Individual Differences in Comfort with Interpersonal Touch and the Effects of Nonverbal Social Influence in Consumer Contexts

by

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DISSERTATION ABSTRACT

This dissertation manuscript details the development of the "Comfort with Interpersonal Touch" (CIT) scale designed to measure individual differences in interpersonal touch tendencies and preferences. The CIT construct is defined as *the degree to which an individual is comfortable with intentional interpersonal touch from or to another person.* The scale incorporates the distinction between *initiating touch,* which is the act of touching someone else, and *receiving touch,* which is the act of being touched by someone else. In Essay 1, investigation of this construct includes scale development, measure purification, and validation. Essay 2 expounds on the representation of this construct in the population. A latent class analysis is used to determine these underlying groups, and four discrete groups are identified as they relate to the initiating and receiving dimensions of interpersonal touch. Special consideration is given to the initiation of touch from a consumer and marketing perspective. Theoretical implications, managerial, and future research opportunities using the CIT scale are discussed as well.

INTRODUCTION

The study of consumer behavior pursues a rich understanding of how consumers think, what they do, and why they do what they do. To fully appreciate the central role that consumers play in marketing-related decisions and strategies, it is imperative to understand the social and psychological forces that shape behavior. Consumers do not behave in isolation; rather, they are continually influenced by others in their environment. Social psychologists have long acknowledged the presence of others and the relationships among individuals as important factors in shaping attitudes and behaviors.

Have you ever been touched by a salesperson while shopping in a retail store? Or, do you frequently touch other individuals in conversation? Rooted in research on social psychology and nonverbal behavior, I examine individual differences in preference for, use of, and inferences made from interpersonal touch. Social in nature, interpersonal touch is a direct application of how other individuals around us have an ability to influence our attitudes and behaviors. I seek to understand how consumers' comfort with interpersonal touch shapes purchase decisions and consumption behaviors.

To begin a scholarly inquiry into a substantive domain, much consideration should be given to methodology and appropriate techniques to test a research question. "Measurement is at the heart of virtually all scientific endeavors" (Bearden, Netemeyer, and Haws 2011, 1). Researchers ought to give more care to operationalization of constructs and the meaning and interpretive capacity that are granted to these constructs. Issues of measurement affect the entire research process. Identifying, developing, and using consumer-based constructs propels the

marketing discipline forward developing theory and encouraging a body of work around new constructs.

Along with the need for rigorous and appropriate use of measurement and methodological procedures, recent emphasis in consumer psychological research has been placed on the study of psychological processes and the underlying mechanisms by which psychological effects are produced. Understanding the processes of social interaction between two or more individuals is a critical aspect to social research. In this dissertation I consider not only a measurement issue around an individual difference construct, but I also investigate the underlying mechanisms for the psychological and behavioral effects that are produced from interpersonal touch.

In the first essay of this dissertation, I detail the development of the "Comfort with Interpersonal Touch" (CIT) scale designed to measure individual differences in interpersonal touch tendencies and preferences. The development of this construct requires a deep theoretical analysis of sensory marketing, nonverbal communication, and personality literatures. A review of the literature will highlight theories and perspectives relevant to the study of interpersonal touch. To fully understand the nature of a construct, it is important to understand similarities to and differences from related constructs and the theoretical context in which the construct resides. Investigation of the CIT construct includes scale development, measure purification, and validation.

In the second essay of this dissertation, I use the developed CIT scale to more fully understand how touch is perceived in consumer contexts. This research not only examines initiating and receiving touch in isolation but also explores the intricacies of how these two aspects of touch impact one another. If we believe that individuals differ with respect to their

level of comfort with interpersonal touch in general, does being comfortable with initiating touch necessitate being comfortable with receiving touch? Or perhaps, can we be comfortable with initiating touch but uncomfortable with receiving touch, and vice versa? The underlying structure of individuals' preference for touch will be investigated. With little research investigating the effects of initiating touch, this essay intends to highlight the effects of initiating touch by manipulating whether an individual is instructed to use interpersonal touch in an interaction with a stranger. By focusing on initiation of touch, both sides of the dyadic relationship can be examined allowing for investigation of downstream consequences of touch. Lab and field studies will illuminate preferences and behavior of initiating and receiving touch across a variety of consumer-related contexts.

This dissertation is intended to be a subset of a broader portfolio of work in the area of nonverbal social influence. It is from a social psychological perspective that I approach the study of nonverbal behavior in consumer contexts. Through interactional and shopping behaviors, perceptions and preferences for touch are revealed, and it is evident that this individual difference measure has great potential to aid in the clarification of ambiguous effects of interpersonal touch in marketing contexts. It is my hope that this dissertation will provide the foundation not only for my future scholarly work, but also for other researchers to explore new contexts in which touch influences consumers' choices. The ability to understand individual preferences for touch will enable marketers and consumers alike to make better consumption-related decisions. This dissertation intends to produce significant theoretical and managerial implications and will conclude with a discussion of the interpersonal touch domain and broad directions for future research in the area of nonverbal social influence.

THEORETICAL FOUNDATION OF INTERPERSONAL TOUCH

Interpersonal touch has been frequently touted for its ability to evoke positive responses including greater restaurant tipping (Crusco and Wetzel 1984; Hornik 1992; Stephen and Zweigenhaft 1986), trying a sample in store (Hornik 1992), buying a new product (Hornik 1992), participating in a mall-intercept interview (Hornik and Ellis 1988), or getting a deal from a salesperson (Orth, Bouzdine-Chameeva, and Brand 2013). For some individuals, touch might cause aversive reactions while for others touch may be a natural part of interaction.

> *"Very often consumer [sic] try to make body contact (in terms of putting an [sic] hand/arm on the shoulder) – mostly they try to build up a buddy-like relationship in order to get some benefits like additional wine sampling, special offers."* Salesperson informant 4, (Orth et al. 2013, 306).

> "*If a salesperson touched me on the arm in a retail store, I would be extremely uncomfortable, leave the store, and never come back!"* Lisa, age 53

Reaching out to touch another person may afford a customer the ability to negotiate a better deal or gain special privileges. On the other hand, stating that she would be extremely uncomfortable, leave the store, and never come back, Lisa expresses strong displeasure with the idea of being touched by a stranger. Individuals may be motivated to approach or avoid both initiation and reception of touch.

Beyond anecdotal evidence, there is further reason to believe that touch might not produce universally positive effects. Kleinke (1977) revealed that touch had a significant effect on subjects' willingness to return a dime left in a telephone booth. If a participant was touched, 51% returned a dime to a confederate who said they lost it compared to only 29% of participants who were not touched. While this is a seminal study in the interpersonal touch literature, there were still 49% of participants for whom receiving touch did *not* have a positive effect. It could be

that some individuals are not comfortable with receiving touch, and the effects were not as positive for others.

Intuitively, a duality exists in the distinction between initiating touch with someone else and receiving touch from someone else. Various researchers have recognized this distinction, but most have used observation of initiation and reception of touch within non-stranger dyads (e.g., Hall and Veccia 1990; Stier and Hall 1984). Across all aspects of communication, the critical distinction between the encoder and the decoder of a message is well accepted; one party is the instigator of a specific communication and another party is the recipient of the communication (Knapp, Hall, and Horgan 2014). As a highly contextual action, the use of interpersonal touch varies greatly depending on the relationship between the two touchers. For most applicability to marketing contexts, it is most relevant to understand differences in individuals' preferences and use of initiating and receiving touch between strangers.

"The field of touch would be well served to go beyond the positive functions served by touch, as well as recognize individual differences" (Hertenstein 2011, 320). The purpose of this dissertation is to develop this individual difference measure in comfort with interpersonal touch (CIT) and test the effects of interpersonal touch in consumer contexts. In essence, I believe that there is a subset of the population that is uncomfortable with interpersonal touch, and for whom touch may be perceived negatively. "Marketers are much better served with multi-item than single-item measures of their constructs, and they should take the time to develop them" (Churchill 1979, 66). This is the intent.

The current touch literature in the marketing field tells us that an individual's sense of touch can influence product perceptions (Krishna and Morrin 2008; Peck, Barger, and Webb 2013; Peck and Childers 2003a, 2003b, 2006; Peck and Shu 2009; Peck and Wiggins 2006) and

consumers evaluate a product based on whom or what has previously touched it (Argo, Dahl, and Morales 2006; Morales and Fitzsimons 2007). However, relatively little is known about interpersonal touch from a marketing perspective.

Foundational studies on interpersonal touch have exposed the complexity of the preference formation, interpretation, and usage of interpersonal touch (Mehrabian 1981; Montagu 1979). Just like verbal communication, nonverbal communication has the ability to transmit many different messages. Mehrabian (1981) suggests that nonverbal factors, such as touch, account for more than half of the variability of response in interpersonal communication. Interactions that occur on a daily basis go far beyond verbal communication to include many nonverbal factors as well.

This research focuses on intentional interpersonal touch (IIT), which is operationalized as a light, unobtrusive touch on the upper arm that lasts for less than 1 second. This type of touch is often accompanied by a verbal comment. One's comfort with interpersonal touch may depend on whether they are initiating or receiving touch. Implicitly suggested in previous research (e.g., Hall and Veccia 1990; Stier and Hall 1984; Willis and Dodds 1998), but to my knowledge not empirically tested, is that a duality exists in the concept of interpersonal touch. This is the distinction between the act of touching someone else, which is referred to as *initiating touch*, and the act of being touched by someone else, which is referred to as *receiving touch*. When the touch is directed from one person's hand to another's arm, the origin of the touch is unambiguous. The individual reaching their hand to touch the arm of another person is solely responsible for the touch. Unlike a handshake, which can be considered to be bilateral with mutually involved players, a light touch on the upper arm is unilateral and does not arise out of mutual investment.

As intentional interpersonal touch relates to marketing, most of the research has manipulated receiving touch (e.g., Hornik 1992) using situations in which customers are the recipients of touch from a fellow customer or salesperson, yet the effects of initiating touch have been less explored. However, initiation of touch is also very relevant to marketers in that both salesperson and customer's comfort with initiating touch may influence a retail experience, and ultimately a retailer's sales. A customer may touch a salesperson as a way to seek deals or touch a fellow customer as a way to navigate a crowded store or get a better position in a long line. A touchy salesperson may actually drive customers away, which may affect how, when, and where customers shop. Individuals are likely to perceive the initiation and reception of touch differently, and may have differing levels of comfort associated with each type of touch.

Interestingly, most of the empirical tests of touch in marketing focus on the positive effects of receiving touch, especially with respect to compliance (Bohm and Hendricks 1997; Hornik 1992; Hornik and Ellis 1988; Joule and Guéguen 2007; Willis and Hamm 1980). For example, when a customer was touched lightly on the upper arm in a retail store, the customer was more likely to both sample and purchase a new product compared to shoppers who were not touched (Hornik 1992). Individuals who were asked to sign a petition were found to be more compliant if they were briefly touched (Willis and Hamm 1980), and customers waiting in line more frequently allowed a fellow customer to cut in line when the request was accompanied with a touch on the back of the arm (Bohm and Hendricks 1997). While there is well-documented evidence of positive effects of touch, less attention has been paid to situations in which touch may be perceived negatively.

Martin (2012) demonstrated that negative effects of touch are produced when individuals experience an accidental interpersonal touch (AIT) from a fellow customer while shopping,

resulting in more negative brand evaluations, product beliefs, less willingness to pay, and less time spent in-store. The type of touch used to produce this negative effect was a bump from behind, which is outside of my conceptualization of interpersonal touch.

Neuropsychological evidence seems to suggest that humans are hardwired to respond positively to touch and that responding positively to touch is biologically advantageous (Pearce, Martin, and Wood 1995; Weiss, Wilson, Seed, and Paul 2001). Through direct measures of physiological (i.e., heart rate) and behavioral (i.e., attentional engagement) responses to touch, research on infants has demonstrated that there exists a pleasant-touch system that is vital for development because of its significance for affiliation, bonding, and social interactions (Fairhurst, Löken, and Grossmann 2014).

Evolutionary psychologists speculate that one's preference for interpersonal touch arises from a young age and is cultivated through early childhood interactions with others (Bowlby 1988). In the attachment literature, there is evidence that some people are uncomfortable with touch because they did not properly bond with a caregiver during early childhood. Most infantile needs are satisfied, in part, by direct tactile contact with a caregiver. Through thousands of these interactions, interpersonal touch becomes associated with a deep, nurturing connection. When the needs of an infant are not responded to, the positive association of touch and comfort do not develop. There are many reasons for this, including, for example, premature birth, hospitalizations, or separation from the birth mother (Bowlby 1988). Long periods of social isolation during development has the effect of an individual not being comfortable accepting or seeking out affection through touch. At the extreme, this can result in attachment disorder, which is a serious medical disorder with many negative effects. However, more mildly, some individuals may not be as comfortable with interpersonal touch as others. These individuals may

not experience the positive effects as a result of being touched and may also be more reluctant to reach out and touch others. Research related to possible origins of interpersonal touch seems to suggest that preferences for touch have both innate and socially developed components.

Empirical research has also illuminated various cultural influences that guide the usage of touch. Hall (1966) suggests that people from "contact" cultures tend to interact at closer distances, maintain more direct body orientation, and touch more frequently as compared to "non-contact" cultures. Various researchers suggest that people from the UK, Northern Europe, North America, and Asia touch each other far less often than people from Latin America or Southern Europe (Hall 1966; Henley 1973; Jourard 1966). For example, Jourard (1966) observed the touch behavior of couples in cafes in San Juan, Puerto Rico and London, England. Couples from Puerto Rico touched each other an average of 180 times per hour, while couples in England averaged zero touches per hour. Beyond cultural factors, researchers have highlighted many of these factors that influence how touch is used and perceived including, but not limited to, status (Henley 1973, 1977), gender (Hall and Veccia 1990), the relationship between the individuals (Montagu 1979), the type of touch (Levav and Argo 2010), and situational norms (Hall 1996).

By examining many of the empirical interpersonal touch studies, especially those related to marketing, it is evident that this area of research has both over- and under-emphasized certain issues related to interpersonal touch. Table 1 details some of the empirical studies on interpersonal touch, and from the interpersonal touch literature there are three broad realizations. First, there has been an over-emphasis on positive effects of touch with little acknowledgment of potential negative effects. Second, the literature has over-emphasized research on touch from the receiving perspective and under-emphasized the effects of initiating touch. Finally, there is no individual difference measure relating to comfort with interpersonal touch.

Table 1. Empirical Interpersonal Touch Studies

Authors	**Year**	**Journal**	**Touch Effects (+/-)**	**Use individual difference?**	**Study Manipulation**	**DV**
Alagna et al.	1979	Journal of Counseling Psychology	+	Yes, Body Access-ibility Scale	Counselor touch client	Evaluation of counseling experience
Bohm and Hendricks	1997	Journal of Social Psychology	+	No	Customer touch fellow customer while waiting in line	Compliance - whether or not allowed to cut in line
Chaplin et al.	2000	Journal of Personality and Social Psychology	N/A	Yes, Affective Commun-ication Test (ACT)	Handshake firmness correlation with personality measures	Personality measures: Big Five
Crusco and Wetzel	1984	Personality and Social Psychology Bulletin	+	No	Waitress touched hand of diner when handing back change	Tipping behavior (% of bill)
Dolinski	2010	Journal of Nonverbal Behavior	+	No	Experimenter touched pedestrian and asked subject to mail a letter	Compliance - whether or not the letter was mailed
Erceau and Guéguen	2007	Journal of Social Psychology	+	No	Car salesman touched potential buyers	Evaluation of salesman
Fischer, Rytting and Heslin	1976	Sociometry	+	No	Library clerk touch hand of student	Evaluation of librarian and environment
Fuller et al.	2011	Human Relations	+/-	Yes, Touch Anxiety Scale and Touch Self-Efficacy Scale	Asked participants about typical supervisor-to-subordinate use of touch	Subordinate's perceptions of supervisors' influence, sincerity, likeability, and support
Guéguen and Fischer-Lokou	2003	Journal of Social Psychology	+	No	Experimenter touched participant and then dropped diskettes	Helping behavior, # of picked up items, Response latency
Guéguen and Jacob	2005	Hospitality Management	+	No	Waitress touched patrons in a restaurant/bar	Tipping behavior (% of bill)

Authors	Year	Journal	Touch Effects (+/-)	Use individual difference?	Study Manipulation	DV
Guéguen and Jacob	2006	International Journal of Management	+	No	In-store marketer touch coupled with direct request to buy a product	Purchase
Hornik	1992	Journal of Consumer Research	+	No	In-store marketer touch customer, waiter/waitress touched diner	Shopping time, store evaluation, purchase amount, trial, tipping behavior (% of bill)
Hornik and Ellis	1988	Public Opinion Quarterly	+	No	Experimenter touch people asking for participation in study	Participation in study
Joule and Guéguen	2007	Perceptual and Motor skills	+	No	Experimenter touched student and asked for a cigarette	Compliance - give experimenter a cigarette
Jourard and Friedman	1970	Journal of Personality and Social Psychology	+	No	Experimenter sat close/far from participant and touched them	Duration of self-disclosure on intimate topics
Kaufman and Mahoney	1999	The Journal of Social Psychology	+	No	Waitress touch a diner	Amount of alcohol consumed
Kleinke	1977	Journal of Experimental Social Psychology	+	No	Experimenter touch phone booth user	Compliance - return of dime in phone booth
Martin	2012	Journal of Consumer Research	-	No	Experimenter bumped into fellow customers - "Accidental Interpersonal Touch"	Brand evaluations, product beliefs, willingness to pay, time spent in store
Stephen and Zweigenhaft	1986	Journal of Social Psychology	+	No	Waiter touch diner on shoulder	Tipping behavior (% of bill)
Sussman and Rosenfeld	1978	Journal of Social Psychology	+/-	No	Experimenter sat close to participant and touched them	Evaluation of experimenter, task performance
Willis and Hamm	1980	Journal of Nonverbal Behavior	+	No	Experimenter touch participants on the arm	Compliance - signing of a petition

ESSAY 1: DEVELOPMENT OF THE COMFORT WITH INTERPERSONAL TOUCH (CIT) SCALE

An individual's comfort with interpersonal touch (CIT) is defined as the degree to which an individual is comfortable with intentional interpersonal touch from or to another person. I believe that an individual's CIT depends on perceptions of comfort with initiating and with receiving touch. The following series of studies detail the scale development process; see Table 2 for study sample information and Appendix 1 for a list of scales used throughout this dissertation.

Studies 1a and 1b: Item Generation and Scale Purification

Consistent with previous scale development research (Bearden, Netemeyer, and Teel 1989; Churchill 1979; Lynch, Netemeyer, Spiller, and Zammit 2010), a pool of items was generated to capture the CIT construct. Scale item generation occurred using various methods. On the basis of face validity, items were generated from an understanding of the construct via a thorough literature review. Additional items were collected by giving the construct definition to graduate students and requesting that they create items that represent the construct. Upon collection of all items, select items that did not represent the construct were deleted. In total, 64 items were created. The CIT construct was measured using a 7-point Likert scale in which 7 = "Strongly Agree" and 1 = "Strongly Disagree."

Table 2. Essay 1 Dissertation Data Samples

Study	Sample	Sample Size	CIT Mean (SD) [α]	CITi Mean (SD) [α]	CITr Mean (SD) [α]
	Item Generation/Purification				
Study 1a	Graduate Students	5	NA	NA	NA
Study 1b	Graduate Students	3	NA	NA	NA
	Dimensionality and Reliability				
Study 2	Undergraduate Students (Student Sample 1)	524	4.17 (1.02) [.84]	3.65 (1.27) [.80]	4.78 (1.08) [.86]
Study 2	Undergraduate Students (Student Sample 2)	164	4.16 (1.03) [.84]	3.56 (1.27) [.80]	4.75 (1.11) [.86]
Study 3	University Faculty and Staff	1360	3.97 (1.20) [.90]	3.42 (1.44) [.88]	4.52 (1.23) [.90]
	Nomological and Discriminant Validity				
Study 4a	University Faculty and Staff (same as Study 3)	1360	3.97 (1.20) [.90]	3.42 (1.44) [.88]	4.52 (1.23) [.90]
Study 4a, 4b	General US Population	473	3.65 (1.35) [.91]	3.03 (1.55) [.92]	4.27 (1.47) [.95]
	Demographic Predictors				
Study 5	University Faculty and Staff (same as Study 3)	1360	3.97 (1.20) [.90]	3.42 (1.44) [.88]	4.52 (1.23) [.90]
Study 5	General US Population	1648	3.67 (1.36) [.90]	3.00 (1.55) [.90]	4.33 (1.53) [.94]
	Known-Group Validity				
Study 6a	Electronic Gamers (students and start-up company)	40	3.60 (1.04) [.82]	2.73 (1.24) [.87]	4.47 (1.24) [.81]
Study 6b	Roller Derby Players	45	4.60 (1.27) [.87]	4.26 (1.57) [.89]	4.95 (1.31) [.92]
	Predictive Validity				
Study 7a	General US Population (same as Study 5)	1648	3.67 (1.36) [.90]	3.00 (1.55) [.90]	4.33 (1.53) [.94]
Study 7b	General US Population	317	3.57 (1.35) [.92]	2.86 (1.52) [.92]	4.27 (1.51) [.96]
Study 7c	University Campus Visitors	136	4.21 (1.13) [.85]	3.81 (1.42) [.85]	4.61 (1.21) [.87]

NA = Not Applicable; CIT was measured on a 7-point Likert Scale (1=Strongly Disagree, 7 = Strongly Agree)

Study 1a. The content validity of the 64 items was assessed in two stages (Bearden et al. 1989). In Study 1a, five judges were given the definition of each dimension (i.e., initiating and receiving) and an example item for each dimension. The judges were asked to carefully and critically engage in this classification task. The judges were reliable and knowledgeable since all were students pursuing masters or doctoral education in marketing or psychology-related fields. The judges were then asked to classify the statements as either of the two dimensions or as "not applicable." After eliminating items that did not receive the appropriate categorization by at least four of the five judges, 41 items remained. The judges categorized items such as "I can't help touching people when I am talking to them," "When shaking someone's hand, I typically put my left hand on their upper arm," and "I often reach out to someone I know when I see them" as initiating items. Items such as "During conversation, I don't mind if people touch me," "I am comfortable having someone touch me on the shoulder to get my attention," and "I find myself pulling away if someone touches me" were classified as receiving items. Finally, a few sample items that were concluded to represent neither dimension include, "Emotions are conveyed more effectively through nonverbal communication than verbal" and "I avoid shaking hands with people."

Study 1b. The remaining items were given to three other judges. This second panel of judges was given the definition of each dimension and were asked to rate each statement as being "not representative at all," "somewhat representative," or "clearly representative" of the dimension. Items that were evaluated as "clearly representative" by two judges and no worse than "somewhat representative" by the third judge were retained. This process eliminated four items, and an additional item was eliminated for redundancy, leaving 36 remaining items.

Studies 2 and 3: Dimensionality and Reliability

Study 2 EFA and CFA. The first sample consisted of five hundred and twenty-four undergraduate students from a Midwestern university, referred to as Student Sample 1 (see Table 2). The students were recruited via an introductory course and received course credit for participation. The sample was 51% male with a median and modal age of 20.

According to the theoretical basis, comfort with interpersonal touch (CIT) is a multidimensional construct with 2 underlying dimensions – initiating and receiving touch. The scale items' fit with the other indicators was analyzed using the data from the student sample of undergraduate students. Corrected item-to-total subscale correlations below .50 were deleted (Bearden et al. 1989). This resulted in a reduction to 32 items.

A principle components analysis (PCA), which is often a good initial test of factor structure, was conducted as a preliminary test before running an exploratory factor analysis (EFA). The PCA was followed by an EFA using maximum likelihood estimation and PROMAX rotation allowing the factors to be correlated. An oblique rotation was chosen over an orthogonal one because the two subdimensions of the scale should be allowed to correlate, but not forced to be uncorrelated. Competing models were tested since model fitting is sensitive and should be done in comparison; "a well-fitting model with a large number of factors may not be interpretable, while a poorer-fitting model may still reveal some interesting features of the data" (Bartholomew, Steele, Moustaki, and Galbraith 2008, 187). A two-factor model (χ^2 = 2215.64, df = 443, $p < .001$) was compared against a three-factor which performed worse with respect to model fit since only one item loads highly on the third factor, and therefore, the additional factor contributes little to no value in uncovering the underlying structure in the data (χ^2 = 1400.63, df = 403, $p < .001$). Based on both theoretical and statistical insight, the two-factor model suggests

that the underlying factors are "comfort with initiating touch" and "comfort with receiving touch" (see Table 3 for factor loadings).

Table 3. Exploratory Factor Analysis: Factor Loadings (Study 2)

		Factor Loadings				
			Initiating Touch		**Receiving Touch**	
		Order	**Student Sample**	**Staff Sample**	**Student Sample**	**Staff Sample**
	1. It is natural for me to hug people.	1	.89	.94		
	2. I often put my arm around people.	2	.83	.88		
*	3. I consider myself to be a more 'touchy' person than most of my friends.	5	.81	.89		
*	4. I feel more comfortable initiating touch than most people.	3	.80	.96		
	5. I feel more comfortable with touch than most people.	16	.75	.77		
	6. When I greet someone, it often involves touch.	25	.63	.72		
*	7. When talking to people, I often touch them on the arm.	14	.59	.66		
	8. I can't help touching people when I am talking to them.	17	.59	.66		
	9. I am comfortable hugging other people.	4	.53	.63		
	10. When shaking someone's hand, I typically put my left hand on their upper arm.	20	.35	.43		
*	11. I don't mind if someone touches my arm.	8			.92	.89
	12. When talking to someone, I don't mind if they touch me on the arm.	19			.86	.92
	13. I am comfortable with people touching me.	9			.84	.84
*	14. During conversation, I don't mind if people touch me.	10			.84	.90
	15. I am comfortable if a coworker touches me on the arm when explaining something.	30			.71	.77
	16. I find myself pulling away if someone touches me. (r)	7			.70	.63
*	17. I typically don't mind receiving touch from another person	32			.67	.86
	18. I feel comfortable having a stranger touch me on the arm during conversation.	6			.66	.70
	19. I am comfortable having someone touch me on the shoulder to get my attention.	21			.62	.71
	20. I don't mind if someone places their hand on my upper back to guide me into a room.	14			.55	.56

NOTE: items were measured using a 7-point Likert scale (strongly disagree to strongly agree). Student sample 1 (n = 524); Staff sample (n = 1360). *Items are the final 6-item scale with 3 items measuring comfort with initiating touch and 3 items measuring comfort with receiving touch. (r) indicates reverse-coded items.

The model specifying two latent factors underlying the CIT construct was further tested with a confirmatory factor analysis on the variance covariance matrix using Mplus. I tested both one- and two-factor models, and the one-factor model failed fit tests (χ^2 = 998.63, df = 35, p < .001, CFI = .71, TLI = .62, RMSEA = .23, SRMR = .12, AIC = 15,778.92). Although CFA is a highly restrictive method for judging dimensionality of a construct, the 2-factor model performed quite well with respect to fit indices (χ^2 = 141.85, df = 34, p < .001, CFI = .97, TLI = .96, RMSEA = .078, SRMR = .05, AIC = 14,924.15). An RMSEA value close to .06 is thought to indicate good fit (Hu and Bentler 1999). Thus, the CFA confirms the two-dimensional construct.

Cronbach's coefficient alpha for the total scale (α = .84); the initiating dimension (α = .80), and the receiving dimension (α = .86) confirm scale reliability because they fall above the general benchmark of .60 (Cronbach 1951). The correlation between the two dimensions is .48 (p < .01). In order to assess the reliability of a scale, Churchill (1979) suggests that additional data be collected on a new sample to rule out the possibility that the original findings were due to chance. I administered the scale to a new sample of one hundred and sixty-four undergraduate students, called Student Sample 2 (see Table 2). The overall scale (α = .84), the initiating dimension (α = .80), and the receiving dimension (α = .86) have high coefficient alphas indicating high internal consistency.

Study 3 EFA and CFA. To confirm the results that were found with the student sample in study 2, further analyses were conducted on a sample of individuals consisting of faculty and staff affiliated with the same Midwestern university. An online questionnaire was sent to fourteen thousand two hundred and twenty one university faculty and staff, with about 3% undeliverable. After eliminating respondents who dropped out of the survey early as well as those who were born outside of the U.S., there were one thousand three hundred and sixty

useable responses, resulting in a response rate of about 10%. The questionnaire asked participants to respond to the CIT items as well as various other personality-related measures. The staff sample was more heterogeneous than the student sample, which provided greater variation in demographic characteristics.

A PCA and EFA were also conducted on the staff sample. These analyses were conducted with the same items used in the student sample. The EFA produced similar factor loadings compared with the student sample (see Table 3). A CFA was conducted on the staff sample as well. Similar to the student sample, a one-factor model was tested and did not indicate satisfactory model fit (χ^2 = 3309.54, df = 35, p < .001, CFI = .72, TLI = .64, RMSEA = .26, SRMR = .11, AIC = 43,264.51), however, the two-factor model performed better with respect to various fit indices (χ^2 = 290.53, df = 34, p < .001, CFI = .98, TLI = .97, RMSEA = .07, SRMR = .03, AIC = 40,247.50). Thus, both the student and the staff confirmatory factor analyses suggest that the two-factor structure provides the best representation of the data.

Through the EFA and CFA, I carefully considered the item's factor loadings, cross loadings, communalities, and issues such as scale brevity and substantive interest. Recent scale development seems to favor short-form scales over extensive, long surveys and various researchers have acknowledged that scale length is a concern (Nenkov et al. 2008; Netemeyer, Bearden, and Sharma 2003). "Part of the researcher's efforts are directed both to encouraging respondent cooperation and to limiting respondent fatigue. Obviously, maximizing reliability by adding items makes the burden on the respondent greater, and the developer needs to give some thought to the trade-off between brevity and reliability" (Netemeyer et al. 2003, 146).

In their psychometric research, Lastovicka et al. (1999) used EFA with the decision rule to retain items with factor loadings greater than .50, which reduced their pool of items from 60 to

25. I followed this same recommendation as well as deleting items that revealed high cross-loadings across factors. Face validity or substantive interest was also considered when choosing the final items for the scale, with the hope to minimize redundancy in items and capture the construct sufficiently. All items were verified to have sufficient variance to be able to identify both individuals low and high in comfort with touch. The communality of the individual items, or the amount of the item's variance explained by the factor structure, is said to be adequate when communalities are around .5. The combination of these decision rules contributed to the reduction of the scale to 6 items, 3 items for the initiating dimension and 3 for the receiving dimension (final scale items are starred in Table 3).

Study 4a: Nomological Validity

After scale development, refinement, and assessment of latent structure, the scale must undergo various validity tests. These validity tests will explore how CIT is related to personality dimensions and human tendencies. I will begin by seeking to understand the nomological network in which comfort with interpersonal touch resides. I will examine how the overall CIT scale and its subdimensions (CITi and CITr) relate to other constructs by showing that theoretically related constructs are also empirically related. For this study, two different samples of individuals were used, the university staff as well as individuals from Amazon's Mechanical Turk (MTurk). Various personality-related constructs were measured that are believed to be related to one's comfort with interpersonal touch (see Table 2).

