on level of collective task influence or deference as Lucas is in his study, organizations may vary on both these dimensions in regards to computer representatives. In terms of institutionalization, some companies,

parts of companies, or organizational fields may have established computers as the primary customer-organization mediator, whereas others may consider computer representatives as nonnormative. For example, automated phone systems are commonplace for many large organizations' customer support, whereas self-checkout systems, while popular, are still a minority compared with human cashiers across all types of retail stores (Retail Banking Research 2009). "Giving kiosks" remain an anomaly.

The second part of Lucas' findings deals with ability. Although this may be more pronounced for research on leaders, any position in a company that deals with customers should have some ability associated with it. The ability of computers compared to humans is asymmetrical and therefore is complex on this dimension. Computers are extremely good at some tasks such as calculations and counting, therefore putting the ability level of, say, ATMs at or above that of human tellers for the purely calculation and counting part of banking. However, computers have lagged in natural language processing as of 2012 suggesting that automated phone systems would have less ability than the average human counterpart.

This discussion suggests that individual legitimation processes may be paramount in interaction with human and computer representatives. Customers may assume differences between humans and computers in either their ability or how institutionalized they are within an organization. Legitimacy is known to alter emotions (Johnson, Ford, and Kaufman 2000), perceptions of power (Ford and Johnson 1998; Zelditch and Walker 1984) and behavior (Ford and Johnson 1998; Johnson and Ford 1996) suggesting that legitimacy might alter the arguments I make about perceived agency's influence on

emotion and patronage. Legitimacy processes may alter perceived agency, or perceptions of agency may alter legitimacy. The two concepts have similarities, as they are symbolic perceptions, based in and influenced by the situation, and part of a constructed social reality (Berger and Luckmann 1967). The difference between them involves legitimacy's focus on who or what is proper and appropriate in the situation, whereas perceived agency's emphasis is on the responsibility, control, and intentionality of an entity. In many situations those in proper and appropriate positions are the ones that are responsible and in control, so while conceptually distinct, empirically I would expect association in many cases.

Consider the following hypothetical situations about robots instructing a university class. In the first case, students do not know if the robots are commonly used to teach at this or other universities (i.e., if robotic teachers are institutionalized). Further, they do not know if the robot possesses the knowledge and techniques to lead a class (i.e., if it has the ability). Both of these clearly would lead to a lack of legitimation for the robot instructor, consistent with the findings of Lucas. One would imagine that perceived agency would follow this as the lack of legitimacy would suggest a lack of responsibility and control. If the robot began teaching with authority, however, the perception of it as agentic may increase independently of its lack of legitimacy. A human that stands before a class as an instructor would be presumed to have a legitimacy and perceived agency advantage compared to a robotic instructor. If students found out the instructor was hand-tied by a curriculum requirement, then he may lose agency in their eyes, while still being the legitimate instructor of the class.

In some organizations computers may be as legitimate as humans whereas in others they may not be. A bank, for example, may have institutionalized machines and human tellers as both valid for dispensing money. A church may not have. The closeness of these concepts suggests that any researchers studying perceived agency of organizational representatives should be aware of legitimacy processes. The specific affects of varied amounts of legitimacy falls outside the scope of this research project, although this would be a fruitful and appropriate future research topic. Instead I opted to minimize legitimacy's effect. I include a standard level of legitimacy for the role of all representatives, including computers, as an initial condition of my empirical study. Legitimizing the role and legitimizing both humans and computers as appropriate to fill that role does not preclude individual representatives from varying in agency. Observed agency affects based on human and computer identity, therefore, will not be due to a difference in the legitimacy of computers within that organization.

Organizational Constraint

Although legitimacy is one dimension that stratifies employees, another is their position within an organization. Customers' knowledge of a representative's position may alter the perception of that representative's agency. Specifically, while agency may be emergent from one's capacity for self-reflection, self-awareness, and consciousness, perceived agency is constructed in a situational context and therefore susceptible to information about one's position within an organization. I specifically consider service jobs as these are the most prevalent in post-industrial nations and as they imply interaction between a customer and an organizational representative. Many service jobs are characterized by a professional educational requirement, high pay and benefits,

autonomy, upward mobility, and flexibility (Glisson and Durick 1988; Kohn and Slomczynski 1990; Mathieu and Zajac 1990). Others are the opposite, characterized by less education, low pay, routinization, limited mobility, and restrictions (Ritzer [1993] 2004).

Although many of these service-job criteria above could affect perceived agency, I argue that organizational constraint (restriction and the lack of restriction, i.e., autonomy) are principal for agentic decision making. Companies can have institutionalized rules and regulations that control every aspect of their employee's behavior, and this is especially true for those who are directly representing a company (Hochschild 1983). A representative of an organization can range in the restriction or lack thereof by the organization, and this level – if known by a customer – should contribute to the customer's perceived agency of the representative. It is also possible and quite common for a customer to have no information about a representative's constraints within an organization.

This information about the relationship of the organization to a representative is similar in directionality to legitimacy in the form of authorization – legitimacy from superiors – and therefore contributes to the perception of that actor's power (Ford and Johnson 1998; Johnson and Ford 1996). In attribution theory terms, the information about the organization's constraint of their representative reflects the *locus of causality* and *controllability* causal dimensions. Perceived agency is situationally constructed making organizational constraint a straightforward influence on perceived agency of the constrained or unconstrained representative. Specifically, the constraints of an organization should alter perceived agency for both human and computer representatives,

and knowing about the restriction or autonomy of the representative should alter perceived agency compared with not knowing.

P5.2. Organizational Constraint Agency Proposition. Customers' knowledge of the representative's constraint within an organization will alter their perception of the representative's agency. (a) Restriction will decrease agency compared to a baseline of no information. (b) Autonomy will increase agency compared to the baseline of no information.

Agency of an Organization's Computer Representatives

A cultural (non-situational) aspect of perceived agency comes from the view in post-industrial nations that computers may have more or less capacity in some abilities compared to humans, but that computers are not sentient and self-aware. Also commonly known is that computers are programmed by people, and thus behave according to those rules of their programming. There are some situations where computer's behavior make it difficult to distinguish from humans (Christian 2011), known as the artificial intelligence benchmark of passing the Turing Test (Epstein, Roberts, and Beber 2008; Searle 2004; Turing 1950). Even though computers often use complex algorithms and advanced artificial intelligence techniques filling the roles of humans (Kurzweil 2000, 2005), there is no reason to assume that people would find them more agentic than humans (Shank 2012). To preview, I predict that cultural beliefs about computers mean that people imbue them with less agency than their human counterparts. In an organizational setting, however, computers and humans under the same constraints (P5.2) may be primarily affected by these constraints.

I now consider the dimensions in the attribution process to computer actors. Stability is important as it is a factor in the beliefs about computers. To many people, computers seem to be predictable and stable as they are based on programming; whereas a number of physical, mental, and social factors make humans as a general category seem less stable. Humans get tired, moody, and stressed; computers are designed to repeat processes identical to times before. I believe that the behavior of computers will be perceived as more stable than humans in general.

The locus of causality for computers is an interesting case. Although some behaviors and outcomes are clearly influenced by outside sources, computers, compared to humans, have the additional outside source of their programming. The *computers are social actors* research program (Reeves and Nass 1996) has conducted a number of studies where they question participants into how much they considered programmers or outside elements in responding to or evaluating a computer or media system. In all cases they report that individuals did not mention the programmers as part of their considerations. This line of research, however, does not directly compare interaction of humans and computers, only the psychological processes. I argue that even having the option to think about the programmers or the computer as a programmed entity gives individuals another locus to attribute causality. This process, however, could be paralleled in humans, when people attribute the human's behavior to God, their genetics, their environment, or mystical influences. It may be that either humans or computers could be denied the locus of their actions in general, although I would preference the computer, as it is known to be programmed.

The third dimension of controllability is part of my definition of agency. In the previous chapter I argued that this dimension, though less important in attribution theory research, was paramount in the identity difference between humans and computers. I then argued that perception due to the difference in humans and computer identity assumed difference in the “mind” of computers versus humans. I am not simply arguing that people believe computers possess less control and responsibility than humans, but that computers are fundamentally different from humans in their minds. Computers are not seen as sentient beings making choices based on their own desires and intuitions, and they only have control and responsibility as designed. This impression, I suggest, is part of the concept of agency. Based on these differences I suggest the following general beliefs will be activated in organizational settings:

P5.3. Computer’s Agency Proposition. Customers perceive computer representatives as less agentic than human representatives.

The Agency Mediation Thesis

My central argument of this dissertation is that perceptions of agency will account for the differences between computers and humans. I have been developing this incrementally throughout the previous chapters. In Chapter 3, I discussed my previous research findings of computers leading to mitigated outcomes. I proposed that the outcomes of customer emotion and patronage would follow this mitigation pattern (P3.2 and P3.3). As an explanation for this mitigation affect I suggested perceptions of agency could stand in as a proxy for computer identity. In Chapter 4, I developed a concept of perceived agency from several literatures, considering scholarship on agency, attribution theory, and the specific case of computers as representatives of organization. In this

chapter I provided more specifics supporting a human agency advantage over computers (P5.3). From all this I propose my central mediation argument as applied to customers' emotions and patronage,

P5.4. Computer's Agency Mediation to Discrete Emotion Proposition. The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' discrete emotions [P3.2]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.

P5.5. Computer's Agency Mediation to Patronage Proposition. The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' patronage [P3.3]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.

Summary

The previous chapter suggested how agency is constructed in a situation and in this chapter I applied the arguments about the construction of agency to computer representative in an organization. In the process I examined how legitimation differed from perceived agency and how organizational constraint would alter perceived agency. The completion of my arguments on how agency is constructed, allowed me to propose my central argument about agency's mediation role (summary of research statements are in Table 5.1). In the next chapter I take agency's influence a step further as I consider how agency might differentiate between outcomes targeted at representatives and organizations.

Table 5.1: Summary of Research Statements through Chapter 5**Assumption**

A3.1. Computer Are Social Actors Assumption. Individuals respond to computers in social roles with the same types of cognitive, affective, and perceptual processes as in other social encounters.

Research Questions, Propositions, and Corollaries

Research Question 1: How does the use of computer technology instead of humans to represent an organization change customers' feelings and behavior toward that organization?

P2.1. Behavior to Global Emotions Proposition. Representatives' positive (negative) behavior leads to customers' positive (negative) global emotions.

P2.2. Global Emotions to Discrete Emotions Proposition. Customers' positive (negative) global emotions lead to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization.

C2.3. Behavior to Discrete Emotions Corollary. Representatives' positive (negative) behavior leads to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization. [From P2.1 and P2.2]

P2.4. Global Emotions to Patronage Proposition. Customers' positive (negative) global emotions increase (decrease) customers' future patronage of (a) the representative and (b) the organization.

C2.5. Behavior to Patronage Corollary. Representatives' positive (negative) behavior increases (decreases) customers' future patronage of (a) the representative and (b) the organization. [From P2.1 and P2.4]

P3.2. Computer to Discrete Emotion Proposition. Representatives' positive (negative) behavior increases customers' discrete positive (negative) emotion, while computer representatives decrease that effect toward both (a) the representative and (b) the organization.

P3.3. Computer to Patronage Proposition. Representatives' positive (negative) behavior increases (decreases) customers' patronage, while computer representatives reduce the strength of that effect toward both (a) the representative and (b) the organization.

Research Question 2: How do customers interpret the agency of computers and humans as representatives of organizations?

P5.2. Organizational Constraint Agency Proposition. Individuals' knowledge of the representative's constraint within an organization will alter their perceived agency of the representative. (a) Restriction will decrease agency compared to a baseline of no information. (b) Autonomy will increase agency compared to the baseline of no information.

P5.3. Computer's Agency Proposition. Customers perceive computer representatives as less agentic than human representatives.

(continued)

Table 5.1. (continued)

Research Question 3: How does the perceived agency of a computer or human representative influence customers' feelings and behavior toward an organization?

P5.4. Computer's Agency Mediation to Discrete Emotion Proposition. The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' discrete emotions [P3.2]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.

P5.5. Computer's Agency Mediation to Patronage Proposition. The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' patronage [P3.3]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.

Chapter 6

Conduits and Barriers

Perceived agency is a fascinating concept as applied to representation, the most abstract level of inquiry in this dissertation. A representative, or a representation for that matter, by its very nature implies the relationship of two entities. One is a stand-in or proxy for the other. One is the lackey of the other. The two are yoked together by this representation relationship. In many cases this coupling is so tightly bound that the two are essentially one, whereas in other cases each functions as an independent agent. If either is an agent, possessing agency, then that entity can act independently and uncoupled. Like agency, perceptions of agency can uncouple entities in the mind of the observer. My argument in this chapter is that the perception of agency uncouples a representative from its organization. When uncoupled, they receive different attributions and customer outcomes are different for each. My theoretical explanation predicting these differences I call the conduits and barriers argument.

Due to their coupling, I have made several propositions and their corollaries that predict similar customer outcomes for representatives and organizations (P2.2, C2.3, P2.4, C2.5, P3.2, P3.3). In this chapter I build on those without displacing them. Most outcomes will be similar for both as my interest here is in representatives representing their organization, not rebelling against it. To discriminate between organizational and representative outcomes I consider parallel decoupling concepts for customers' emotions and patronage. Customer emotions are directed toward the organization or its

representative. To determine decoupling outcomes, I first consider whether customers' emotions are more focused on the organization or its representative. In a similar move, I then consider whether customers' patronage preferences the organization or the representative.

The Conduits and Barriers Argument for Emotion

How does the perceived agency of a computer representative influence whether emotions are targeted toward the representative versus the organization being represented? The affect theory of social exchange suggests that focusing emotion on different social objects should differ based on perceptions of shared responsibility. Recall that the theory argues that the structure of the exchange situation includes a component of nonseparability. Then through exchange this structure leads to the perceptions of shared responsibility. The success or failure of the exchange also generates global emotions. The perception of responsibility helps direct the emotions, which also in turn are labeled with a discrete emotion label. The global emotions suggest how one feels generally about the exchange situation, and by implication all involved in it. Discrete emotions, however, are directed at specific targets. In essence, the perception of responsibility decouples the elements of the situation from other elements focusing the directed emotion.

I suggest a parallel argument: the perceived agency of the representative influences whether the representative or the organization receives the focus of the customers' emotions. The customers' perception of agency is essentially the perception of responsibility applied to an individual (i.e., the representative). Both perceived agency and perceived responsibility entail the idea of someone or something being more liable or accountable for an outcome. A major difference between the two is that, similar to

attributions, perceived responsibility is backward-looking based on outcomes, whereas my concept of perceived agency is forward-looking based on identities and situational information.

How does perceived agency focus emotions? Highly agentic representatives (either computer or human) will seem more individualistic and less representative of their organizations. Customers' emotions will be focused on them more compared to their organization. In contrast, less agentic representatives suggest more reflection of the organization's agenda with the customers' emotions directed more toward the organization, not the representative. Less agentic representatives are simply pawns of their organization.

Representatives lacking in agency are a conduit allowing their actions to flow from the organization to the customer, and the customer's emotions to flow back to the organization. The representative may receive some of the customer's directed emotions, but the brunt should be on the organization. In attribution theory terms, the locus of causality and controllability is within the organization, not its representative. In contrast, representatives perceived as highly agentic are barriers separating the customer and the organization. Any directions, rules, or control coming from the organization are masked behind the independence and responsibility of the representative who controls and is proximal in the interaction with a customer. Intention originates with the representatives, and therefore emotion flows back to the representative. The organization forms the context for the representative, but should not receive the brunt of the responsibility, agency, or emotion, compared to the representative. In attribution terms, the locus of

causality is the representative, not the organization, and the cause is controllable.

Therefore,

P6.1. Conduit and Barriers Emotion Focus Proposition. The greater the customers' perception of the representative's agency the more directed emotions are focused on the representative compared to the organization after the representative's (a) positive behavior and (b) negative behavior.

Working backwards from this proposition suggests that the source of this perceived agency would focus emotions through perceived agency. Combining the conduits and barriers proposition with previous propositions' sources of perceived agency leads to the following corollaries:

C6.2. Computer as a Conduit Emotion Focus Corollary. Computer representatives, compared to human representatives, will have less customers' emotion focused on them compared to the organization for representatives' (a) positive behavior and (b) negative behavior. [From P5.3 and P6.1]

C6.3. Constraint as Conduits and Barriers Emotion Focus Corollary. The more constrained representatives are by the organization, the less customers' emotion is focused on them compared to the organization for representatives' (a) positive behavior and (b) negative behavior. [From P5.2 and P6.1]

The Conduits and Barriers Argument for Patronage

I apply this conduits and barriers argument to future patronage. My general expectation for preference between an organization and its representative is that the representative would actually receive stronger patronage behavior based on Lawler's theory of affective attachments (1992). In that theoretical statement, he argues that local

proximal groups or entities receive stronger attributions than more distal, superordinate groups on average because they usually enable more choice options. Choice options like positive or negative interaction are predicted to lead to positive or negative affect. After a negative interaction with a representative, customers should have stronger desires not to interact with that representative compared to the company. After a positive interaction with a representative, customers should have stronger desires to interact with the representative compared to the company. That means that the company is relatively preferred after negative interaction whereas the representative is relatively preferred after positive interaction. The theory of affective attachments considers the attributions and emotions directed through a choice options enabled or constrained by levels of nested groups. My argument is connected: choice options are perceived in representatives through their agency. Responsibility and intentionality perceptions indicate what level in the organization (in this case only the representative nested within the organization) is enabling or constraining commercial interaction choices for the customer.