Evolutionary psychologists have long acknowledged that living organisms have evolved to approach pleasurable experiences while avoiding painful experiences; approach motivation being typically connected to concepts of reward, incentive, and satisfaction, and avoidance

motivation being connected to concepts of aversion, punishment, and threat (Elliot and Covington 2001). Emotions, interpreted from an approach-avoidant perspective, are not just construed as a state, but have implications for how individuals are both energized and directed (Elliot, Eder, and Harmon-Jones 2013). An individual who adopts an approach motivation might say, "I want to try to do good things" while one with an avoidance-motivated perspective might say, "I want to try to not do bad things." The difference between approach and avoidant motivation parallels how I interpret individuals' comfort with interpersonal touch.

For someone who is comfortable with touch, approaching or drawing near to another person would be natural and produce desirable and pleasurable feelings. On the other hand, a person uncomfortable with touch might be more avoidant-motivated, both because of their personal discomfort as well as their concern with producing undesirable results from the use of touch. These individuals likely have a greater desire to avoid the possible negative than to approach the possible positive.

Bodily movements have been shown to activate an approach or an avoidant mindset. For example, Labroo and Nielsen (2010) used a manipulation to imagine pulling an object towards themselves, representing approach, while others were told to imagine pushing the object away, representing avoidance. In this same respect, the act of touching someone, in effect, completely eliminates the space between two people. This is a definitive form of approach behavior – especially for the individual initiating the touch. Individuals who are comfortable with touch are likely to have a tendency to be approach-oriented. However, maintaining distance is a form of avoidance behavior so as to not engage in touch. Individuals who are uncomfortable with touch are likely to be avoidance-oriented.

Thus, I have chosen various psychographic measures that tend to be approach-oriented that are expected to correlate positively with comfort with interpersonal touch, and various avoidance-oriented measures that are expected to correlate negatively with comfort with interpersonal touch. First, I suspect that CIT is related to part of the Big 5 personality traits, namely extraversion, agreeableness, and openness to experience. Extraversion, which is likely to be positively related to CIT, is associated with social interaction. An extravert is a person who gains energy from the presence of others, is sociable, active, and seeks external stimulation (Costa and McCrae 1992). Given that these individuals tend to *seek out* or approach stimulation, I predict that one's level of comfort with initiating touch will tend to be more correlated with extraversion than receiving touch. As compared to receiving touch, initiating touch is more active in nature and requires a social investment, and therefore an individual who is more comfortable with initiating touch would be more likely to be extraverted. Nonetheless, I expect that both the comfort with initiating and receiving dimensions will yield a positive correlation.

Agreeableness is the tendency to be compassionate and cooperative and is a measure of one's helpful and well-tempered nature (Costa and McCrae 1992; Gosling, Rentfrow, and Swann 2003). Since people who are agreeable tend to be easy-going and warm toward other people, I believe that this will correlate positively with CIT as well as both dimensions independently. Openness to experience reflects one's degree of intellectual curiosity and a preference for novelty (Costa and McCrae 1992; Gosling et al. 2003). These people tend to prefer a variety of experience, and therefore, the act of touching or being touched by a stranger may be exciting and interesting to them. I anticipate that one's comfort with initiating and receiving touch will positively correlate with openness to experience.

Assertiveness, another psychographic characteristic, is considered to be the degree to which you stick up for yourself, take charge of a situation, and act in a way that you feel is right (Rathus 1973). This measure is undoubtedly an approach-oriented construct since it relies heavily on taking action. I anticipate that assertiveness will positively correlate with one's overall comfort with touch, moreover an individual who is comfortable with initiating touch will be more assertive than an individual who is not comfortable with initiating touch. I believe that one's CITi will be more correlated with assertiveness than one's CITr. An individual's tendency and desire to initiate physical contact with others is likely to be a manifestation of their preference to assert themselves.

Further insight into avoidant tendencies may come from a more clinical psychopathological perspective. Individuals who suffer from agoraphobia have a fear of "open spaces" and uncontrollable social situations and are prone to avoid large, crowded public spaces (Ost 1990). I anticipate that individuals who are uncomfortable with receiving interpersonal touch will have greater tendency to be agoraphobic. Similarly, individuals who suffer from claustrophobia, or the fear of small spaces, may also be impacted by interpersonal touch (Ost 2006). I predict that if an individual is claustrophobic or agoraphobic, they will be more uncomfortable with touch in general, but particularly receiving touch.

Finally, approach/avoidance tendencies have been linked to two general motivation systems impacting behavior and affect: the behavioral inhibition system (BIS) and the behavioral activation system (BAS) (Carver and White 1994). The BAS/BIS is a direct measure of approach-avoidance tendencies and I expect that BAS, which regulates reactions to appetitive motivation and movement toward goals, to be positively correlated with CIT and its subdimensions. BIS, which regulates reactions to aversive motivation and causes inhibition from

moving toward goals, is thought to negatively correlate with CIT and its subdimensions. In a similar vein, I predict that individuals who are high in CIT will also be more likely to cope with problems using approach-oriented behaviors. Using a brief approach/avoidance coping scale (Finset et al. 2002), I anticipate that one's desire to approach (avoid) coping of socio-emotional issues will correlate positively (negatively) with both of the subdimensions.

Study 4a Results. To assess nomological validity, Pearson correlation coefficients were calculated between the psychometric constructs discussed above. To test for significant difference between the strength of the association across the two subdimensions, Steiger's Z was calculated (Steiger 1980). For descriptive statistics and correlations of the various scales, see Table 4. As predicted, extraversion is positively related to CIT (.41, $p < .01$). Both the initiating and the receiving dimensions are positively related to extraversion as well (.43, $p < .01$; .28, $p < .01$, respectively), but the initiating dimension has a stronger association (Steiger's $z = 6.50$, $p < .01$). This suggests that the sociability of a person is related to the extent to which they are comfortable with interpersonal touch, and an individual's comfort with initiating touch is more related to their level of extraversion. Similarly, both agreeableness (.20, $p < .01$) and openness to experience (.14, $p < .01$) were related to one's CIT. Agreeableness was more strongly correlated with CITr than CITi (Steiger's $z = -3.29$, $p < .01$), which makes sense given that being agreeable suggests a degree of easy-goingness that an individual would be more likely to have when they don't mind whether or not they are touched by others. As for openness to experience, there was no difference for openness to experience between CITi and CITr (Steiger's $z = -1.52$, $p > .1$).

Table 4. Pearson Correlation Coefficients for Nomological Validity (Study 4a)

		Scale	n	# items	Mean	SD	α	CIT	CITi	CITr	Steiger's Z	Conclusion
Nomological Validity – Personality Traits	Approach-oriented	Extraversion (Costa et al. 1992)	1360	10	3.33	0.79	0.9	.406**	.430**	.284*	6.50[a]	Supported
		Agreeableness (Gosling et al. 2003)	473	2	5.21	1.15	0.46	.203**	.117*	.250**	-3.29[a]	Supported
		Openness to Experience (Gosling et al. 2003)	473	2	5.01	1.21	0.58	.135**	.091*	.153**	-1.52	Supported
		Assertiveness (Rathus 1973)	1360	15	4.10	0.79	0.78	.207**	.228**	.135**	3.88[a]	Supported
		BAS – Drive (Carver et al. 1994)	473	4	2.72	0.66	0.87	.240**	.254**	.174**	1.99[b]	Supported
		Coping – Approach S-E (Finset et al. 2002)	473	2	3.50	.85	0.53	.280**	.310**	.188**	3.07[a]	Supported
	Avoidance-oriented	BIS (Carver et al. 1994)	473	7	2.79	0.60	0.86	-.093*	-.103*	-.062	-1.00	Partially Supported
		Agoraphobia (Ost 1990)	1360	12	1.30	0.35	0.81	-.156**	-.102**	-.183**	3.35[a]	Supported
		Claustrophobia (Ost 2006)	1360	12	1.87	0.58	0.87	-.109**	-0.042	-.163**	4.98[a]	Supported
		Coping – Avoidance S-E (Finset et al. 2002)	473	2	2.76	1.04	0.65	-.137**	-.092*	-.155**	1.54	Supported
Discriminant Validity	Approach	Need for Touch (Peck et al. 2003)	473	12	4.10	1.41	0.95	.257**	.267**	.190**	1.93[b]	Supported
	Avoid	Touch Anxiety (Fuller et al. 2011)	473	7	4.50	1.46	0.94	-.136**	-.140**	-.103*	-.90	Supported

** = significant at .01; * = significant at .05; [a] = significant correlation difference between CITi and CITr at .01; [b] = significant at .05

The predictions for the relationship between assertiveness and CIT held as well. There is a positive relationship between CIT and assertiveness (.21, $p < .01$), and the relationship is stronger for the initiating dimension (.23, $p < .01$) than it is for the receiving dimension (.14, $p < .01$; Steiger's z = 3.88, $p < .01$). An individual's comfort with initiating touch is positively related to an individual's tendency to be assertive more so than is comfort with receiving touch.

Personality traits directly related to approach behavior (i.e., BAS and Socio-emotional approach coping) were anticipated to positively relate to CIT. For both constructs the correlations were in the expected direction (BAS-CIT r = .24, $p < .01$; Coping-CIT r = .28, $p < .01$). Furthermore, the results indicate that both constructs correlate more positively with comfort with initiating touch than comfort with receiving touch. This is strong evidence for the idea that being comfortable with touch, especially initiating touch, is an approach-oriented tendency.

With respect to avoidance-oriented personality measures, there is strong support for the assertion that discomfort with touch is related to avoidance. These results demonstrate that the more an individual is comfortable with touch, the less likely they are to suffer from agoraphobia (-.16, $p < .01$), and this is true for both the initiating (-.10, $p < .01$) and the receiving dimensions of the CIT scale (-.18, $p < .01$; Steiger's z = 3.35, $p < .01$). Individuals who are uncomfortable with touch from strangers also experience negative feelings and attitudes toward public social spaces. The relationship with claustrophobia was similar. There was a negative relationship between CIT and claustrophobia (-.11, $p < .01$), and this was true mostly for individuals who were uncomfortable with receiving touch (Steiger's z = 4.98, $p < .01$).

The BIS produced correlations with CIT as expected, however, was not significantly correlated with CITr (-.062, N.S.). While the correlation is in the expected direction, that is, an individual who operates more from behaviorally inhibition or avoidance motivation is less likely

to be comfortable with receiving touch, this correlation did not reach significance. Thus, the predictions for the BIS-CIT relationship was only partially supported. Finally, one's tendency to cope socio-emotionally through avoidance was negatively correlated with CIT (-.14, $p < .01$), and this was true for both the initiating and receiving dimensions as well. Taken together, the CIT construct is well situated in a nomological net of approach and avoidance behaviors with individuals comfortable with touch more likely to be approach oriented, while individuals uncomfortable with touch more likely to be avoidance oriented.

Study 4b: Discriminant Validity

The purpose of demonstrating discriminant validity is to determine the extent to which the CIT construct is truly novel and not a reflection of other closely related constructs. Scales can be invalidated and useless if they correlate too highly with other scales in which they were intended to differ. Thus, the CIT scale was tested in relation to the Fuller et al. (2011) Touch Anxiety (TANX) scale and the Peck and Childers' (2003a) Need for Touch (NFT) scale. These measures are similar but conceptually distinct from CIT. These scales are related to touching preferences – Touch Anxiety (TANX) is avoidance-orientated while Need for Touch (NFT) captures a more outward or approach-related tendency.

The TANX scale was developed to test individuals' anxiety with using touch in the workplace (Fuller et al. 2011). This scale captures an anxiety-related trait and measures an individual's avoidance-motivation toward touch. All of the items in the TANX scale are from the perspective of "initiating touch" and include items such as, "It scares me to think that I could damage my relationship with someone at work if I touch them and they take it the wrong way." The CIT scale differs from TANX scale in that (1) CIT incorporates both initiating items and

receiving items, (2) TANX limits the scope of the scale to touch within the workplace while CIT is a more general measure, and (3) TANX captures individuals' use of touch for fear of negative evaluation rather than individuals' intrinsic comfort with interpersonal touch. Therefore, it is predicted that the CIT scale will have a slight negative correlation with the TANX scale.

In marketing, Peck and Childers' (2003a) scale on 'Need for Touch' (NFT) investigates individuals' preference for haptic information, specifically as it relates to touching products. While an individual touching a product is fundamentally different from an individual touching another individual, one might think that we hold a general preference for touch. A comparison will be made to ensure that NFT and CIT are not measuring the same construct. It is predicted that the CIT scale will have a slight positive correlation with the NFT scale.

Study 4b Sample and Results. The same MTurk participant pool from study 4a was used (N = 473) to investigate the relationship between CIT, TANX, and NFT. As predicted, the results show that TANX (α = .94) and CIT measure distinct constructs. Using, the Pearson correlation coefficient, there is a negative relationship between CIT and TANX (-.14, $p < .01$). As predicted, both the initiating dimension (-.14, $p < .01$) and the receiving dimension (-.10, $p < .05$) have negative correlations, suggesting that an individual who is more comfortable with interpersonal touch will likely feel less touch anxiety. There is no difference between the TANX correlation with CITi and CITr (see Table 4). Discriminant validity is also demonstrated with NFT (α = .95). There is a positive relationship between CIT and NFT is (.26, $p < .01$) which is as predicted given that NFT is an approach tendency like CIT. The initiating dimension (.27, $p < .01$) and receiving dimension (.19, $p < .01$) are correlated as well. These results of moderate and significant correlations are consistent with methods for assessing discriminant validity (Netemeyer et al. 2003). For example, Tian, Bearden, and Hunter (2001) provide evidence of

discriminant validity of their measure of consumers' need for uniqueness via a moderate correlation with a measure of optimum stimulation level. This test provides evidence of discriminant validity between CIT, NFT, and TANX.

Study 5: Demographic Predictors of CIT

Gender is an important factor in understanding the use and preference for interpersonal touch. Despite equivocal support for gender preferences and use of touch, I consider how gender and comfort with interpersonal touch are related. I am also interested in the relationship between comfort with interpersonal touch and age. Some studies have found that older individuals tend to touch younger ones more than vice versa (Stier and Hall 1984), which may suggest that older individuals are more comfortable with initiating touch, while younger individuals are more comfortable receiving touch. However, age is a factor that can be extremely confounded with many other factors, including status or type of relationship (e.g., parent – child), especially when age differences are extreme (Hall 1996).

Study 5 Sample. To test whether or not CIT varies by gender and age, a study of online participants from across the U.S. was conducted. One thousand six hundred and forty eight individuals between the ages of 18 to 76 participated. This online sample along with the data from the university staff sample were coupled to be able to create a widespread representation of interpersonal touch preferences in the population. Altogether, three thousand and eight individuals filled out the CIT measure as well as their demographic characteristics.

Study 5 Results. A simple linear regression tests the effect of gender and age on comfort with interpersonal touch and its subdimensions. The results show that women score statistically significantly higher on the CIT scale as compared to men ($M_{\text{Male}} = 3.71$, $M_{\text{Female}} = 3.88$, $F(1,$

2989) = 11.46, p <.001). This is also the case for the initiating dimension (M_{Male} = 2.99, M_{Female} = 3.35, $F(1, 2989) = 42.24$, $p < .001$), however, there are no differences between genders on the receiving dimension (M_{Male} = 4.44, M_{Female} = 4.40, $F(1, 2989) = .52$, $p = .47$). This effect could be explained by various meta-analytic reviews that reveal that women are innately more "tender-minded" and "nurturant" than men (Eagly and Crowley 1986; Feingold 1994). Indeed, the idea of the "maternal instinct" has long been asserted in psychological texts (Reed 1923). A wide range of this research suggests that the female role, which emphasizes nurturance and emotional expressiveness, makes it easier for women to provide social support in close relationships, whereas the male role, which typically emphasizes achievement, autonomy, and emotional control, makes it more difficult for men to provide social support (Barbee et al. 1993). Thus, it is not surprising that females tend to be more comfortable initiating touch than males.

Regarding age, individuals who are older tend to be more comfortable with interpersonal touch than younger individuals ($F(1, 3005) = 38.21$, $p < .001$) such that an additional year in age corresponds to a .01 increase in one's CIT level. This holds for both initiating and receiving touch. As an individual ages, they also become more comfortable with initiating touch with others ($F(1, 3005) = 72.35$, $p < .001$) as well as receiving touch from others ($F(1, 3005) = 5.12$, $p = .02$). Therefore, both age and gender are related to one's level of comfort with interpersonal touch, specifically females and older individuals tend to be more comfortable with touch than males and younger individuals.

Study 6a: Known-Group Validity – Electronic Gamers

Known-group validity is used to investigate whether or not the measure produces results for a group of individuals who are likely to score high or low on the developed scale (Netemeyer

et al. 2003). Previous literature has used known-group validity to establish the usefulness and validation of the scale. For example, Bearden, Hardesty, and Rose (2001) demonstrated that members of the American Council on Consumer Interests (ACCI), which is an organization that fights for the well-being of consumers, scored higher on their consumer self-confidence measure than the general population. Other researchers have used faculty and students for known group validity assuming that faculty would be more skeptical than students to verify a skepticism toward advertising scale (Obermiller and Spangenberg 1998).

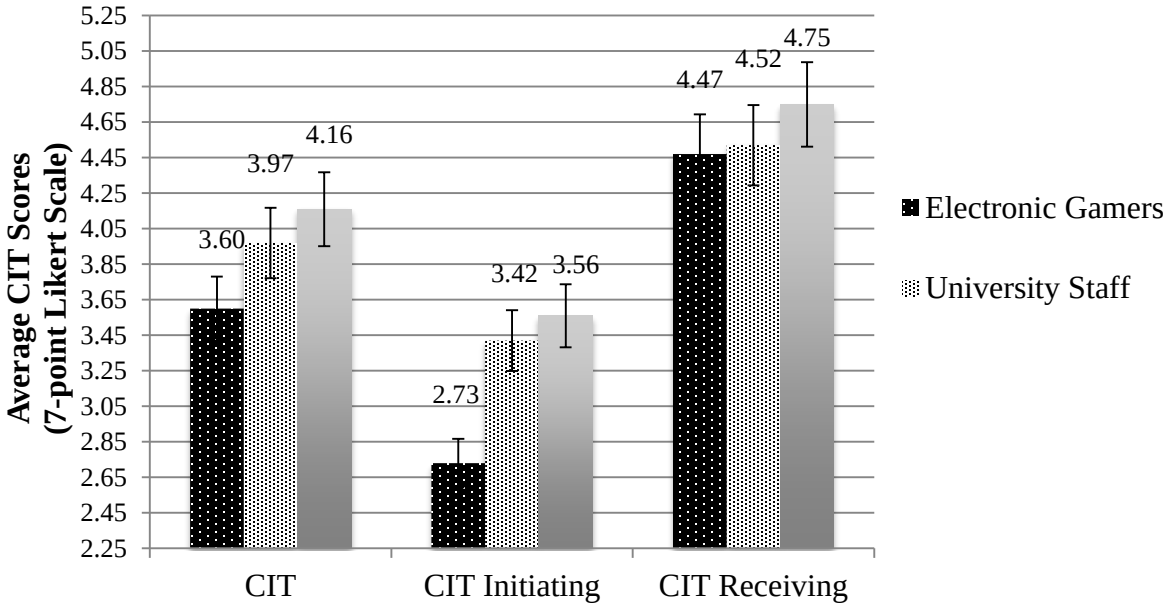
Study 6a Sample. Known-group validity was tested on a population believed to be uncomfortable with interpersonal touch, "electronic gamers." Video games typically involve more interactivity than, for example, most television programs, but video games are not as interactive as a face-to-face conversation (Crawford 2012). Extraversion has been found to be positively related to the time a person spends in recreational activity with others (Diener, Larsen, and Emmons 1984). However, in the online gaming environment, social interactions are relatively shallow compared to real life relationships (Parks and Floyd 1996), and the use of online entertainment such as gaming tends to be positively related to introversion (Mitchell et al. 2011). Since individuals who tend to be more comfortable with touch also tend to be more extraverted, it is likely that individuals who are avid gamers will demonstrate strong known-group validity of the scale.

Students were recruited from an undergraduate gaming student organization as well as a local online gaming start-up company. In this context, electronic gaming (EG) is considered to be the engagement in any electronic game (i.e., computer, video, mobile games) and can involve one or multiple players. I believe that an EG enthusiast may engage in significant electronic

interaction over human interaction, which could be negatively related to one's level of CIT. Forty EG players participated in the study.

Study 6a Results. The results from the EG players are compared to the university staff population (N = 1360) and the second undergraduate sample (N = 164) (see Figure 1). As predicted, EG players scored significantly lower on the CIT scale than did the staff population (M_{EG} = 3.60, M_{Staff} = 3.97, $t(1398) = 1.93$, $p = .05$) and the initiating dimension (M_{EG} = 2.73, M_{Staff} = 3.42, $t(1398) = 3.00$, $p = .003$), however, EG players were not significantly different from the staff population with respect to their comfort with receiving touch (M_{EG} = 4.47, M_{Staff} = 4.52, $t(1398) = .25$, $p = .80$). These effects replicated with the student sample with no statistical difference on the receiving dimension (M_{EG} = 4.47, $M_{Student}$ = 4.75, $t(202) = 1.40$, $p = .16$).

Figure 1. Known-Group Validity: Electronic Gamers, Staff, and Student CIT Scores (Study 6a)



Note: Means were calculated based on both male and female staff and students (Staff: N = 1360, Student Sample 2: N = 164).

Study 6b: Known-Group Validity – Roller Derby Players

To test known-group validity for a group thought to be high in comfort with interpersonal touch, I chose roller derby players. Roller derby (RD) is a high-contact sport that involves a lot of touching, pushing, and blocking, and is played on a flat, oval track with two teams trying to win the most points. Roller derby waned in popularity but made a comeback in 2003 due to the Texas Rollergirls, "who wanted to bring to life a sport allowing participants to be both aggressive and gorgeous. They realized the sport had the ability to inspire other women, provide young girls with powerful role models and thrill audiences with a blend of hard-hitting action and kitschy fun" (Mad Rollin' Dolls 2004).

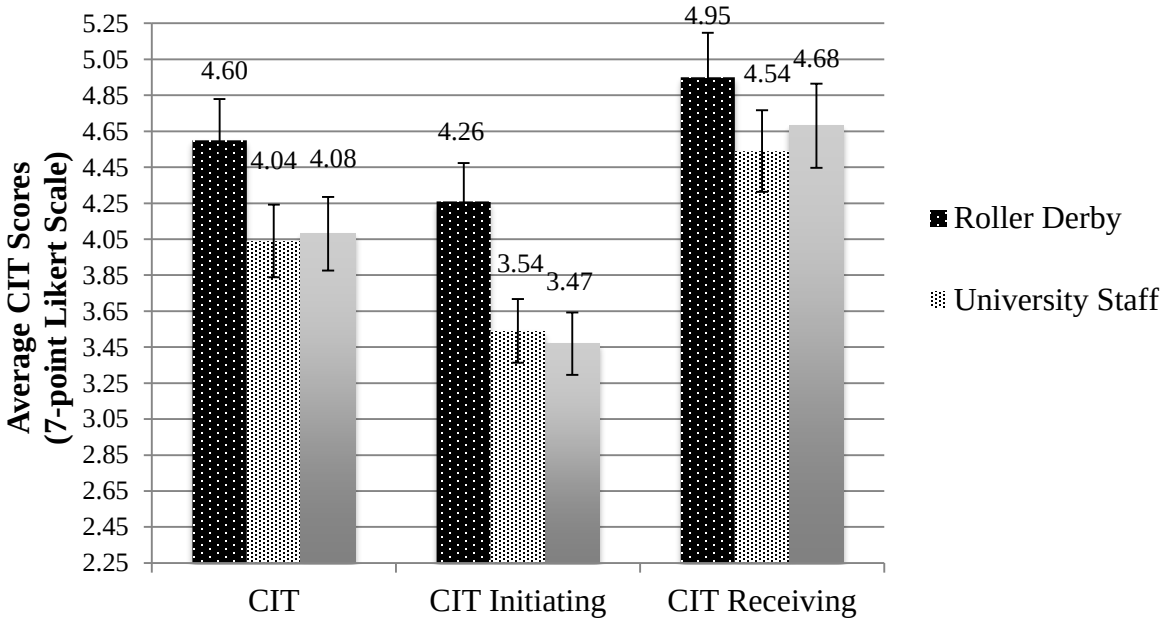
Driving my decision to choose electronic gamers for a group thought to be low in CIT was the connection between gamers and introversive tendencies. Likewise, RD players have been selected to represent a group thought to be high in CIT for their extraverted nature and experience with personal physical interaction. A quote from a roller derby player's blog illustrates this emphatically stating, "Like many of my derby brethren, I'm a loud mouth. When I took my Myers Briggs test they practically sent back the results with the E for Extrovert underlined, bold and highlighted with glitter" (Betty 2014).

Study 6b Sample. I contacted our city's local Roller Derby team and administered questionnaires to its members. Forty-five female RD players participated in the study. It is predicted that RD players will be higher in comfort with interpersonal touch than the general population.

Study 6b Results. The results from the RD players are compared to the university staff population as well as the undergraduate students (see Figure 2). Since RD players are all women, only the female staff (N = 1014) and female undergraduates (N = 76) were used as the

benchmark. As predicted, RD players scored significantly higher on the CIT scale (M_{RD} = 4.60, M_{Staff} = 4.04, t(1057) = 3.08, p = .002), the initiating dimension (M_{RD} = 4.26, M_{Staff} = 3.54, t(1057) = .3.25, p < .001), as well as the receiving dimension (M_{RD} = 4.95, M_{Staff} = 4.54, t(1057) = 2.22, p = .03) when compared to the female university staff population. These effects replicated with the student sample as well except the difference on the receiving dimension was not statistically significant (M_{RD} = 4.95, $M_{Student}$ = 4.68, t(114) = 1.45, p = .25), although the results are directionally consistent. These studies provides initial evidence that the CIT measure has known-group validity by showing that Roller Derby players tend to score higher and electronic gamers tend to score lower on the CIT measure than a general population.

Figure 2. Known-Group Validity: Roller Derby, Staff, and Student CIT Scores (Study 6b)



Note: Means were calculated based on female staff and students (Staff: N = 1014, Student Sample 2: N = 76).

Study 7a: Predictive Validity – Service Enjoyment

The ability of the CIT scale to predict marketing-related behaviors is a test of predictive validity. It is important to investigate whether or not one's level of comfort with interpersonal touch can predict whether individuals will tend to enjoy specific consumer services that require touch. Consumers uncomfortable with touch will be less likely to enjoy services in which touch is typically a part of the service, such as "getting a massage," "getting my hair cut," "getting a clothing item custom tailored," or "ballroom dancing." Whereas, comfort with interpersonal touch should not be related to services that do not involve touch, such as "buying books online."

Pretest. This pretest is designed to ensure that the services selected are consistent with being high or low in touch. That is, this test is intended to verify the assumptions on the amount of touch each of these services requires. Eighty-five individuals on Amazon's MTurk were asked to indicate on a 7-point Likert scale the extent to which the services involve physical touch between two people (1 = no touch at all, 7 = a lot of touch). Services that were anticipated to be high in touch ($M_{\text{Massage}} = 6.88$, $M_{\text{Haircut}} = 5.41$, $M_{\text{Tailoring}} = 5.01$, $M_{\text{Dancing}} = 5.45$) were indeed rated to involve more touch than a service anticipated to be low in touch ($M_{\text{Books}} = 1.28$).

Study 7a Sample. One thousand six hundred and forty eight individuals from the online study were used for these predictive validity tests. Participants were asked to indicate (on a 7-point Likert scale) the extent to which they enjoy engaging in the services listed above. These services contain some necessary or great potential for interpersonal touch or lack tactile interaction all together. I believe that individuals who are uncomfortable with interpersonal touch would be less likely to enjoy these touch-related services and avoid engaging in them.

Study 7a Results. The results are as predicted. Individuals who are more comfortable with interpersonal touch (1 SD above the mean) were more likely to enjoy getting a massage while

those who are uncomfortable (1 SD below the mean) reported less enjoyment ($M_{\text{High CIT}}$ = 6.01, $M_{\text{Low CIT}}$ = 5.31, β = .26, t(1646) = 9.61, p < .001). Similar relationships were found for enjoyment of a haircut ($M_{\text{High CIT}}$ = 4.83, $M_{\text{Low CIT}}$ = 4.30, β = .20, t(1646) = 7.02, p < .001), getting a clothing item custom tailored ($M_{\text{High CIT}}$ = 4.79, $M_{\text{Low CIT}}$ = 4.32, β = .17, t(1646) = 6.29, p < .001), and ballroom dancing ($M_{\text{High CIT}}$ = 3.80, $M_{\text{Low CIT}}$ = 3.23, β = .21, t(1646) = 6.63, p < .001). This effect held when isolating the dimensions as well—both those comfortable with receiving and initiating touch were more likely to engage in various touch-related services.

However, when participants were asked about their engagement in services that did not contain the possibility of touch (e.g., buying books online), there was no difference between those who are low or high in comfort with interpersonal touch ($M_{\text{High CIT}}$ = 5.09, $M_{\text{Low CIT}}$ = 5.19, β = -.04, t(1646) = -1.48, p < .10). As predicted, these results suggest that one's comfort with interpersonal touch is related to one's enjoyment and pursuit of various consumer services. Thus, participants comfortable with interpersonal touch were more likely to enjoy these touch-related services while those who are uncomfortable reported less enjoyment.

Study 7b: Predictive Validity – Shopping Behaviors

The previous predictive validity test demonstrated that individuals seek out or avoid differing services based on their level of comfort with touch. This study will demonstrate that the CIT measure can also distinguish individuals based on general human behavioral tendencies. One's level of comfort with interpersonal touch reveals tendencies in shopping behaviors. I classified various shopping behaviors into approach-oriented behaviors of experiential shopping and salesperson attention, and avoidance-oriented of avoiding crowds and consumer self-confidence. All measures were captured on 7-point Likert scales from strongly disagree to

strongly agree.

Three hundred and seventeen individuals from Amazon's MTurk were questioned about their preferences for retail shopping. Participants from a previous MTurk study (N = 473) reported behavioral tendencies as well and are used in these analyses (see Table 2). The experiential shopping motivation scale asks participants to indicate various reasons for shopping including: “to experience interesting sights, sounds and smells” (Dawson, Bloch, and Ridgway 1990). This is expected to positively correlate with CIT since consumers comfortable with interpersonal touch are more likely to seek out unique shopping experiences. Of interest was also the approach-oriented behavior of engagement with salespeople, which was measured using the item “I enjoy attention from salespeople.”

To capture avoidance-oriented behaviors, participants were asked to indicate the extent to which they avoid crowds with the following two items: “I try to avoid crowds” and “I enjoy busy, noisy places” (reverse-coded). A well-established measure of consumer self-confidence was used, with items such as “I am afraid to ask to speak to the manager” (Bearden et al. 2001). I anticipate that individuals who are uncomfortable with touch will have behavioral tendencies to avoid overly populated retail environments while individuals comfortable with touch will seek out attention from salespeople.

Study 7b Results. As predicted, there are direct relationships between individuals' comfort with interpersonal touch and engagement in interactional shopping behaviors (see Table 5). Specifically, one's level of CIT predicts experiential shopping behaviors ($M_{\text{High CIT}} = 3.87$, $M_{\text{Low CIT}} = 2.87$, $\beta = .37$, $t(471) = 7.90$, $p < .001$). Furthermore, individuals comfortable with touch were more likely to enjoy attention from salespeople ($M_{\text{High CIT}} = 3.02$, $M_{\text{Low CIT}} = 1.82$, $\beta = .45$, $t(315) = 7.93$, $p < .001$). These effects held true for both subdimensions as well.

Table 5. Correlation Coefficients and Steiger's Z for Shopping Behaviors Predictive Validity (Study 7b)

		Scale	n	# Items	Mean	SD	α	CIT	CITi	CITr	Steiger's Z	Conclusion
Behaviors	Approach-oriented	Experiential Shopping (Dawson et al. 1990)	473	6	3.37	1.45	0.89	.342**	.387**	.221**	4.27[a]	Supported
		Enjoy attention from salesperson	317	1	2.39	1.48	NA	.408**	.396**	.331**	1.39	Supported
	Avoidance-oriented	Avoid Crowded Places	317	2	5.31	1.55	.78	-.381**	-.342**	-.337**	-.11	Partially Supported
		Consumer Self-Confidence (Bearden et al. 2001)	473	5	2.56	1.09	0.92	-.136**	-.108*	-.137**	0.71	Supported

** = significant at .01; * = significant at .05; [a] = significant correlation difference between CITi and CITr at .01

As for avoidant behaviors, individuals comfortable with touch were less likely to avoid crowded spaces ($M_{\text{High CIT}} = 4.70$, $M_{\text{Low CIT}} = 5.87$, $\beta = -.44$, $t(315) = -7.31$, $p < .001$) and had less lack of confidence in retail environments ($M_{\text{High CIT}} = 2.42$, $M_{\text{Low CIT}} = 2.72$, $\beta = -.11$, $t(471) = -2.99$, $p = .003$). These results suggest that comfort with interpersonal touch can differentially predict the types of behaviors in which a consumer will engage. Consumers who are comfortable with touch tend to be approach oriented and will seek out interaction within retail contexts. Those who are uncomfortable with touch will avoid interaction and may shop more selectively based on when stores are less crowded or when interaction is minimized.

Study 7c: Predictive Validity – Campus Tour Study

The final predictive test of the CIT scale seeks to understand how actual touch impacts consumers' attitudes. In this study I am interested in whether the positive effects of touch still hold after taking into account an individual's comfort with interpersonal touch. The study utilizes a context similar to the library research study by Fisher, Rytting, and Heslin (1976) in which a librarian's touch had positive influence on students' perception of the librarian and the library environment. I tested the effects of touch on the evaluation of the campus and a tour guide after a university campus tour.

Study 7c Sample. One hundred and thirty-six individuals participated in this study over the course of 2 weeks. Participants were individuals visiting our university's campus for a campus tour. One day of data collection was eliminated due to extreme weather that may have impacted participant attitudes. The participants ranged in age from 15 to 65, with 58.1% of the participants between the ages of 15 and 20, 36.8% of the participants between the ages of 41 and

55, and the remainder across other age ranges. Given that this was mostly high school juniors and seniors touring the university with their parents, this bimodal age distribution seems logical.

Study 7c Procedure. I collaborated with our university's campus visitor and information programs office to conduct this study. This division of the university employs student campus tour guides (TGs) who give walking tours of the campus. The sample encompassed those who were visiting the university for the purpose of future admittance. For this study, touch was manipulated by involving the TGs as confederates. Prior to experimentation, all confederates were given a training course to properly conduct the touch manipulation. The study design consisted of touch (with the exclusion of children) and no touch tours in which the tour guide would touch (or not touch) every individual at some point during the tour. The touch was operationalized as a light touch anywhere on the arm between the elbow and the shoulder. The training course involved verbal and written instruction, a visual demonstration of various unobtrusive touches, an opportunity for the confederates to practice touch, and a question-answer session.

For this study, two tour guides conducted each tour. One guide was instructed to conduct the tour as they normally would and led the tour guiding the visitors from location to location. This lead guide was instructed to not touch any visitors and to report to us if any visitors were inadvertently touched. The second guide, the confederate, was given the role of "toucher." This "toucher" guide was instructed to mingle through the tour group and either touch (or not touch) all individuals. The experimenters stressed the criticality of maintaining consistency in interaction across the touch and no touch tours. Upon returning from the tour, the visitors were approached by an experimenter who asked for their participation in a voluntary survey.

Study 7c Measures. Using the same measures as Fisher et al. (1976), the participant's attitude toward the tour guide (the confederate) was measured on a 7-point semantic differential scale. The prompt read, "I thought the campus tour guide was:" and the questionnaire provided the following bipolar adjective pairs: "unfriendly – friendly," "negative – positive," "not helpful – helpful," and "bad – good." The participant's evaluation of the campus was also measured using a 7-point semantic differential scale. The prompt read, "Based on my first impression, I think the campus is:" with the following bipolar adjective pairs: "unattractive – attractive," "negative – positive," "uncomfortable – comfortable," and "bad – good".

Study 7c Results. It is predicted that an individual's comfort with receiving interpersonal touch would moderate the relationship between receiving touch from a stranger and their evaluation of the campus and of the tour guide. I investigated results for the two main dependent variables: overall evaluation of the tour guide and overall evaluation of the university campus. Participants' scores on the receiving dimension of the CIT scale were aggregated to form a composite measure (CITr $\alpha = .87$), and that measure was mean-centered.

A regression analysis was performed on the evaluation of the tour guide with independent variables being the touch condition, individual difference in CIT receiving dimension, and their interaction. There was no main effect of the touch condition on the evaluation of the tour guide ($\beta = -.05$, $t(132) = -.82$, $p = .41$) and no main effect of CITr on the evaluation of the guide ($\beta = .03$, $t(132) = 1.29$, $p = .20$), but there was a significant interaction of CITr x Touch ($\beta = .10$, $t(132) = 1.95$, $p = .05$).

The effect of the touch condition was positive and significant across levels of CITr ($\beta = .09$, $t(132) = 2.75$, $p = .007$), while the effect of the no touch condition was not significant across levels of CITr ($\beta = -.018$, $t(132) = -.41$, $p = .69$). To explore the interaction, I used a spotlight

analysis (Spiller et al. 2013) at one standard deviation above and below the mean of CITr (see Figure 3). A spotlight analysis at one standard deviation above the mean of CITr showed that individuals high in comfort with touch evaluated the tour guide more favorably when touched compared to when not touched although not statistically significant (M_{Touch} = 6.94, $M_{\text{No Touch}}$ = 6.86, $t(132) = .81$, $p = .42$). A similar spotlight analysis at one standard deviation below the mean CITr score showed that individuals low in comfort with touch evaluated the tour guide less favorably when touched compared to not touched (M_{Touch} = 6.73, $M_{\text{No Touch}}$ = 6.90, $t(132) = -2.03$, $p = .04$).

Similar effects on the evaluation of the university campus were found (see Figure 4). There was no main effect of the touch condition on the evaluation of the campus ($\beta = -.18$, $t(132) = -1.32$, $p = .19$) and no main effect of CITr on the evaluation of the campus ($\beta = .03$, $t(132) = .57$, $p = .57$), however, there was a significant CITr x Touch interaction ($\beta = .24$, $t(132) = 2.04$, $p = .04$). The effect of the touch condition was positive and significant across levels of CITr ($\beta = -.24$, $t(132) = 2.21$, $p = .03$), while the effect of the no touch condition was not significant across levels of CITr ($\beta = -.09$, $t(132) = -.91$, $p = .36$). A spotlight analysis demonstrates that individuals low in CITr evaluated the campus less favorably when touched compared to not touched (M_{Touch} = 5.93, $M_{\text{No Touch}}$ = 6.41, $t(132) = -2.44$, $p = .02$), and individuals high in CITr evaluated the campus more favorably when touched compared to not touched although this effect was not statistically significant (M_{Touch} = 6.31, $M_{\text{No Touch}}$ = 6.20, $t(132) = .54$, $p = .59$).

For both of the dependent variables, individuals who are uncomfortable with touch are negatively affected by the touch, however, comfortable individuals are not given the boost that would be expected from touch. When examining the nature of these data, it becomes evident that there are ceiling effects that may be contributing to this lack of significant difference. Both the

evaluation of the tour guide as well as the evaluation of the campus have extremely high overall means (M_{Guide} = 6.84, M_{Campus} = 6.18, measured on 7-point Likert scale). Post hoc, this makes intuitive sense. The individuals who are visiting campus for a tour are inherently interested in the campus and may have pre-existing favorable disposition toward the university. Moreover, the tour guides are selected because they tend to be very sociable, friendly students who bring energy and enthusiasm to the university tour. Nevertheless, these results are directionally consistent with the hypotheses in cases in which significance was not reached. This study suggests that the CITr scale can identify individuals who are highly comfortable and uncomfortable with receiving touch, and it demonstrates that actual touch can cause these individuals to form differing perceptions following physical interpersonal contact.

Figure 3. Predictive Validity Tour Study: Tour Guide Evaluation (Study 7c)

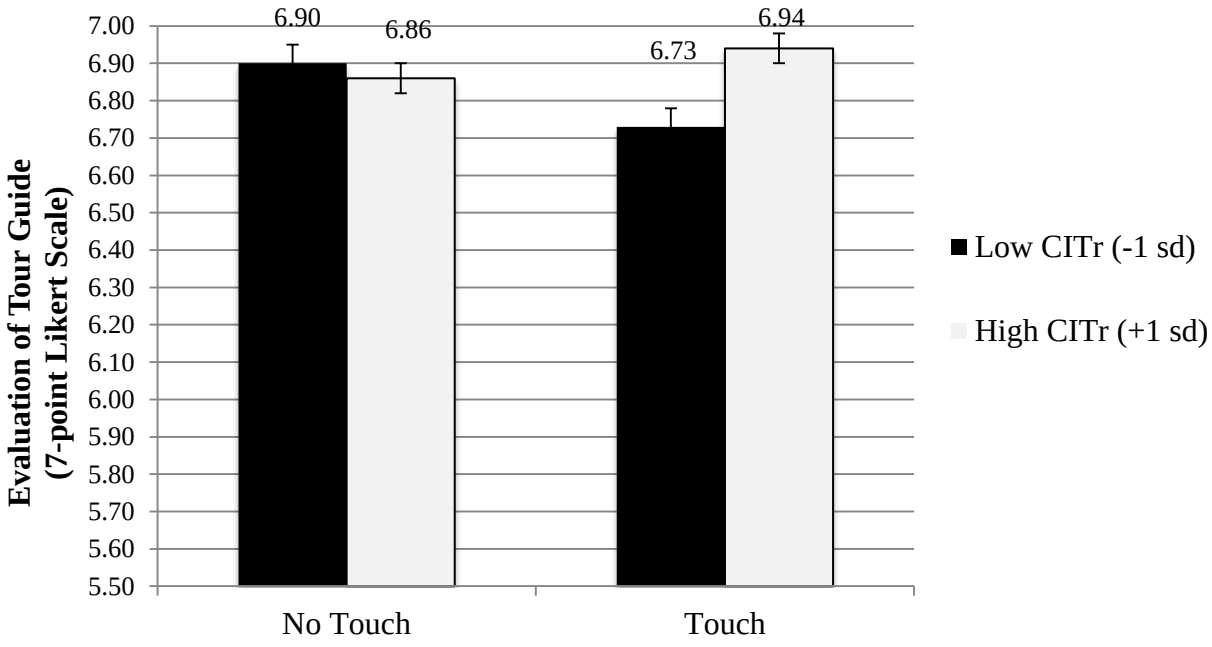
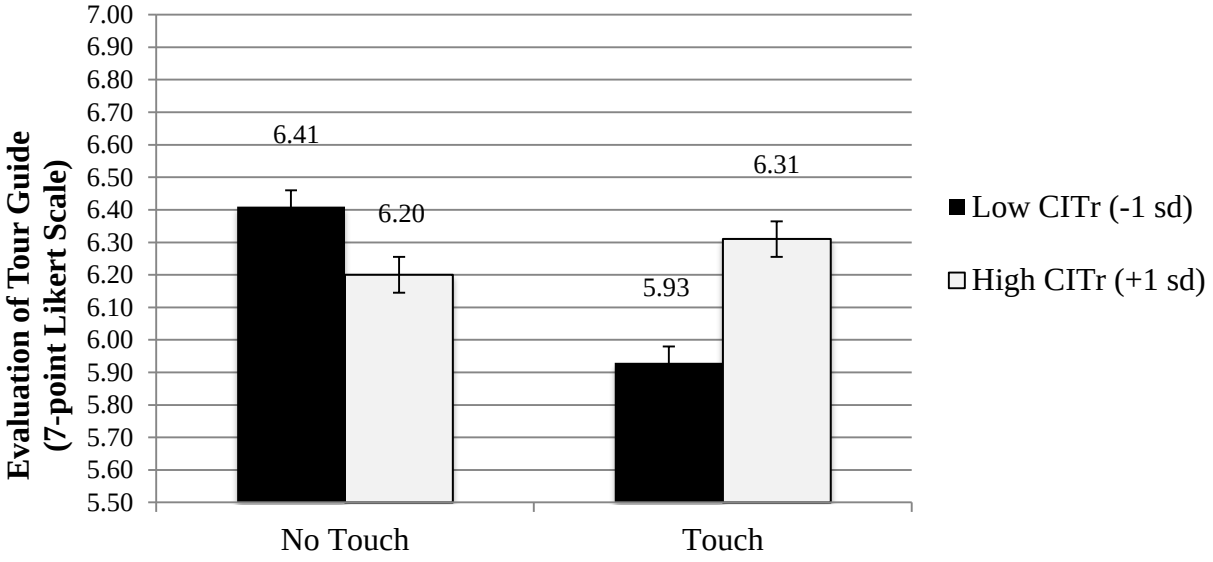


Figure 4. Predictive Validity Tour Study: Campus Evaluation (Study 7c)



ESSAY 1: DISCUSSION

The sense of touch, or haptics, has been studied as it relates to product purchases (Peck et al. 2013; Peck and Childers 2003a, 2003b; Peck and Shu 2009); however, there is currently no available measure that captures individual differences in comfort with interpersonal touch. In fact, recent literature investigating salesperson trust as a result of interpersonal touch uses the Need for Touch scale (Peck and Childers 2003a), which is designed to measure preference for touching products prior to purchase, when the authors would be better served by an interpersonal touch scale (Orth et al. 2013).

This first essay develops a measure of Comfort with Interpersonal Touch (CIT) for the purposes of understanding consumers' preferences for tactile communication and interaction. Comfort with interpersonal touch is defined as the degree to which an individual is comfortable with intentional interpersonal touch from or to another person. A unique element of this scale is

the distinction between comfort with initiating and comfort with receiving touch. The intent through the use of these dimensions is to show that individuals may have a generalized preference for touch, but also may have more subtle preferences for the initiation or reception of touch.

Scale development and assessment confirmed the underlying latent structure of the CIT construct. Scale validation was conducted to ensure that the measurement tool withstood tests of suitability. Discriminant validity was demonstrated through the comparison of the CIT scale with both the Need for Touch scale (Peck and Childers 2003a) and the Touch Anxiety scale (Fuller et al. 2010) to demonstrate that the CIT measure is a distinct construct from other related constructs. Known-group validity was tested successfully on electronic gamers, a population found to be low in CIT, and Roller Derby players, a population found to be high in CIT. I also conducted tests to gain a better understanding of the nomological network in which comfort with interpersonal touch resides. These tests revealed the relationship between comfort with touch approach-oriented tendencies and discomfort with touch and avoidance-oriented tendencies. I further demonstrated predictive validity using a series of behavioral indicators and field data.

It is an important and worthwhile investment to carefully develop appropriate measures of constructs. The scale development process allows for a comprehensive assessment of a construct including the exploration of theoretical lenses that illuminate how the construct will operate in consumption contexts. Much behavioral research relies on the quantification of particular phenomena and is often an imperative step in the research process before addressing further research hypotheses. With the scale established, it will now be beneficial to understand the nature of CIT within the population, and the mechanisms through which CIT may produce effects.

ESSAY 2: COMFORT WITH INTERPERSONAL TOUCH (CIT) STRUCTURE AND EFFECTS

Marketers and consumers alike have been known to benefit significantly from the use of interpersonal touch. In retail environments, consumer experiences are rarely devoid of social interaction and are instead heavily influenced by others around them. Evidence of this can be seen in a wealth of literature that highlights the impact of in-store shopping experiences on types of purchases people make (e.g., Inman, Winer, and Ferraro 2009). Yet, we know that preferences for interactions with touch differ from person to person. Some people experience discomfort and experience negative emotions when touching or being touched by another person.

The purpose of this second essay is to more thoroughly understand the interactions that consumers have with other individuals in retail settings and how these interactions shape consumer attitudes and behaviors. From the first essay, it is clear that consumers' level of comfort with interpersonal touch (CIT) can impact consumption behaviors, and here, I seek a more nuanced understanding of the relationship between an individual's preferences for initiating and receiving touch with strangers.

This essay examines the intricacies of how these two dimensions of touch impact one another. I investigate the classification of individuals according to their level of comfort with initiating and receiving interpersonal touch and determine how discomfort is manifested when a consumer encounters touch. Since individuals differ with respect to their level of comfort with receiving touch and initiating touch, could these two preferences be vastly different from one another? That is, does being comfortable with initiating touch necessitate being comfortable with receiving touch? Or perhaps, can we be comfortable with initiating touch but uncomfortable with

receiving touch, and vice versa? We know that "all people touch and are touched by others, but there are vast differences in the amount of touching that people do" (DiBiase and Gunnoe 2004, 49).

Thus, it would be interesting to investigate large discrepancies between the two dimensions – initiating and receiving touch. These two dimensions are highly correlated, as demonstrated in Essay 1, but the most interesting people to study may be those for whom there is strong preference for one dimension over the other. To understand the latent structure of the CIT data (Study 8), I use a latent class analysis to reveal the underlying groups of people as they relate to comfort with initiating and receiving touch.

Another important aspect to this essay of the dissertation is the emphasis placed on understanding initiation of touch. Previous research in marketing has primarily investigated the effects of receiving touch (e.g., Hornik 1992) using situations in which customers are the recipients of touch from a salesperson or a fellow customer. Yet, consideration of initiating touch has received little to no attention. Initiation of touch, an active, self-initiated behavior, varies drastically from reception of touch, which by nature is more passive. The two types of touch vary in the amount of effort and investment required for its occurrence. Salespeople may initiate touch in order to increase compliance from a customer and make a sale, and customers may engage in initiating touch in order to negotiate the best deal possible. Individuals are likely to perceive the initiation and reception of touch differently and may have differing levels of comfort associated with touch.

Investigating how discomfort is manifested when an individual encounters interpersonal touch in consumer contexts, the following studies isolate each dimension through experimental manipulation of receiving touch (Study 9) or initiating touch (Studies 10-13). The following

sections will explore theoretical perspectives relevant to the use of interpersonal touch in sales contexts as well as potential mechanisms through which touch may produce effects.

Persuasion Knowledge Model and Interpersonal Touch

Certainly, preferences for touch impact how a consumer perceives interpersonal touch, but so do the inferences that a consumer makes about others who touch. The persuasion knowledge model suggests that consumers interpret and make sense of marketers' persuasive attempts and use their knowledge to cope with these attempts (Friestad and Wright 1994). This model is directly relevant to the study of interpersonal interactions using touch. Friestad and Wright (1994) define the "persuasion episode" as the directly observable part of the agent's behavior; part of this episode may be a light touch on the arm from the salesperson (agent) to the shopper (target). The relationship between individuals is important to determine whether an interpersonal touch is perceived as persuasive. When touch occurs between two people in a close relationship, the touch may be welcomed and perceived as normal. However, in an interaction with a salesperson or stranger, the target of the touch may be more likely to interpret the interaction as having persuasive intent.

Friestad and Wright (1994) also suggest that the development of a consumer's persuasion knowledge depends, in part, on people's accumulated experience with what occurs in social encounters and their exposure to social discourse around persuasion. It is important to note that individuals do not rely solely on their own experiences, but through collective experiences others aid in developing socially constructed conceptualizations of persuasion. Therefore, our social encounters, often early childhood interactions, shape how we make sense of interpersonal touch. I recognize, although do not explore, many other factors that affect how consumers process

persuasive attempts of touch such as cultural and societal norms (Hall 1966), relationship between individuals (Montagu 1979), status of the individuals (Hall 1996), and type of touch (Levav and Argo 2010).

Consideration of when consumers use their persuasion knowledge to assess a situation, Campbell and Kirmani (2000) suggest that the accessibility of an ulterior motive increases the likelihood of a consumer forming an inference of a persuasive attempt. While accessibility can be caused by an external source, like a salesperson engaging in flattery, it could be the result of an internal disposition as well. Perhaps some individuals are more cognizant of interpersonal touch when it occurs in interactions leading to more awareness of potential persuasive attempts. I consider how individuals interpret motivations of touch in this essay.

Mechanisms of Interpersonal Touch Effects

Affective Responses. Exploring various theoretical perspectives on touch will enable a greater understanding of the mechanism through which both initiation and reception of touch has effects. The most frequent mechanism through which interpersonal touch is said to produce effects is through affectional responses (Fisher et al. 1976; Levav and Argo 2010). An affectional explanation to touch has been proposed to have biological underpinnings that shape our behaviors by suggesting that, "contact comfort has long served the animal kingdom as a motivating agent for affectional responses" (Harlow 1958, 676). Touch has often been suggested to produce feelings of warmth and comfort (Major and Heslin 1982) and to decrease stress arousal (Reite 1990). Pleasant tactile stimulation that is detected by skin receptors may be neurally linked to stored information in the brain that has been positively associated with touch (Gallace and Spence 2010; Gallace et al. 2008).

Touch-sensitive nerve fibers, known as C-tactile (CT) afferents, are responsible for signaling the occurrence of gentle skin stroking to the brain. Despite the physiologic response to touch through neurological pathways, less is known about the brain mechanisms underlying the social processing of touch (Gordon et al. 2013). Investigating the role of affective responses to touch, various researchers have shown that when skin is lightly stroked, areas of the brain that are tied to social perception and social cognition are also affected (Gordon et al. 2013). These results contribute to a body of work affirming the "skin-as-a-social-organ" hypothesis (Morrison, Löken, and Olausson 2010) that suggests that our sense of touch facilitates social perception. Our sense of touch certainly has biologic reasons for existence; our reflexes (e.g., in response to touching a hot surface) are biologically adaptive reactions to harmful environmental encounters. Yet, this body of work has contributed to our understanding of the physiologic and social processing of receiving touch. It is not the case that responses to touch are merely physiologic, but instead touch is inextricably connected to our mental processing of social perception and experience.

Aside from physiologic measures, an individual's reported states also suggest an affective mechanism to touch. Levav and Argo (2010) demonstrate that individuals who are lightly patted on the back of the shoulder will engage in more financial risk-taking behavior. The mechanism that these authors propose is an affectional one such that participants feel a greater sense of security with this type of touch and are therefore more willing to assume risk. Similarly, the research by Fisher et al. (1976), in which a librarian touched students when handing back a library card, suggests that the affective responses induced by touch led to subsequent positive evaluations of the clerk and library environment.

Consumer Coping. Another potential mechanism through which touch may produce effects is through the consumer's thoughts about whether they can personally cope with the persuasive attempts of others. Various researchers have recognized that coping in consumer contexts may affect consumer behavior (Friestad and Wright 1994; Kirmani and Campbell 2004) through the various ways in which consumers attempt to deal with stress and negative emotion. Coping is defined as "the set of cognitive and behavioral processes initiated by consumers in response to emotionally arousing, stress inducing interactions with the environment aimed at bringing forth more desirable emotional states and reduced levels of stress" (Duhachek 2005, 42). Difficulty coping with touch may be more pronounced for individuals uncomfortable with interpersonal touch given that they have strong avoidance motivation in interpersonal interactions, as seen in Essay 1.

Strategies used to mitigate potential negative emotions include avoidant behaviors or choosing to delay undesirable choices (Luce 1998). A consumer encountering anxiety may seek avoidant strategies to minimize explicit confrontation of negative decision consequences and emotions. The use of initiating touch is generally within the control of the individual doing the touching. In a situation in which an individual is instructed to use interpersonal touch, an individual who typically avoids such behavior will face decisions with how to cope with that task. On the receiving side, being touched by another person is not always in one's own control as touch happens on a daily basis while navigating crowded environments or in conversations with others. Nevertheless, for individuals for whom touch produces negative emotions, the ability to cope with its occurrence could prove to be a mechanism through which initiating touch has effects.

Affective and Empathetic Forecasting. When considering how one might feel in an encounter that involves touch, it is important to realize the necessity to forecast emotions and expectations. When consumers receive touch in a natural setting, there is likely to be an affective component to their immediate or retrospective reaction to such an event. Affective forecasting, or people's predictions about their future feelings, is even more relevant in the context in which an individual is instructed to initiate touch. For example, a manager may encourage its salesforce to use touch in interactions with customers. When asked to initiate touch, an individual will form a prospective expectation of how the experience will go, which may differ from the retrospective evaluation that is formed after the interaction has occurred.

Research on affective forecasts suggests that many of the decisions we make, behaviors we engage in, and evaluations of experiences depend on the predictions about how different options will make us feel (Wilson and Gilbert 2003). People are relatively skilled at predicting the emotions that will be experienced in a given situation, for example, feeling sadness with the death of a family pet. However, there are many errors and biases that can occur when thinking about how one feels in the future. We tend to be less adept at forecasting the (1) intensity of the emotions experienced and (2) the duration of the specific emotions. Some research has suggested that there is a greater likelihood to overestimate the impact of negative affect compared to positive affect (Wilson and Gilbert 2005). A possible explanation for this is that when forecasting negative affective experiences, people tend to neglect other factors that will influence their later emotions.

Not only might an individual consider how they will feel in a future interaction, but in the context of interpersonal touch, they may consider how the other person will feel in the interaction as well. Relevant to the study of initiating touch is both the forecasting of one's own

feelings as well as forecasting the feelings and response of the recipient of touch. This demonstrates the importance of empathetic forecasts, or others' predictions for how a person will feel about future events (Pollmann and Finkenauer 2009). Researchers typically find that individuals make predictions about others' potential experiences fairly easily and do so with much confidence in their own predictions' accuracy (Dunning et al. 1990).

In this research, I investigate the "social risk", or the consideration of others' feelings, that accompanies the act of touching someone else. Does the initiator of touch worry about how the recipient will feel? Questioning whether individuals will not only consider their own affective forecasts, but think about the feelings of others, I consider both affective forecasts and empathetic forecasts. Given the social nature of the interaction, I would expect that forecasting others' emotions would affect the touch initiator's experience as well.

The remainder of this essay investigates the classification of individuals according to their level of comfort with initiating and receiving interpersonal touch and determines how discomfort is manifested when a consumer encounters touch. I will delve into why consumers may differ with their expectations of touching interactions, the effects of personally touching and being touched by others, the motivational inferences that individuals make about touch, and the mechanisms underlying the use of touch and its effects.

Study 8: CIT Construct Structure

This study was designed to test whether or not there are meaningful underlying classes of individuals' preference for interpersonal touch. Based on observed information, a latent class analysis (LCA) tests whether mutually exclusive categories exist. To run the LCA, data from Essay 1, Study 5 was used, which constituted 3008 participants from the university staff and

MTurk samples. This sample is heterogeneous and allows for greater variation in demographic characteristics. For a list of data samples and descriptive statistics from this essay, see Table 6.

Table 6. Essay 2 Dissertation Data Samples

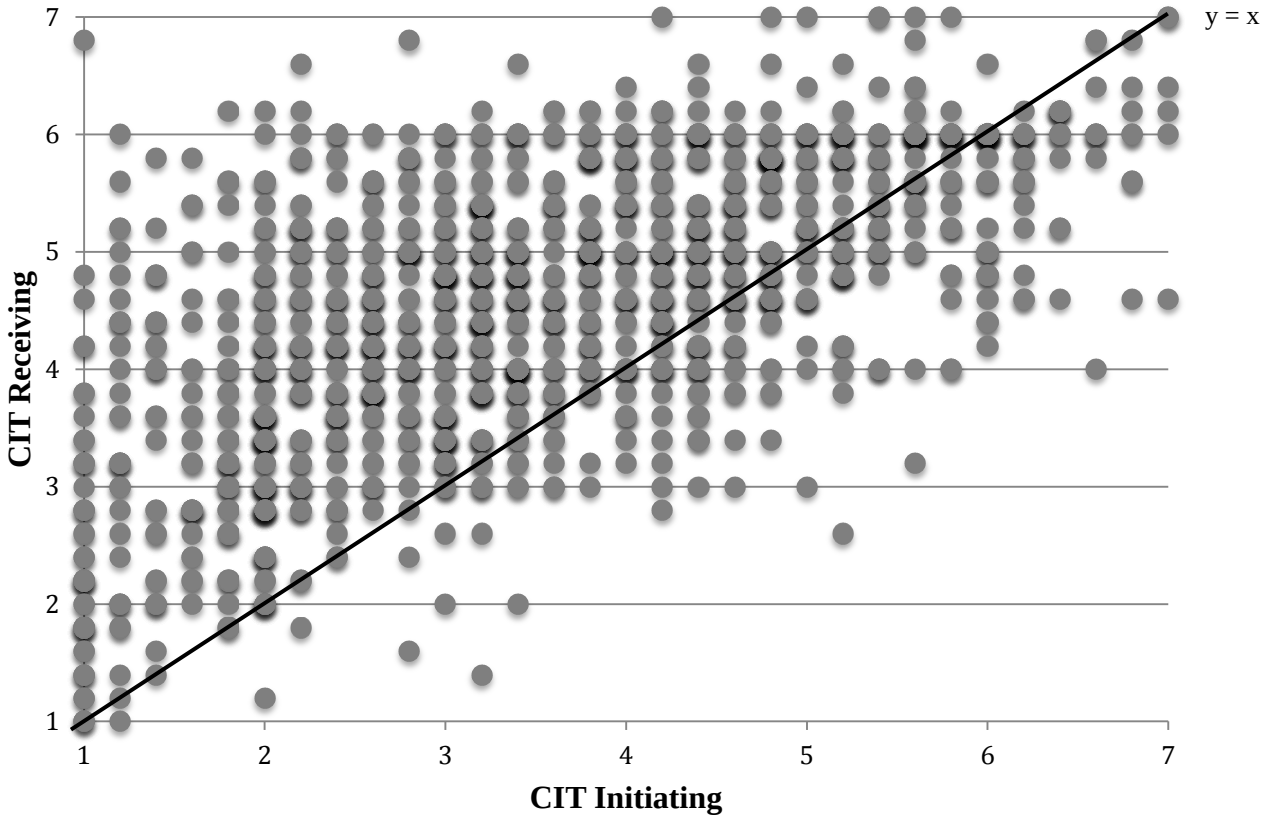
Study	Sample	Sample Size	CIT Mean (SD) [α]	CITi Mean (SD) [α]	CITr Mean (SD) [α]
Study 8	**CIT Structure**				
	University Staff and General US Population (same as Study 3 & 5)	3008	3.82 (1.29) [.90]	3.19 (1.52) [.89]	4.46 (1.40) [.92]
Study 9	**Receiving Touch Field Study**				
	Swedish Shoppers	351	4.32 (1.27) [.90]	4.26 (1.38) [.88]	4.39 (1.42) [.85]
Study 10a	**Salesperson Initiating Touch Questionnaire**	97			
	Swedish Salespeople		5.17 (1.34) [.89]	4.69 (1.45) [.86]	5.65 (1.55) [.94]
Study 10b	**Consumers' Inferences of Touch Study**	1648			
	General US Population (same as Study 5)		3.67 (1.36) [.90]	3.00 (1.55) [.90]	4.33 (1.53) [.94]
Study 11	**Initiating Touch Lab Study**				
	Undergraduate Students	528	4.01 (.99) [.86]	3.48 (1.40) [.87]	4.54 (.99) [.91]
Study 12	**Dining Initiating Touch Study**				
	Undergraduate Students	372	4.03 (1.30) [.90]	3.26 (1.54) [.90]	4.76 (1.41) [.96]
Study 13	**Customer Initiating Touch Study**				
	Undergraduate Students	394	3.56 (1.11) [.84]	2.58 (1.28) [.83]	4.55 (1.38) [.93]

Note: CIT was measured on a 7-point Likert Scale (1=Strongly Disagree, 7 = Strongly Agree)

Study 8 Results. Prior to running latent class analyses, the CIT data was examined to get a general understanding of the distribution. The CIT measure was able to capture individuals who

are both high and low in comfort, and for both samples followed a fairly normal distribution. I plotted aggregate scores of comfort with initiating against comfort with receiving touch (see Figure 5). As depicted, most cases fall above the y = x line, suggesting that participants tend to be more comfortable with receiving touch than initiating touch. Being a passive recipient of an interpersonal touch may be more comfortable than being the person who initiates that touch. This is also supported with the latent class analyses.