Less agentic representatives will focus customers' desires (or lack thereof) for future patronage on the organization rather than the representative. Highly agentic actors – like barriers – will absorb the strong patronage likelihood. Customers will try to interact with highly agentic actors more compared to the organization after positive encounters, and less compared to the organization after negative encounters. Both the theory of affective attachment and my conduits and barriers argument are about comparisons. Therefore my interests are in comparative, not absolute, levels of patronage.

P6.4. Conduits and Barriers Patronage Proposition. The greater the customers' perceptions of the representative's agency, the more (less) the customers

patronize the representative compared to the organization after positive (negative) behavior.

Similar to emotion focus, combining the conduits and barriers argument with the prior sources of perceived agency lead to the following corollaries:

C6.5. Computer as a Conduit Patronage Corollary. Computer representatives, compared to human representatives, will have less (more) customers' patronage of them compared to the customers' patronage of the organization after positive (negative) behavior. [From P5.3 and P6.4]

C6.6. Constraint as Conduits and Barriers Patronage Corollary. The more an organization constrain its representative, the less (more) patronage of the representative compared to the organization after positive (negative) interaction. [From P5.2 and P6.4]

Summary

In the previous six chapters, I established arguments about how a computer representative in an organization might alter customer reactions to that organization (Table 6.1). In the present chapter, I made the conduits and barriers argument, based in part on the affect theory of social exchange. This argument is that highly agentic representatives are barriers for attributions and outcomes while less agentic representatives are conduits allowing their organization to receive attributions and outcomes. The following chapters begin my empirical exploration of all these propositions (Table 6.1) with the methods for an interaction with mock-cyberinteraction organizations experiment (Chapter 7), the results (Chapters 8 and 9), and an interpretation and conclusion (Chapter 10).

Table 6.1: Summary of Research Statements through Chapter 6**Assumption**

A3.1. Computer Are Social Actors Assumption. Individuals respond to computers in social roles with the same types of cognitive, affective, and perceptual processes as in other social encounters.

Research Questions, Propositions, and Corollaries

Research Question 1: How does the use of computer technology instead of humans to represent an organization change customers' feelings and behavior toward that organization?

P2.1. Behavior to Global Emotions Proposition. Representatives' positive (negative) behavior leads to customers' positive (negative) global emotions.

P2.2. Global Emotions to Discrete Emotions Proposition. Customers' positive (negative) global emotions lead to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization.

C2.3. Behavior to Discrete Emotions Corollary. Representatives' positive (negative) behavior leads to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization. [From P2.1 and P2.2]

P2.4. Global Emotions to Patronage Proposition. Customers' positive (negative) global emotions increase (decrease) customers' future patronage of (a) the representative and (b) the organization.

C2.5. Behavior to Patronage Corollary. Representatives' positive (negative) behavior increases (decreases) customers' future patronage of (a) the representative and (b) the organization. [From P2.1 and P2.4]

P3.2. Computer to Discrete Emotion Proposition. Representatives' positive (negative) behavior increases customers' discrete positive (negative) emotion, while computer representatives decrease that effect toward both (a) the representative and (b) the organization.

P3.3. Computer to Patronage Proposition. Representatives' positive (negative) behavior increases (decreases) customers' patronage, while computer representatives reduce the strength of that effect toward both (a) the representative and (b) the organization.

Research Question 2: How do customers interpret the agency of computers and humans as representatives of organizations?

P5.2. Organizational Constraint Agency Proposition. Individuals' knowledge of the representative's constraint within an organization will alter their perceived agency of the representative. (a) Restriction will decrease agency compared to a baseline of no information. (b) Autonomy will increase agency compared to the baseline of no information.

P5.3. Computer's Agency Proposition. Customers perceive computer representatives as less agentic than human representatives.

(continued)

Table 6.1. (continued)

Research Question 3: How does the perceived agency of a computer or human representative influence customers' feelings and behavior toward an organization?

P5.4. Computer's Agency Mediation to Discrete Emotion Proposition. The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' discrete emotions [P3.2]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.

P5.5. Computer's Agency Mediation to Patronage Proposition. The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' patronage [P3.3]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.

P6.1. Conduits and Barriers Emotion Focus Proposition. The greater the customers' perception of the representative's agency the more directed emotions are focused on the representative compared to the organization after the representative's (a) positive behavior and (b) negative behavior.

C6.2. Computer as a Conduit Emotion Focus Corollary. Computer representatives, compared to human representatives, will have less customers' emotion focused on them compared to the organization. [From P5.3 and P6.1]

C6.3. Constraint as Conduits and Barriers Emotion Focus Corollary. The more constrained representatives are by the organization, the less customers' emotion is focused on them compared to the organization for representatives' (a) positive behavior and (b) negative behavior. [From P5.2 and P6.1]

P6.4. Conduits and Barriers Patronage Proposition. The greater the customers' perceptions of the representative's agency, the more (less) the customers patronize the representative compared to the organization after positive (negative) behavior.

C6.5. Computer as a Conduit Patronage Corollary. Computer representatives, compared to human representatives, will have less (more) customers' patronage of them compared to the customers' patronage of the organization after positive (negative) behavior. [From P5.3 and P6.4]

C6.6. Constraint as Conduits and Barriers Patronage Corollary. The more an organization constrain its representative, the less (more) patronage of the representative compared to the organization after positive (negative) interaction. [From P5.2 and P6.4]

Chapter 7

Methods

Experiment Design

To address the research questions and propositions I conducted a laboratory experiment manipulating three independent variables: representative's identity, representative's constraint by the organization, and representative's behavior. This formed twelve conditions in a two (representative's identity: human or computer) by three (representative's organizational constraint: baseline, autonomous, restricted) by two (representatives' behavior: positive or negative) factorial design. I balanced subjects' gender as a nonexperimental factor and subsequently tested it in the analyses.

Experimental Setup

The experiment involved four computerized sessions where subjects bought from a particular organizational representative for a certain number of rounds. Of the four sessions, the first addresses all the research questions for this dissertation⁴. It contained 32 buying rounds. On each round the subject and the representative simultaneously selected buying and selling options. For the subject, the options included buying from 0 to 10 credits worth of goods⁵ from the representative. Any credits not spent were saved and immediately converted into points for the subject. Ostensibly the company representative chose – based on availability of resources and personal strategy – the

⁴ The four buying sessions included different representatives with different strategies. Due to potential fatigue, learning, and expectations effects, these analyses focus completely on the first session.

⁵ Item types were not specified and are just referred as goods.

quality of the goods that being sold to the subject. The instructions linked the quality to a multiplier (Table 7.1) used to convert the credits to points. If a subject spent zero of the ten credits, then the ten credits not spent became ten points. If he spent all of the ten credits, then he could receive anywhere from zero points (for defective goods; multiplier of 0) to 40 points (for superior goods; multiplier of 4).

Table 7.1. Quality of Goods and Multipliers

Quality of Goods	Multiplier	Range of Points from Goods^a
Defective	0.0	0
Poor	0.5	0 to 5
Below Average	1.0	0 to 10
Average	2.0	0 to 20
Above Average	3.0	0 to 30
Superior	4.0	0 to 40

^a The subject could use any integer amount from 0 to 10 to buy goods

Subjects

Subjects were University of Georgia students at the main campus in the summer and fall of 2010. Subjects signed up via an experiment scheduling website (Sona Systems Ltd. 2011) that allowed any person with a valid University of Georgia email address.

Three methods directed students to this website: class recruitment, fliers on campus, and word of mouth. Once students had initially registered on the website, the laboratory staff emailed eligible students as studies became available. Participation in previous studies involving similar procedures excluded students from participating in the current

experiment. A required online questionnaire assessed age and gender, allowing me to exclude minors and balance on gender.

Information about the study – available before signing up – read,

Make \$8.00 - \$20.00 dollars by participating in a study on buying from representatives of different organizations. This study investigates strategies and feelings of people who buy from representatives of different organizations. The amount of money participants earn is based on their own buying strategies and the representatives. Most students earn in the \$10.00 - \$15.00 range.

This rate of pay was comparable to other experiments in the same laboratory within the previous year. The length of each experimental session was scheduled for an hour.

Experimenters opened timeslots each week and students signed up for a convenient time.

The subject recruitment process and the experimental procedures were approved by the university's Institutional Review Board.

Setting and Cover Story

The Laboratory of the Study of Social Interaction included a waiting room with chairs, a storage cabinet, and four doors including one leading into the main hall of the lab. The hall had seven doors: 5 rooms used for experiments, the entrance from the waiting area and an emergency exit. Three identical small rooms, each with two chairs and desktop computer on a desk, were used for this study.

The cover story indicated that a group called the “Southeast Business Consortium” ostensibly was interested in how students bought products in the world of e-commerce. As such they partnered with the University of Georgia, and specifically *The Laboratory of the Study of Social Interaction*, to test how students buy from representatives of the organizations involved. These sessions took place via internet networked computers with the consortium's servers directly connecting students in the

laboratory to the organizations' representatives in other locations. Signs that read "Joint Organizational Research Initiative" included Southeast Business Consortium's name and logo and the familiar University of Georgia name and logo (Figure 7.1). These signs were placed in the laboratory's main hall, in the individual small rooms above the computers and on the first screen of the computer program. The computer program included delays to simulate the time it would take for the server to locate a representative and the time it would take for the representative to make a choice. I pretested these delays to ensure that subjects found them realistic. In reality, the computer program only was running on the individual desktop computers.



Figure 7.1. Sign for fictitious “Joint Organizational Research Initiative” between the University of Georgia and a group of companies in the fictitious “Southeast Business Consortium.”

Procedure

As mentioned, subjects completed an online questionnaire (Appendix A) before signing up for a timeslot for this study. This questionnaire primarily assessed computer knowledge, use, and preferences. When subjects arrived for a study, signs indicated they should wait in the lobby. Sessions began at different times to minimize subjects encountering each other. An experimenter came to the lobby, greeted the subject, and confirmed that this was the expected participant. The experimenter showed the subject to

a small room and presented the consent forms. The subject read those over for two minutes, and then the experimenter answered any questions. If the subject consented, he or she signed the forms. The experimenter gave the subject a placard used to communicate with the experimenter after the subject finished part of the study or had a question. This reinforced the unstated assumption that the experimenter was not watching or manipulating the study, but simply administering it.

The subject interacted with the computer program which gave instructions and practice on all the program's interfaces. After the instructions, the experimenter asked the subject if there were any more questions and confirmed multiple times that the subject understood the directions and how the buying worked. The subject then completed the four buying sessions along with the questions associated with them, all through the computer program. After that, a funnel debriefing – part of the computer program – asked for subjects' feedback before revealing the true nature of the study. Debriefing information requested that subjects not tell others about the deception in the study. At the end, the experimenter paid the subject according to the exchange outcomes from the four sessions and escorted him or her out of the laboratory.

The experimenters included three female and three male laboratory experimenters. All were white, in their 20s, and dressed professionally. I was one of the experimenters and the rest were undergraduates.

Manipulations

The instructions informed subjects they would be connected through the internet to interact with either human representatives of a company or computer representatives of a company. Each of the four buying sessions could be with a different representative

from a different company. To instantiate legitimacy for computers in this setting the instructions mentioned that since the rise of e-commerce companies often used computer programs to sell products.

For the *computer identity* manipulation, subjects received information indicating that the representative of the company was a computer or human. In the computer identity conditions, the first buying session representative was “TradeSoft (computer).” In the human identity conditions, the representative in the first session was a human whose name was yoked with the subject’s gender (i.e., Carol or Jonathan). Pilot tests indicated that because participants were told they might be interacting with a computer, a human name did not convince subjects that the representative was human. Consequently, I added “(person)” after the human’s name in the human identity conditions to match “(computer)” after the computer’s name in the computer identity conditions.

Manipulation of the *organizational constraint* involved instructions telling the subjects that companies managed their employees in different ways. Some had rules and guidelines while others allowed autonomy in how employees sold products, and both of these strategies had been used by successful companies. The instructions told subjects that they would receive information, if available, about the company’s management strategy. There was a restrictive, autonomous, and baseline control condition. In the baseline, no information was presented in the first buying session about the company’s constraint of the representative. The restrictive conditions presented the following (shown for a human representative):

Carol (person) sells products for Dyna Corp and is required to follow the management's strict sales regulations. These regulations require Carol (person)

to follow specific business strategies, and Carol (person) is not permitted to deviate from these predetermined strategies.

Classification of Carol (person): Regulated Seller

The autonomous conditions presented an alternative script:

Carol (person) sells products for Dyna Corp. The company's management does not stipulate strategies, so Carol (person) has full autonomy in deciding how to conduct business. Carol (person) has developed and refined a business strategy from extensive experience. Carol (person) has a creative and improvisational strategy that takes into account typical responses, past successes, and risk analyses.

Classification of Carol (person): Independent Seller

Manipulation of *representative's behavior* followed one of two predetermined strategies for the representatives. These strategies were not dependent on what quantity of the products that the subject bought, but operationalized positive and negative behavior by providing better or worse quality of products. In the negative behavior conditions, representatives gave the subject primarily *defective, poor, below average, and average* quality products, resulting in an average multiplier (see Table 7.1) of .984⁶ over 32 rounds. In the positive behavior conditions, representatives gave the subject primarily *below average, average, above average, and superior* quality products resulting in an average multiplier of 2.859 over 32 rounds.

⁶ Pilot tests indicated that if the representative was too uncooperative (i.e., the average multiplier was so low that that the subject lost too many points) that the subject would not spend any credits. However, an average multiplier less than 1 indicates that the optimal strategy is actually to save all credits and not spend any. With the negative behavior multiplier so close to one, many subjects will keep spending credits.

Measures

There were three sets of variables. First, subjects completed an online questionnaire before the study. Second, subjects filled out scales during and directly after the buying session. Third, I included questions about demographics and the funnel debriefing questions at the end of the study.

The online questionnaire included 11 questions or question sets (see Appendix A for wording). Academic major(s) (Q1) was an open ended response coded into number of majors and into 18 categories by the experimenters. The questionnaire asked subjects their race (Q2) and what type of computers they own (Q3). The questionnaire asked subjects to mark all activities they routinely do out of a list of 19 computer-oriented activities presented in a random order (Q4). The sum of the number of activities they marked is their *total computer activities*. The questionnaire presented ten categories on how much time subjects spend on the internet or on a computer per day (Q5 and Q6). Questions 7-9 assessed a subjective measure of computer knowledge (Q7), a less subjective measure of interaction with computer agents or bots (Q9), and a specific measure of formal computer education in the form of programming classes taken (Q8). Question set 10 included eight questions asking whether the subject preferred interacting with humans, computer, or both equally in a number of situations (in general, at the bank, at the grocery store, on the phone, in a virtual world, when receiving a speeding ticket, at the airport, and when getting driving directions). The final question assessed participants experience with negotiating prices (Q11).

The second group of variables – the variables collected within or directly after the buying session – used semantic differential scales with slider bars that ranged from

integer values from 0 to 400. Subject moved the bar closer to the anchors that best answered the question. Instructions indicated that if neither anchor applied to leave the slider bar in the neutral, middle position where it started. All variables were recoded from 0 to +1 for ease of interpretation.

Global Emotion. Following the empirical research on the affect theory of social exchange (Lawler, Thye, and Yoon 2008) to measure global emotion I used scales anchored with *pleased-displeased*, *happy-sad*, *satisfied-not satisfied*, *contented-discontented*, and *joyful-not joyful* in response to “describe your feelings right now.” These were collected after the 24th round of the buying session which was 32 rounds long. *Global Emotion* is the average of all five of these measures (Cronbach’s Alpha = .964).

Directed Emotions. Directed emotions were measured at the end of the session. Emotions measures included emotions directed toward the representative and then emotions directed at the organization. They used the following anchors: *not angry-angry*, *not grateful-grateful*, *not upset-upset*, *not calm-calm*, *unhappy-happy*. I calculated the focus of the directed emotions by subtracting the value of emotion directed toward the company from that same emotion directed toward the representative. Consequently, directed emotions can range from -1 to +1.

Perceived Agency. *Perceived agency* was measured before the buying session but after the organizational constraint and representative identity manipulations. I measured *perceived agency* with five semantic differential items, to the prompt “what did you think about *Carol (person)?*” (shown for a human representative). The items included these anchors: *Not responsible for product quality – Responsible for product quality*, *Not in*

control – In control, Does not consider the past – Considers the past, Does not consider the current situation – Considers the current situation, Does not consider the future – Considers the future. The first two items are based on the attribution of *controllability* from attribution theory (Weiner 1985), the next three reflect Emirbayer and Mische's temporal nature of agency (1998; see also Flaherty 2011). I averaged these items together to form one index of perceived agency (Cronbach's Alpha = .750).