Figure 5. Staff Sample – CIT Initiating vs. CIT Receiving (Study 8)



Latent class analyses were conducted comparatively using the poLCA package in R. Models were compared using the Bayesian Inference Criterion (BIC), which is a common

measure due to its simplicity in assessing relative model fit (Lin and Dayton 1997). The lowest BIC score should indicate that the model fits the data and has the best predictive capacity compared to other models.

After participants responded to a questionnaire containing the CIT items, their scores were split at the center of the scale 1-4 representing low comfort and 5-7 representing high comfort. With the student sample, using the items of the CIT scale, a 1-latent class model, representing no underlying class structure to the data, was run (BIC = 22,449.66). Subsequently, 2-, 3-, 4-, and 5-latent class models were run and produced BIC values of 17,758.15, 16,623.45, 16,444.77, and 16,485.49, respectively. The 4-latent class model produced the lowest BIC suggesting superior predictive capacity. The class structure has been tested on a student sample, staff sample, and a general U.S. population sample (MTurk) and the latent structure across all samples was consistent. The four latent classes can be characterized by being either high or low on either the initiating or the receiving dimension. The percentage of the population falling into each latent class is detailed as well (see Figure 6).

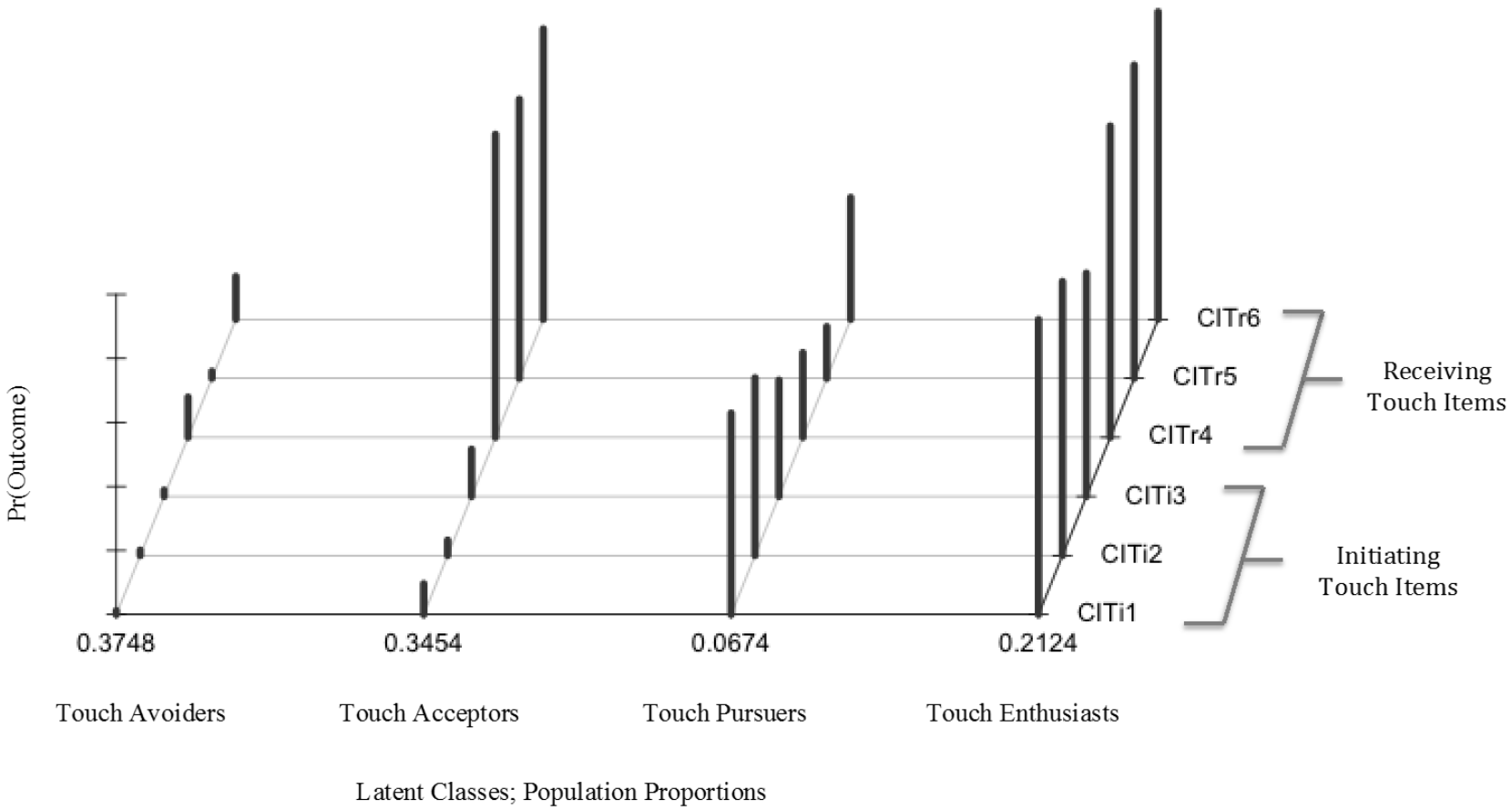
Latent class 1 is characterized by being low initiators and low receivers. That is, they are uncomfortable with initiating touch and uncomfortable with receiving touch. I call these individuals “Touch Avoiders”, and they comprise approximately 37% of the population. Touch Avoiders are the most uncomfortable overall with interpersonal touch. Latent class 2 is characterized by being low initiators and high receivers. These “Touch Acceptors” do not mind being touched, but they are not comfortable initiating touch. Touch Acceptors comprise 35% of the population. The third latent class is characterized by being high initiators and low receivers. These “Touch Pursuers” comprise only about 7% of the population. This corresponds to Figure 5 illustrating that people in general are more comfortable with receiving than initiating touch. The

final latent class of "Touch Enthusiasts" are comfortable initiating *and* receiving touch and comprise about 21% of the population. (For a graphical representation of the latent class structure, see Figure 7).

Figure 6. Four Latent Classes with Comfort with Initiating and Receiving Touch (Study 8)

		Comfort with INITIATING Touch	
		Low	High
Comfort with RECEIVING Touch	Low	**Touch Avoiders** Sample Proportion: 37.5%	**Touch Pursuers** Sample Proportion: 6.7%
	High	**Touch Acceptors** Sample Proportion: 34.5%	**Touch Enthusiasts** Sample Proportion: 21.2%

Figure 7. Latent Class Analysis (LCA) Plot (Study 8)



Note: Each group of bars represents the conditional probabilities, by latent class, of being comfortable with interpersonal touch on each of the 6 items (CITi1 through CITr6). Taller bars correspond to conditional probabilities closer to 1 of being extremely comfortable.

Post Hoc Discriminant Analysis

A discriminant analysis was run to test whether individuals could be accurately classified into the latent classes based on various predictor variables. The same university staff sample was used as in Essay 1, Study 3. The predictor variables included demographic characteristics of age and gender as well as psychographic characteristics such as extraversion, need to belong, assertiveness, agoraphobia, and claustrophobia. For example, personality preferences of whether an individual gains energy from social interactions with others (Costa and McCrae 1992) or whether one seeks belongingness and desires strong interpersonal attachments (Baumeister and Leary 1995) may help explain how individuals are classified into latent classes. Therefore, the purpose of this test is to see whether these personality and demographics can accurately predict an individual's CIT latent class membership. This analysis highlights differences between groups by indicating which attributes contribute most to group separation.

The participants' assigned latent classes and predictors were put into a stepwise discriminant analysis in an attempt to find the best set of predictor variables. Mean differences were significant for all of the predictors on latent class membership. Box's M was used to determine if the variance-covariance matrices were equivalent for each latent class. While the log determinants were quite similar, Box's M indicated that the assumption of equality of covariance matrices was violated. However, given the large sample size, this is not likely to be an issue.

Using Wilk's Lambda there was a significant association between groups and all predictors ($p < .001$), although a canonical correlation of .39 suggests that the model explains only 15.1% of the variance, leaving a very large portion of variance in the grouping variable unexplained. A closer analysis of the structure matrix revealed only two significant predictors, namely extraversion (.88) and assertiveness (.42), while age, gender, need to belong,

claustrophobia, and agoraphobia were poor predictors. Furthermore, the cross-validated classification showed that the model classified only 47.3% of the cases correctly. While these predictor variables help to discriminate between one's membership in a latent class, their ability to accurately classify individuals is not highly reliable. This post hoc discriminant analysis demonstrates that while extraversion and assertiveness are the best predictors of latent class membership, CIT is not simply a behavioral manifestation of these well-understood constructs, but rather, an independent construct in and of itself.

Study 9: Receiving Touch Retail Field Study

This study focuses on the receiving dimension of the CIT construct. I investigate how an intentional interpersonal touch from a salesperson affects shoppers. The field study was conducted in a large national sporting goods chain in Karlstad, a town in central Sweden. Three hundred and fifty-one Swedish shoppers participated in the study. Two native Swedes – one male and one female – acted as confederates as store employees. Both confederates received a training program that detailed the appropriate use of the interpersonal touch. The questionnaires in this study were composed in English, translated into Swedish, and back translated into English for verification.

Empirical research conducted on cultural differences has suggested that cultures vary on the frequency and usage of touch. People from the UK, Northern Europe, North America and Asia touch each other far less often than people from Latin America or Southern Europe (Hall 1966; Henley 1973; Jourard 1966). As indicated by this research, people from Sweden, a northern European country, should be similar in touching patterns and preferences to people from the United States.

Study 9 Procedure. As shoppers entered the store, they were approached by one of the research assistants and asked if they would like to participate in this study. Shoppers received lottery tickets for participation. The research assistant gave the participant an identifier piece of paper, which was color-coded and had an identification number on it. The color of the sheet of paper indicated to the confederates whether or not to touch the participant.

The confederate greeted the participant and said, "Is there anything I can help you with today?" Depending on the condition, the confederate did or did not touch the participant on the upper arm when asking the question. During each of these interactions, additional research assistants acted as "observers." The observer ensured that the proper touch had occurred in the touch condition, recorded information regarding which confederate interacted with the participant and the demeanor of the interaction. Upon completion of the shopping trip, the participant filled out the attitudinal/behavioral questionnaire.

Study 9 Measures. All attitudinal measures were rated on a 7-point semantic differential scale. The attitude toward the salesperson was measured with six items ($\alpha = .90$) with sample anchors of "bad – good" and "not knowledgeable – knowledgeable" (see Appendix 1). Attitude toward the store used five anchors ($\alpha = .90$) such as "low quality – high quality" and "negative – positive." Evaluation of the store's products used end points of "low quality – high quality", "negative – positive", and "unfavorable – favorable" ($\alpha = .90$). Participant's level of affect was also recorded using the following semantic differential scale: "Currently, I am feeling: sad – happy, negative – positive, uncomfortable – comfortable, and dissatisfied – satisfied" ($\alpha = .91$). A measure of behavioral intent asked participants: "How likely will you be to shop this store in the future?" (1 = extremely unlikely, 7 = extremely likely).

Study 9 Results. Analyses were conducted using both the four latent classes as well as the continuous measures of CITi and CITr. First, the categorical analyses will be discussed and then will be contrasted with the regression analyses on the full continuous data. Participants' were placed into latent classes based on their response to the CIT measure. Population proportions were as follows: Touch Avoiders (40.3%), Touch Pursuers (14.1%), Touch Acceptors (17.5%), and Touch Enthusiasts (28.2%). This is interesting as it suggests that Swedes as a population may be distributed differently across these latent classes as compared to Americans. Across both populations, the proportions of completely uncomfortable (Touch Avoiders) and completely comfortable (Touch Enthusiasts) are relatively consistent. However, the proportions in the "off diagonals", those who are comfortable with one but uncomfortable with the other, are different. Americans are much more likely to be Touch Acceptors (35%) as compared to Swedes (18%) and Swedes have a higher population proportion of Touch Pursuers (14%) as compared to Americans (7%). On the whole, Swedes have about 54% of their population who are uncomfortable with receiving touch while only about 44% within the U.S. Since this study focuses on receiving touch, it may be an especially strong test when it comes to discomfort.

Categorical Analysis Results. Following Abelson and Prentice (1997), I ran contrast analyses on the five dependent measures: attitude toward the store, attitude toward the store's products, attitude toward the salesperson, likelihood of shopping at the store in the future, and affect. I first examined the interaction between comfort with receiving touch (low comfort: Touch Avoiders and Touch Pursuers and high comfort: Touch Acceptors and Touch Enthusiasts) and the touch by the salesperson condition on the dependent measures. Since initiating touch was not manipulated, the focus is on the high and low levels of the receiving dimension. The results reveal significant interactions for all of the dependent variables (left side of Table 7).

For attitude toward the store, the interaction between comfort with receiving touch and the touch condition was significant ($F(7, 343) = 7.29$, $p = .007$, see Figure 8) with the residual between group variance small, as required ($R^2 = .001$; $F(2, 343) = .21$; $p = .81$). All tests on the remaining DVs satisfied the second condition of non-significance of the alternative interactive contrasts and will not be discussed further. Individuals high in their comfort with receiving touch, when touched, evaluated the store more positively ($t(347) = 3.31$, $p = .001$) compared to when they were not touched. However, those low in their comfort with receiving touch did not have a negative reaction, they were simply unaffected by the touch ($t(347) = -.56$, $p = .58$, see Table 7 for means).

The same pattern was obtained with attitude toward the store's products, with a significant interaction between comfort with receiving touch and the touch condition ($F(7, 343) = 4.08$, $p = .04$). Again, people who were comfortable with receiving touch had a significantly more positive attitude toward the store's product when touched ($t(347) = 3.02$, $p = .003$), while those low in their comfort with receiving touch were unaffected by the touch ($t(347) = .12$, $p = .90$, see Figure 9 for a graphical illustration).

Table 7. Receiving Touch Field Study - Means of Interactive Effects from Categorical Analyses (Study 9)

			Condition		*p*-value		Latent Classes	Condition		*p*-value
			No Touch	Touch				No Touch	Touch	
Dependent Variables	Attitude Toward the Store[a]	Low Receivers	6.23	6.17	.58		Touch Avoiders	6.24	6.25	.84
							Touch Pursuers	6.20	6.04	.44
		High Receivers	5.99**	6.39**	.001**		Touch Acceptors	5.85*	6.29*	.06*
							Touch Enthusiasts	6.10**	6.43**	.03**
	Attitude Toward the Store's Products[a]	Low Receivers	6.07	6.08	.90		Touch Avoiders	6.04	6.05	.96
							Touch Pursuers	6.16	6.19	.91
		High Receivers	5.93**	6.32**	.003**		Touch Acceptors	5.80**	6.33**	.01**
							Touch Enthusiasts	6.03	6.29	.13
	Attitude Toward the Salesperson[b]	Low Receivers	6.31	6.30	.90		Touch Avoiders	6.31	6.29	.83
							Touch Pursuers	6.30	6.32	.90
		High Receivers	6.17**	6.51**	.009**		Touch Acceptors	6.14	6.39	.29
							Touch Enthusiasts	6.19**	6.56**	.02**
	Likelihood of Shopping at the Store in the Future[b]	Low Receivers	6.74	6.76	.83		Touch Avoiders	6.74	6.78	.78
							Touch Pursuers	6.72	6.72	1
		High Receivers	6.49**	6.83**	.006**		Touch Acceptors	6.39	6.69	.30
							Touch Enthusiasts	6.56**	6.90**	.02**
	Affect[a]	Low Receivers	6.35*	6.13*	.10*		Touch Avoiders	6.28	6.14	.36
							Touch Pursuers	6.56**	6.13**	.05**
		High Receivers	6.02**	6.55**	.001**		Touch Acceptors	6.01	6.41	.14
							Touch Enthusiasts	6.04**	6.58**	.002**

[a] interaction between touch condition and comfort with receiving touch is significant at $p < .05$, [b] interaction between touch condition and comfort with receiving touch is significant at $p < .10$, **significant at $p < .05$, *significant at $p < .10$.

Figure 8. Receiving Touch Field Study – Attitude Toward the Store Analyzed Categorically (Study 9)

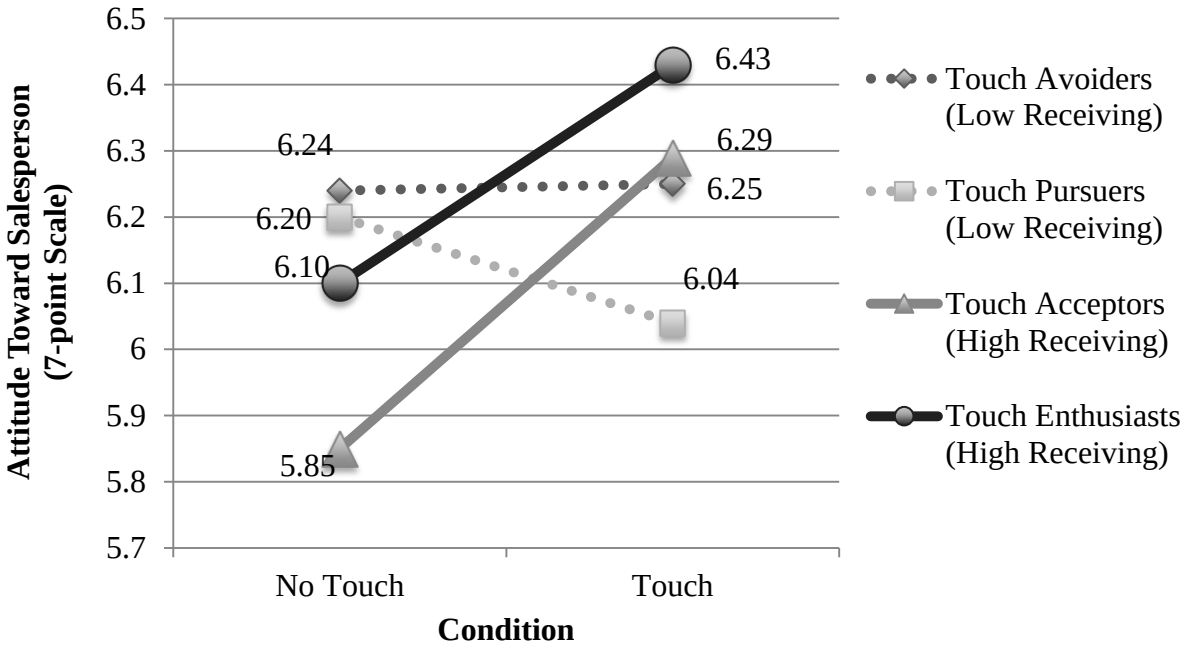
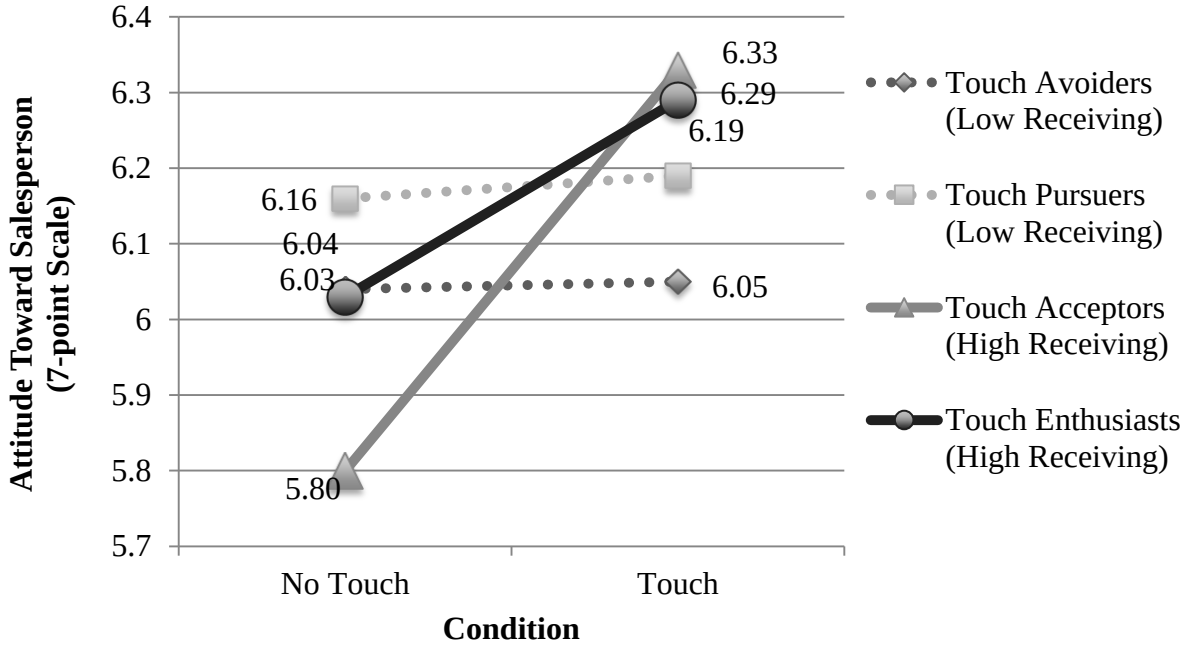


Figure 9. Receiving Touch Field Study - Attitude Toward the Store's Products Analyzed Categorically (Study 9)



There was a marginally statistically significant effect of the interaction on the participant's attitude toward the salesperson ($F(7, 343) = 2.76$, $p = .098$, see Figure 10), with those high in comfort benefiting from the touch ($t(347) = 2.64$, $p = .009$), and making no difference for those low in comfort ($t(347) = -.12$, $p = .90$). There was also a marginally significant effect of the participants' likelihood of shopping the store in the future ($F(7, 343) = 2.69$, $p = .10$, see Figure 11); again, with highs driving the effect ($t(347) = 2.79$, $p = .006$) and lows unaffected ($t(347) = .22$, $p = .83$). Interestingly, the individuals low in comfort with receiving touch are not hurt by the touch; they are just not helped in the same way as those comfortable with receiving touch.

Figure 10. Receiving Touch Field Study - Attitude Toward the Salesperson Analyzed Categorically (Study 9)

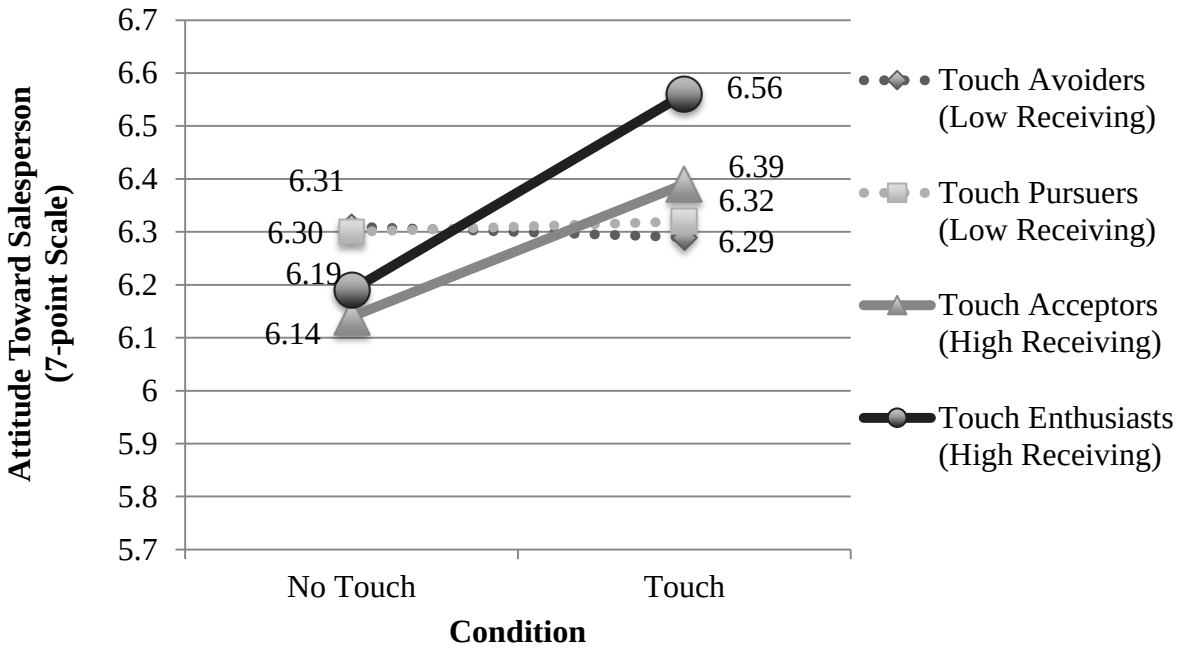
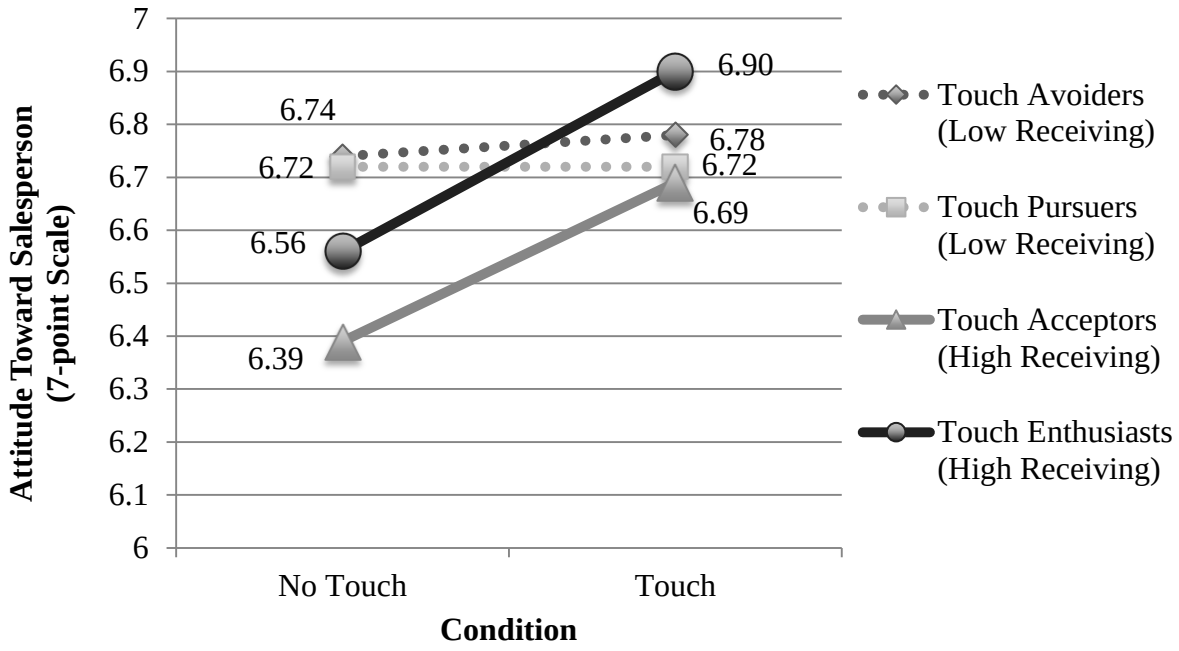
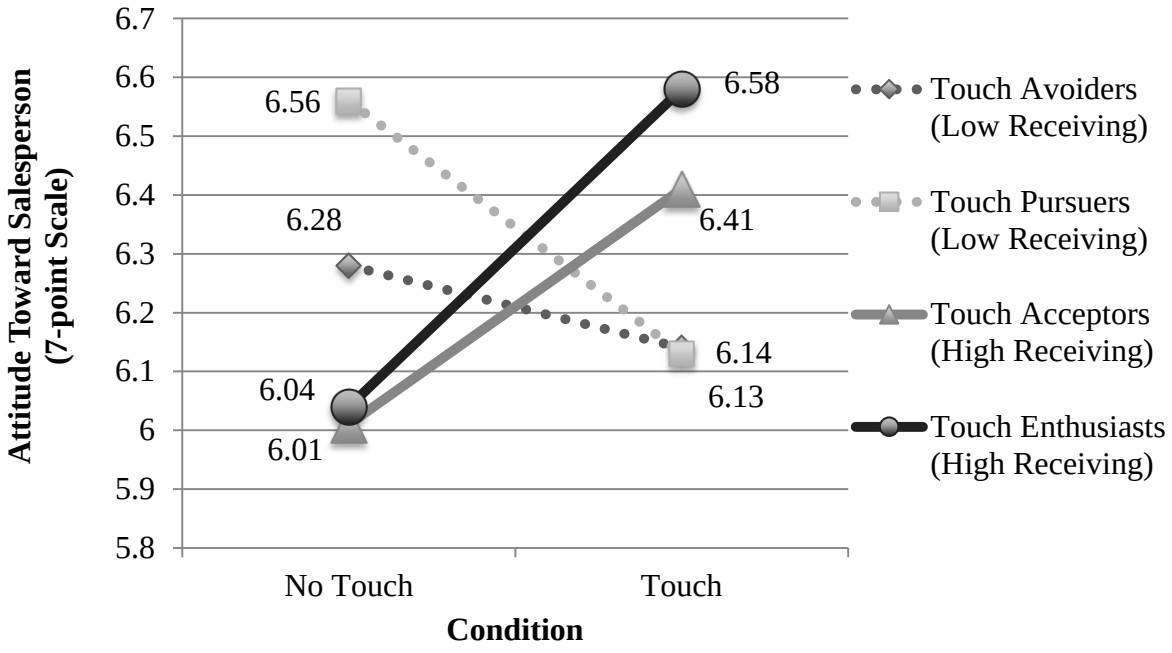


Figure 11. Receiving Touch Field Study – Likelihood of Shopping at the Store in the Future Analyzed Categorically (Study 9)



The exception is the affect a person feels when touched in the store. There is significant interaction between comfort with receiving touch and the touch condition, on affect ($F(7, 343) = 13.03$, $p < .001$, see Figure 12). Similar to the other dependent measures, individuals comfortable with receiving touch get a significant positive increase in affect when touched compared to not being touched ($t(347) = 3.59$, $p < .001$). However, individuals who are not comfortable with receiving touch exhibited a marginally significant decrease in their affect when touched compared to not touched ($t(347) = -1.61$, $p = .10$).

Figure 12. Receiving Touch Field Study - Current Affective State Analyzed Categorically (Study 9)



To get a more nuanced appreciation of the differential behaviors in response to touch, it is informative to look at the four latent classes (Table 7, right side). For example, not all comfortable receivers react the same way when touched. Touch Enthusiasts, who are comfortable with receiving and initiating touch, are driving most of the positive effects associated with comfort in receiving touch. When touched, Touch Enthusiasts have a more positive attitude toward the store and toward the salesperson, and they are more likely to return to the store in the future. Touch Acceptors (those comfortable with receiving but not initiating touch) generally respond positively to touch, but not with the magnitude of the Touch Enthusiasts. The positive effects of receiving touch seem to be largely driven by the Touch Enthusiasts.

Turning toward the two groups that are uncomfortable with receiving touch also yields some insights. Touch Avoiders, low on both initiating and receiving touch are, somewhat surprisingly, completely unaffected by a salesperson's touch. While touch does not help this group, it also doesn't hurt them. However, Touch Pursuers, those that are comfortable with initiating but not receiving touch, exhibit more negative affect when touched. Although the other dependent variables were not affected, it could be that repeated touches or perhaps a longer duration touch would not only lead to negative affect, but it could also affect other variables such as attitude toward the salesperson or the store.

Continuous Analysis Results. To validate the findings of the categorical measures, I tested the same effects using the continuous measures of CITi and CITr. Rather than using the segmented latent classes to represent those who were uncomfortable or comfortable with receiving touch, I ran regression analyses using the full CITr measure. Examining the interaction between the touch condition and the participant's CITr, all of the dependent variables are statistically significant with the exception of the likelihood to shop at the store in the future (left side of Table 8). For attitude toward the store, there was a main effect of touch such that shoppers who were touched evaluated the store more favorably ($\beta = .16$, $t(348) = 1.96$, $p = .05$). There is a significant interaction between comfort with receiving touch and the touch condition as well ($\beta = .13$, $t(346) = 2.59$, $p = .01$, see Figure 13). Individuals high in their comfort with receiving touch, when touched, evaluated the store more positively ($t(346) = 3.24$, $p = .001$) compared to when they were not touched. However, those low in their comfort with receiving touch did not have a negative reaction, they were simply unaffected by the touch ($t(346) = -.43$, $p = .37$). The same pattern was obtained with attitude toward the store's products, with a main effect of touch ($\beta = .18$, $t(349) = 2.08$, $p = .04$) and a significant interaction between comfort

with receiving touch and touch (β = .11, $t(347) = 1.95$, $p = .05$, see Figure 14). Again, people who were comfortable with receiving touch had a significantly more positive attitude toward the store's product when touched ($t(347) = 2.88$, $p = .004$), while those low in their comfort with receiving touch were unaffected by the touch ($t(347) = .12$, $p = .91$).

Figure 13. Receiving Touch Field Study – Attitude Toward the Store Analyzed Continuously (Study 9)

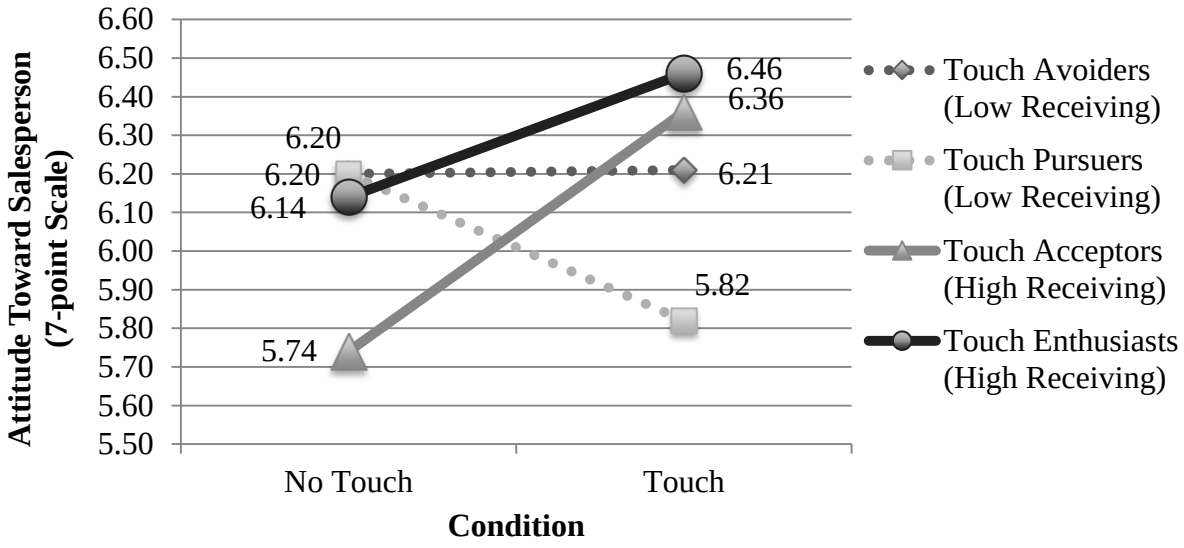


Figure 14. Receiving Touch Field Study - Attitude Toward the Store's Products Analyzed Continuously (Study 9)

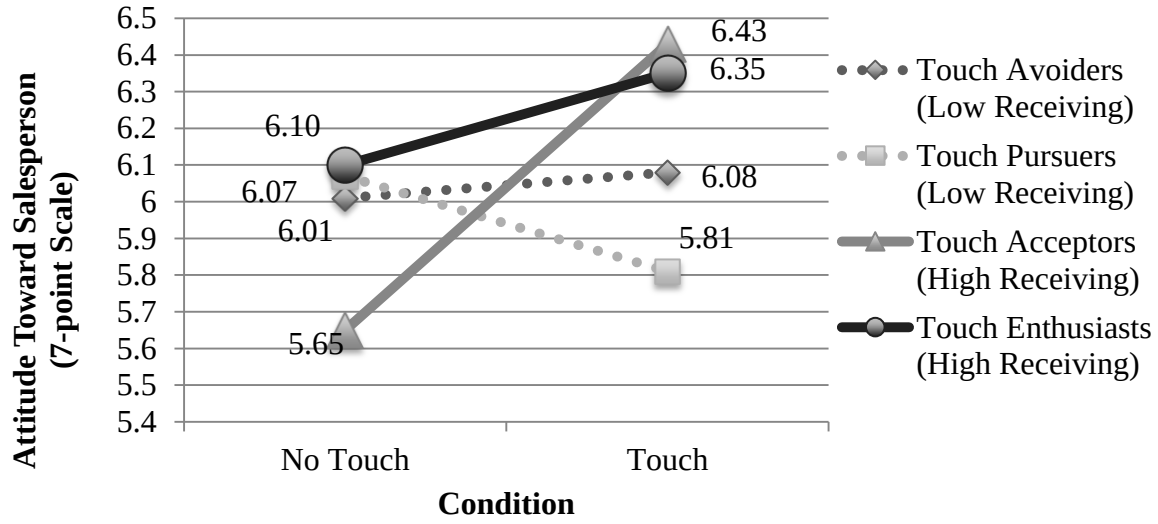


Table 8. Receiving Touch Field Study - Means of Interactive Effects from Continuous Analyses (Study 9)

			Condition		*p*-value
			No Touch	Touch	
Dependent Variables	Attitude Toward the Store[a]	Low Receivers	6.19	6.15	.67
		High Receivers	6.05**	6.43**	.001**
	Attitude Toward the Store's Products[a]	Low Receivers	6.02	6.03	.91
		High Receivers	6.00**	6.36**	.004**
	Attitude Toward the Salesperson[a]	Low Receivers	6.25	6.23	.84
		High Receivers	6.25**	6.57**	.008**
	Likelihood of Shopping at the Store in the Future[b]	Low Receivers	6.70	6.76	.57
		High Receivers	6.56**	6.82**	.03**
	Affect[a]	Low Receivers	6.26	6.05	.15
		High Receivers	6.15**	6.50**	.002**

Latent Classes	Condition		*p*-value
	No Touch	Touch	
Touch Avoiders	6.20	6.21	.99
Touch Pursuers	6.20*	5.82*	.10*
Touch Acceptors	5.74**	6.36**	.002**
Touch Enthusiasts	6.14**	6.46**	.01**
Touch Avoiders	6.01	6.08	.61
Touch Pursuers	6.07	5.81	.31
Touch Acceptors	5.65**	6.43**	.002**
Touch Enthusiasts	6.10*	6.35*	.06*
Touch Avoiders	6.29	6.26	.81
Touch Pursuers	6.13	6.04	.71
Touch Acceptors	6.04*	6.45*	.09*
Touch Enthusiasts	6.30**	6.61**	.02**
Touch Avoiders	6.70	6.79	.46
Touch Pursuers	6.72	6.61	.65
Touch Acceptors	6.46	6.78	.16
Touch Enthusiasts	6.59**	6.84**	.05**
Touch Avoiders	6.25	6.02	.14
Touch Pursuers	6.33	6.18	.61
Touch Acceptors	5.65**	6.50**	.002**
Touch Enthusiasts	6.30**	6.62**	.03**

[a] interaction between touch condition and comfort with receiving touch is significant at $p < .05$, [b] interaction between touch condition and comfort with receiving touch is not significant, **significant at $p < .05$, *significant at $p < .10$.

There was a marginally significant main effect of touch on the participant's attitude toward the salesperson (β = .15, $t(349) = 1.70$, $p = .09$) and a statistically significant effect of the interaction of CITr and touch (β = .11, $t(347) = 2.02$, $p = .04$, see Figure 15), with those high in comfort benefiting from the touch ($t(347) = 2.66$, $p = .008$), and making no difference for those low in comfort ($t(347) = -.20$, $p = .84$). Participants were more likely to say that they would shop at the store in the future after being touched (β = .16, $t(348) = 2.00$, $p = .05$), but the interaction between the touch condition and CITr was not significant (β = .06, $t(346) = 1.17$, $p = .24$, Figure 16). However, investigating that effect, high receivers are more positively affected by the touch ($t(346) = 2.24$, $p = .03$) and the low receivers are unaffected ($t(346) = .57$, $p = .57$). Representing exactly the same pattern as the categorical analyses, the individuals low in comfort with receiving touch are not hurt by the touch, they are just not helped in the same way as those comfortable with receiving touch.

Figure 15. Receiving Touch Field Study - Attitude Toward the Salesperson Analyzed Continuously (Study 9)

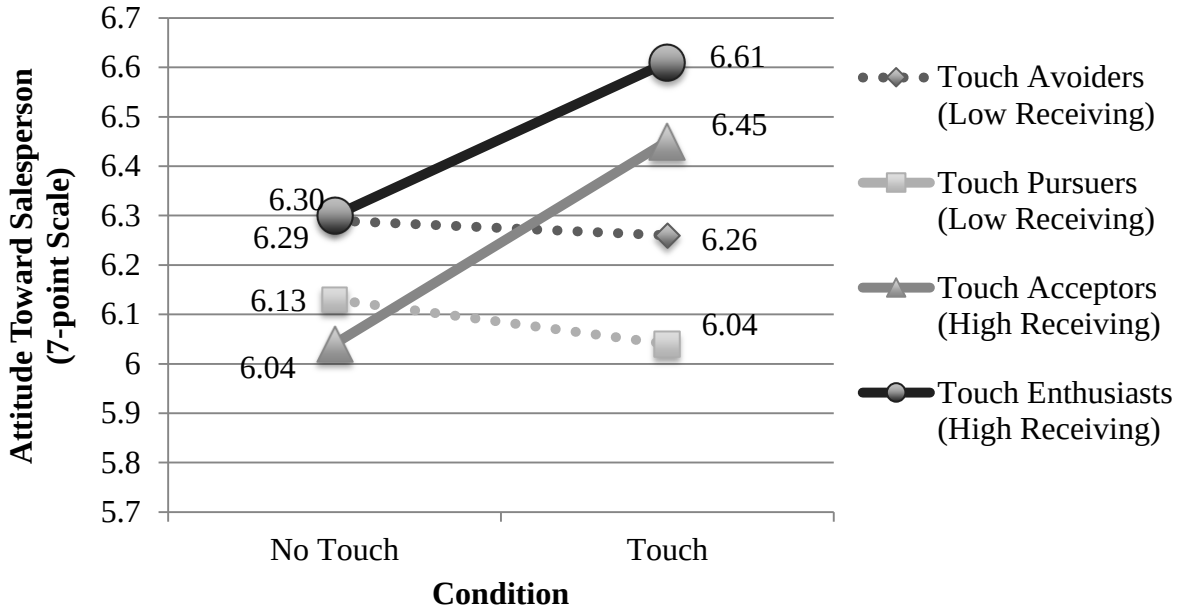
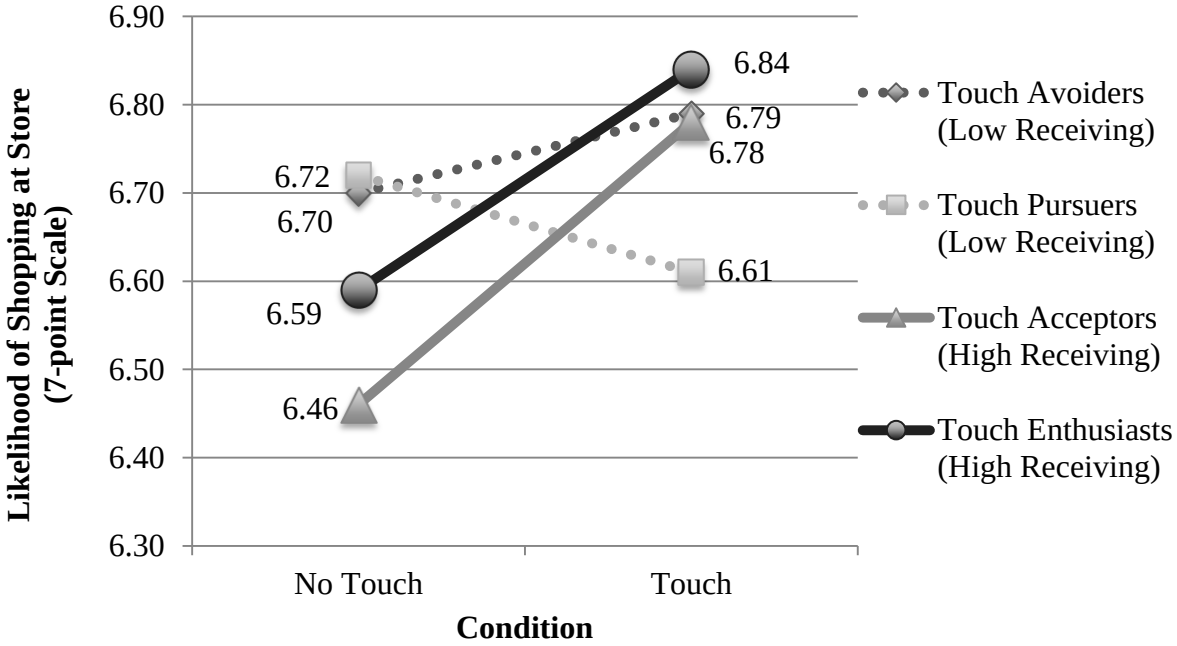
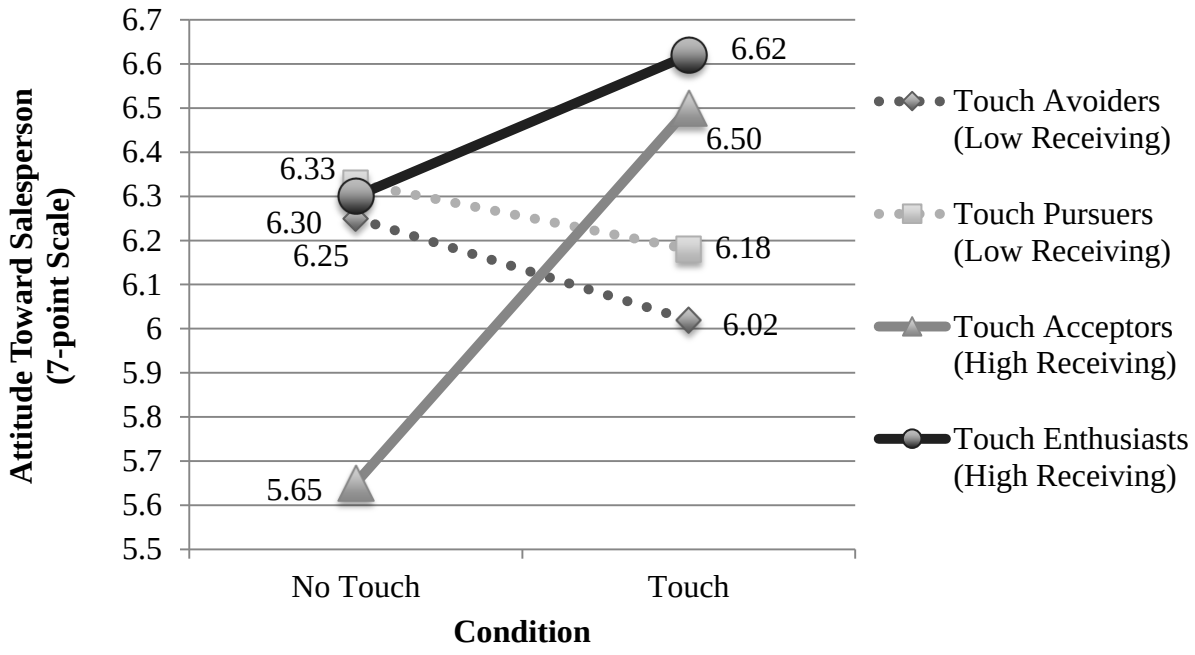


Figure 16. Receiving Touch Field Study – Likelihood of Shopping at the Store in the Future Analyzed Continuously (Study 9)



Finally, there was no main effect of touch on a participant's affect (β = .12, $t(348) = 1.16$, $p = .25$) but there was a significant interaction between comfort with receiving touch and the touch condition (β = .20, $t(346) = 3.26$, $p = .001$, see Figure 17). Similar to the other dependent measures, individuals comfortable with receiving touch get a significant positive increase in affect when touched compared to not being touched ($t(346) = 3.17$, $p = .002$). However, individuals who are not comfortable with receiving touch, did not exhibit as strong of a negative effect as we saw with the categorical analyses. Here there is only a marginally significant decrease in their affect when touched compared to not touched ($t(346) = -1.44$, $p = .15$).

Figure 17. Receiving Touch Field Study - Current Affective State Analyzed Continuously (Study 9)



Analyses were conducted to investigate whether gender or age affects these results. For all of the dependent variables, age does not qualify any of the stated interactions. Similarly, the

gender of the participant, the gender of the confederate, and the combination of the two did not have statistically significant effects on the previously stated interactions. However, when examining the effects of gender aside from its interaction with CIT, we notice that attitude toward the store (β = .20, $t(335) = 2.27$, $p = .02$) and attitude toward the products (β = .24, $t(336) = 2.52$ $p = .01$) were significantly affected by gender. Regardless of the participant's level of CITr, when the gender of the participant and confederate match (i.e., male-male and female-female) there were significant and positive effects of touch (Male-Male: β = .38, $t(335) = 1.82$, $p = .07$; Female-Female: β = .37, $t(335) = 2.47$, $p = .01$) but when interacting in mismatched gender dyads, there were no significant positive or negative effects of touch (Male-Female: β = -.01, $t(335) = -.09$, $p = .93$; Female-Male: β = -.03, $t(335) = -.17$, $p = .87$).

Although gender is not the central focus of this work, these are interesting results given that much of the previous literature would suggest that the gender dyad that typically responds most negatively to touch is the male-male dyad (Dolinski 2010). Previous literature has hypothesized this to be the case due to homophobic attitudes in males (Roese et al. 1992). In this work, the gender effects only appear for these two dependent variables, and the remaining three are unaffected by the gender of the participant, the gender of the confederate, or the gender dyad. Moreover, gender does not moderate any of the touch effects produced by CIT.

What is particularly interesting about this study is that the positive effects of interpersonal touch found in the literature seem to be driven by the Touch Enthusiasts and the Touch Acceptors – people comfortable with receiving touch. If a person is comfortable with receiving touch, a touch by a salesperson significantly increases attitude toward the store, the store's products, the salesperson, and positively affects one's affective states. What is just as thought provoking is that, despite the discomfort some individuals feel with receiving touch, it

does not deflate their attitude toward the store, their attitude toward the store's products, their attitude toward the salesperson, the likelihood of shopping at the store in the future, or affective state.

Models testing a 3-way interaction between the touch condition, the shoppers' comfort with initiating touch, and the shopper's comfort with receiving touch were conducted on all of the five dependent variables. Attitude toward the store ($\beta = .01$, $t(342) = .30$, $p = .76$), attitude toward store's products ($\beta = -.02$, $t(343) = -.59$, $p = .55$), attitude toward the salesperson ($\beta = -.005$, $t(343) = -.15$, $p = .88$), the likelihood to shop at the store in the future ($\beta = .01$, $t(342) = .42$, $p = .68$), and the participant's affective state ($\beta = -.06$, $t(342) = -1.67$, $p = .10$) did not produce statistically significant interactive effects. By looking at the simple effects within these interactions, there are similar patterns to the categorical data. To compare the results produced by the segmented classes and the continuous measures, see Table 7 and Table 8). Given that the three-way interactions do not produce significant effects, the effects of the four groups is not interpretable and the level of analysis should remain at the dimension of the type of touch being manipulated.

While the categorization of individuals into mutually exclusive latent classes are of theoretical and conceptual interest, the testing of these effects using categorical independent variables is likely to be statistically inferior. Various scholars have noted issues with splitting continuous measures into categorical ones including substantial loss of power and spurious statistical significance (Irwin and McClelland 2003; MacCallum et al. 2002; Maxwell and Delaney 1993). Thus indicating that the most appropriate way to analyze these data is continuously. In this dissertation, all further analyses will be conducted on the full data using the continuous measures of CITi and CITr.

Study 10a: Salesperson Initiating Touch Questionnaire

After examining the effects of receiving touch in a field study, the focus is now on understanding the effects of initiating touch. To gain an appreciation for how touch initiation is used in a marketing context, data is collected from actual salespeople who personally interact with customers. The purpose of this study is to understand more fully how salespeople prefer, use, and interpret interpersonal touch in their job. Most of the research on interpersonal touch has been conducted using undergraduate students or a general population of individuals. By studying salespeople, it helps to understand how important the use of touch is in their profession and to see how CIT ties directly to its occurrence in the workplace. Moreover, I am able to identify not only preferences for interpersonal touch, but salespersons' stated use of interpersonal touch in a sales context.

Study 10a Sample. Data was collected in Sweden during six different national meetings for salespeople. All salespeople were Swedish and were associated with BNI International, the world's largest network and referral organization for salespeople. These salespeople have highly structured weekly meetings intended to provide members with the resources, tools, and ideas for sales generation. Respondents were recruited to fill out the questionnaire if their work largely entails personal selling. The respondents represent a wide range of both B2B and B2C companies, spanning a cross-section of industries ranging from sales of newspapers, office equipment, advertising, industrial products, cars, and flowers. The salespeople are employed at 75 small businesses with the largest having 150 employees. The sample is 56% male with a median age of 42. Ninety-seven salespeople participated in this study and completed a questionnaire with a variety of touch-related measures.

Study 10a Measures. Along with the participant's CIT, individuals' evaluation of their own ability as a salesperson, perceptions of touch effectiveness, their use of touch in their job, customers' use of touch with them, and their perceptions of the motivations for using touch were measured. The questionnaire was created in English, translated to Swedish, and back-translated to English to ensure correct interpretation.

The self-evaluation of sales ability was measured with the item: "Compared to other salespeople, I am" with responses on a 5-point Likert scale (1 = significantly below average to 5 = significantly above average). Participants reported touch effectiveness ($\alpha = .93$) on a 7-point scale (1 = strongly disagree to 7 = strongly agree) with the following items: "The use of physical touch makes me a better salesperson," "Touch helps me create a better relationship with the customer," and "I sell more with touch." The frequency of touch use was measured on a 5-point Likert scale (1 = never to 5 = always) with the item: "how often do you use physical touch in your job when interacting with customers?" Others' use of touch was measured with "how often do customers initiate physical touch with you?" Motivations of the use of touch was captured with "I believe that salespeople tend to use physical touch to:" with the following list of adjectives measured on a 7-point (1 = strongly disagree to 7 = strongly agree) "be helpful", "be friendly", "be warm", "be strategic", "be trustworthy", "be manipulative", "be aggressive", "assert status", "make a sale", "satisfy the customer", "build a good relationship", and "communicate effectively".

Study 10a Results. Regression analyses were run on these data with the two dimensions of CIT as continuous measures. The self-evaluation of sales ability demonstrated that individuals who are more comfortable with initiating touch were also more likely to gauge their ability as a salesperson as being above average compared to other salespeople ($\beta = .17$, $t(94) = 3.86$, $p <$

.001, $M_{LowCITi}$ = 3.22, $M_{HighCITi}$ = 3.71, see Figure 18). Touch was also perceived to be more effective when an individual was comfortable with initiating touch (β = .56, t(95) = 8.22, p < .001, $M_{LowCITi}$ = 4.09, $M_{HighCITi}$ = 5.73, see Figure 19). Individuals who are comfortable with initiating touch also report that they more frequently use touch in interactions with their customers (β = .42, t(95) = 7.60, p < .001, $M_{LowCITi}$ = 2.51, $M_{HighCITi}$ = 3.74, see Figure 20) and interestingly, suggest that customers use touch more frequently with them (β = .22, t(95) = 4.16, p < .001, $M_{LowCITi}$ = 2.43, $M_{HighCITi}$ = 3.06, see Figure 21). Neither gender nor age qualified any of these effects.