Future Patronage. The instructions informed the subjects that for the final buying session they would get to repeat interaction with a company or representative based on both their response to specific questions and availability. These specific questions measured future patronage. The first item asked how much the subject would want to buy from the company in the final session. The second item asked how much the subject would want to buy from the representative in the final session. The anchors were *Not at all – Very much so*. The third item asked how much the subject would want to buy from the company compared to the representative in the final session with the representatives and company as anchors. These items measured *patronage of the organization, patronage of the representative, and future patronage preference*, respectively.

Other Measures. Subjects responded to other scales that were not used in my analyses. Six scales of sentiments, one scale of morality, one scale of intelligence, and two scales of the company's agency occurred after the buying session. One scale of morality and one scale of intelligence occurred before the buying session.

Funnel Debriefing. Subjects were asked a number of questions to ascertain their suspicion and interpret their experience. Unless noted they were open-ended response:

- (1) *What did you think was the purpose of this study?*

- (2) *Did you notice anything unusual during this study?*
- (3) *Was buying product difficult? (Yes or No)*
- (4) *What sort of buying strategy did you use in the sessions?*
- (5) *Did you find any part of the study confusing?*
- (6) *Did you buy from a human or computer representative? What did you think of them?*
- (7) *Was answering the slider bar questions difficult? (Yes or No)*
- (8) *You were, in fact, not interacting with any people, nor were there any business organizations participating in this research. Were you aware of this at any point during the experiment?*

Chapter 8

Customers' Emotions, Patronage, and Agency Results

General and Descriptive Results

Approximately 20 subjects participated for each of the effective 12 conditions for a total of 241. Although several subjects revealed having mild suspicion or recalled confusion during funnel debriefing questions, this was expected given the complicated multiple buying session experiment and the debriefing questions being administered after all the buying sessions. Ten subjects (nine men and one woman, 4.1 percent of the sample) reported high suspicion or confusion and I excluded them from the analyses⁷. Each cell had an *n* of 17-20 after this exclusion.

The 231 remaining subjects included 120 women and 111 men. Subjects reported their race as follows: 139 white (60.2 percent), 31 black (13.4 percent), 49 Asian (21.2 percent), and 12 of other racial identification (5.2 percent). There were fewer white women than men (61 compared to 78), but more minority women than men (black: 17 vs. 14; Asian: 34 vs. 15; other races: 8 vs. 4; respectively). Eight subjects reported Hispanic ethnicity.

Subjects' ages ranged from 18 to 46 with most subjects of the traditional undergraduate ages (90.5 percent age 18-22 and 97.0 percent age 18-27; mean of 21.06;

⁷ I separated the ten excluded subjects by each factor: by identity: human 7, computer 3; by behavior: positive-first 3, negative-first 7; by organizational constraint: baseline 5, restricted 2, autonomous 3. No condition had more than two excluded subjects; those that did have two included the human\negative-first\nrestricted condition, the human\npositive-first\nbaseline condition, and the computer\nnegative-first\nbaseline condition.

median of 20); minors were excluded from participating. Because subjects were students, academic major could be an important factor. Twelve subjects were undecided in their majors (5.2 percent); 56 had two majors (24.6 percent), 1 had three majors (0.4 percent), and the remaining 162 had one major (70.1 percent). The most represented majors are those in the business school (68; 29.4 percent), the biological sciences (46; 19.7 percent), social sciences (36; 15.6 percent), and psychology (26; 11.3 percent). Importantly for the computer-identity aspect of this study, there were only a small percentage of computer science majors (12; 5.2 percent) and engineers (1; 0.4 percent).

All but one of the subjects reported owning a computer of some type (Appendix B: Table B.1). Of a list of 19 types of computer activities presented, subjects reported engaging in 4-16 of them routinely (mean 10.28; Appendix B: Table B.2). They reported spending 3.19 hours on the internet on average per day and 3.60 hours on computers per day. Approximately two-thirds of subjects reported their own computer knowledge in one of the two middle categories of six choices: "A little bit" or "A decent amount" (Appendix B: Table B.3). The majority of them had not taken computer or web programming classes (131, 56.7 percent), leaving a sizable minority that had (Appendix B: Table B.4). Subjects' preferences for interacting with a computer over a human varied widely based on the situation (Appendix B: Table B.5). In general, subjects reported preferring humans to computers (77.3 percent of the time to 3.2 percent of the time with the remaining ones having equal preferences). Some situations, however, increased the preference such as interacting over a phone (humans preferred 92.1 percent of the time to computers preferred 3.9 percent of the time), and others reversed the pattern such as

getting directions (6.5 percent preference for humans giving direction to 76.1 percent preference for computers such as a GPS giving directions).

Main Analyses

There are two major background\demographic factors that are important to rule out as competing explanations for any results obtained. First, gender may play a role in attitudes about computers and human-computer interaction (Schumacher and Morahan-Martin 2001). Second, previous knowledge or experience with computers may alter the processes of interaction with them. In my previous research I found either a gender-based or computer-knowledge based affect on social exchange experiments with human or computer partners (Shank 2008, 2012), but I was not able to definitively discriminate between the two. To address these issues, I balanced gender between conditions, effectively treating it like an additional factor. Then, when I conducted each analysis I added gender as a non-experimental factor interacting with all other independent variables (and other interaction effects). If gender interacted with the variables in a current analysis, I report the analysis that includes gender in the results. If not, I present an analysis without gender.

For computer knowledge and experiences I administered a number of different measures in the pre-experimental questionnaire. Measures (all self-reported, see Appendices A and B) included being a computer science or engineering major, owning a laptop, desktop, or handheld computer, a total of activities using technology, time spent on the internet, time spent on computer devices, computer knowledge, number of programming or web classes, amount of interaction with computer agents/bots, and preference for human or computer interaction. I factor analyzed these variables and

included the primary factor as a nonexperimental covariate in all of my analyses. It did not significantly interact with any variable of interest, and so computer knowledge and experience is excluded the presentation of the main analyses.

The means and standard deviations of the outcome variables used in the main analyses are shown on Table 8.1 including means and standard deviations shown by manipulations. I first present the experiments' full factorial analyses including gender on all dependent variables used in this study (Table 8.2 for emotions and Table 8.3 for agency and patronage). Then as I address each proposition, I collapse over experimental factors that are not part of that proposition, provided they do not interact with the variables that are part of the proposition. If they do interact, I control for them.

Table 8.1: Means and Standard Deviations of Dependent Variables by Manipulations

	Grand	Identity		Organizational Constraint			Behavior	
	Mean	Human	Computer	Baseline	Restricted	Autonomous	Positive	Negative
Perceived Agency	.58 (.19)	.60 (.20)	.56 (.18)	.62 (.15)	.44 (.19)	.68 (.15)	.58 (.19)	.58 (.19)
Global Emotion	.54 (.27)	.54 (.27)	.54 (.27)	.58 (.27)	.53 (.26)	.52 (.27)	.73 (.17)	.35 (.21)
<i>Emotion Directed Toward the Representative</i>								
Anger	.39 (.29)	.39 (.30)	.39 (.28)	.37 (.28)	.38 (.29)	.42 (.30)	.20 (.19)	.58 (.25)
Upset	.38 (.28)	.38 (.30)	.38 (.26)	.36 (.27)	.37 (.28)	.42 (.29)	.20 (.18)	.57 (.24)
Happy	.54 (.25)	.54 (.26)	.54 (.25)	.56 (.25)	.54 (.25)	.52 (.26)	.71 (.18)	.37 (.20)
Grateful	.48 (.27)	.48 (.27)	.49 (.26)	.51 (.27)	.45 (.25)	.48 (.28)	.65 (.20)	.32 (.22)
Calm	.63 (.27)	.62 (.48)	.65 (.25)	.67 (.25)	.63 (.28)	.61 (.26)	.78 (.21)	.49 (.23)
<i>Emotion Directed Toward the Organization</i>								
Anger	.42 (.29)	.43 (.31)	.40 (.28)	.41 (.28)	.45 (.31)	.39 (.29)	.24 (.21)	.60 (.25)
Upset	.41 (.28)	.43 (.30)	.39 (.26)	.41 (.26)	.43 (.30)	.38 (.27)	.22 (.18)	.59 (.24)
Happy	.52 (.26)	.52 (.25)	.52 (.28)	.52 (.27)	.51 (.26)	.53 (.25)	.69 (.18)	.34 (.21)
Grateful	.48 (.27)	.46 (.28)	.49 (.25)	.51 (.27)	.44 (.27)	.48 (.26)	.64 (.22)	.31 (.21)
Calm	.61 (.27)	.59 (.29)	.62 (.25)	.63 (.26)	.59 (.29)	.60 (.27)	.76 (.20)	.46 (.25)
<i>Emotion Focus</i>								
Anger	-.02 (.21)	-.03 (.23)	-.01 (.18)	-.04 (.20)	-.07 (.21)	.03 (.20)	-.03 (.17)	-.02 (.24)
Upset	-.02 (.16)	-.04 (.18)	.00 (.13)	-.04 (.14)	-.06 (.18)	.04 (.20)	-.02 (.14)	-.02 (.18)
Happy	.02 (.14)	-.02 (.14)	.02 (.14)	.03 (.15)	.03 (.14)	-.01 (.12)	.01 (.13)	.03 (.15)
Grateful	.01 (.16)	.02 (.18)	-.01 (.13)	.01 (.17)	.01 (.15)	.00 (.16)	.01 (.15)	.00 (.17)
Calm	.03 (.16)	.03 (.16)	.02 (.15)	.04 (.14)	.03 (.19)	.01 (.13)	.02 (.15)	.03 (.16)
<i>Patronage</i>								
Representative	.52 (.33)	.52 (.34)	.52 (.31)	.55 (.32)	.52 (.32)	.49 (.33)	.78 (.17)	.25 (.20)
Organization	.50 (.31)	.49 (.33)	.50 (.28)	.51 (.31)	.49 (.33)	.50 (.28)	.72 (.19)	.27 (.22)
Preference	.57 (.30)	.57 (.30)	.57 (.30)	.59 (.28)	.54 (.30)	.58 (.31)	.65 (.27)	.49 (.30)
N	231	115	116	74	79	78	116	115

Note: Standard deviations are in parentheses.

Table 8.2. Full-factorial (Multiple) Analysis of Variance on Subjects' Emotion

	Global Emotion ANOVA (1, 207) or (2, 207)	Discrete Emotion toward Representative MANOVA (5, 203) or (10, 406) ^a	Discrete Emotion toward Organization MANOVA (5, 203) or (10, 406) ^a	Emotion Focus MANOVA (5, 203) or (10, 406) ^a
Source	F Test	F Test	F Test	F Test
Behavior	213.85***	45.36***	42.68***	.47
Identity	.33	.25	1.08	1.42
Constraint	2.54†	.90	1.04	2.05*
Gender	1.11	1.26	2.00†	.72
Behavior X Identity	.72	2.44*	2.44*	2.37*
Behavior X Constraint	.47	.32	1.00	1.80†
Behavior X Gender	.62	1.79	.65	1.05
Identity X Constraint	.68	1.61	1.46	1.28
Identity X Gender	.79	.92	.66	.22
Constraint X Gender	.33	.25	.25	.34
Behavior X Identity X Constraint	.75	.39	.79	.74
Behavior X Identity X Gender	.16	1.27	1.59	.22
Behavior X Constraint X Gender	.03	.81	.80	.53
Identity X Constraint X Gender	.61	1.02	.75	1.51
Four-Way	.84	1.61	1.06	1.13

N = 231. *** ≤ .001; ** ≤ .01; * ≤ .05; † ≤ .1

^a a Multivariate Wilks' Lambda

Table 8.3. Full-Factorial Analysis of Variance on Subjects' Perceived Agency and Patronage

Source	Perceived Agency	Representative Patronage	Organization Patronage	Patronage Preference
	ANCOVA (1, 207) or (2, 207)	ANOVA (1, 207) or (2, 207)	ANOVA (1, 207) or (2, 207)	ANCOVA (1, 207) or (2, 207)
	F Test	F Test	F Test	F Test
Behavior	.09	466.44***	275.87***	22.52***
Identity	2.56	.59	.00	.97
Constraint	45.03***	2.15	.26	.92
Gender	4.95*	.02	.02	1.70
Behavior X Identity	2.94†	1.80	5.96*	7.77**
Behavior X Constraint	.13	.09	1.98	24.00***
Behavior X Gender	.01	.89	.28	.54
Identity X Constraint	2.95†	2.39†	.39	.12
Identity X Gender	.01	2.03	.12	.00
Constraint X Gender	.58	1.04	1.49	.18
Behavior X Identity X Constraint	1.04	1.58	2.03	4.74**
Behavior X Identity X Gender	.14	.25	4.23*	.03
Behavior X Constraint X Gender	.36	.30	.33	2.11
Identity X Constraint X Gender	.53	.16	.23	.13
Four-Way	.91	1.16	1.77	1.16

N = 231. *** ≤ .001; ** ≤ .01; * ≤ .05; † ≤ .1

Research Question 1

My overarching dissertation research question is: *how does the use of computer technology instead of humans to represent an organization change customers' feelings and behaviors toward that organization?* To answer that question I established propositions and corollaries on the influence of representatives' behavior on customers' emotions and patronage (P2.1 – C2.5) and representatives' identity as a computer on customers' emotions and patronage (P3.2 – P3.3). Below I examine each of those sets of propositions.

Representatives' Behavior effect on Customers' Outcomes

Proposition 2.1 states, *representatives' positive (negative) behavior leads to customers' positive (negative) global emotions*. I conducted a one-way ANOVA using representatives' behavior to predict customers' global emotions⁸. Global emotions were more positive after positive behavior (.73) compared to negative behavior (.35) supporting the proposition ($F(1,229) = 221.84, p \leq .001$; means on Table 8.1).

Proposition 2.2 reads that *customers' positive (negative) global emotions lead to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization*. Recall that I focus on five discrete emotions: anger, upset, happy, grateful, and calm. Considering first the representative, I regressed each discrete emotion toward the representative on global emotions. Positive global emotions decreased anger ($\beta^9 = -.787, p \leq .001$) and upset feelings ($\beta = -.753, p \leq .001$) toward the representative. Positive global emotions also increased happiness ($\beta = .804, p \leq .001$), gratitude ($\beta = .715, p \leq$

⁸ See Table 8.2 for full-factorial model predicting global emotions and refer to Tables 8.2-8.3 for full-factorial models of all experimental factors on each outcome.

⁹ For ease of interpretation, standardized coefficients are shown for regressions.

.001), and calmness ($\beta = .634, p \leq .001$) toward the representative supporting *P2.2a*. Next, I regressed each discrete emotion toward the organization on global emotions. Positive global emotion decreased anger ($\beta = -.716, p \leq .001$) and upset feelings ($\beta = -.727, p \leq .001$) toward the organization. Positive global emotion also increased happiness ($\beta = .806, p \leq .001$), gratitude ($\beta = .733, p \leq .001$), and calmness ($\beta = .664, p \leq .001$) toward the organization supporting *P2.2b*. Customers' global emotions become their discrete emotions directed both toward the organization and its representative.

With *P2.1* and *P2.2* supported, I test their corollary. Corollary 2.3 states: *representatives' positive (negative) behavior leads to customers' positive (negative) discrete emotions toward (a) the representative and (b) the organization*. I performed a 2 X 2 MANOVA using the representative's behavior and identity¹⁰ to predict customers' emotions directed at that representative. Positive behavior increases discrete positive emotions (happiness: .37 to .71; gratefulness: .32 to .65; calmness: .49 to .78) and decreases discrete negative emotions (anger: .58 to .20; upset: .57 to .20) toward the representative (Univariate F's: $F(1, 228) \geq 94.86$, all p 's $\leq .001$). I conducted a parallel 2 X 2 MANOVA to predict discrete emotion directed at the organization. Positive behavior increases discrete positive emotions (happiness: .34 to .69; gratefulness: .31 to .64; calmness: .46 to .76) and decreases discrete negative emotions (anger: .60 to .24; upset: .59 to .22) toward the organization (Univariate F's: $F(1, 228) \geq 99.84$), all p 's $\leq .001$).

I investigate the same process on future patronage. Proposition 2.4 states, *customers' positive (negative) global emotions increase (decrease) customers' future patronage of (a) the representative and (b) the organization*. To test this I regressed

¹⁰ Based on the full-factorial analysis (Table 8.2), computer identity is included as a control as identity and behavior interact to predict discrete emotions toward both the representative and the computer.

representative patronage and organization patronage on global emotions. Customers' positive global emotions increase future patronage of the representative ($\beta = .788$, $p \leq .001$) and the organization ($\beta = .748$, $p \leq .001$).

Based on behavior influencing global emotions (P2.1) which affects patronage (P2.4), corollary 2.5 states *representatives' positive (negative) behavior increases (decreases) customers' future patronage of (a) the representative and (b) the organization*. I performed a one-way ANOVA using the representative's behavior to predict customers' patronage of that representative. Then I performed a 2 X 2 X 2 ANOVA using representatives' behavior to predict patronage of that representative's organization while controlling for representatives' identity and subject's gender¹¹. Not surprisingly, representatives engaging in positive behavior increase the customers' probability of patronizing them by over a factor of three (from .25 to .78; $F(1, 229) = 465.24$, $p \leq .001$) and patronizing their organization by a similar amount (from .27 to .72; $F(1, 227) = 268.26$, $p \leq .001$).

In summary, propositions and corollaries 2.1-2.5 received overwhelming support with these data. These including the predictions directly from the affect theory of social exchange and so have received support in other empirical contexts (Lawler, Thye, and Yoon 2008). The supported propositions suggest that a representative's exchange behavior, either positive or negative, with a customer influenced that customer's emotions. As these global feelings become directed at social objects, they are labeled as discrete emotions and affect subsequent behaviors. I found that a representative's

¹¹ I include identity and gender as controls based on the full-factorial analysis (Table 8.3).

exchange behavior altered emotions toward that representative, the organization being represented, and the patronage of both.

Computers as Representatives and Customers' Outcomes

The next two propositions address how representatives' identification as computers alter customers' outcomes. Proposition 3.2 states *representatives' positive (negative) behavior increases customers' discrete positive (negative) emotion, while computer representatives decrease that effect toward both (a) the representative and (b) the organization*. I conducted a 2 X 2 MANOVA with representative's identity and behavior predicting the customers' five discrete emotions toward that representative (means on Table 8.4; MANOVA on Table 8.5; Multivariate test: $F(1, 227) = 2.35, p \leq .05$). Customers had less extreme emotions toward the representative when that representative was a computer compared to a human. Representatives' negative behavior led customers to be more upset with humans compared to computers, (.59 versus .54) and their positive behavior led to customers to be less upset with humans compared to computers (.16 versus .24; $F(1, 227) = 5.87, p \leq .05$). Also, representatives' negative behavior led customers to be less calm with humans compared to computers (.45 versus .54), whereas their positive behavior led to customers to be more calm with humans compared to computers (.80 versus .75; $F(1, 227) = 6.03, p \leq .05$). P3.2a was not supported for anger, happy, or grateful.

Table 8.4. Means of Emotion Directed toward the Representative by Representative's Behavior and Identity

Emotion	Representative's Behavior			
	Positive		Negative	
	Representative's Identity		Representative's Identity	
	Human	Computer	Human	Computer
Anger	.18 (.18)	.23 (.19)	.60 (.25)	.56 (.26)
Upset	.16 (.17)	.24 (.19)	.59 (.24)	.54 (.23)
Happy	.71 (.18)	.70 (.18)	.37 (.20)	.38 (.20)
Grateful	.65 (.23)	.65 (.17)	.32 (.21)	.31 (.23)
Calm	.80 (.21)	.75 (.22)	.45 (.23)	.54 (.24)
N	56	60	59	56

Note: Standard deviations are in parentheses.

Table 8.5. Multivariate Analysis of Variance on Emotions Directed toward the Representative

Source	F-Statistic					
	MANOVA (1, 227)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	.28	.07	.14	.01	.03	.38
Behavior	46.53***	166.36***	174.69***	181.51***	147.50***	97.14***
Behavior X Identity	2.35*	2.23	5.87*	.26	.17	6.03*

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Turning to part *b* of proposition 3.2, I investigate whether representatives' computer identity moderates the effect of their behavior on customers' emotions toward the organization. I tested these differences using a 2 X 2 MANOVA with representatives' identity and behavior as factors predicting the customers' discrete emotions directed toward the organization (means on Table 8.6; MANOVA on Table 8.7; Multivariate test: $F(1, 227) = 2.46, p \leq .05$). Representatives' computer identity mitigates the extremes for

three of the customers' emotions toward the organization: upset (positive: .21 to .24; negative: .63 to .54; $F(1,227) = 4.61, p \leq .05$), happy (positive: .73 to .67; negative: .32 to .37; $F(1,227) = 4.18, p \leq .05$) and calm (positive: .80 to .72; negative: .40 to .52; $F(1,227) = 11.54, p \leq .001$). A computer representative decreases how upset customers feel toward an organization after the representative's negative behavior *and* decreases how happy and calm they feel toward the organization after positive behavior.

Table 8.6. Means of Emotion Directed toward the Organization by Representative's Behavior and Identity

Emotion	Representative's Behavior			
	Positive		Negative	
	Representative's Identity		Representative's Identity	
	Human	Computer	Human	Computer
Anger	.22 (.20)	.25 (.21)	.62 (.26)	.57 (.24)
Upset	.21 (.18)	.24 (.18)	.63 (.24)	.54 (.23)
Happy	.73 (.19)	.67 (.18)	.32 (.20)	.37 (.22)
Grateful	.65 (.23)	.63 (.21)	.28 (.20)	.34 (.22)
Calm	.80 (.18)	.72 (.21)	.40 (.24)	.52 (.25)
N	56	60	59	56

Note: Standard deviations are in parentheses.

Table 8.7. Multivariate Analysis of Variance on Emotions toward the Organization

Source	F-Statistic					
	MANOVA (1, 227)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	1.06	.17	1.07	.08	.64	.71
Behavior	44.00***	142.22***	175.28***	189.57***	137.68***	104.73***
Identity X Behavior	2.46*	2.30	4.61*	4.18*	1.91	11.54***

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

How do computer representatives affect future patronage of the organization and its representative? Proposition 3.3 reads, *representatives' positive (negative) behavior increases (decreases) customers' patronage, while computer representatives reduce the strength of that effect toward both (a) the representative and (b) the organization.* For P3.3a, I conducted a 2 X 2 ANOVA with the representative's behavior and identity predicting customers' patronage of that representative. There was a main effect for behavior ($F(1, 227) = 466.43, p \leq .001$), but no statistically significant difference in patronage based on the representative's human (positive: .81 and negative: .25) and computer (positive: .76 and negative: .26) identity (identity X behavior: $F(1, 227) = 1.623, ns$).

For P3.3b, I performed a 2 X 2 X 2 ANOVA using representatives' identity and behavior – and customers' gender as a control¹² – to predict customers' future patronage of the organization. Examining the means of representatives' behavior (Table 8.1) indicates that positive behavior increased customers' patronage of the organization (.72) and negative behavior decreased it (.27; $F(1, 223) = 276.36, p \leq .001$). After positive interaction with a representative, the customer is less likely to continue interacting with the company when its representative is a computer (.69; Table 8.8) than when it is a human (.76). Likewise, after the representatives' negative behavior, computer identity mitigates the effect of the negative behavior on customers' patronage (.31 for computers versus .24 for humans; behavior X identity: $F(1, 223) = 6.09, p \leq .05$). After a negative interaction, customers are more likely to re-patronize the company with a computer

¹² Gender interacts with variables in this analysis in the full-factorial model (Table 8.3).

representative, but, after a positive interaction, customers are more likely to re-patronize the company with a human representative.

Table 8.8. Means of Future Patronage of the Organization by Representative's Identity and Behavior, and Subject's Gender

Behavior Gender	Representative's Identity	
	Human	Computer
Positive		
Men	.73 (.25)	.73 (.16)
Women	.78 (.16)	.65 (.17)
Both	.76 (.20)	.69 (.17)
Negative		
Men	.26 (.19)	.28 (.24)
Women	.22 (.21)	.33 (.26)
Both	.24 (.20)	.31 (.25)

Note: Standard deviations are in parentheses.

Women, compared to men, respond in more extreme ways to humans ($.05 = .78 - .73$ higher after positive behavior and $-.04 = .22 - .26$ lower after negative behavior; Table 8.8) and less extreme ways to computers ($-.08 = .65 - .73$ lower after positive behavior and $.05 = .33 - .28$ higher after negative behavior). In the ANOVA, gender had no statistically significant one- or two-way effects, but this difference in means was statistically significant in a three-way interaction effect on future patronage ($F(1,223) = 4.25, p \leq .05$)¹³.

In summary, the simple change from a human representing an organization to a computer representing it has serious implications for the organization. Customers were

¹³ Excluding gender does not change the significance of any of the other results from this ANOVA.

less upset toward the organization and the representative after a negative, uncooperative encounter. Conversely, they were less happy and calm toward the organization and calm toward the representative after a positive, cooperative encounter. Finally – and perhaps most alarmingly – customers’ probability of future patronage with the organization is altered by that representative’s identity as a computer. The patronage likelihood decreased after a positive encounter and increased after a negative encounter when the representative was a computer.

These customer responses are not trivial for the company in question. If a number of customers feel less positive toward a company and decreased their patronage of it, this could have major implications for the company’s growth and survival. How do these customer responses to the organization occur? In the next chapter, I explore my argument that the perception of agency mediates the link between representation by a computer and these customer responses. Before I can attend to perceived agency as a mediator, however, I must address perceived agency as an outcome – a symbolically constructed outcome based on cultural and structural information.

Research Question 2: How Perceived Agency is Constructed

I ask in research question 2 *how do customers interpret the agency of computers and humans as representatives of organizations?* To answer that, below I consider two propositions followed by some post-hoc analyses.

Proposition 5.2 is worded as follows: *Customers’ knowledge of the representative’s constraint within an organization will alter perception of the representative’s agency. (a) Restriction will decrease agency compared to a baseline of no information. (b) Autonomy will increase agency compared to a baseline of no*

information. I conducted a 2 X 3 ANOVA using representative's identity and constraint to predict customers' perception of the representative's agency. Since propositions 5.2 and 5.3 predicted both constraint and computer identity would influence perceived agency, I use the same ANOVA for both predictions¹⁴ (Table 8.9: Model I).

Table 8.9. Analysis of Variance on Perceived Agency of the Representative

Source	Model I		Model II	
	ANOVA F(1, 227)		ANOVA F(1, 225)	
	F	Significance	F	Significance
Constraint	45.35	< .001	46.06	< .001
Identity	2.29	ns	2.46	ns
Constraint X Identity			3.14	≤ .05

N = 231.

Examining the perceived agency means by representatives' organizational constraint (Table 8.1) shows that the restricted representatives are seen by customers as the least agentic (.44), followed by the baseline control (.62), then the autonomous representatives which are seen as the most agentic (.68; Model I: $F(2,227) = 45.35$, $p \leq .001$). Further, a Tukey HSD multiple comparison test shows that the perceived agency was significantly lower in the restricted compared to the baseline conditions (difference

¹⁴ In the full-factorial model predicting perceived agency, the interaction between constraint and computer identity is marginally significant. The lack of significance normally would indicate that I can collapse over the constraint factor when testing the predictions of computer identity on perceived agency. However, this could be easily misinterpreted as constraint has three states. An auxiliary analysis of a one-way ANOVA of identity's influence on perceived agency indicates that collapsing over constraint does not alter the lack of significance of computer identity shown in the other models (compare $F(1, 229) = 1.48$, ns, with Model I and II in Table 8.9).

of $-.18$, $p \leq .001$) and significantly higher in the autonomous conditions compared to the baseline (difference of $.06$, $p \leq .05$).

Proposition 5.3 indicates *customers perceive computer representatives as less agentic than human representatives*. Computers and humans do not statistically significantly differ in perceived agency (computers $.56$ versus humans $.60$; Model I: $F(1, 227) = 2.29$, ns). The data failed to support this proposition, however examining the means (Figure 8.1) suggests a post-hoc explanation of organizational constraint and computer identity interacting. As such, I ran a second model including interaction effects (Table 8.9: Model II).

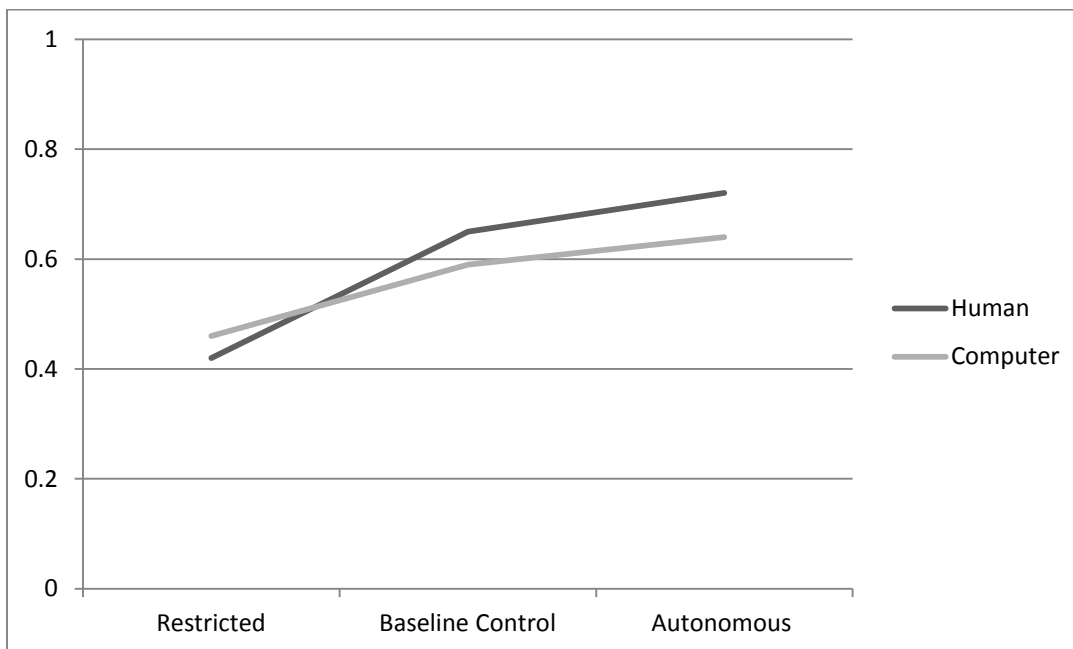


Figure 8.1: Means of perceived agency by representative's organizational constraint (baseline, restricted, or autonomous) and representative's human or computer identity

For the baseline control and autonomous conditions, customers view computers as less agentic than humans (baseline computer .59 versus baseline human .65; autonomous computer .64 versus autonomous human .72) whereas the organizational restriction conditions reverses that agency difference (restricted computer .46 versus restricted human .42; $F(2, 225) = 3.14, p \leq .05$; Table 8.9: Model II). Because the interaction is statistically significant, I conducted a test for difference in slopes between the restricted condition versus the baseline and the autonomous condition versus the baseline. The difference in customers' perceived agency of computer and human representatives from the baseline to the restrictive condition was marginally statistically significant ($F(1,149) = 3.53, p = .062$).

The difference in perceived agency of computer and human representatives from the baseline to the autonomous condition was not statistically significant ($F(1,148) = .119, ns$), however, the main effect of computer is ($F(1,148) = 9.01, p \leq .01$). This post-hoc analysis indicates the possibility that proposition 5.3 could be supported under certain conditions. This led me to conduct a critical test of the customers' perceptions of computer versus human agency, when constraint is not influencing agency. Considering only the baseline constraint cases, I conducted a one-way ANOVA for computer identity's influence on perceived agency. Computer identity was marginally significant ($F(1, 72) = 3.41, p = .069$)¹⁵. Therefore, neither including organizational constraint in the models as a control or interaction (Table 8.9 Models I and II), nor a critical test using only cases in the baseline control supports proposition 5.3 at traditional levels of significance. For restricted representatives, perceived agency is low and there is no

¹⁵ Interestingly, I conducted an autonomous conditions only one-way ANOVA on computer identity's effect on perceived agency and it was statistically significant ($F(1, 76) = 5.80, p \leq .05$).

evidence that perceived agency varies by identity. For representatives not restricted, there is marginal and post-hoc evidence that computer identity may have some influence on agency, but not in the straightforward way predicted in proposition 5.3. This is a fascinating finding that is worth further interpretation and illustration with subjects' funnel debriefing data.

Customers perceived restricted human representatives to have little agency, similar to a restricted computer representative. One subject "felt that [the human representatives] didn't seem to be in control. The representatives were only allowed to follow what the company had set out for them to do and could not deviate from the plan at all; for that limitation, it would seem as if they could be replaced by computers and no one would notice the difference¹⁶." Computer or human, representatives regulated by their companies have little agency.

Autonomy from a company increased the customers' perceived agency of both computer and human representatives, but did not equalize their levels of agency. Customers perceive humans to be more agentic than computers based on their knowledge of computers as programmed entities when the relationship with the company indicates high autonomy (see note 15). This forms a tension with autonomous computer representatives' contested status of being both autonomous and a computer. One subject "generally assumed that if a computer was giving [him] defective products, regardless of the 'autonomy' it supposedly had, it still is a computer programmed by the company, so the company is responsible for these bad products. For humans, [he had] to assume that sometimes, the salesman was responsible for selling [him] the bad product, since [the

¹⁶ #379, *Restricted/Human/Positive-First condition, Representative Debriefing Question*

sales representative has] some independent input on the selling process¹⁷.” As this quote illustrates, not only is one’s perception of the representatives’ agency different for autonomous computers and humans, but that also affects attributions of the outcome to this representative or the company. In the next chapter, I investigate whether perceived agency can account for computer identity differences in customers’ emotions and patronage, or discriminate between the focus of those outcomes.

Summary

This chapter included the general descriptive statistics and analyses addressing the first two research questions. In considering the data’s contribution to my overarching research question, I found that behavior influenced both global and discrete emotions and patronage as proposed by the affect theory of social exchange. Further, representatives’ computer identity mitigated some of discrete emotions directed toward the representative and the organization.