Figure 18. Salesperson Initiating Touch Questionnaire – Subjective Evaluation of Sales Ability (Study 10a)

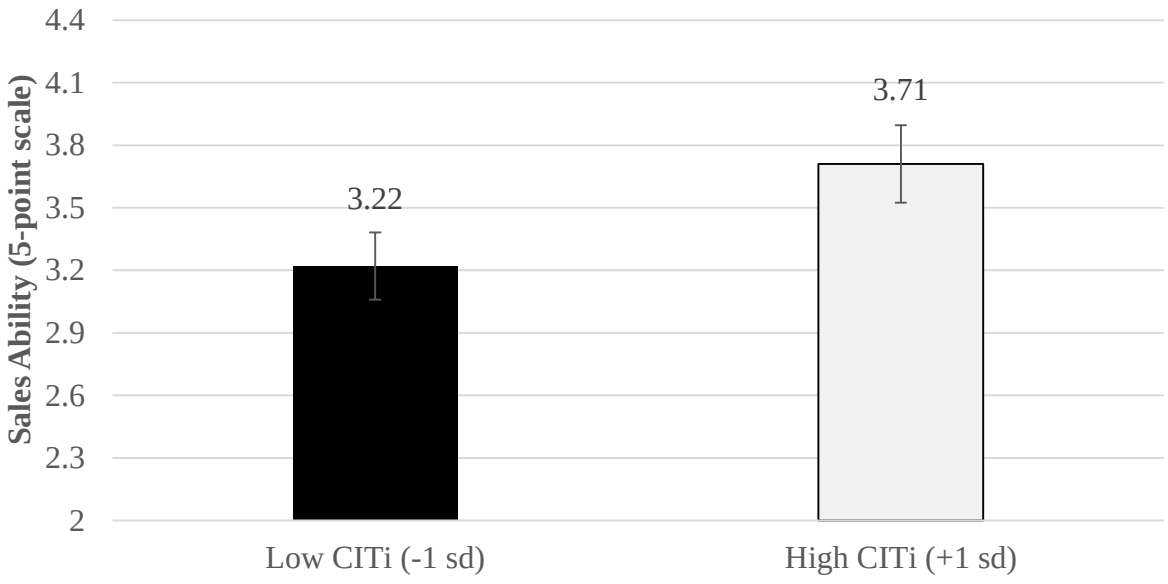


Figure 19. Salesperson Initiating Touch Questionnaire – Perception of Touch Effectiveness (Study 10a)

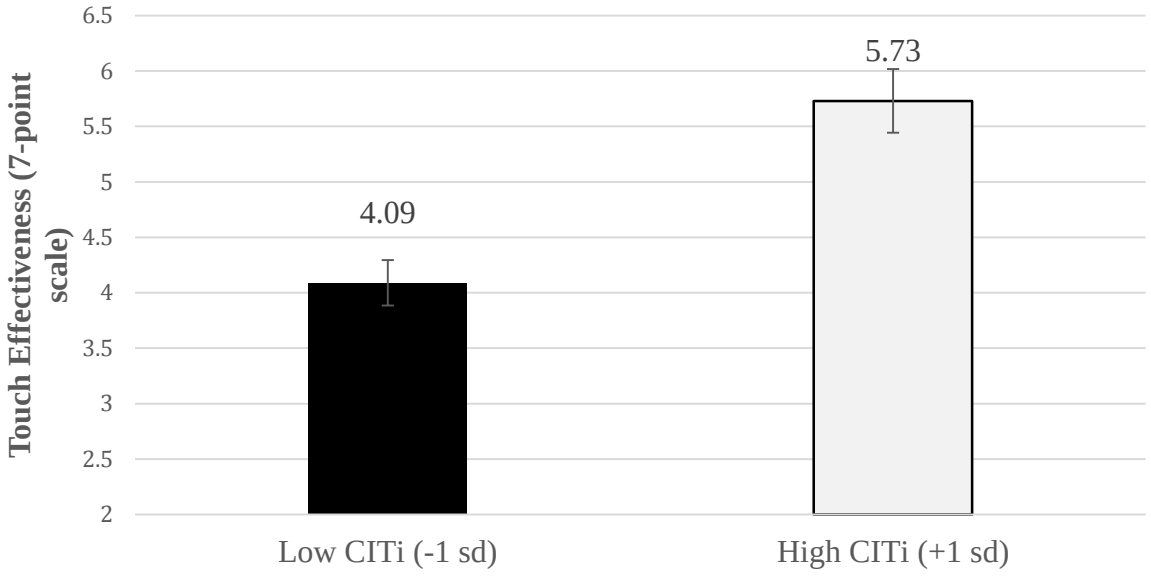


Figure 20. Salesperson Initiating Touch Questionnaire – Salesperson's Stated Frequency of Touch in Interactions with Customers (Study 10a)

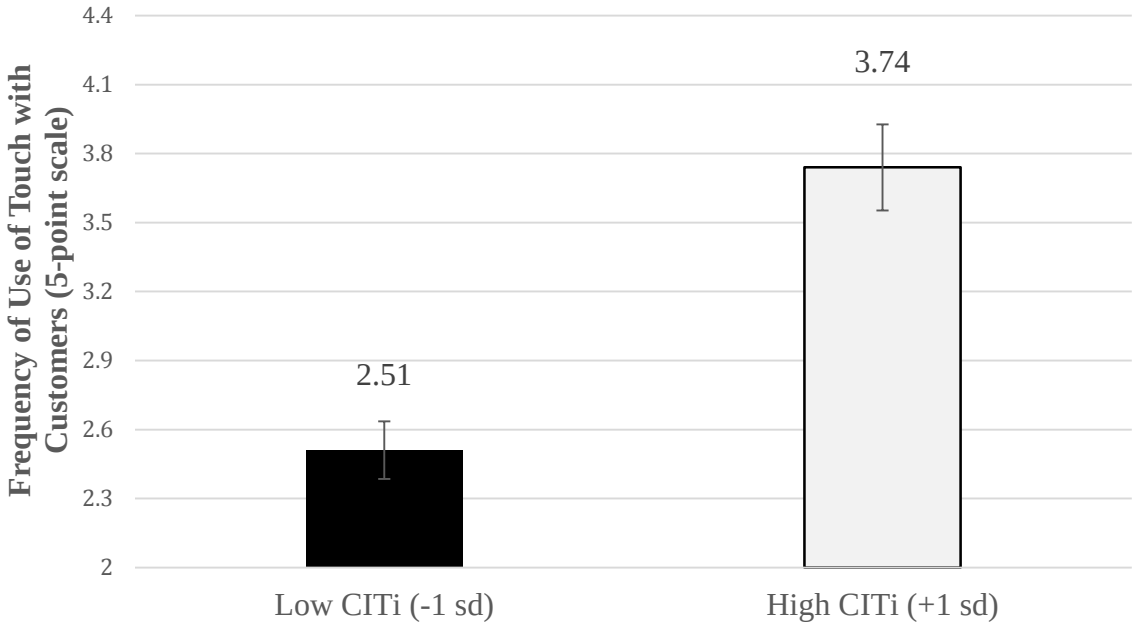
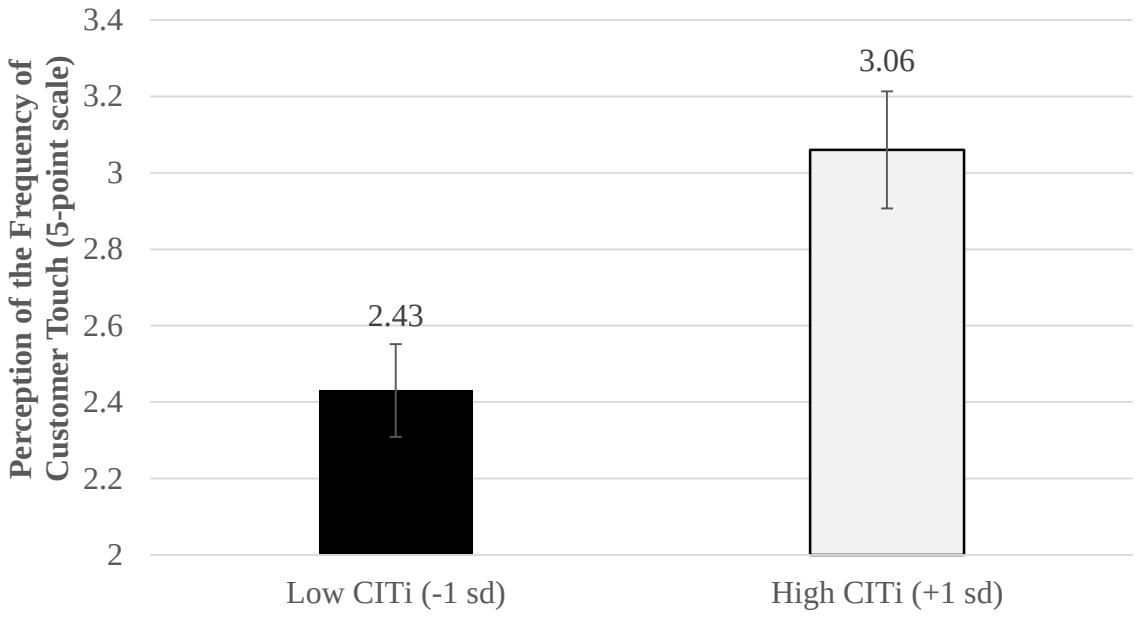


Figure 21. Salesperson Initiating Touch Questionnaire – Salesperson's Perception of the Frequency of Customer Touch (Study 10a)



The motivations for using touch are interesting to understand from a salesperson's perspective as well. There isn't large variation between those who are comfortable and uncomfortable with initiating touch, but there are a few interesting differences (see Table 9). In general, those who are comfortable with initiating touch consider it to be a positive tool in interaction; that is, touch is thought to be used to "be helpful" ($M_{\text{Low CITi}}$ = 5.18, $M_{\text{High CITi}}$ = 5.60, β = .14, $t(95) = 1.58$, $p = .12$) and to "communicate effectively" ($M_{\text{Low CITi}}$ = 5.36, $M_{\text{High CITi}}$ = 5.91, β = .18, $t(94) = 2.36$, $p = .02$). Those low in comfort with initiating touch tend to view touch more negatively as more "manipulative" ($M_{\text{Low CITi}}$ = 3.97, $M_{\text{High CITi}}$ = 3.32, β = -.22, $t(93) = -1.95$, $p = .05$) and used to "assert status" ($M_{\text{Low CITi}}$ = 3.22, $M_{\text{High CITi}}$ = 2.23, β = -.34, $t(95) = -3.02$, $p = .003$). These effects of comfort with initiating touch on the motivations attributed to touch did not depend on gender or age. This inquiry into how salespeople view and use touch

enables us to understand that preference for initiating touch is an important area to further understand.

Table 9. Salesperson Initiating Touch Questionnaire - Means of Salespeople's Motivations of Touch (Study 10a)

	Motivational Inference Items	Low CITi	High CITi	*p*-value
Motivational Inferences	be helpful	5.18	5.60	*p = .12*
	be friendly	5.79	6.00	*N.S.*
	be warm	5.74	5.84	*N.S.*
	be strategic	4.84	3.72	*p = .09*
	be trustworthy	5.08	5.23	*N.S.*
	be manipulative	3.97	3.32	*p = .05*
	be aggressive	1.75	1.63	*N.S.*
	assert status	3.22	2.23	*p = .003*
	make a sale	5.19	4.67	*p = .10*
	satisfy the customer	5.02	5.11	*N.S.*
	build a good relationship	5.71	6.00	*N.S.*
	communicate effectively	5.36	5.91	*p = .02*

N.S. = Not Significant

Study 10b: Consumers' Inferences of Touch Study

Given that salespeople who are comfortable with initiating touch tend to view touch more favorably, it is important to understand what general consumers infer about the motivations of touch. That is, when a consumer views a salesperson engaging in physical contact with another customer, what does the observer think about the motivations of the salesperson? Perhaps individuals who are comfortable with initiating touch make more positive inferences about why someone would touch another person as compared to an individual who is uncomfortable with initiating touch.

Study 10b Sample. This study uses the same sample of individuals as Study 5 in which one thousand six hundred and forty-eight individuals on Amazon's MTurk participated. For this

study, participants were shown a picture of a salesperson and customer interacting with touch or no touch. Both males and females were used in these pictures (see Appendix 2). The scenario read: "Consider this scenario. Kate [Michael] (a clothing store employee, on the left) selected a jacket that she [he] thinks Mary [John] (the customer, on the right) will like. Kate [Michael] approaches Mary [John] and says, "I think this jacket will go well with those pants you just tried on." Participants were then asked to indicate their response to the following question: "I believe that Kate [Michael] (the clothing store employee) is trying to:" and were presented with the following items: "be helpful", "be supportive", "be trustworthy", "be appropriate", "be fair", "be respectful", "be friendly", "be warm", "build a good relationship", "satisfy the customer", "communicate effectively", "be manipulative", "be aggressive", "assert status", and "make a sale". All items were measured on a 7-point Likert scale from strongly disagree to strongly agree.

Study 10b Results. First, regression analyses tested whether the gender of the customer and salesperson (male-male or female-female) pictured in the interaction and their use of touch affected motivational inferences that participants ascribed to the scenario. The interaction between gender condition and touch condition did not produce significant results for the positive motivational inferences (e.g., to be helpful, supportive, etc.) or for the negative inferences (e.g., to be manipulative, aggressive, etc.) of touch (positive inferences: $\beta = .03$, $t(1646) = .72$, $p = .47$; negative inferences: $\beta = .08$, $t(1646) = 1.40$, $p = .16$). In essence, the inferences made of the gender of those in the interaction did not depend on touch. Further consideration of motivations aggregate across gender.

Investigating the main effects of touch, the only motivational inferences that were significantly affected by touch were “to be friendly” and “to be warm.” Participants interpreted the salesperson’s motivations to be more friendly with touch ($M_{\text{No Touch}} = 5.43$, $M_{\text{Touch}} = 5.57$, $\beta =$

.14, $t(1646) = 2.59$, $p = .01$) and to be more warm with touch ($M_{\text{No Touch}} = 4.89$, $M_{\text{Touch}} = 5.02$, $\beta = .12$, $t(1646) = 2.13$, $p = .03$). All other touch main effects were not statistically significant. Regression analyses with touch and level of comfort with initiating touch were conducted for each of these motivational inferences of touch (see Table 10).

Considering the participant's comfort with touch, the results demonstrate that there is a significant interaction between an individual's CITi and the touch condition on the positive motivational inferences made of touch ($\beta = .06$, $t(1644) = 1.90$, $p = .05$, see Figure 22). Individuals who are comfortable with initiating touch are more likely to make positive inferences about touch ($\beta = .13$, $t(1644) = 1.97$, $p = .05$) while there is no effect for those low in comfort with initiating touch ($\beta = -.05$, $t(1644) = -.73$, $p = .47$). Turning toward the negative motivations of touch, there was not a significant interaction between CITi and the touch condition ($\beta = -.05$, $t(1644) = -1.50$, $p = .14$). These data suggest it is not that individuals who are uncomfortable with touch view the salesperson's touch negatively, but it seems to be that people who are comfortable with touch tend to view it positively. One exception is that those who are uncomfortable with initiating touch tend to view touch as being less respectful. From both the salesperson and general consumer data, positive motivations are often inferred from the use of touch while fewer negative motivations are inferred. These results suggest that preferences for initiating touch are related to the inferences that are made about individuals' motivations when touch is observed in interactions.

Figure 22. Consumers' Inferences of Touch Study – Positive Motivations (Study 10b)

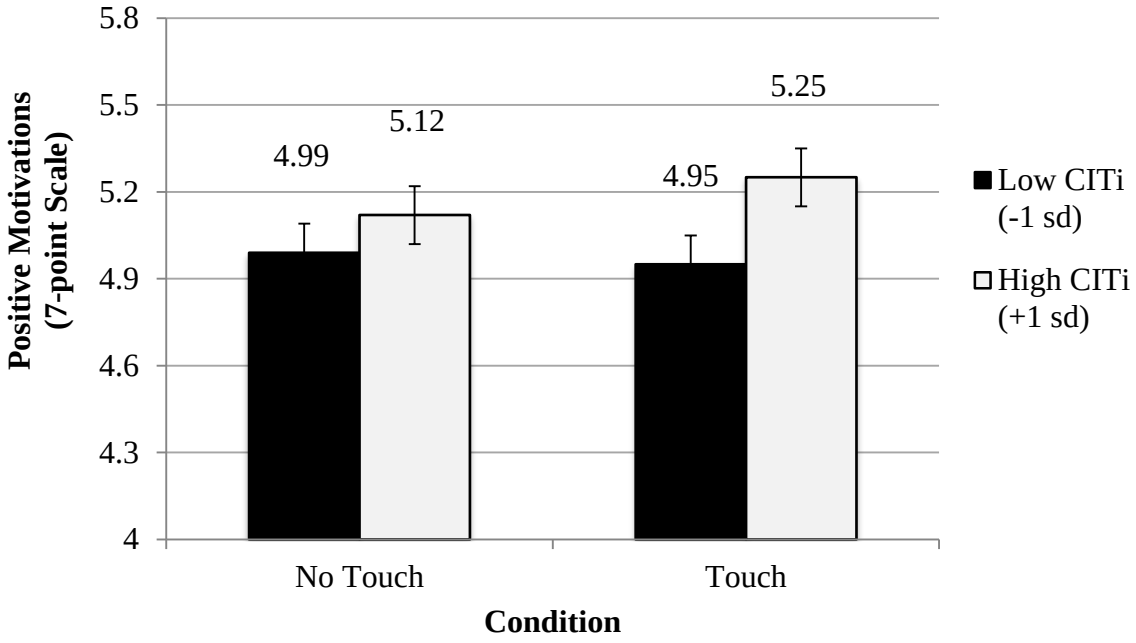


Table 10. Consumers' Inferences of Touch Study – Means of Interactive Effects for Motivational Inferences of Touch (Study 10b)

			Condition		
	Item	**CIT**	**No Touch**	**Touch**	***p*-value**
Motivational Inferences	be helpful[b]	Low CITi	5.35	5.28	.29
		High CITi	5.43	5.55	.12
	be supportive	Low CITi	5.01	4.89	.14
		High CITi	5.11	5.20	.44
	be trustworthy	Low CITi	4.57	4.58	.96
		High CITi	4.76	4.95	.03**
	be appropriate[a]	Low CITi	5.10	5.05	.11
		High CITi	5.22	5.32	.22
	be fair	Low CITi	4.64	4.58	.43
		High CITi	4.85	4.92	.38
	be respectful[a]	Low CITi	5.08	4.92	.05**
		High CITi	5.16	5.31	.09*
	be friendly	Low CITi	5.38	5.46	.30
		High CITi	5.47	5.67	.007**
	be warm	Low CITi	4.81	4.90	.28
		High CITi	4.97	5.14	.04**
	build a good relationship	Low CITi	5.01	5.03	.84
		High CITi	5.21	5.36	.09*
	satisfy the customer[b]	Low CITi	5.49	5.48	.87
		High CITi	5.57	5.76	.01**
	communicate effectively	Low CITi	5.36	5.28	.26
		High CITi	5.47	5.53	.43
	be manipulative[a]	Low CITi	3.97	4.15	.12
		High CITi	4.18	3.89	.02**
	be aggressive	Low CITi	3.78	3.78	.99
		High CITi	3.83	3.76	.58
	assert status	Low CITi	3.24	3.36	.27
		High CITi	3.73	3.65	.48
	make a sale	Low CITi	6.53	6.43	.11
		High CITi	6.40	6.41	.93

[a] interaction between touch condition and comfort with initiating touch is significant at $p < .05$,
[b] interaction between touch condition and comfort with initiating touch is significant at $p < .10$,
**simple effect significant at $p < .05$, *simple effect significant at $p < .10$.

Study 11: Initiating Touch Lab Study

Study 10a tells us that touch is a tool that salespeople use in interactions with customers. Moreover, these salespeople who use touch view it as an effective tool. In this study, I isolate the initiating dimension of interpersonal touch and manipulate the use of initiating touch. To my knowledge, this is the first study in the marketing literature that has experimentally manipulated the use of initiating touch. The consequences of having a person forced to initiate this touch has not been examined previously. Do people who are uncomfortable with initiating touch actually experience discomfort when asked to touch a stranger? Furthermore, do the strangers who they touch detect their discomfort? A lab experiment is used to create a sales simulation to manipulate whether or not a seller was to initiate touch with another participant, the buyer. This study was a 2 (buyer/seller) x 2 (no touch/touch) full factorial design manipulated between participants with CIT measured.

Study 11 Sample. Five hundred and ninety U.S. undergraduate students participated in this study. The students were recruited via an introductory course and received course credit for participation. The sample was 51% female with a median and modal age of 20. Individuals were placed into partners for this study, and those who knew their partner previously were eliminated from the dataset. Individuals who engaged in physical contact aside from the touch manipulation (e.g., used a handshake) were also eliminated from the dataset resulting in five hundred and twenty-eight usable responses.

Study 11 Procedure. As participants entered the study, they were randomly assigned to either a buyer or seller condition. Buyers and sellers were guided to separate rooms and were told to wait for instruction. The touch/no touch condition was randomly assigned to study

timeslots. Students were provided with both written and verbal instruction to ensure full comprehension of the scenario. Appendix 3 details the instructions to the participants.

Sellers were told that they work for a local t-shirt company and will be interacting with a customer who is shopping for a t-shirt. Sellers are instructed to touch the customer lightly on the upper arm and ask if the customer has any questions about the t-shirts. A demonstration of the proper touch was given to all sellers. After receiving instructions, the participants were led to individual small rooms that were stocked with the two t-shirts where the buyer/seller interaction would occur. All buyer/seller interactions were observed by an experimenter to ensure the proper condition (touch/no touch) occurred. Upon completion of the sales simulation, the participants were asked to fill out a brief questionnaire regarding their encounter. The participants' CIT was collected in a previous data collection more than 1 week prior to this lab study.

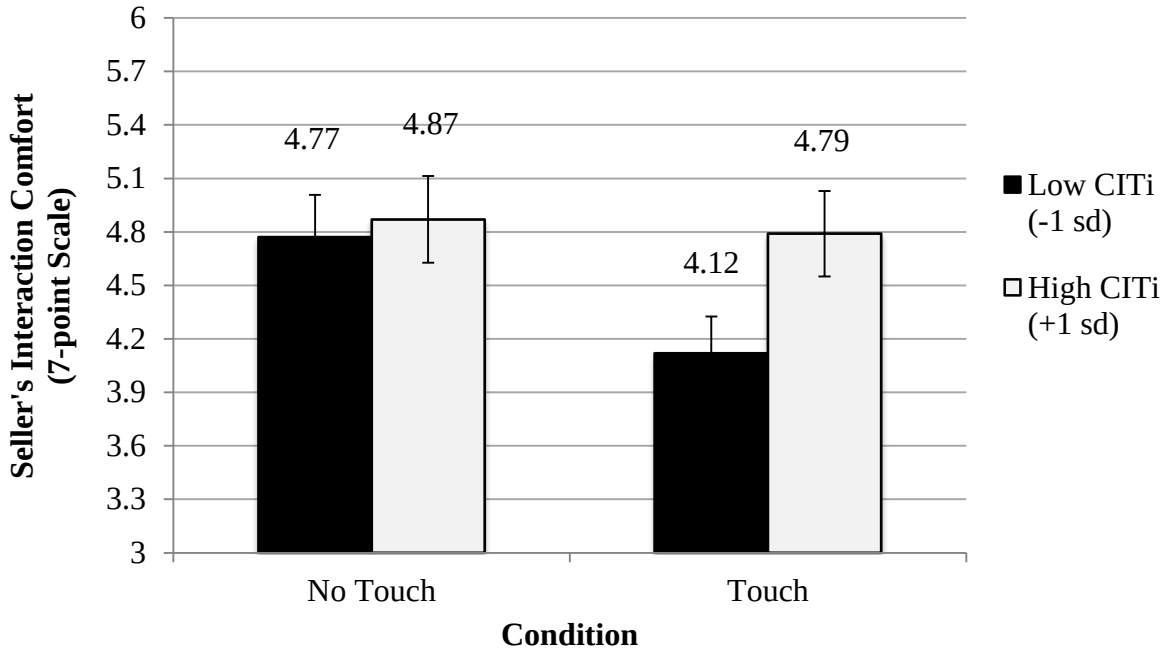
Study 11 Measures. The main dependent measure was the participants' interaction comfort and was measured with four items ($\alpha = .85$) using a 7-point Likert scale (1= strongly disagree to 7 = strongly agree). A sample item is "the interaction with the buyer [seller] seemed to flow naturally" (see Appendix 1 for other items).

Seller Results. Continuous measures of CITi and CITr were used in these analyses. A simple regression investigates the hypothesis that individuals who are low in comfort with initiating touch (i.e., Touch Avoiders and Touch Acceptors) will differ from those high in comfort with initiating touch (i.e., Touch Pursuers and Touch Enthusiasts) with regard to their perceptions of interaction comfort. Since the initiators of touch were the sellers, this analysis was run on that group of individuals.

These results suggest that there is a marginally significant interaction of preference for initiating touch and actual touch ($\beta = .10$, $t(260) = 1.66$, $p = .098$) such that those who are low in

comfort with initiating on the CIT scale are less comfortable in an actual interaction when they have to touch than when they don't touch ($t(260) = -2.64$, $p = .009$, Low CITi: $M_{\text{No Touch}} = 4.77$ v. $M_{\text{Touch}} = 4.12$). Individuals who score high on the initiating dimension of CIT do not believe the interaction to be more or less comfortable when they touch as compared to when they do not touch ($t(260) = -.33$, $p = .74$, High CITi: $M_{\text{No Touch}} = 4.87$ v. $M_{\text{Touch}} = 4.79$, see Figure 23).

Figure 23. Initiating Touch Study – Interaction Comfort for Sellers (Study 11)



Investigating whether or not the four latent classes viewed the comfort of the interaction differently, a model was tested with the touch condition, CITi, and CITr as predictor variables. There was a marginally significant effect of the interaction on the seller's perception of the interaction comfort ($\beta = .10$, $t(256) = 1.72$, $p = .09$), with the Touch Acceptors most negatively

affected by being asked to touch ($t(256) = -2.03$, $p = .04$). Similar to the previous receiving touch field study, the breakdown of the CIT dimensions into the four groups did not produce statistically significant results.

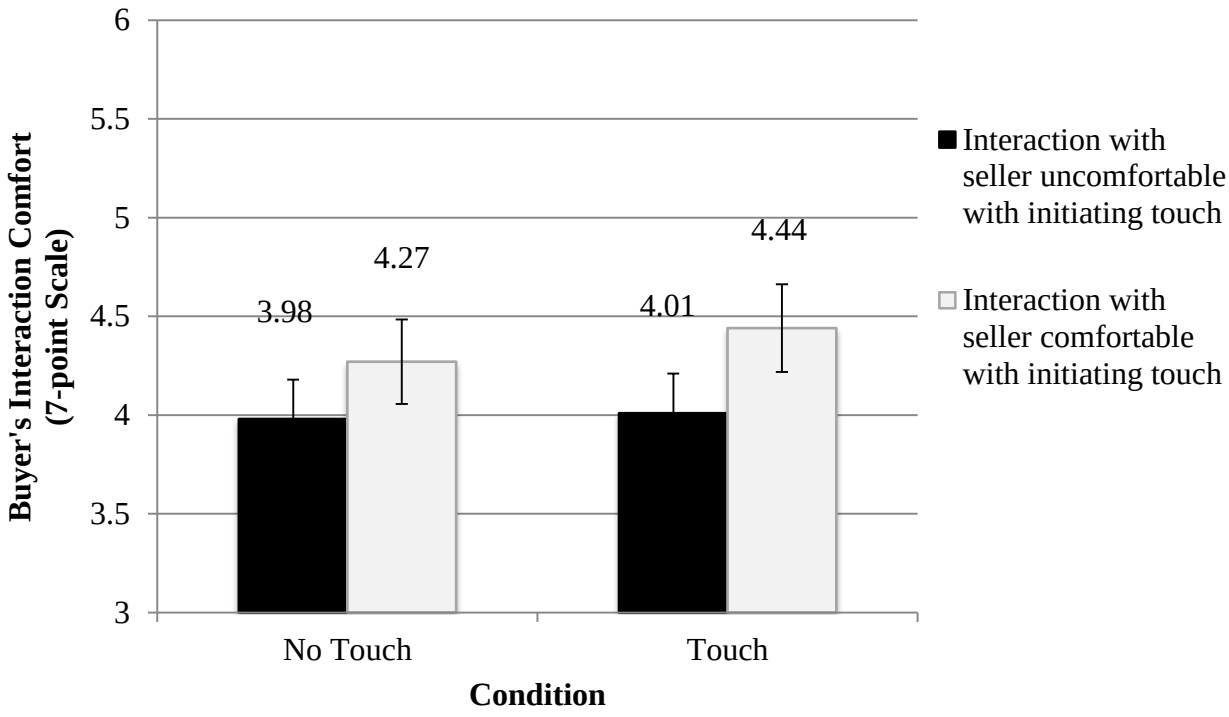
Established previously in the scale development of Essay 1 is that females tend to be slightly more comfortable initiating touch than males. However, in this sample of individuals, there was no gender difference on stated CITi preferences ($t(262) = .52$, $p = .60$). This may be due to the fact that this sample is comprised entirely of undergraduate students, and we know that age is also positively related to comfort with touch. On the seller's data, there are no significant effects of their own gender, the gender of the buyer, or the gender dyads on perceptions of interaction comfort.

Buyer Results. Shifting to the buyers' perception of the interaction, the results reveal that regardless of the buyers' level of comfort with touch, if the buyer was interacting with a seller who was uncomfortable with initiating touch, it did not have an effect on whether or not the buyer thought the interaction was comfortable ($\beta = .03$, $t(248) = .41$, $p = 0.69$). That is, even if a person who initiates touch is uncomfortable with touch, the person receiving it doesn't necessarily realize it. Buyers' perceptions of interaction comfort when the seller is low in comfort with initiating touch ($M_{\text{No Touch}} = 3.98$, $M_{\text{Touch}} = 4.01$) did not statistically differ from buyer's perceptions when interacting with a partner high in comfort with initiating touch ($M_{\text{No Touch}} = 4.27$, $M_{\text{Touch}} = 4.44$, see Figure 24).

Furthermore, there is no statistical difference on interaction comfort when comparing the seller's latent class ($\beta = .07$, $t(244) = 1.14$, $p = .26$). A buyer who was interacting with a Touch Enthusiast seller, for example, did not interpret the interaction as more or less comfortable as compared to an individual interacting with someone represented by the other latent classes. On

the buyer's data, there are no significant effects of their own gender, the gender of the seller, or the gender dyads on perceptions of interaction comfort.

Figure 24. Initiating Touch Study – Interaction Comfort for Buyer (Study 11)



Taken together, these results suggest that individuals on the receiving end of the touch, regardless of their own level of comfort with touch, did not sense the interaction as being more or less uncomfortable when interacting with comfortable or uncomfortable salespeople. This may suggest that individuals are not adept at picking up on others' discomfort in the context of touch. On the initiating side, an individual who initiates touch may actually feel uncomfortable when instructed to touch another person during an interaction. This is especially true for individuals who score low on the CIT measure. Interestingly, however, Touch Pursuers and Touch Enthusiasts say that they are comfortable with initiating touch with others, but when asked to

initiate touch, they do not experience the interaction to be more comfortable. They simply exhibit no positive or negative effect of touch. This warrants further consideration for why this is the case.

Post Hoc Analysis - Control

Individuals high on the initiating dimension of the CIT measure (i.e., Touch Pursuers and Touch Enthusiasts) do not experience positive effects when asked to initiate touch despite the fact that they suggest that they like to initiate touch. A post hoc test was conducted to explore why this might be the case. One explanation is that individuals who like to initiate touch are only comfortable when the decision to touch is of one's own volition; when it occurs naturally, the individual doesn't mind touching, but when asked to do it, the individual is less comfortable. I hypothesize that this may be due to a desire for control.

This hypothesis is tested using the same university staff sample (Essay 1, Study 3) and investigate the relationship between comfort with touch and desire for control (adapted from Burger and Cooper 1979; see Appendix 1 for items) with items such as, "I enjoy being able to influence the actions of others." The analysis reveals that there is a significant effect of CITi on desirability of control ($\beta = .08$, $t(1358) = 3.91$, $p < .001$) such that individuals who are comfortable initiating touch feel higher desirability for control than those who are uncomfortable with interpersonal touch ($M_{\text{High CITi}} = 4.71$, $M_{\text{Low CITi}} = 4.48$). Comfort with receiving touch does not predict desirability for control when controlling for comfort with initiating touch ($\beta = -.03$, $t(1356) = -1.12$, $p = .26$). Furthermore, there is not a statistically significant difference between the four groups on desirability for control ($\beta = .02$, $t(1356) = 1.23$, $p = .22$). These effects are not qualified by gender. These results reveal that being comfortable with initiating touch is related to

a general desire for control in life. Since both Touch Enthusiasts and Touch Pursuers are comfortable with initiating touch, and the initiation of touch is almost always one's own decision, it is logical that these individuals have preference for control.

Study 12: Dining Initiating Touch Lab Study

In this study, I am not only interested in the effects of initiating touch but also want to understand the process by which touch has effects on those who are asked to initiate touch. This study utilizes a context that has been well-established in the touch literature: dining interactions. In the marketing literature, it is well-known that when a server touches a diner on the arm, the diner is more likely to leave a higher tip (Crusco and Wetzel 1984; Guéguen and Jacob 2005; Hornik 1992; Stephen and Zweigenhaft 1986). The hope is to identify the underlying mechanism through which interpersonal touch has effects on how the initiator of touch interprets interactions. I seek to understand the downstream consequences of having an individual who is asked to initiate touch.

I consider three potential mechanisms through which initiating touch may have effects: affective responses, coping, and empathetic forecasting. What do initiators of touch actually feel when instructed to touch another individual? Are they able to cope with the task of initiating touch? Prior to the interaction, does the initiator of touch think about how the touch recipient will feel in the interaction? To test these questions, a lab experiment was conducted to simulate a dining experience. The manipulation was whether or not a server was to initiate touch with another participant, the diner. This study was a 2 (diner/server) x 2 (no touch/touch) full factorial design manipulated between participants with CIT measured.

Study 12 Sample. Three hundred and seventy-two U.S. undergraduate students participated in this study. Participants were placed into partners for this study. The students were recruited via an introductory course and received course credit for participation. The sample was 47% female with a median and modal age of 20.

Study 12 Procedure. As participants entered the study, they were randomly assigned to either a diner or server condition. Diners and servers were guided to separate rooms for instruction. The touch/no touch condition was randomly assigned to study timeslots. In this study, servers were the initiators of touch and diners were the recipients. Students were provided with both written and verbal instruction to ensure full comprehension of the scenario. Appendix 4 details the full instructions to the participants.