In relation to my second research question, I found that organizational constraints of the representative did, as proposed, alter customers’ perception of the representatives’ agency. Computer identity of the representative did not alter customers’ perception of representatives’ agency. Examining the data and running post-hoc analyses revealed an interaction between representatives’ constraint and computer identity. In Chapter 9, I consider how perceived agency and precursors to perceived agency might alter emotion and patronage, both to the representative and the organization. Finally, I consider how the attributions toward the organization and its representative may be uncoupled by considering emotion focus and patronage preference.

¹⁷ #479, *Autonomous/Computer/Negative-First condition, Representative Debriefing Question*

Chapter 9

Perceived Agency and the Conduits and Barriers Results

Research Question 3

In Chapter 8, I addressed the propositions from the first two research questions. My third research questions asks, *how does the perceived agency of a computer or human representative influence customers' feelings and behavior toward an organization?* First, I consider the mediation effects of perceived agency.

Perceived Agency as a Mediator for Computer Identity

Consider proposition 5.4: *The interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' discrete emotions [P3.2]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.* Similarly, proposition 5.5 states that *the interaction between representatives' behavior and identity (computer representatives' decrease the strength of their behavior on customers' patronage [P3.3]) will be mediated by perceived agency, such that perceived agency serves as a proxy for computer identity.* These two propositions reference earlier propositions (P3.2 and P3.3) that were evaluated with statistical moderation. One approach to these current two propositions would be to evaluate them with a mediated moderation model. A mediated moderation models require the mediator (perceived agency) to be influenced by the treatment (representative's behavior) or the interaction of the treatment with the moderator (behavior X identity) (Muller, Judd, and Yzerbyt 2005:855-856). As I have set up the experiment, perceived

agency was measured *before* representative's behavior was manipulated rendering these mediated moderation statistics inappropriate for the current experimental data.

Because computer identity was manipulated and perceived agency measured prior to the representative's behavior manipulation, I want to approach these propositions by looking at ability for perceived agency to be a proxy for computer identity. Both of these propositions indicate that perceived agency is the mechanism by which computer identity leads to different outcomes. Like simpler forms of mediation, it should be necessary for computer identity to directly affect perceived agency in order for either proposition to be supported. The link between the identity manipulation and the measurement of agency cannot be influenced by the representative's behavior that has yet to occur. From the customer's vantage point, she interacts with a computer system within an organization based on what she perceives and knows about it prior to interaction. Her reactions in that interaction stem from those perceptions. I suggested one aspect of the assumed knowledge was a perception of computers as less agentic. The evidence from the data, however, show that the computer-agency link is tenuous (P5.3 was not supported¹⁸). Outcomes that were found to be a result of representatives' behavior and computer identity (P3.2 and P3.3), therefore, cannot be completely explained by perceptions of computers' agency.

The lack of evidence for a mediation effect of perceived agency encourages me to further explore the role perceived agency plays in the process from manipulations to customers' outcomes. In the next section I consider the experimental manipulations on customers' outcome, whereas in the section after that I examine how perceived agency

¹⁸ P5.3 was not supported when considering only the baseline control constraint cases, nor when including all cases and controlling or not controlling on organizational constraint.

might influence customers' outcomes instead of the manipulations. Comparing these analyses may help to interpret the other findings, as well as prime the reader for the final section, where the representative and organization are decoupled in terms of customers' outcomes.

Overall Effects of the Manipulations

One finding is that organizational constraint alters perceived agency and interacts with computer identity in influencing perceived agency (not predicted but shown in the analyses for P5.2 and P5.3). Another is that a statistical interaction between representatives' identity and behavior alter emotion and patronage (P3.2 and P3.3). The perceived agency mediation would have fit these findings together, so now I explore the data to try to come up with an alternate explanation. Since I do not have propositions on this, I conduct 2 X 2 X 3 MANOVAs\ANOVAs using representative identity, behavior, and constraint from the organization to predict (a) customers' emotion toward the representative, (b) customers' emotion toward the organization and (c) customers' patronage toward the representative. Then I consider the 2 X 2 X 2 X 3 ANOVAs that also include gender¹⁹ (Table 8.3) for (d) customers' patronage toward the organization.

The first MANOVA for customers' emotion toward the representative (Table 9.1) reproduced the earlier analysis on emotion toward the representative showing effects for upset and calm (see P3.2a and Tables 8.2-8.3). The second MANOVA predicted emotion toward the organization (Table 9.2). This reproduced the earlier interaction effects of behavior X identity on upset, happy and calm (see P3.3b and Tables 8.4-8.5). Likewise, ANOVAs with outcomes of the patronages toward the representative (Table 9.3) and

¹⁹ Gender was part of a three-way interaction for effects on organizational patronage (Table 8.3).

organization (Table 8.3) produced the same results as the analyses for P3.3. In all cases, these only produced findings already predicted and organization constraint had no influence on the customers' outcomes.

Table 9.1. Multivariate Analysis of Variance on Emotions Directed toward the Representative

Source	F-Statistic					
	MANOVA (1, 219) or (2, 219)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	.27	.07	.14	.01	.08	.33
Behavior	46.26***	165.17***	172.07***	178.71***	152.09***	96.05***
Constraint	.92	1.35	1.40	.65	1.81	1.49
Behavior X Identity	2.38*	2.32	6.01*	.26	.15	6.16*
Behavior X Constraint	.36	.42	.35	.14	.30	.31
Identity X Constraint	1.46	.65	.49	1.41	4.50*	.40
Behavior X Identity X Constraint	.40	1.13	.92	.05	.14	.43

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Table 9.2. Multivariate Analysis of Variance on Emotions Directed toward the Organization

Source	F-Statistic					
	MANOVA (1, 219) or (2, 219)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	1.03	.18	1.06	.10	.52	.72
Behavior	44.12***	142.56***	176.02***	189.45***	139.00***	103.54***
Constraint	1.09	1.32	1.51	.51	1.84	.76
Behavior X Identity	2.46*	2.33	4.72*	4.32*	1.98	11.60***
Behavior X Constraint	1.02	3.17*	2.22	.85	.46	2.00
Identity X Constraint	1.44	.23	.30	1.34	2.21	.15
Behavior X Identity X Constraint	.70	.31	.63	.89	.15	.57

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Table 9.3. Analysis of Variance on Patronage of the Representative

Source	ANOVA (1, 219) or (2, 219) F Test	
	Identity	.70
	Behavior	475.57***
Constraint	1.95	
Behavior X Identity	1.61	
Behavior X Constraint	.15	
Identity X Constraint	2.40†	
Behavior X Identity X Constraint	1.69	

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Perceived Agency's Effects

Given that there were no effects for organizational constraint or its interaction terms on either customers' outcomes, yet organizational constraint was the strongest predictor of perceived agency (P5.2), perceived agency may also have no effects on the customer outcomes. Perceived agency, however, was influenced by a statistical interaction between computer identity and organizational constraint; therefore, it may have more predictive power than either of those manipulations alone. Also, perceived agency is a perception by the customer and should have greater salience than manipulations which customer may choose to ignore.

I examine the effects of perceived agency and representative's behavior on the customers' outcomes. I do not include computer identity and organizational constraint as the previous analyses do, because they influence and are precursors to perceived agency and this is an exploratory analysis. I conducted a 2 X 2 MANCOVA using representative behavior, perceived agency as a covariate, and their interaction to predict customers' emotions toward the representative (Table 9.4). The multivariate tests indicated that behavior and behavior X agency were both marginally significant (behavior: $F(5, 223) = 2.23, p = .053$; behavior X perceived agency: $F(5, 223) = 1.92, p = .092$). The multivariate test for perceived agency, however, was significant ($F(5, 223) = 2.96, p \leq .05$), but perceived agency only affected one emotion: it increased gratitude (regression of gratitude to the representative on perceived agency: $\beta = 1.31, p \leq .05$). I also conducted a 2 X 2 MANCOVA with the same factors predicting customers' emotions toward the organization (Table 9.5). Positive behavior increased positive emotions and decreased negative emotions toward the organization as seen in analyses supporting corollary 2.3.

Perceived agency was only marginally significant for the multivariate analysis ($F(5, 223) = 1.97, p = .084$).

Table 9.4. Multivariate Analysis of Variance on Emotions Directed toward the Representative

Source	F-Statistic					
	MANCOVA (1, 227)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Perceived Agency	2.96*	2.06	1.33	.43	5.91*	.09
Behavior	2.23†	6.42*	4.22*	5.34*	5.42*	8.96**
Behavior X Agency	1.92†	2.68	4.90*	4.32*	2.70	.01

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Table 9.5. Multivariate Analysis of Variance on Emotions Directed toward the Organization

Source	F-Statistic					
	MANCOVA (1, 227)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Perceived Agency	1.97†	2.51	2.29	2.86†	8.80**	1.29
Behavior	6.16***	25.35***	23.94***	16.62***	19.76***	14.88***
Behavior X Agency	.34	1.78	.61	.06	.54	.55

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

In summary, perceived agency did not mediate the effects of computer identity on customer outcomes because computer identity alone did not alter perceived agency. Therefore the perceived agency mediation propositions (P5.4 and P5.5) failed to be supported. In additional analyses, I considered how the manipulated factors – those that

alter perceived agency – might directly influence customers’ emotions and patronage. The few effects were the same one predicted in earlier propositions, and organizational constraint – the single manipulation closest to an agency manipulation – did not alter any outcomes. Further, I considered that perceived agency might directly influence the customers’ outcomes, as opposed to its proposed mediator status. The only effects for perceived agency – while maintaining traditional cutoffs for statistical significance – indicate that customers’ gratitude toward the representative is increased by customers’ perception of the representative’s agency. This data show minimal to no effects of perceived agency on the customers’ outcomes such as patronage and directed emotion.

Focus of Emotion

The conduits and barriers argument suggests that what perceived agency will alter is not directed emotion, but the *focus* of the directed emotion. As stated in the methods section, an emotion focus measure for each discrete emotion was created by subtracting the value of the emotion directed toward the organization from value directed toward the representative. Operationally, this becomes how much more emotion the customer directs toward the representative compared to the organization²⁰. For example, instead of asking does the negative interaction make customers more upset than positive interaction, which is an obvious *yes*, this analysis addresses the question of what or whom is one more upset

²⁰ It also, operationally, is how much more the lack of an emotion is directed at an organization compared to the representative. After a negative interaction one should not feel happy, meaning the value on the happy scales was lower. However, these emotion items were unipolar scales meaning that while we know 1.0 means happy, we do not know if 0.0 means unhappy or if it means lacking happiness. Those are quite different interpretations. In this data positive behavior always leads to positive emotions and lower values for negative emotions. Also, negative behavior leads to negative emotions and lower values of positive emotions. So although I discuss results in terms of more or less of the five emotions, negative emotions after positive behavior and positive emotions after negative behavior I interpret as the opposite emotion (e.g., a low value on the happy scale I refer to as unhappy) as this tends to be consistent with the positive or negative valence. This could be interpreted as the lack of that emotion, but the emotion focus measure would then be interpreted as the focus of a lack of an emotion.

at? This does not introduce any data that the previous sets of analyses have not used, but could reveal interesting processes not prominent in the previous analyses. By reconsidering the focus of directed emotion instead of directed emotion itself, the analyses will address one of the key arguments I made: representative function as conduits and barriers focusing emotion. This also allows interpretation of the findings and mainly the lack of findings in the previous analyses.

I begin with proposition 6.1: *the greater the customers' perception of the representative's agency the more directed emotions are focused on the representative compared to the organization after the representative's (a) positive behavior and (b) negative behavior*. Parts *a* and *b* of this proposition serve as a reminder that emotion focus, although calculated the same for all cases, differs based on what emotion is being focused. Representatives' positive and negative behavior led to customers' positive and negative emotions, respectively (P2.1-2.2). The focus of a positive emotion after a representative's negative behavior is predicted to have the opposite value from the focus of positive emotion after a representative's positive behavior²¹. To make the analyses most easily interpretable, I split the sample by behavior to analyze the data. Another way to consider the effects on emotion focus is to examine only statistical interactions between representative's behavior and perceived agency. Analyses conducted this way – included in the tables of Appendix C – lead to the same conclusions.

²¹ The focus of happiness is happiness toward the representative minus happiness toward the organization. After a positive behavior, this captures what social entity the customer feels happier toward, i.e., their happiness is focused on that social entity. After representative's negative behavior, the customer is predicted to not feel happy, perhaps even unhappy, measured with lower values on the directed happiness scale. The focus of happiness variable would be the social entity the customer felt happier toward, not which one the customer felt unhappy toward.

I conducted regressions for the foci of each emotion for negative-behaving and positive-behaving representatives²². Customers' perception of positive-behaving representatives' agency increased the customers' focus of gratefulness on the representative at a marginal level of significance ($\beta = .165$, $p = .077$; Table 9.6; see also Table C.1). The foci of the other emotions were not affected. Customers' perception for negative-behaving representatives' agency, however, focused the customers' emotions on the representative: anger ($\beta = .372$, $p \leq .001$), upset ($\beta = .449$, $p \leq .001$), unhappiness ($\beta = -.245$, $p \leq .01$), ungratefulness ($\beta = -.241$, $p \leq .01$), lack of calmness ($\beta = -.208$, $p \leq .05$). When customers experienced a positive, cooperative interaction, their perception of the representative's agency had no real bearing on where they focused their emotions. When they experienced a negative, uncooperative interaction, however, their perception of the representative's agency did predict where they focused their emotions. Precisely, greater perceived agency predicted of stronger negative emotions toward the representative compared with the organization. The representative is a barrier for emotions. The inverse is also true, with lower perceived agency being a conduit for emotions.

²² I did not include computer identity as a control because this analysis is not of experimental factors. Computer identity was predicted to alter perceived agency prior to interaction (though the data did not support this) and then perceived agency's effect on emotion focus was the next step. However, I did conduct an analysis with computer identity as a control and it did not change the results (Table C.1: Model III compared to Model IV)

Table 9.6. Regressions of Perceived Agency on Emotion Focus by Representative's Behavior

Condition	Focus of Emotion					
	N	Standardized Coefficient				
		Anger	Upset	Happy	Grateful	Calm
Positive Behavior	116	.005	-.032	.068	.165†	-.060
Negative Behavior	115	.372***	.449***	-.245**	-.241**	-.208*

*** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Corollary 6.2 states that *computer representatives, compared to human representatives, will have less customers' emotion focused on them compared to the organization for representatives' (a) positive behavior and (b) negative behavior*. I conducted MANOVAs using computer identity to predict emotion focus (means in Table 9.7). First, I conduct a 2 X 2 MANOVA with representative behavior and computer identity predicting emotion focus (Table 9.8: Model I; multivariate test: $F(5, 223) = 2.301, p \leq .05$). Then I split the sample by behavior and ran MANOVAs using representatives' computer identity to predict emotion focus. I only interpret those emotion foci that were statistically significant in the full sample as the split samples do not obtain statistical significance for their multivariate tests (Positive behavior, Model II: $F(5, 110) = 1.941, p = .093$; negative behavior, Model III: $F(5, 109) = 1.342, ns$).

After positive interaction, customers feel marginally happier toward the organization if the representative was human (-.01) and toward the representative if the representative was a computer (.03; $F(1, 114) = 3.63, p = .059$). After negative interaction, customers feel more ungrateful toward the organization when the representative was human (.04) and toward the representative when the representative was a computer (-.04; $F(1, 113) = 6.17, p \leq .05$). Although there were few statistical

results, the significant and marginally significant results were in the opposite of the predicted direction of this corollary, and, therefore, opposite of the conduits and barriers argument as applied to computers.

Table 9.7. Means of the Focus of Emotion by Representative's Behavior and Identity

Emotion Focus	Representative's Behavior			
	Positive		Negative	
	Representative's Identity		Representative's Identity	
	Human	Computer	Human	Computer
Anger	-.04 (.16)	-.02 (.17)	-.03 (.28)	.00 (.19)
Upset	-.05 (.15)	.00 (.13)	-.04 (.21)	-.01 (.13)
Happy	-.01 (.12)	.03 (.13)	.04 (.15)	.01 (.15)
Grateful	.00 (.13)	.02 (.12)	.04 (.19)	-.04 (.13)
Calm	.01 (.18)	.03 (.13)	.05 (.15)	.01 (.17)
N	56	60	59	56

Note: Standard deviations are in parentheses.

Table 9.8. Multivariate Analysis of (Co)Variance on Focus of Emotion with Identity

		F-Statistic				
		Model I				
		MANOVA (1, 227)				
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	1.33	.55	3.44†	.09	1.68	.75
Behavior	.45	.38	.00	.80	.13	.37
Identity X Behavior	2.30*	.01	.14	4.75*	5.80*	1.80
		Model II				
		Positive Behavior Only				
		MANOVA (1, 114)				
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	.093†	.34	3.27†	3.63†	.69	.56
		Model III				
		Negative Behavior Only				
		MANOVA (1, 113)				
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm
Identity	1.342	.25	.88	1.54	6.17*	1.29

N = 231. *** $\leq .001$; ** $\leq .01$; * $\leq .05$; † $\leq .1$

Corollary 6.3 reads that *the more constrained representatives are by the organization, the less customers' emotion is focused on them compared to the organization for representatives' (a) positive behavior and (b) negative behavior*. I split the sample by representatives' behavior and performed two 2 X 2 MANOVAs using organizational constraint and identity as a control²³ to predict customers' emotion focus (means in Table 9.9; MANOVAs in Table 9.10; see also Table C.2). The multivariate test and the individual emotion foci were not significant for positive behavior (multivariate

²³ In the full-factorial analysis (Table 8.2) identity interacts with behavior, so it is included as a control.

test²⁴: $F(10, 216) = .848$, ns; Table 9.10: Model I). For negatively-behaving representatives (multivariate test²⁵: $F(10, 214) = 2.45$, $p \leq .01$), organizational constraint altered the customers' focus of anger, (autonomous .07, baseline -.02, restricted -.10; $F(2, 111) = 5.29$, $p \leq .01$; Table 9.10: Model 2), upset (autonomous .07, baseline -.03, restricted -.11; $F(2, 111) = 12.40$, $p \leq .001$), unhappiness (autonomous -.03, baseline .05, restricted .06; $F(2, 111) = 4.71$, $p \leq .05$), and lack of calmness (autonomous -.01, baseline .03, restricted .08; $F(2, 111) = 3.16$, $p \leq .05$).