After receiving instructions, the servers were given a short pre-questionnaire regarding their attitudes toward the upcoming interaction. While playing the role of a server, the servers were provided with aprons to wear to make the scenario seem more realistic. The servers were assigned to specific individual rooms where one diner was seated. The server was instructed to take the diner's order, retrieve the type of pizza selected, and serve the pizza to the diner. All interactions were observed by an experimenter to ensure the proper condition (touch/no touch) occurred. Upon completion of the simulation, the participants were asked to fill out a brief questionnaire regarding their encounter. The participants' CIT was collected in a separate data collection about 1 month after this lab study.

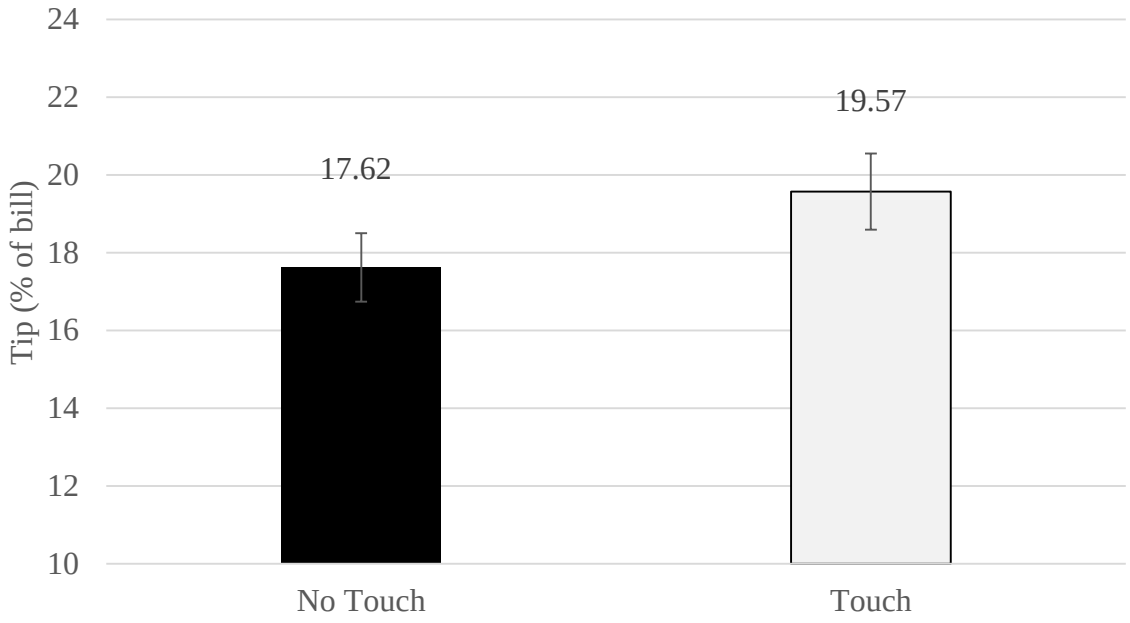
Study 12 Measures. The main dependent measure was the tipping behavior of the diners and the anticipated amount of tip that the servers expected to receive. Other dependent variables included participants' interaction comfort, perception of their partners' interaction comfort, and the servers' prospective and retrospective evaluations of the interaction. Measures capturing

carry-over effects tested whether or not evaluations of the pizza changed as a result of touching interactions, and no significant effects were found for servers or diners and will not be discussed further. I also test various measures that could help explain the mechanism through which touch has its effects including, current affective state, coping ability, and perceptions of social risk. For full items, see Appendix 1.

Diners' Results. All analyses are conducted continuously with CITi and CITr measures. Data analyses are divided into results for the diners (recipients of touch) and results for the servers (initiators of touch). Participants who interacted with partners whom they knew previously were removed from the dataset.

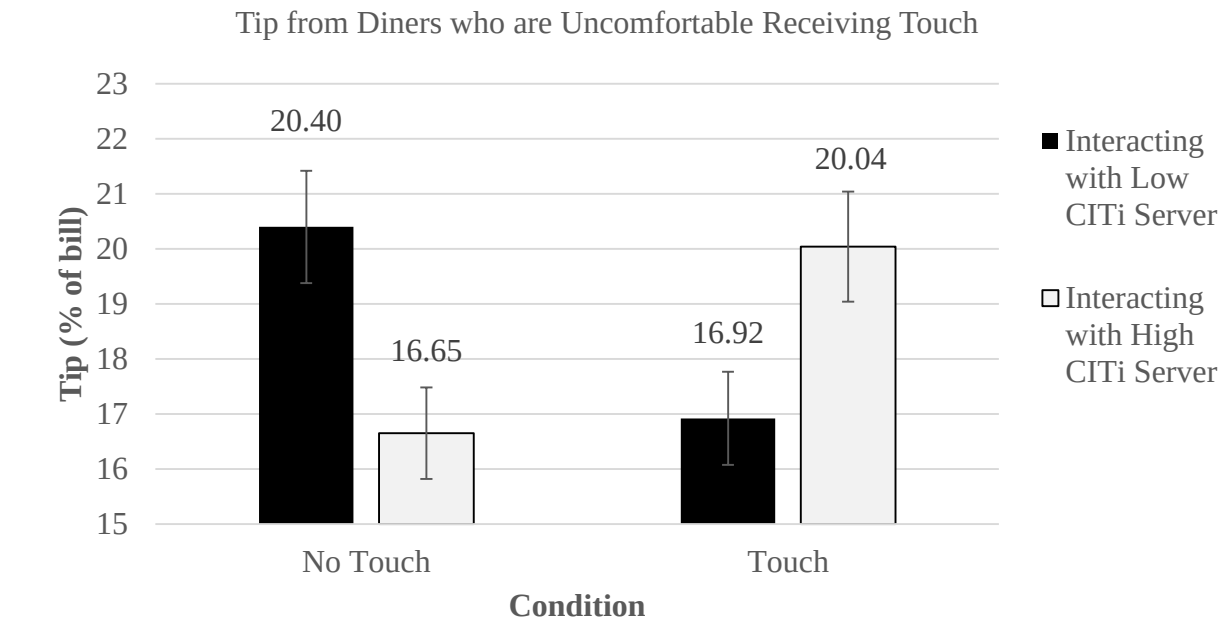
First, I want to ensure that the results replicate previous research demonstrating that diners who receive a light touch on the upper arm are more likely to leave greater tips for waitstaff. While in previous research, the dependent variable has been often measured behaviorally (i.e., actual tip in dollars), the measure of tipping behavior in this study was hypothetical and no money was actually exchanged. Using only the diner data, the results demonstrate that diners who were touched by servers indicated that they would leave a greater tip as a percentage of the bill ($\beta = .97$, $t(188) = 2.37$, $p = .02$, $M_{\text{No Touch}} = 17.62$, $M_{\text{Touch}} = 19.57$, see Figure 25). This result confirms prior research (e.g., Crusco and Wetzel 1984).

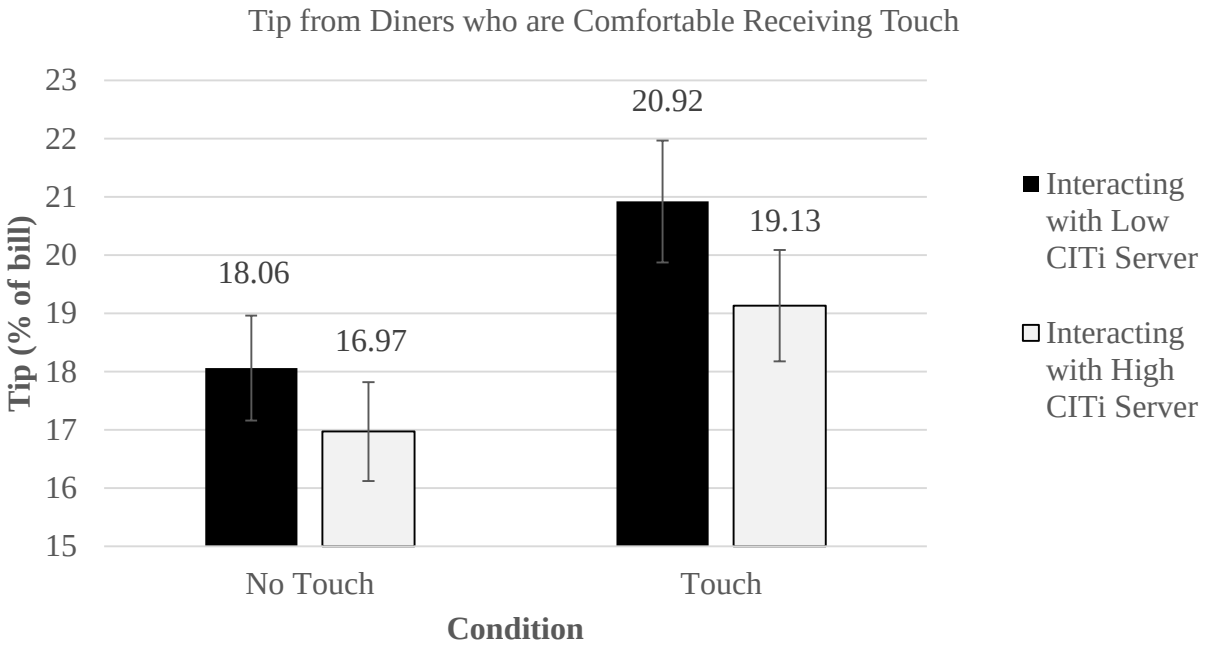
Figure 25. Dining Initiating Touch Lab Study – Diner's Tipping Behavior (Study 12)



Interestingly, the tips that the diners leave does depend on their own comfort with receiving as well as their servers' comfort with initiating touch. The results demonstrate a significant interaction between the touch condition, the servers' CITi, and the diners' CITr, on the amount of tip the diners chose to leave (β = -.46, $t(168)$ = -2.14, p = .03). The interaction is such that tipping behavior decreases when a server with a low CITi touches a diner with a low CITr (β = -1.74, $t(168)$ = -2=1.72, p = .09). When both individuals are uncomfortable with their respective touching actions, the interaction suffers and the tipping behavior decreases (see Figure 26). Other dyads experience a positive or neutral effect of tipping behavior when being touched.

Figure 26. Dining Initiating Touch Lab Study – Diner's Tipping Behavior by CIT (Study 12)





In a similar pattern to the previous finding on tipping behavior, when asked to evaluate current affective state, there was a significant interaction between touch, the servers' CITi, and the diners' CITr (β = -.10, $t(167) = -2.55$, $p = .01$). For most interactions, touch resulted in an increased or no change in affective state, with the exception of touching interactions between a low CITi server interacts with a low CITr diner (β = -.55, $t(167) = -2=3.06$, $p = .003$). In this instance, reported affect decreases significantly (see Figure 27).

Similarly, when asked to evaluate their perceptions of the interaction comfort there was a significant interaction between touch, the servers' CITi, and the diners' CITr (β = -.09, $t(168) = -2.00$, $p = .05$). While the rest of the dyads experienced the interaction to be no more or less comfortable with touch, the dyad that experienced the interaction to be significantly less comfortable occurred when a low CITi server interacted with a low CITr diner (β = -.91, $t(168) = -4.42$, $p < .001$, see Figure 28).

The diner's evaluation of the server depended on their level of CITr, such that individuals who were uncomfortable receiving touch evaluated the server less favorably after being touched, but those comfortable with receiving touch evaluated the server more favorably after being touched (β = .10, $t(186) = 1.99$, $p = .05$, see Figure 29). None of the previously stated results were qualified by the diner's gender, the server's gender, or the combination of the two.

Figure 27. Dining Initiating Touch Lab Study – Diner's Affective State by CIT (Study 12)

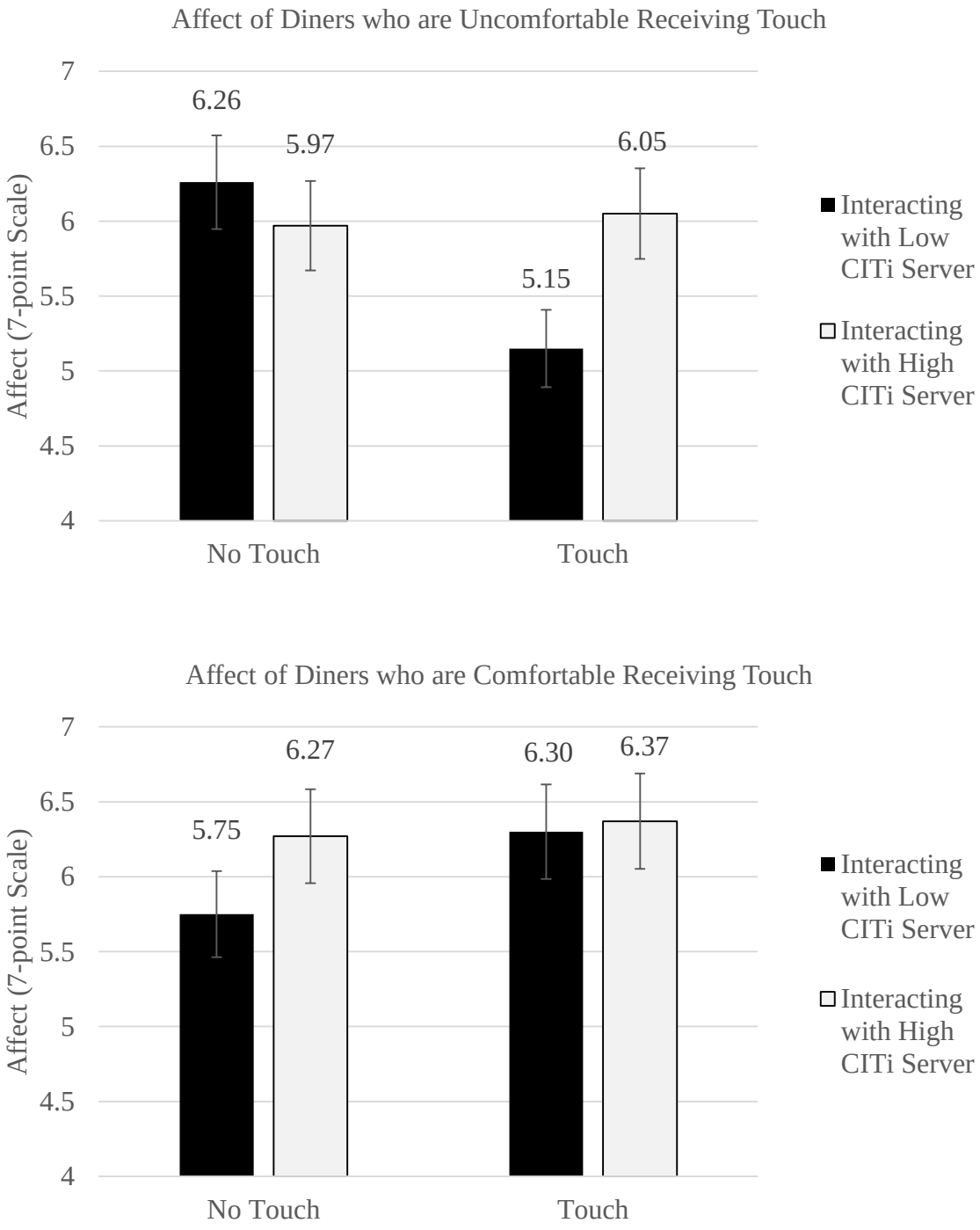


Figure 28. Dining Initiating Touch Lab Study – Diner's Perception of Interaction Comfort by CIT (Study 12)

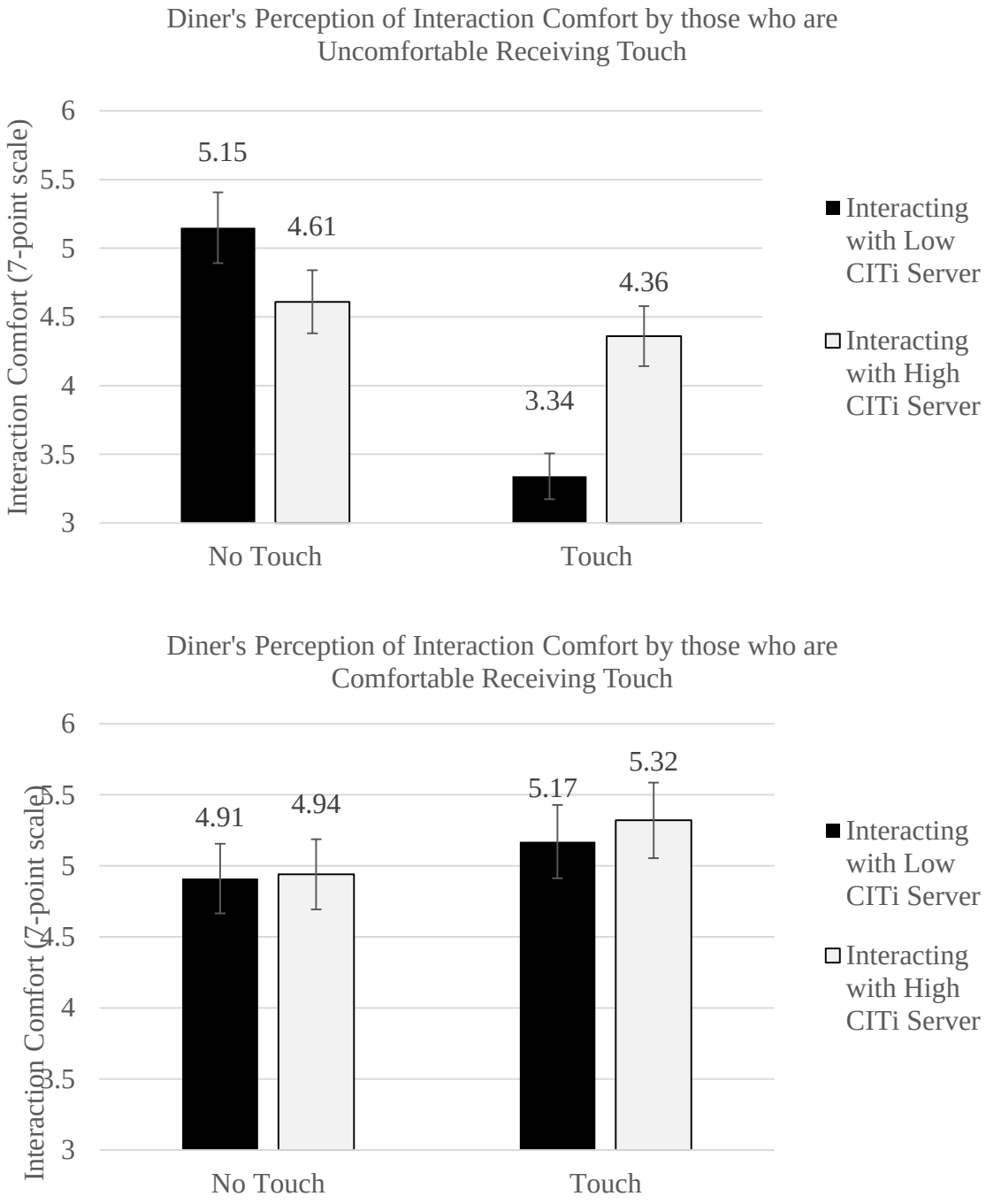
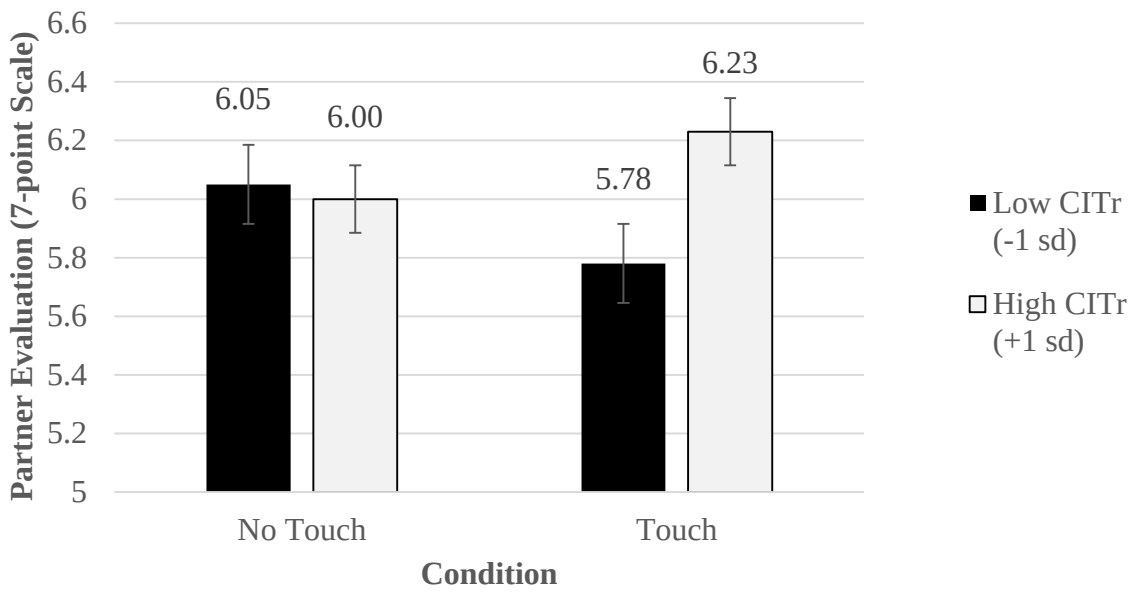


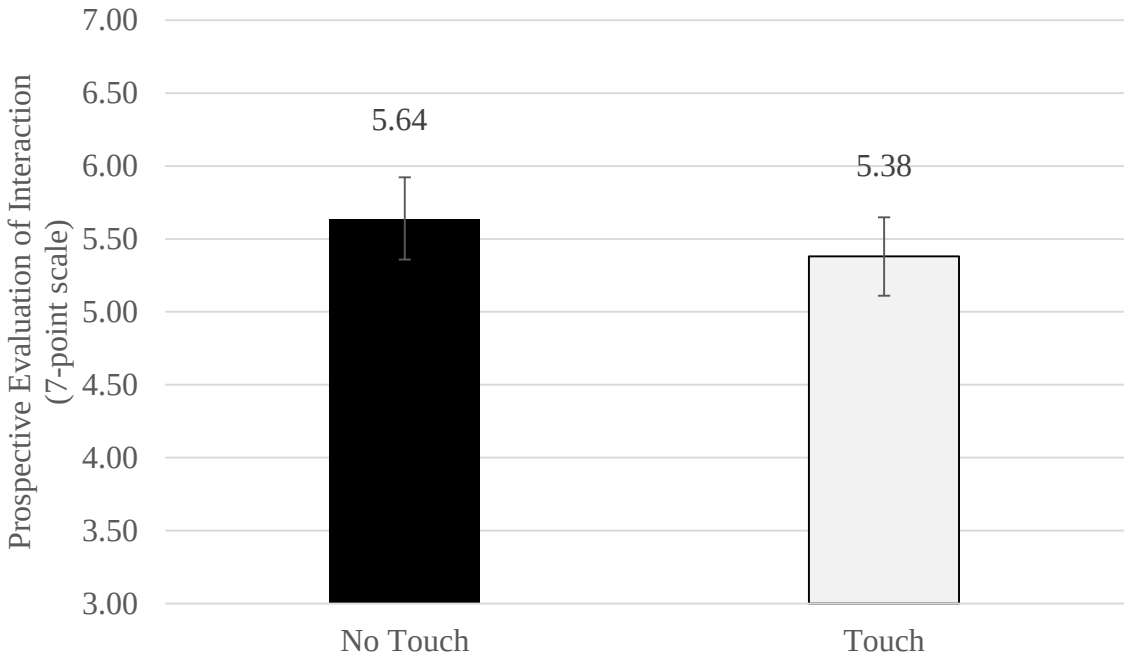
Figure 29. Dining Initiating Touch Lab Study – Diner's Perception of Server by CIT (Study 12)



Servers' Results. The main dependent variables of interest for the servers were anticipated tip and interaction comfort. In addition, before beginning the interaction, the servers responded to questions about their anticipation of the upcoming interaction. Their prospective and retrospective expectations about the interaction were relevant given that these individuals were the initiators of touch. I ran a simple regression that hypothesized that individuals who are Touch Avoiders and Touch Acceptors (both low in comfort with initiating touch) will differ from Touch Pursuers and Touch Enthusiasts (both high in comfort with initiating touch) in regard to their interaction expectations. None of the following results were affected by the servers' gender, the diners' gender, or the combination of the two. The results suggest that there is a main effect of touch ($\beta = -.13$, $t(178) = -1.66$, $p = .10$, $M_{\text{No Touch}} = 5.64$, $M_{\text{Touch}} = 5.38$, see Figure 30) such that servers who were instructed to touch the diners expected the interaction to go more poorly than servers not instructed to touch. This main effect was not qualified by an interaction with

CITi. The lack of a significant interaction with CITi may be due to the fact that CITi measures whether or not an individual is comfortable with initiating interpersonal touch of their own accord. In this scenario, individuals are forced to use interpersonal touch in the interaction, and it is not of their own volition.

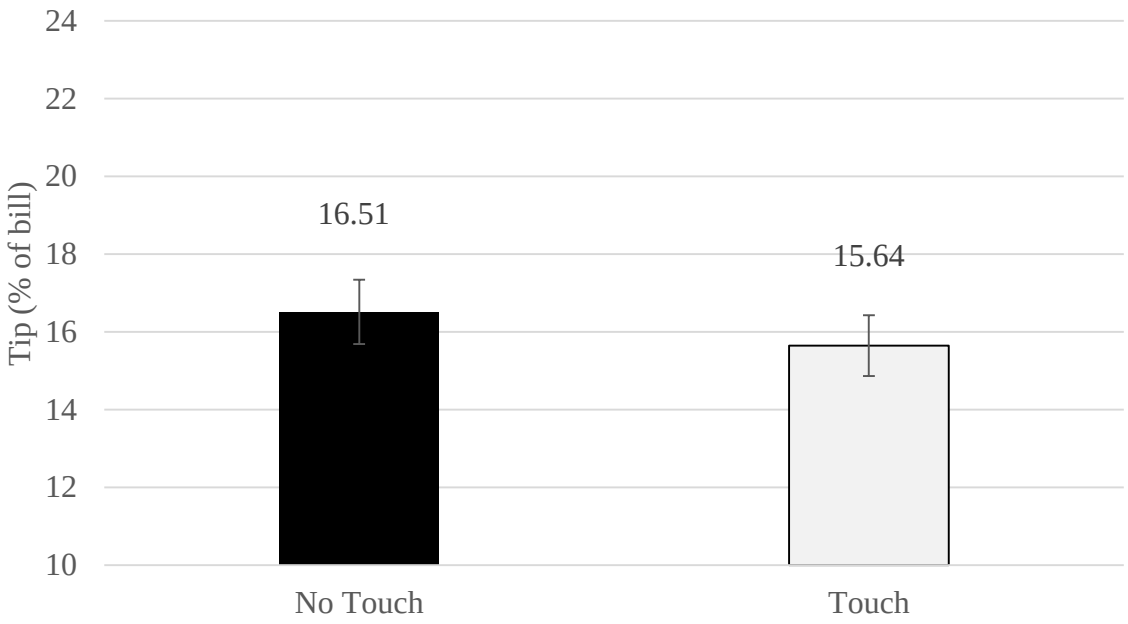
Figure 30. Dining Initiating Touch Lab Study – Server's Prospective Evaluation of Interaction (Study 12)



After interacting with the diner and serving pizza, the servers responded to the questionnaire with the remaining measures. Servers were asked to indicate how much tip they anticipate that the diner will leave for them based on the service that they provided. The results indicate a marginally significant main effect of touch such that individuals who were asked to touch the diner expected to receive less tip than those not asked to touch ($\beta = -.43$, $t(179) = -1.36$, $p = .18$, $M_{\text{No Touch}} = 16.51$, $M_{\text{Touch}} = 15.64$, see Figure 31). This is interesting because it is exactly

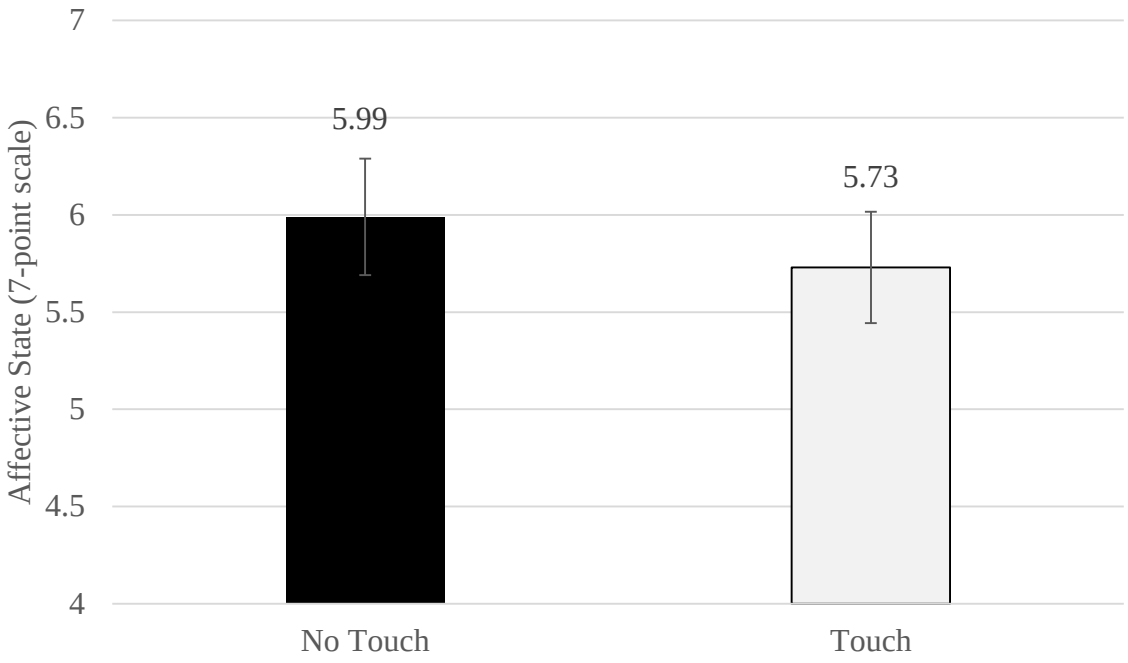
the opposite effect that was seen previously with the diners. The diners are more likely to leave a higher tip after interactions in which touch is used, but servers anticipate that interactions with touch will yield lower tips.

Figure 31. Dining Initiating Touch Lab Study – Server's Anticipated Tip (Study 12)



In a similar pattern to the previous finding on tipping behavior, when asked to evaluate current affective state, there was a marginally significant main effect of touch such that the servers reported less positive affect as a result of being instructed to touch (β = -.13, $t(179)$ = -1.69, p = .09, $M_{\text{No Touch}}$ = 5.99, M_{Touch} = 5.73, see Figure 32). This effect was not qualified by an interaction with CITi.

Figure 32. Dining Initiating Touch Lab Study – Server's Affective State (Study 12)



Servers were asked to evaluate their perceptions of the level of comfort of the interaction and the results demonstrate a significant main effect of touch with interactions containing the use of touch were perceived to be less comfortable than interactions without touch (β = -.21, $t(180)$ = -2.54, p = .01, $M_{\text{No Touch}}$ = 4.76, M_{Touch} = 4.33, see Figure 33). Again, this main effect of touch was not moderated by CITi.