Table 9.9. Means of the Focus of Emotion by Representative's Behavior and Organizational Constraint

Emotion Focus	Representative's Behavior					
	Positive			Negative		
	Organizational Constraint			Organizational Constraint		
	Baseline	Restricted	Autonomous	Baseline	Restricted	Autonomous
Anger	-.06 (.20)	-.03 (.16)	.00 (.14)	-.02 (.19)	-.10 (.25)	.07 (.25)
Upset	-.05 (.15)	-.02 (.16)	.00 (.10)	-.03 (.12)	-.11 (.20)	.07 (.15)
Happy	.02 (.15)	.00 (.13)	.01 (.10)	.05 (.15)	.06 (.15)	-.03 (.13)
Grateful	.00 (.14)	-.01 (.17)	.04 (.13)	.01 (.19)	.03 (.13)	-.03 (.17)
Calm	.04 (.15)	-.01 (.20)	.02 (.09)	.03 (.14)	.08 (.18)	-.01 (.16)
N	37	40	39	37	39	39

Note: Standard deviations are in parentheses.

²⁴ This was for Wilks Lambda multivariate test. Other tests produced different statistics, however none were significant.

²⁵ This was for Wilks Lambda multivariate test. Other tests produced different statistics, however all were significant ($p \leq .05$).

Table 9.10. Multivariate Analysis of (Co)Variance on Focus of Emotion with Constraint

F-Statistic						
Model I						
Positive Behavior Only						
MANOVA (1, 112) & (2, 112)						
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm
Constraint	.85 a	1.04	1.78	.18	1.07	1.19
Identity	1.95†	.38	3.50†	3.50†	.69	.49
Model II						
Negative Behavior Only						
MANOVA (1, 112) & (2, 111)						
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm
Constraint	2.45** ^b	5.29**	12.40***	4.71*	1.65	3.16*
Identity	1.37	.27	1.06	1.64	6.24*	1.34

N = 116 for positive behavior. N = 115 for negative behavior.

*** ≤ .001; ** ≤ .01; * ≤ .05; † ≤ .1

a Wilks Lambda shown – all multivariate tests range from p's were not significant.

b Wilks Lambda shown – all multivariate tests range from p's ≤ .05.

Post-hoc Tukey HSD tests of mean differences showed that for anger focus, the baseline was not significantly different from the autonomous conditions ($p = .230$) and from the restricted conditions ($p = .262$). For upset focus, the baseline was significantly different from autonomous constraint ($p = .018$), and marginally different from the restricted constraint level ($p = .089$). For unhappiness focus, the baseline was not marginally different from the autonomous conditions ($p = .057$) and not significantly different from the restricted conditions ($p = .861$). For the focus of lack of calm, the baseline was not significantly different from the autonomous conditions ($p = .471$) or from the restricted conditions ($p = .397$). In summary and as illustrated in Figure 9.1, constraint had no influence on the focus of emotion for emotions after positive behavior and some effects on focus of emotion for emotions after negative behavior. These effects,

however, were primarily not statistically significant from the baseline control of no information about organizational constraint.

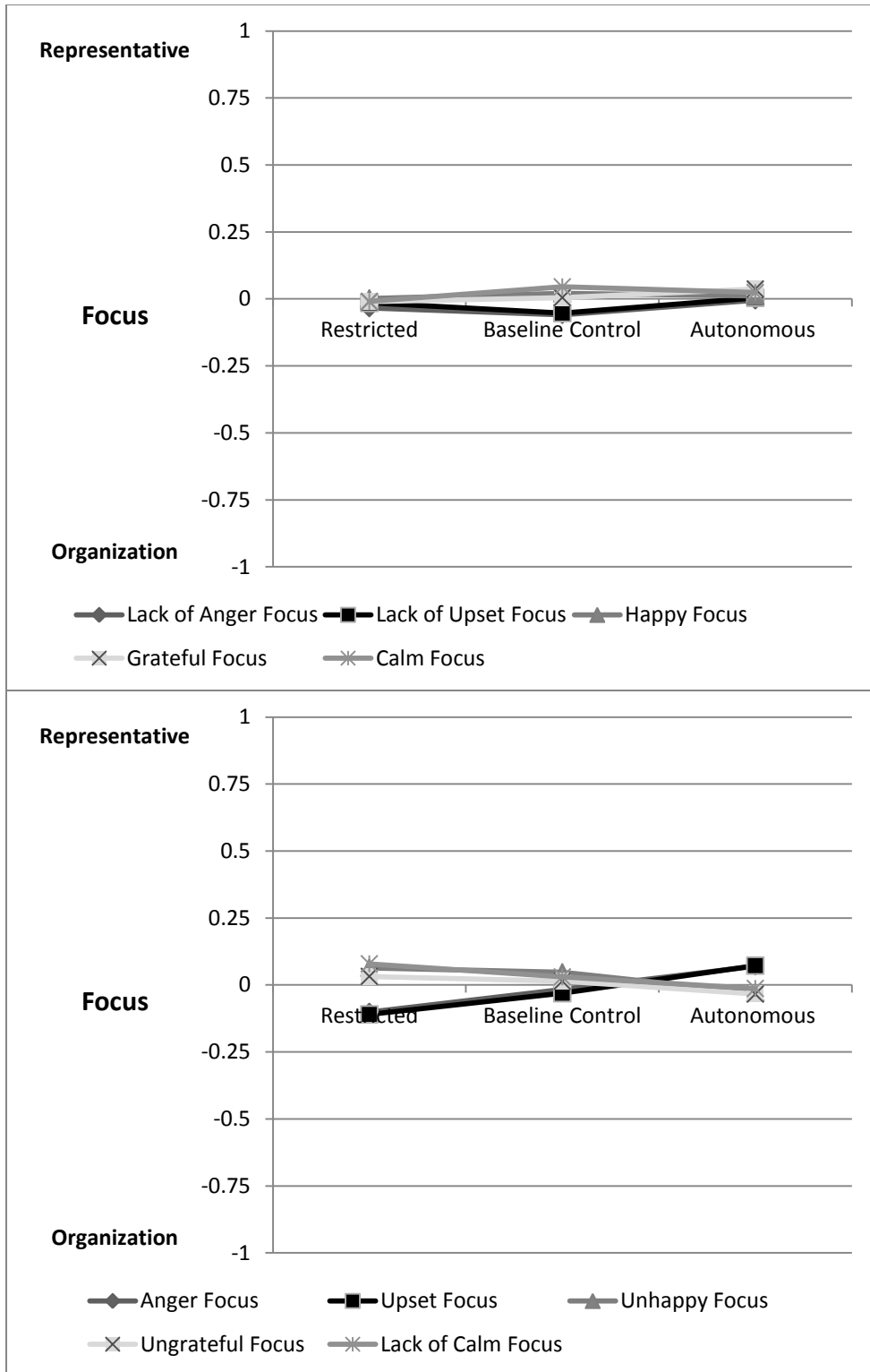


Figure 9.1. Emotion focus by organizational constraint for positive behavior (top) and negative behavior (bottom).

Future Patronage Preference

The conduits and barriers argument applied to the result of future patronage begins with proposition 6.4. *The greater the customers' perceptions of the representative's agency, the more (less) the customers patronize the representative compared to the organization after positive (negative) behavior.* This suggests a statistical interaction effect whereby perceived agency's effect on patronage preference changes based on the representative's behavior. Knowing that people dislike continued interaction with negative behaving organizations and their representatives is crucial to understanding how people attribute the negative behavior. Most of the time the organization and its representative are yoked together, meaning that a customer's choice for or against future patronage is the same for both. Consequently, measuring the customers' choice for patronage on a bipolar scale of the representative versus the organization is telling. Recall that the measure for patronage was one that subjects believed would be taken into account for a future buying session. This means that this was not just a desire for future interaction, but an actual patronage choice that affects who or what the customers would buy from in the future. Framing the measure in this way is intended to reduce social desirability and measure actual patronage behavior.

I conducted a 2 X 2 ANCOVA using representatives' behavior as a factor and customers' perceived agency of them as a covariate to predict customers' patronage preference. The behavior X perceived agency term was significant ($F(1, 227) = 36.29, p \leq .001$; Table 9.11: Model I) and to examine direction and strength of relationship between the two continuous variables (perceived agency and patronage preference) I ran regressions using a positive-behavior and negative-behavior samples. Customers'

perception of positive-behaving representatives' agency increases their patronage of the representative at the expense of the organization ($\beta = .458, p \leq .001$). Customers' perception of negatively-behaving representatives' agency increase their patronage of the organization instead of the representative ($\beta = -.291, p \leq .01$). Highly agentic representatives serve as a barrier retaining the customers' preferred patronage for themselves, whereas their less agentic counterparts are more like conduits transferring the customers' patronage to their organization.

Table 9.11. Analysis of (Co)Variance on Subject's Patronage Preference

Source	Model I	Model II	Model III
	ANCOVA (1, 227)	ANOVA (1, 219) & (2, 219)	ANCOVA (1, 223)
	F Test	F Test	F Test
Behavior	18.56***	22.56***	19.51***
Perceived Agency	1.24		3.47†
Agency X Behavior	36.29***		36.87***
Identity		.16	.00
Identity X Behavior		7.82**	10.87***
Constraint		.93	
Constraint X Behavior		23.99***	
Constraint X Identity X Behavior		4.95**	
Agency X Identity X Behavior			5.51*

N = 231. *** ≤ .001; ** ≤ .01; * ≤ .05; † ≤ .1

Corollary 6.5 reads, *computer representatives, compared to human representatives, will have less (more) customers' patronage of them compared to the customers' patronage of the organization after positive (negative) behavior*. I conducted a full-factorial 2 X 2 X 3 ANOVA with representatives' computer identity and behavior and organizational constraint²⁶ predicting customers' future patronage preference (Figure 9.2 for means for identity by behavior; Figure 9.3 for means of constraint by behavior; Figure 9.4 for means of identity by constraint by behavior; Table 9.11: Model II for

²⁶ The full factorial model (Table 8.3) shows two- and three-way interaction effects of identity, behavior, and constraint on patronage preference. I, therefore, include each of these and their interaction effects in the model to test predictions about simpler effects.

ANOVA). Customers patronize representatives more than organizations when the representative is a computer (.69) compared to a human (.60) after positive behavior, and a human (.54) compared to a computer (.44) after negative behavior ($F(1, 219) = 7.82, p \leq .01$; Table 9.7; Model II). This data is opposite of the corollary 6.1 prediction. The data show that customers preferred computer-over-organization by a greater degree than human-over-organization after positive interaction, and the reverse after negative interaction.

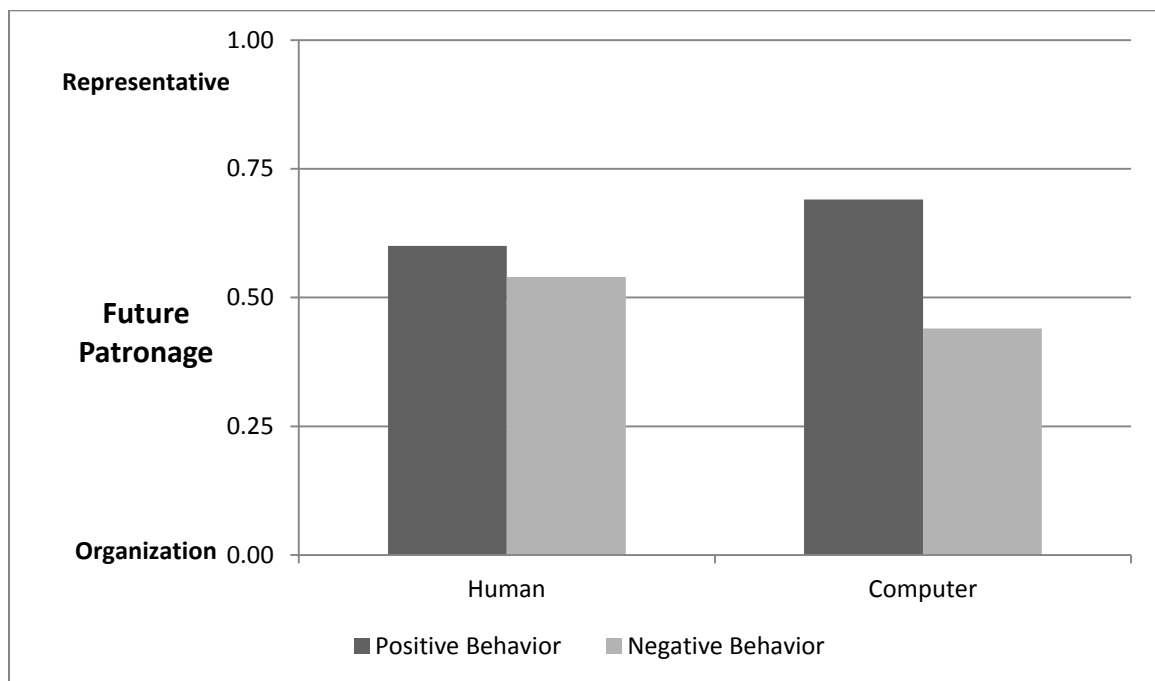


Figure 9.2: Future patronage preference by representative's identity and behavior

Corollary 6.6 states *the more an organization constrain its representative, the less (more) patronage of the representative compared to the organization after positive*

(negative) interaction. I continue to interpret the previous 2 X 2 X 3 ANOVA (Table 9.11: Model II; means for this corollary displayed in Figure 9.3). The change in patronage preference differed by level of constraint and behavior (positive: restricted .46, baseline .70, and autonomous .79; negative: restricted .61, baseline .48, autonomous .38; $F(2, 219) = 23.99, p \leq .001$; Table 9.11: Model II). A post-hoc test of difference of slopes reveal that the difference in the positive and negative behavior change in slopes from the baseline to the restricted conditions is statistically significant ($F(1, 149) = 16.66, p \leq .001$) and from the baseline to the restricted conditions is also statistically significant ($F(1, 148) = 6.18, p \leq .05$). The data clearly support this corollary.

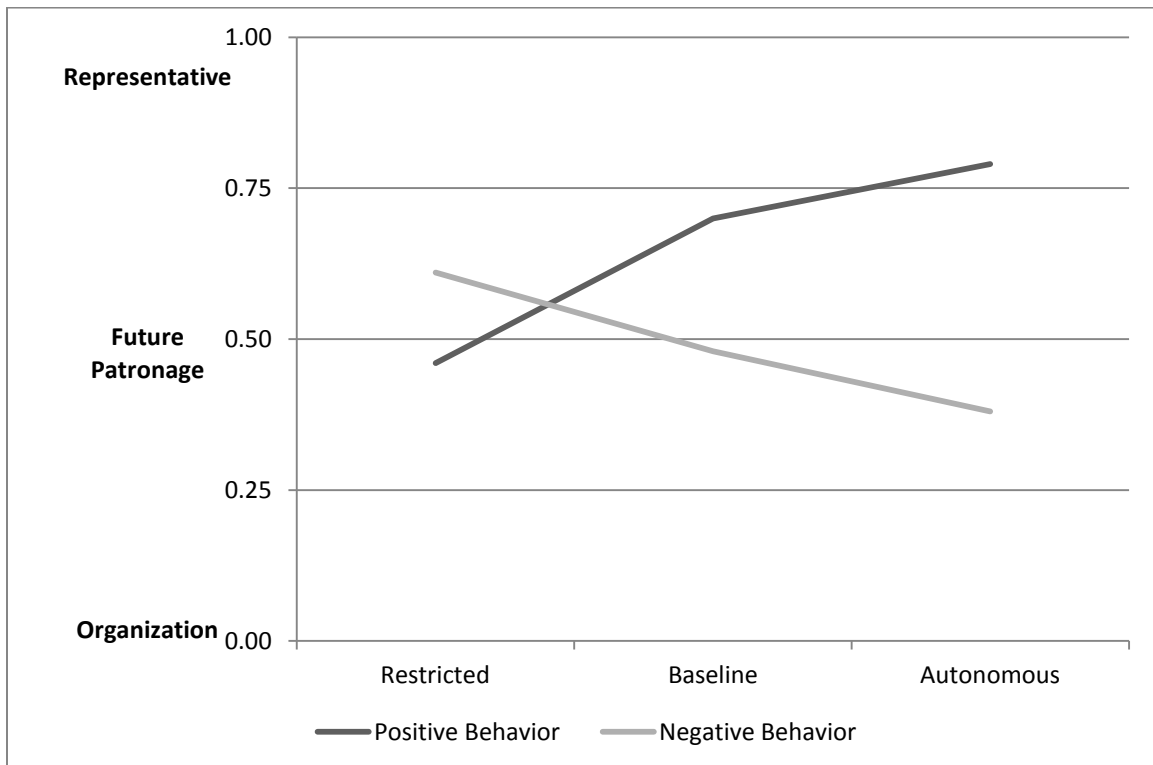


Figure 9.3. Future patronage preference by organizational constraint and representative's behavior

What is the explanation for the conduits and barriers argument operating for agency and organizational constraint, but operating in the opposite direction for computer identity? Examining the plotted means for organizational constraint, representative identity, and representative behavior (Figure 9.4), the constraint X behavior effect (shown by itself in Figure 9.3) seems to be more influential on the means of patronage preference than the computer X behavior reverse effect (Figure 9.2). In other words, the conduits and barriers argument based on agency has a strong effect, even stronger than computer identity's reverse effect.

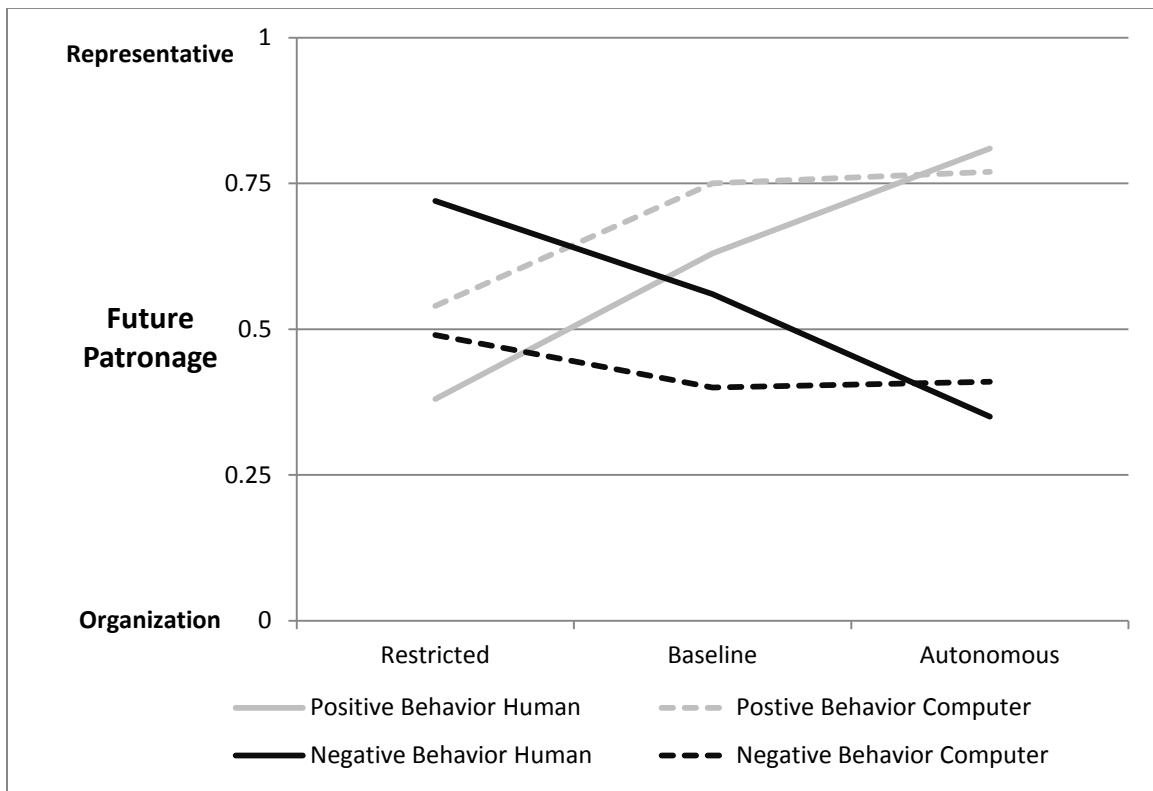


Figure 9.4. Future patronage by organizational constraint, representative's behavior and representative's identity

I now consider that these two two-way interactions are statistically significant when controlling for the three way interaction, which is also statistically significant (Table 9.11: Model II: $F(1, 219) = 4.95, p \leq .01$). Before interpreting this three way interaction, I ran a parallel 2 X 2 X 2 ANCOVA with representatives' behavior and computer identity as factors and perceived agency as a covariate (Table 9.11: Model III). In this model as well the significant effects from previous analyses are still present as is a three-way interaction (agency X identity X behavior) on patronage preference ($F(1, 223) = 5.51, p \leq .05$).

I interpret the three-way interaction effect from both models as follows. Customers preferred to patronize the representative or organization based on the representative's behavior and agency in accordance with the conduits and barriers argument (i.e., the strong two-way interaction effect). This entire process is weakened for computer representatives compared to human representatives (i.e., the three-way interaction effect; Figure 9.4).

Summary

This chapter showed customer reactions and how perceived agency fit into that social psychological process. Addressing my third research question, I found minimal support of perceived agency as a mediator or direct predictor of customers' emotions and patronage. For the focus of emotion and future patronage preference, however, there was strong evidence that perceived agency altered both. Surprisingly, computer identity altered the focus of emotion and patronage preference in the opposite direction of my predictions. The support for all of the propositions and corollaries is summarized in Table 9.12. In the next chapter I discuss alternative explanations and flesh out the results in

light of the theories and arguments. Then I look to future directions for this research and situate my contributions in the larger academic field.

Table 9.12: Summary of Support of Propositions and Corollaries

Propositions and Corollaries	From	Support
<i>Research Question 1</i>		
P2.1. Behavior to Global Emotions Proposition.		Supported
P2.2. Global Emotions to Discrete Emotions Proposition: (a) Representative (b) Organization.		(a) Supported (b) Supported
C2.3. Behavior to Discrete Emotions Corollary: (a) Representative (b) Organization.	P2.1, P2.2	(a) Supported (b) Supported
P2.4. Global Emotions to Patronage Proposition: (a) Representative (b) Organization.		(a) Supported (b) Supported
C2.5. Behavior to Patronage Corollary: (a) Representative (b) Organization.	P2.1, P2.4	(a) Supported (b) Supported
P3.2. Computer to Discrete Emotion Proposition: (a) Representative (b) Organization.		(a) Upset, Calm only (b) Upset, Happy, Calm only
P3.3. Computer to Patronage Proposition: (a) Representative (b) Organization.		(a) Not supported (b) Supported
<i>Research Question 2</i>		
P5.2. Organizational Constraint Agency Proposition: (a) Restricted (b) Autonomous.		(a) Supported (b) Supported
P5.3. Computer's Agency Proposition.		Not Supported or Marginally Supported
<i>Research Question 3</i>		
P5.4. Computer's Agency Mediation to Discrete Emotion Proposition.		Not Supported
P5.5. Computer's Agency Mediation to Patronage Proposition.		Not Supported
P6.1. Conduits and Barriers Emotion Focus Proposition: (a) Positive (b) Negative.		(a) Not Supported (b) Supported

(continued)

Table 9.12. *(continued)*

Propositions and Corollaries	From	Support
C6.2. Computer as a Conduit Emotion Focus Corollary: (a) Positive (b) Negative.	P5.3, P6.1	(a and b) Not Supported – some results support the opposite direction
C6.3. Constraint as Conduits and Barriers Emotion Focus Corollary: (a) Positive (b) Negative.	P5.2, P6.1	(a) Not Supported (b) Partially Supported
P6.4. Conduits and Barriers Patronage Proposition.		Supported
C6.5. Computer as a Conduit Patronage Corollary.	P5.3, P6.4	Not Supported – results support the opposite direction
C6.6. Constraint as Conduits and Barriers Patronage Corollary.	P5.2, P6.4	Supported

Chapter 10

Discussion and Conclusion

This chapter begins by summarizing the major results from Chapters 8 and 9 in light of the three research questions. Then I speculate on the causes of the unexpected results that came from the conduits and barriers argument applied to computer identity. This leads to a discussion on how the research informs specific theories and contributes to future research directions.

Computer Representatives in Organizations

I began by asking what altered outcomes for a customer. Propositions 2.1-2.5 established the main effects on customers' patronage and discrete emotion. My propositions followed the sequence of the affect theory of social exchange and the data supported that sequence. Exchange behavior – in this case between a customer and an organization's representative – produced positive or negative global emotions for the customer. This emotion was then interpreted by the customer to represent positive and negative discrete emotions directed toward both the representative and the organization. Likewise, this global emotion led to corresponding changes in the customers' patronage of both the representative and the organization.

The next set of propositions dealt with a representative's computer identity altering the outcomes for customers. Propositions 3.2-3.3 suggested specific effects which were partially supported by the data. Computer identity did alter the customers discrete emotions of calm and upset directed toward both the organization and the

representatives, and happiness toward the organization. There was also the predicted effect of less extreme patronage behavior when customers dealt with computer representatives compared to their human counterparts. Why calm and upset and not gratitude and anger? I have no satisfactory theoretical explanation for this difference, but suggest that future studies include multiple discrete emotion measures to investigate this difference.

Constructing Agency of Computers

The amount of agency customers perceive in employers is situationally constructed. A statement like “computers seem less agentic than humans” is naïve unless framed with conditionals: “when people consider computers in general they seem less agentic than humans.” Considering perceptions of agency of computers compared to humans, the symbolic interactionist idea of identities being connected to society through interactions is important (McCall and Simmons 1966; Stryker 1980). Culture and interactions with technology heavily shape general ideas about computers and technology. But like other identities in the social sciences, *computer*, *technology*, or a specific type of technology may have different meanings at large than they do in a situational context. So although computers seem less agentic in general, a computer could seem similarly agentic to a human in specific organizational contexts. One important take-home message is that knowledge of the role, position, information, and ties of computers contributes to understanding the perception of its agency.

Specifically I found support for the organizational constraint as an agency manipulation, and some support for computer identity as altering agency (propositions 5.2-5.3). When customers possessed no information about computer or human

representatives, they saw humans as more agentic. When customers knew that the representatives were autonomous, perceived agency increased at similar rates for human and computer representatives. Therefore, computer identity is linked to beliefs of lower agency. This does not disappear in a context of situational information to the contrary: the autonomous computer representative remains high in agency, while not as high as its human counterpart.

Customers' information about a representative's restriction, as expected, decreased perceived agency compared to the no information baseline. Humans, astoundingly, lose more agency than computers do. Restriction equalizes agency for both human and computer representatives. Although this equalization as seen in the data (Figure 8.1) appears to be a mathematical floor effect, I caution this interpretation. Customers' perceptions of both human and computer representatives' agency under conditions of organizational restriction are below the midpoint of the scale, but not near the extreme (.46 and .42 on a scale from 0 to 1). Being a company's representative and exchanging resources with customers appears to give all representatives a base level of agency that is not denied by organizational constraint. Although human and computer representatives seem similarly agentic when restricted (i.e., not statistically different), they are not *denied* agency. One explanation for this is the initial conditions of computers and humans having a certain amount of legitimacy in their role as a representative. While the purpose of this was to rule out institutional legitimacy as an alternative explanation for differences how agentic humans or computers seem, it may have raised perceptions of agency across conditions.

People often interact with computers that do menial and specific jobs lacking autonomy, especially from an organization. For example, an ATM is restricted in the operations it can perform (and most people know those restrictions) but also the bank it represents fully controls it. One might imagine a less restricted ATM-like system designed to interface with many banks in order to find the best options for investment, give recommendation, and help you setup new types of accounts. In contrast, people often dehumanize human organizational workers, especially those who have scripts and are highly routinized (Ritzer [1993] 2004). In this way, it may not be surprising that the perception of agency is both lower and similar for restricted human and computer representatives.

Perceived Agency

What does perceived agency influence and possibly mediate? Propositions 5.4-5.5 indicated that perceived agency should mediate the previous effects of representatives' computer identity on customer outcomes. These propositions did not receive any support, and further investigation indicated that perceived agency had few effects as a direct predictor of customer outcomes.

Next I considered how the customer decouples the representative from its organization by examining the focus of emotion and patronage preference. The conduits and barriers argument for emotion focus (P6.1) is supported by the data for negative behavior but not for positive behavior. After negative interaction, greater perceived agency alters focus of emotion toward the representative instead of the organization. The conduits and barriers argument corollary (6.2) for computer identity is not supported. The

conduits and barriers argument corollary (6.3) for organizational constrain is supported for negative behavior and not positive behavior, mirroring the perceived agency results.

Customer's future patronage preference follows the conduits and barriers argument (P6.4, C6.6) for both perceived agency and agency manipulated through organizational constraint. The greater the agency of the representative the more relative patronage after positive behavior and less relative patronage after negative behavior, compared to the organization. In contrast, computer representatives are more (less) desirable as future interaction partners after positive (negative) interactions with them, and organizations are more (less) desirable interaction partners after interactions with positive (negative) human representatives. The effects for computer identity (C6.5) and low agency are opposite. According to the three-way interaction, and looking at the effect size for emotion focus and patronage preference, perceived agency's influence on the outcomes is greater than computer identity's influence.

What can be learned from these opposite effects? I suggest three points about these data and these effects. First, the focus of emotion and patronage were operating similarly in these data. Although the emotion focus results held under the negative behavior conditions, the general trends – including the opposite effects of perceived agency and computer identity – were consistent for both emotion focus and patronage²⁷. Having similar patterns in substantively different outcomes bolsters the evidence for this being a stable social process, rather than an artifact of my design or a statistical anomaly.

Second, I believe that empirical evidence helps elucidate the multistep logic used in my theoretical arguments. I have argued for the intuitive logic and face validity of the

²⁷ The few effects present in the conduits and barriers argument applied to computer identity were opposite from the predicted direction, as were the future patronage effects.

premises that computers are seen as less agentic and that less agentic representatives receive mitigated focus of emotions and future patronage. Therefore, I made the logical conclusion that computers receive a mitigated focus of emotion and future patronage. The data supports these premises, but not the conclusion. In the next section I will discuss why. Third, countervailing social processes occur even in an environment as constrained as a laboratory. For perceived agency, my conduits and barriers argument was supported by this data. However, other processes, such as the effect of computer identity, could have obscured the results if perceived agency was assumed, but not measured. Having two different social processes operating – while not producing the results I anticipated – led to a host of new research questions and potential explorations.

Speculations on the Reverse Conduits and Barriers Effect for Computers

The puzzle remains: why was computer identity more like a barrier when expected to be like a conduit? I offer three speculative explanations. First, there could be another symbolic mechanism that differs between humans and computers. Perceived predictability is one such candidate and it could be conceptualized as orthogonal to perceived agency. For example, some leaders of organizations seem highly agentic and predictable, providing stable leadership. Others seem highly agentic and unpredictable, taking the company in new directions. Likewise, less agentic service sector representatives often are predictable in their daily job tasks, but may be the least predictable about showing up to work. Computers could seem *both* more predictable and less agentic than humans in general. While customers, after interaction, react with visceral emotions to the responsibility and agency of the representative, the likelihood that the representative will repeat that behavior again may temper those emotions and

alter rational thoughts about future patronage. Notably, this perceived predictability is similar to attributions theory's stability dimension (Weiner 1985), known to be important in retrospectively attributing causality.

A second explanation also takes its cue from attribution theory. Attribution theory is designed for post-behavior or post-interaction attributions of causality. As such it implies that behavior and interaction are critical for understanding outcomes such as emotions in terms of attributions. My concept of perceived agency and the subsequent design of this research study focused on pre-interaction agency, and post-interaction outcomes. Interaction could – and should to some degree – change the perception of agency as people obtain new information through the interaction process. Analyses of the representative's behavior indicated it had a direct effect on emotion and future behavior and altered perceived agency's effect on the focus of emotion. Is it possible the behavior changed perceptions in other ways that altered the outcomes?

One of those ways is the basis of my third explanation: expectations are renegotiated within the interaction context. When a subject-as-customer in the experiment engaged in buying sessions she had expectations for how the buying would proceed. Some of the expectations were salient as agency was measured before the buying session. Several control theories in sociology (Robinson 2007) such as affect control theory (Heise 1979, 2007; Robinson and Smith-Lovin 2006) and identity (control) theory (Burke and Stets 2009; Stets 2006; Stryker 1980) and justice theories (Cook and Hegtvedt 1983; Jasso 1980, 1983; Walster, Walster, and Berscheid 1978) suggest that deviations in any direction from an expected reference standard can have social psychological effects.

Although the representatives' behavioral strategy was identical in all positive behavior conditions and identical in all negative behavior conditions, expectations set by the identity and constraint manipulations could have been violated in different directions and to different degrees. For example, a customer may believe that computer representatives sell according to an algorithm or restricted representatives strategize based on cut-throat profit maximization. Then the actual behavior may have met or failed to meet these expectations. These potential explanations for the nonpredicted and nonintuitive findings suggest how this current research can be expanded and refined to learn more about interactions between customers and computer representatives.

Contributions

This research makes both theoretical and substantive contributions to the state of our knowledge about technology and interaction with organizational surrogates. The affect theory of exchange and related research is fairly new (Lawler 2001; Lawler, Thye, and Yoon 2009) and, although built on several well-supported theories, currently has only a few empirical studies (Lawler 2006; Lawler, Thye, and Yoon 2008). My contributions to this area of research includes the conduits and barriers argument and more generally the concept of applying the affective, commitment, and cohesion processes to attributions of groups of which the focal actor is not a member. This extension to the affect theory of social exchange is extremely practical for addressing many research questions.

Commitment to groups and people remains a perennial issue in sociology. The affect theory of social exchange and related scholarship admirably addresses it, providing an exchange-based foundation to important micro and macro social issues (Lawler, Thye, and Yoon 2009). Individuals, however, have impressions and develop affective

commitments to not only groups of which they are a member, but groups in which they are outsiders. This research helps expand the idea of affective commitment, and specifically behavioral and emotional outcomes, to groups that are represented by others. People accept jobs where they have not been an employee and enroll in schools where they have not been a student. Interacting with representatives of other companies, families, nations, and ethnicities alters one's impression of that group. These outside impressions fundamentally change relations with those groups and, in many cases, are precursors to further interaction. I hope my research contributes to both social exchange and symbolic interactionist perspectives on these outside-group ties.

Substantively, the changing face of organizations involves technology in many capacities. One such capacity is customer interaction where technologies have taken many traditionally human roles. Knowing the effect this has on customers is important as a societal trend and for businesses to make better decisions. Changing capacity, acceptance, and implementation of technologies in place of humans has a wide range of effects on customer interaction. To understand changes over time, knowledge of the social and psychological processes is as important as knowledge of the technical processes. This research does not provide direct evidence on what customers will do when interacting with technology in a specific setting. As a laboratory experiment, the data speak to processes and mechanisms found to be important in controlled conditions. In specific settings – banks, grocery stores, etc. – with specific technologies – websites, robots, etc. – these processes and mechanism may be found in varying degrees.

Future Directions

I envision three primary directions for this research to proceed. First, my research should untangle the reverse effects of the conduits and barriers argument for computer identity. This could be accomplished by a similar experiment that included some of those mechanisms suggested earlier. Perceptions of predictability and legitimacy could be measured and disentangled from perceptions of agency. One could analyze how agency changes due to interaction. Subjects could voice their accounts, explanations, and feelings about the representative.

An alternative experimental design to understand the role of interaction and identity includes having the interaction before revealing information about the identity and/or organizational constraint of the representative. This would allow direct predictions from attribution theory and contain computer identity's effect to only the outcomes and not the buying sessions behavior (and accounts/explanations therein). Further, this mirrors several real world situations: knowledge of organizational constraint is not always available immediately but must be sought out after interactions; during computer mediated interactions, the human or computer identity of others is often unknown.

A field study could narrow the perceptual mechanisms that customers use when interacting with technology in organizational settings. The accounts/explanations would be particularly interesting in a field study as customers may justify certain behavior or emotions as being appropriate when interacting with computers and others when interacting with humans.

A second expansion of this research examines how these computer identity processes work in particular domains. This could be accomplished most readily with a

field study or survey, although a mock-organization experiment could emulate a specific domain. The advantage of grocery stores is customers who are routine shoppers are familiar with both the technology and the organization. Self-checkout technology requires the customer to do more work and utilize a human “supervisor” that comes to the rescue when the technology (or the customer) has problems. In contrast, the cashiers use technology to do more cognitive work such as looking up prices from barcodes, calculating taxes, discounts, and total bills, and sometimes connecting information with previous shopping experiences (e.g., “You have saved \$5.46 this month using your Kroger Plus Card”). The human cashier is almost subservient to the cashier-machine – a veritable ideal domain for considering perceived agency.

Banks and financial institutions are also excellent domains for examining technological actors, as ATMs and human tellers can often produce equivalent outcomes in similar amounts of time. Although comparable in many ways to grocery stores, a major difference is that ATMs have many site locations without human tellers. This provides an incentive (i.e., location) for many to use ATMs, therefore creating a fascinating scenario if customers do not choose to use them.

Another domain of interest is in the medical profession which is undergoing huge changes in computerized medical records and recommender systems. This may be messier, as patients are “customers” of medical systems, such as looking up symptoms on the web, but also medical professionals are “customers” of medical systems they must use to diagnose, retrieve recommendations, information, and patient records. Other stakeholders include government and administrative bodies that decide certain technological solutions such as digitalized computer records are “better” based on one set of criteria.

Unlike banking or grocers, the patients or medical professionals may not have choices between interacting with computer systems or human actors. There are third parties involved as well: those that teach patients how to fill out electronic forms or those that assist medical professionals such as medical technicians.

A third direction for expanding this research is a test of the conduits and barriers argument in a different domain. Do perceptions of agency of an interactant differently alter perceptions of that interactant's group membership? Research in status construction theory (Ridgeway 1991; Ridgeway, Boyle, Kuipers, and Robinson 1998; Ridgeway and Erickson 2000) argues that individual interactions reinforce status beliefs about that individuals' group. For example, if one interacts with a man or women, those interactions – in aggregate – form expectations for future interactions with members of that group. Could some individuals be seen as having more agency *vis-à-vis* their group membership?

Let me suggest two speculative examples of how this might play out with gender and race. First, society views male and female children as less agentic than their adult counterparts due to one's culture knowledge of child development – children control their own lives less than adults. As such, one might speculate that their male or female gender status would be less representative of their gender group membership due to their lack of agency. Second, both biracial and even monoracial individuals try to present themselves in particular settings as representing a particular race (Khanna 2010) – known as *passing*. Does this information figure into the perceptions of others in terms of their group membership and representativeness? As I have argued that perceived agency is situational, in this case it would be situationally determined how agentic the individual is

as a member of a race. So *passing* may be individual impression management (Goffman 1959), but the interpretation of that may alter emotions and behavior beyond that individual to her membership group. Because new status characteristics (Logavlia, Lucas, Houser, Thye, and Markovsky 1998) and group membership (Hogg 2006; Tajfel and Turner 1979) can be easily manipulated, experimental tests of the conduits and barriers argument to nonorganizational, human-only groups should be possible.

Conclusion

In this study I considered how customers of organizations interacted with organizational representatives. Specifically, I asked about the difference in human and computer representatives and how that would affect the customer outcomes of emotion and future interaction with the organization and the representative. I posited that perceptions of the representative's agency would explain differences observed in customer outcomes based on the representative's identity as a computer or human. Based on the affect theory of social exchange, I considered the focus of the direction of emotion: towards the organization or its representative.

My methodological approach was a laboratory experiment that allowed me to consider my research questions in a nonspecific domain. It also allowed for sequenced measurements and manipulations, important for addressing the questions I proposed. Experiments, however, do not generalize to a population, so this research does not address human-technology interaction for different groups of humans or organizations, but general processes and sequences. The data indicated that perceived agency was not the explanation for differences in outcomes based on computer and human representatives. Instead customers perceived computer representatives to differ from

humans in agency, but this was altered by the representative's constraint by the organization. Perceived agency affected the focus of several emotions and future patronage of the organization.

This research shows part of the process of human-computer interaction and how it takes place in organizations. This extends human-computer interaction research, sociological research on customers of organizations, and social psychological theories. As computers and technology take on new roles, capacities, and meanings in organizations and in people's lives, research on understanding processes of interactions with technology will have transformative and practical applications to organizations and to society.

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Appendix A

Online Questionnaire and Coding

Questions 1 and 2 were asked when subjects first signed into the experiment sign-up website, Experimentrix (Sona Systems Ltd. 2011).

Q1. What is your major or majors?

Free response was coded by experimenters into the following categories: (1) Computer science/engineering, (2) Engineering (mechanical, electrical), (3) Biology (micro, molecular), pre-med, pre-nursing, (4) Physics, chemistry, pre-pharmacy, (5) Business, accounting, management, economics, pre-business, (6) Art (graphic design, dance, drama, theater, music, etc), (7) English, literature, (8) Foreign languages, linguistics, (9) Sociology, (10) Psychology, (11) Anthropology, criminal justice, political science, history, child and family development, social work, (12) Journalism, pre-journalism, advertising, (13) International affairs, public relations (14) Religion, philosophy (15) Communication, telecommunications, mass communication, (16) Architecture, landscape architecture, (17) Education (early childhood, social science, foreign language), (18) Agriculture, animal science, food science, forestry, wildlife

Q2. Please specify the race with which you most closely identify.

Categories: (1) American Indian and Alaska Native, (2) Asian, (3) Black or African American, (4) Native Hawaiian and Other Pacific Islander, (5) White, (6) Other or Interracial

Q3. What type of computer do you personally own (mark all that apply)?

(1) Desktop computer, (2) Laptop or notebook computer, (3) Handheld computer (e.g., iPhone, Blackberry) (4) I do not personally own a computer

Q4. What activities do you routinely do on a computer (mark all that apply)?

Choice presented to subjects in a random order: (1) Downloading music, video, or other files, (2) Looking up images, (3) School work (including papers, research, and school email), (4) Playing games, (5) Designing websites, (6) Selling using the web, (7) Making new friends (social networking, chat rooms, dating sites), (8) Watching short videos (YouTube, etc), (9) Computer programming, (10) Listening to music, (11) Looking up information on the web, (12) Reading/watching/listening to the news, (13) Keeping up with interests, sports, or fan websites, (14) Watching entire TV shows or movies, (15) Posting blogs, (16) Keeping up with friends (email, messaging, social networking), (17) Going to virtual worlds (Secondlife, etc), (18) Large scale gaming (World of Warcraft, etc), (19) Shopping (excluding buying music to download)

Q5. How many hours do you spend actively doing anything on the internet per day?

(mark the one that comes closest)

Choices: 15 minutes, 30 minutes, 1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6 hours, 7 to 10 hours, over 10 hours. Coding in hours: 7 to 10 hours coded as 8.5 and over 10 hours coded as 10.

Q6. How many hours do you spend actively doing anything on a computer of any type per day?

Choices: 15 minutes, 30 minutes, 1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6 hours, 7 to 10 hours, over 10 hours. Coding in hours: 7 to 10 hours coded as 8.5 and over 10 hours coded as 10.

Q7. How much do you know about how computers and computer programs work?

Choices: (1) Nothing, (2) Not much at all, (3) A little bit, (4) A decent amount, (5) A lot, (6) Almost everything

Q8. How many computer programming or web programming classes have you taken?

Choices: 0, 1, 2, 3, 4, 5 or more

Q9. Have you ever interacted with a computer program, agent, sim, or bot such as in a game, virtual world, website, or other program?

Choices: (1) Never, (2) I have, but not often, (3) I interact with them a bit, (4) I interact with them a lot

Q10. If given the choice, do you prefer to interact with a computer or with a human...

(a) in general?*(1) Computer program, (2) Human, (3) Equal Preference, (4) Don't Know*

- (b) at the bank?***(1) ATM, (2) Human teller, (3) Equal Preference, (4) Don't Know, (5) Not applicable*
- (c) at the grocery store?***(1) Self-check out machine, (2) Human cashier, (3) Equal Preference, (4) Don't Know, (5) Not applicable*
- (d) when calling a company?***(1) Automated phone system, (2) Human, (3) Equal Preference, (4) Don't Know, (5) Not applicable*
- (e) when interacting on the web in a chatroom, virtual environment, or game?**
(1) Program, bot, sim, or computer program, (2) Human or human avatar, (3) Equal Preference, (4) Don't Know, (5) Not applicable
- (f) when receiving a speeding ticket?** *(1) Automated traffic camera, (2) Police Officer, (3) Equal Preference, (4) Don't Know, (5) Not applicable*
- (g) when checking in at the airport?***(1) Computerized check-in kiosk, (2) Human agent, (3) Equal Preference, (4) Don't Know, (5) Not applicable*
- (h) when getting driving directions?***(1) GPS or website map, (2) Person giving directions or person reading a map, (3) Equal Preference, (4) Don't Know, (5) Not applicable*

Q11. Some people have experience from a job, volunteer position, eBay, a club, or school with negotiating prices or making decisions about prices. Do you have any experience setting prices or negotiating sales?

Choices: (1) No, (2) Not much, (3) A little bit, (4) A decent amount, (5) A lot, (6) An extensive amount

Appendix B

Questionnaire Descriptive Statistics

Table B.1. Computer Ownership

	Frequency	Percent of Total
Raw Data		
Desktop Computer	36	15.6
Laptop Computer	227	98.3
Handheld Computer	56	24.2
No Computer	1	0.4
Calculated		
Desktop only	0	0.0
Laptop only	152	65.8
Handheld only	0	0.0
Desktop and Laptop only	22	9.5
Desktop and Handheld only	3	1.3
Laptop and Handheld only	42	18.2
All three types	11	4.8

N = 231.

Table B.2. Technology-Related Activities

Activity^a	Frequency	Percent of Total
Schoolwork	220	95.2
Keeping up with Friends	220	95.2
Finding Information	219	94.8
Listening to Music	219	94.8
Watching Short Videos	191	82.7
Watching TV or Movies	185	80.1
Getting News	170	73.6
Interests or Fan Sites	168	72.7
Finding Images	165	71.4
Downloading Files	160	69.6
Online Shopping	155	67.1
Playing Games	100	43.4
Making New Friends	79	34.2
Selling on Web	49	21.2
Posting Blogs	35	15.2
Large Scale Gaming	18	7.8
Software Programming	9	3.9
Designing Websites	8	3.5
Going to Virtual Worlds	5	2.2

N = 231.

^a Sorted by frequency. Presented in random order.

Table B.3. Self-Reported Computer Knowledge

	Frequency	Percent of Total
Nothing	7	3.0
Not much at all	48	20.8
A little bit	77	33.3
A decent amount	76	32.9
A lot	21	9.1
Almost everything	2	0.9

N = 231.

Table B.4. Self-Reported Programming Classes Taken

	Frequency	Percent of Total
0	131	56.7
1	73	31.6
2	19	8.2
3	6	2.6
4	0	0.0
5 or more	2	0.9

N = 231.

Table B.5. Preference for Human or Computer Interaction

Interaction	Preference			No Preference^a
	Human	Equal	Computer	
In General	170 (77.3%)	43 (19.5%)	7 (3.2%)	11
At Bank	84 (37.5%)	65 (29.0%)	75 (33.5%)	7
At Grocery	53 (23.2%)	60 (26.3%)	115 (50.4%)	3
Over Phone	210 (92.1%)	9 (3.9%)	9 (3.9%)	3
In Virtual World	105 (69.1%)	28 (18.4%)	19 (12.5%)	79
For Speeding	141 (73.4%)	19 (9.9%)	32 (16.7%)	39
At Airport	92 (41.4%)	43 (19.4%)	87 (39.2%)	9
For Directions	15 (6.5%)	39 (17.0%)	175 (76.1%)	2

N = 231.

Note: Percentages are of those who did mark a preference.

^a Includes "Don't Know" and "Not Applicable"

Appendix C

Supplemental Analyses for Emotion Focus

Table C.1. Multivariate Analysis of (Co)Variance using Perceived Agency and Representatives' Behavior to predict Customers' Focus of Emotion

		F-Statistic					
		Model I					
		MANCOVA (1, 229)					
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm	
Perceived Agency	3.39**	11.48***	13.47***	2.33	.61	4.41*	
		Model II					
		MANCOVA (1, 228)					
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm	
Perceived Agency	3.38**	11.51***	13.40***	2.30	.61	4.37*	
Behavior	.42	.43	.00	.73	.11	.35	
		Model III					
		MANCOVA (1, 227)					
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm	
Perceived Agency	3.56**	11.81***	14.08***	2.27	.59	4.33*	
Behavior	4.71***	8.93**	16.10***	6.92**	8.30**	1.72	
Agency * Behavior	5.40***	11.37***	17.73***	6.17*	9.92**	1.41	
		Model IV					
		MANCOVA (1, 226)					
Source	Multivariate	Anger	Upset	Happy	Grateful	Calm	
Perceived Agency	3.78**	12.31***	15.35***	2.15	.73	4.41*	
Behavior	4.38***	8.39**	14.66***	7.04**	7.63**	1.60	
Identity	1.30	.56	3.64†	.17	1.16	.14	
Agency * Behavior	5.06***	10.78***	16.31***	6.29*	9.22**	1.31	

N = 231. *** ≤ .001; ** ≤ .01; * ≤ .05; † ≤ .1

Table C.2. Multivariate Analysis of Variance using Organizational Constraint and Representatives' Behavior to predict Customers' Focus of Emotion

Source	F-Statistic					
	Model I					
	MANCOVA (1, 227)					
	Multivariate	Anger	Upset	Happy	Grateful	Calm
Constraint	2.14* ^a	5.12**	9.74***	2.52†	.07	.98
Behavior	.43	.42	.00	.80	.13	.33
Identity	1.41	.61	4.01*	.08	1.65	.12
Constraint X Behavior	1.87* ^a	2.67†	6.24**	2.86†	2.66†	3.52*

N = 231. *** ≤ .001; ** ≤ .01; * ≤ .05; † ≤ .1

^a Wilks Lambda shown – all multivariate tests range from $p \leq .05$.