Aside from their own level of interaction comfort, servers were asked to evaluate how comfortable they thought the diner was in the interaction. There was a significant main effect of touch such that servers thought that diners perceived the interaction to be less comfortable when it contained the use of touch compared to when it did not (β = -.29, $t(180)$ = -3.34, p = .001, $M_{\text{No Touch}}$ = 5.17, M_{Touch} = 4.59, see Figure 34). This suggests that diners may project their own feelings about interaction comfort onto the individual being touched.

Figure 33. Dining Initiating Touch Lab Study – Server's Interaction Comfort (Study 12)

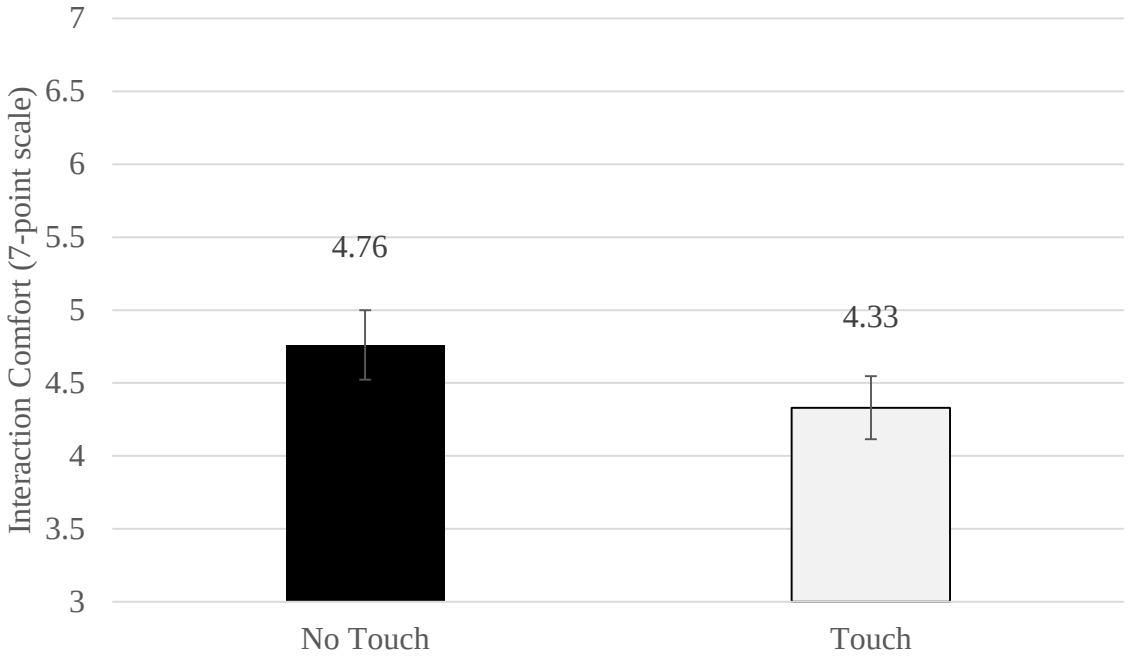
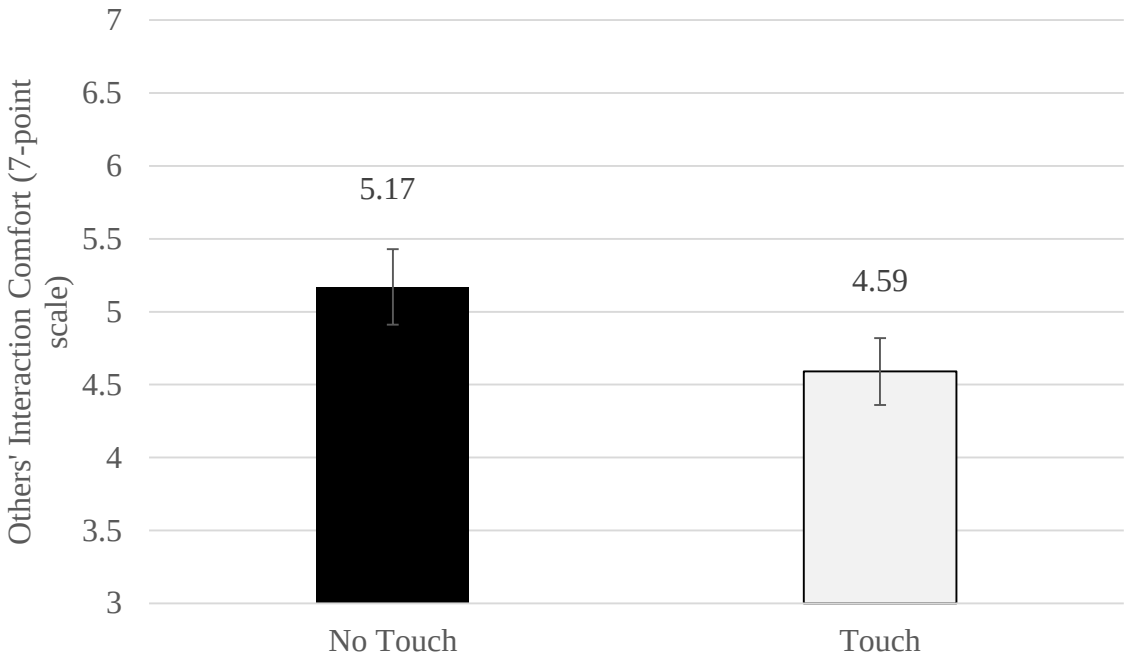


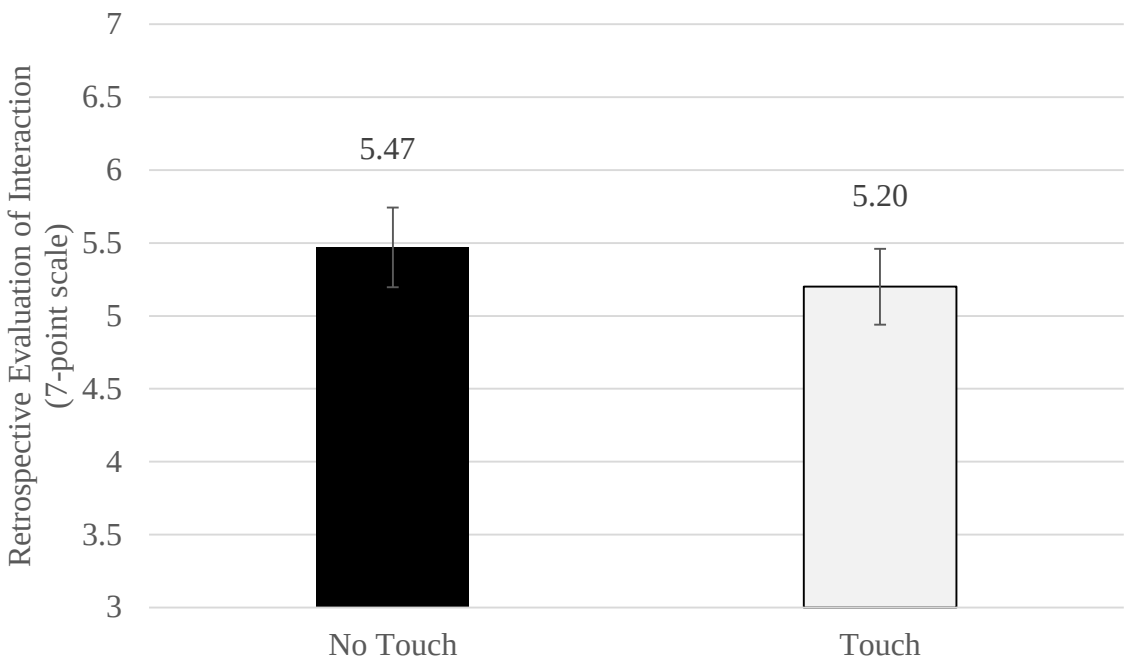
Figure 34. Dining Initiating Touch Study – Server's Perception of Diner's Interaction Comfort (Study 12)



Before beginning the interaction, servers responded to their anticipated expectations about how the interaction would go, but they also responded to a similar measure after completing the interaction as well. To review, the servers anticipated the interaction to go more poorly in the touch condition. After the interaction, the results demonstrate that there is a similar pattern. Individuals who were asked to touch diners reported that the interaction went more poorly than individuals who were not instructed to touch ($\beta = -.13$, $t(180) = -1.77$, $p = .08$, $M_{\text{No Touch}} = 5.47$, $M_{\text{Touch}} = 5.20$, see Figure 35). This is interesting, because one of the most well-established findings in the affective forecasting literature is that people tend to overestimate the intensity of the emotions that they feel ahead of an experience, but after actually engaging in the behavior, they experience less intense emotions (Wilson and Gilbert 2003). In essence, there are judgment biases in our ability to accurately forecast how we will feel about an experience. In this case, however, individuals who are instructed to touch anticipate it will be more negative and report more negative feelings after the experience.

Other research would justify this effect since people tend to have overly simplistic views of their reactions to emotional events when thinking about the distant future as opposed to the near future (Liberman, Sagristano, and Trope 2002). In essence, people's forecast might be more realistic for events that will happen soon but overly simplistic for events far into the future. In this research, since the participant's prospective evaluations, the actual experience, and the retrospective evaluations occurred within a short time frame, it is reasonable for the evaluations to be more concordant.

Figure 35. Dining Initiating Touch Lab Study – Server's Retrospective Evaluation of the Interaction (Study 12)



Touch Mechanism. Of interest is the mechanism through which touch is affecting the servers. Based on the previous literature review, three potential explanations were identified for how touch may be impacting the servers' perceptions of the interaction. First, previous research has demonstrated that affective responses to touch are a frequent reason for why interpersonal touch has effects (e.g., Levav and Argo 2009). This mechanism, however, has been shown when individuals are the recipients of touch, not when they are the initiators of touch. Therefore, it is reasonable to conjecture that initiating touch might also be operate through an affectional mechanism, but could other mechanisms drive individuals' experiences in a tactile interaction?

I also test the notion that one's perception of their ability to cope with the task of touching is a mechanism through which touch may produce effects. It's possible that some

individuals may feel that they cannot personally cope with the task of touching another individual. Both of the previous two mechanisms, an affective reaction and coping ability, are internal explanations for why initiating touch could produce these effects.

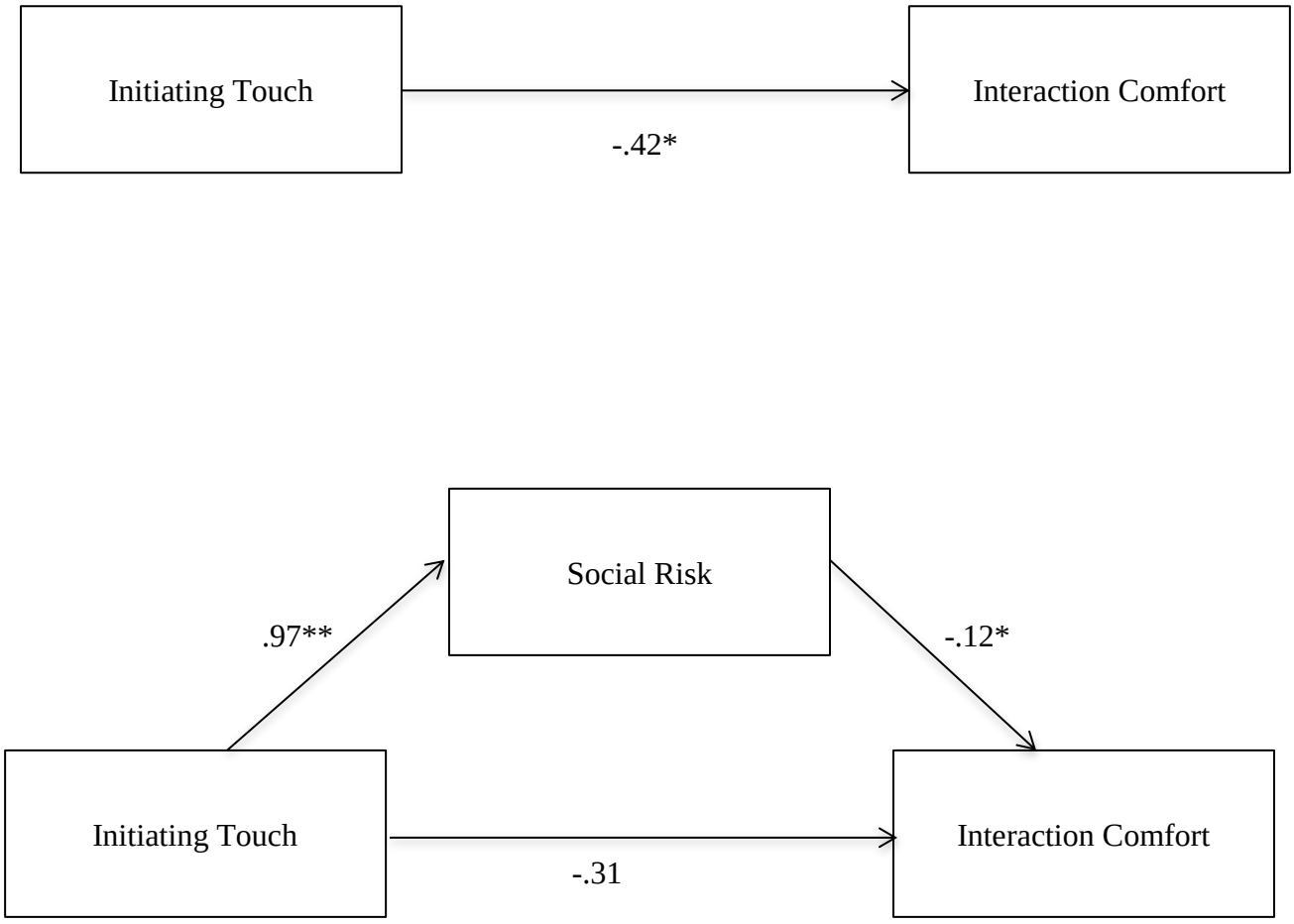
The final potential explanation is an external one; that when asked to touch another individual, the initiator of touch experiences aversion to it due to the social implications of the action. I refer to this as "social risk." This relates to the notion of empathetic forecasting in that the individual may show concern for how another person may feel in the interaction. In essence, initiation of touch may not only produce a psychological effect on the initiator, but may also cause the initiator of touch to worry about how the other person will respond and arouse a social cause for concern.

To test these potential explanations, a series of mediational analyses were tested on the servers' data. Following Preacher and Hayes (2004), a nonparametric bootstrapping procedure was used to compute a confidence interval around the indirect effect. If zero falls outside of this interval, mediation can be said to be present.

First, a meditational model tested whether or not affective state mediated the relationship between the touch condition and the server's own level of comfort within the interaction. The results demonstrate that affect did not mediate this relationship (95% CI [-.107, .981]) since zero falls within the confidence interval. I then test whether one's perception of their ability to cope with the task of being a server mediated the relationship between the touch condition and the server's own level of comfort within the interaction. Again, the mediational analysis was not significant (95% CI [-.252, .410]). Finally, with the touch condition as the independent variable, social risk as the mediator, and the server's own level of comfort within the interaction as the dependent variable, results revealed that the indirect effect via one's perceptions of social risk

equaled .27, the 95% confidence interval ranging from .02 to 1.13 indicating a significant mediation effect $p < .05$ (see Figure 36).

Figure 36. Dining Initiating Touch Lab Study - Mediational Model of Server's Initiation of Touch (Study 12)



Note: Results of the mediational analysis show that the effect of touch on interaction comfort is mediated by perceptions of social risk. The numbers are unstandardized regression coefficients. *$p < .05$. **$p < .01$.

By examining both sides of the interaction, this allows for a glimpse into effects caused by both initiating and receiving touch. Taken together, these results suggest that an individual initiating touch may anticipate that the interaction would be uncomfortable and actually evaluate the interaction as having gone more poorly. Interestingly, however, touch seems to continue to produce positive effects on the receiving end (i.e., diners are willing to leave higher tips). These results are qualified by interactions that occur between both parties who are uncomfortable with touch. In this case, there tend to be negative effects of touch across many of the measures – tipping behavior, affect, interaction comfort, etc. The results also reveal that an initiator of touch is likely to anticipate that the interaction will go poorly and to consider how the recipient of touch will feel in the interaction regardless of their level of CITi. Related to the notion of empathetic forecasting, the social risk associated with the touch-laden interaction is the mechanism through which initiating touch affects evaluations of the interaction.

Study 13: Customer Initiating Touch Lab Study

From the previous initiating touch studies, I tested the consequences of having a salesperson or service provider touch a customer. That is, I investigated salesperson-to-customer touch. This study views the reverse by looking at the effects of customers touching salespeople. Previous research highlights that consumers may use interpersonal touch with a salesperson to get better deals or special offers (Orth et al. 2013). In this study, I want to test whether or not a customer, if asked to touch, can negotiate a better price of a product. From the previous initiating study, it seems that there might be an empathy gap – that how the initiator of touch feels in the interaction may not be how the receiver perceives it. Thus, when instructed to touch a

salesperson in order to get a deal, do the customers negotiate a better price? Do the effects of touch hold when the initiator of touch is the customer?

I am also interested to understand whether a 3rd party can view an interaction and decipher interaction comfort. Previously shown in study 10b, observing an interaction via a photograph affects what motivations the observer prescribes to the use of touch. When observing a touch interaction, are the perceptions of comfort concordant with the feelings of the interactors? Furthermore, does comfort with initiation of touch affect the length of time spent in an interaction? In a negotiation context, the use of customer touch with a salesperson is manipulated. This study was a 2 (customer/salesperson) x 2 (no touch/touch) full factorial design manipulated between participants with CIT measured.

Study 13 Sample. Three hundred and ninety-four U.S. undergraduate students participated in this study. The students were recruited via an introductory course and received course credit for participation. The sample was 47% female with a median and modal age of 20. Individuals were placed into partners for this study, and those who knew their partner previously were eliminated from the dataset. Individuals who did not use the proper physical contact were eliminated from the dataset as well.

Study 13 Procedure. As participants entered the study, they were randomly assigned to either a customer or salesperson condition. Customers and salespeople were guided to separate rooms for instruction. The touch/no touch condition was randomly assigned to study timeslots. The customers were told that they were interested in purchasing a t-shirt, but would like to receive a discount on it. They were told to ask the salesperson for a discount on the regularly-priced $10 t-shirt. This scenario was entirely hypothetical and no money was exchanged in this study. The salespeople were told that they have been known to give discounts to customers but

doing so was their own decision. Students were provided with both written and verbal instruction to ensure full comprehension of the scenario. Appendix 5 details the full instructions to participants.

After receiving instructions, the participants were led to individual small rooms that were stocked with the two t-shirts where the customer/salesperson interaction would occur. All interactions were video recorded to be analyzed by an independent coder. Upon completion of the sales simulation, the participants were asked to fill out a brief questionnaire regarding their encounter.

Study 13 Measures. The main dependent measure was the price that the participants negotiated for the t-shirt (MIN_{Price} = \$3, MAX_{Price} = \$10). Participants' interaction comfort was measured with four items (α = .85) using a 7-point Likert scale (1= strongly disagree to 7 = strongly agree). A sample item is "the interaction with the buyer [seller] seemed to flow naturally" (see Appendix 1 for other items). Aside from their own interaction comfort, I am also interested in how a 3rd party perceives the interaction and whether or not this corresponds to the participants' feelings of interaction comfort. Given the nature of the video-recorded data, I am also able to capture the length of time spent in the interaction.

Study 13 Results. An unintended consequence of asking the customer to negotiate with the salesperson was that 37% of the participants engaged in a handshake with their partner. In the context of negotiations, a handshake, although a form of interpersonal touch, is a highly normative behavior. The handshake, however, did not impact the price that the customer was able to negotiate with the salesperson ($F(1, 391) = .08$, $p = .77$). A chi-square test was performed to examine whether the touch condition affected the use of a handshake, and interestingly, participants in the no touch condition were significantly more likely to shake hands than

participants in the touch condition (X^2 (1, N = 394) = 5.60, p = .01) with 43% of participants shaking hands in the no touch condition and 32% shaking hands in the touch condition. Post hoc, this seems reasonable; when no instructions are given with respect to touch, a handshake is a very normative behavior and it is not surprising that nearly half of the interactions engaged in a handshake. However, in the instance when specific instructions are given as to the type of touch to be used in the interaction, the handshake may seem less appropriate.

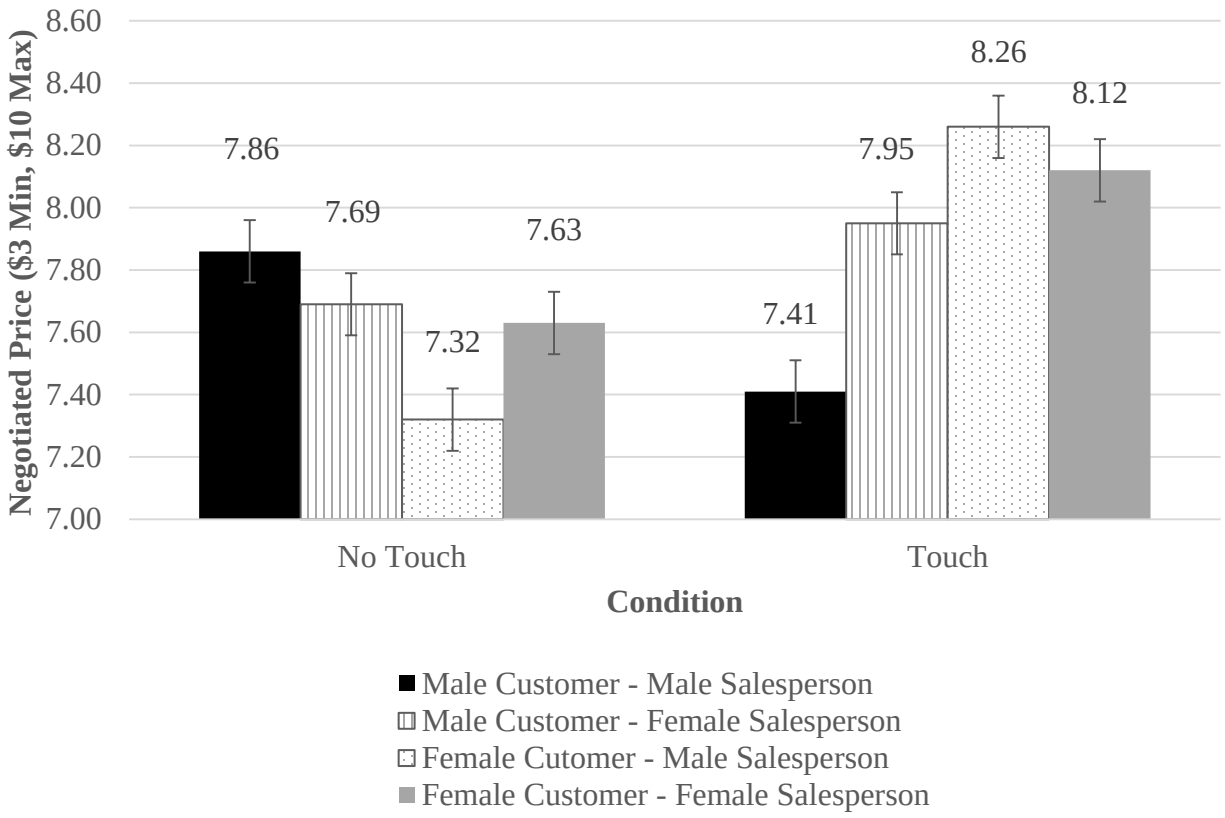
A second unintended consequence of this negotiation context was that salespeople often offered quantity discounts. Rather than a strict price discount, some salespeople decided to offer, for example, 1 t-shirt for $9 or 2 t-shirts for $17. This occurred in about 12% of the interactions. If the customer decided to buy multiple t-shirts, the unit price per t-shirt is represented in the data.

First, analyses were conducted on the customer data, those individuals who were instructed to touch the salesperson to negotiate a deal on the t-shirt. About 93% of customers received some form of a discount, and the prices charged to customers ranged from $3 to $10. Analyses reveal a marginally significant interaction such that individuals who touched salespeople actually received less of a discount than those who did not touch (β = -.12, t(194) = 1.43, p = .15, $M_{\text{No Touch}}$ = $7.65, M_{Touch} = $7.89). This was not qualified by an interaction with CITi.

Interestingly, however, gender does qualify the effect of touch on the negotiated price (β = -.15, t(187) = -1.79, p = .08, see Figure 37) such that the male customer-male salesperson dyad received a discount with the use of touch (β = -.23, t(187) = -1.50, p = .14, $M_{\text{No Touch}}$ = $7.86, M_{Touch} = $7.41), while other dyads did not receive the same benefit. The female customer-male salesperson dyad experiencing the most disadvantage with the use of touch (β = .47, t(187) =

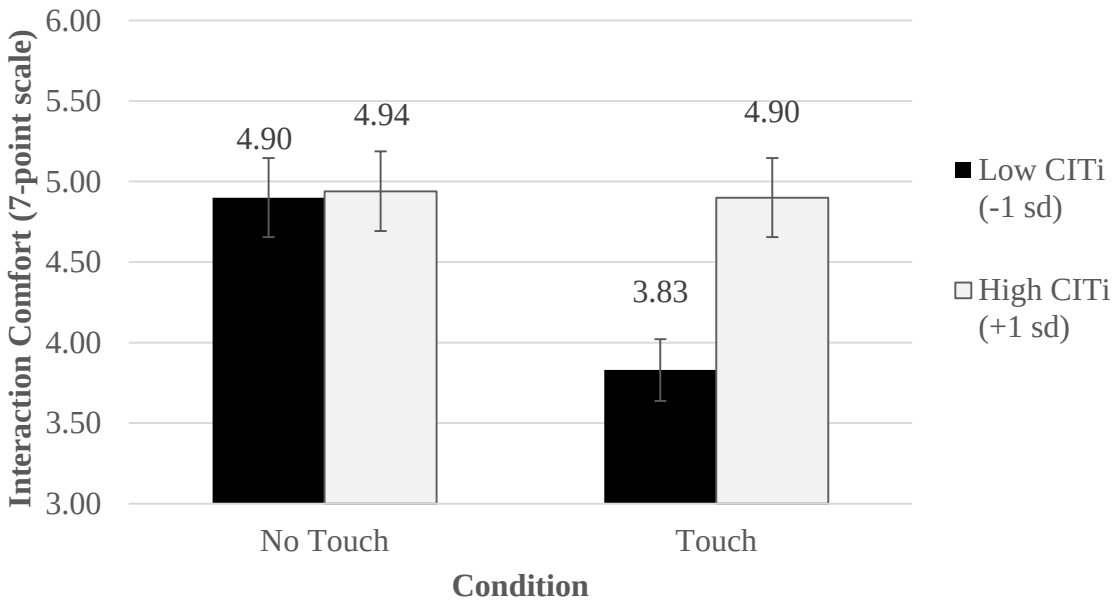
2.53, p = .01, $M_{\text{No Touch}}$ = \$7.32, M_{Touch} = \$8.26). This is not surprising given that two meta-analytic studies examining gender differences in negotiations (Stuhlmacher and Walters 1999; Walters, Stuhlmacher, and Meyer 1998), show that men indeed behave more competitively and reap better outcomes than women do in negotiations. Other researchers contribute to this effect by suggesting that it is largely due to implicit gender stereotype activation that leads to a male advantage and a complementary female disadvantage at the bargaining table (Kray, Thompson, and Galinsky 2001).

Figure 37. Customer's Negotiated Price of T-shirt by Gender (Study 13)



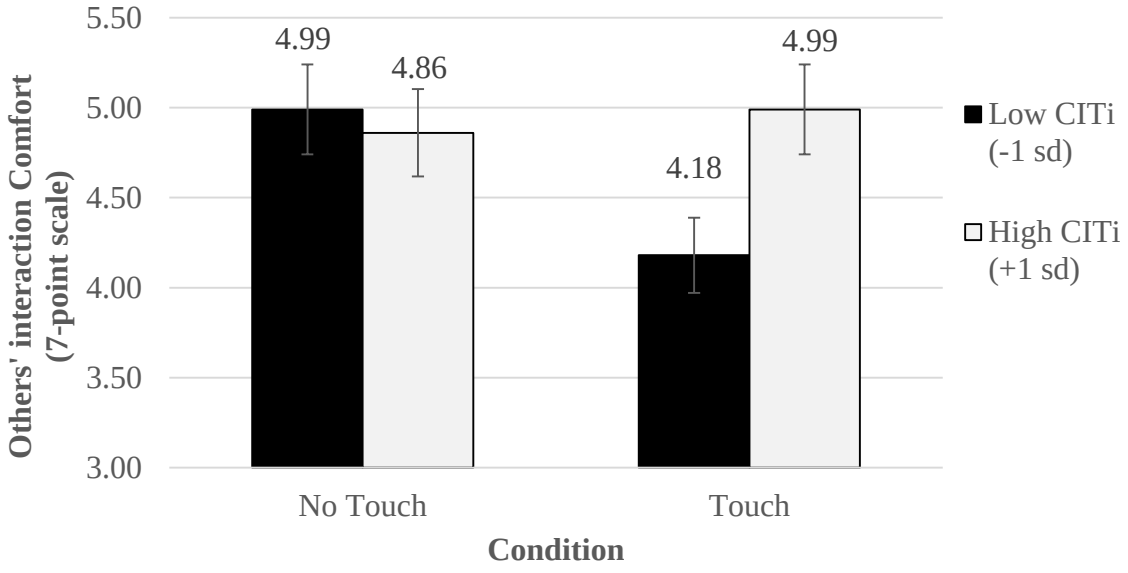
There is also a statistically significant main effect of touch on the customer's perception of interaction comfort (β = -.27, $t(195) = -3.07$, $p = .002$, $M_{\text{No Touch}} = 4.92$, $M_{\text{Touch}} = 4.37$) such that participants thought the interaction to be much less comfortable when asked to touch the salesperson. This main effect was qualified by an interaction with the customer's level of comfort with initiating touch (β = .21, $t(193) = 3.02$, $p = .003$). Customers who score high on CITi thought the interaction was no more or less comfortable across the touch condition (β = -.02, $t(193) = -.16$, $p = .87$), while those who score low on CITi thought the interaction was significantly less comfortable when asked to negotiate with touch (β = -.54, $t(193) = -4.43$, $p < .001$, see Figure 38).

Figure 38. Customer Initiating Touch Lab Study - Interaction Comfort for Customers by CITi (Study 13)



In a similar pattern, customers believed that the salespeople were more uncomfortable in the interaction when touch was used (β = -.17, $t(195) = -1.85$, $p = .07$, $M_{\text{No Touch}} = 4.93$, $M_{\text{Touch}} = 4.59$, see Figure 39). Similar to previous findings from Study 12, discomfort perceived by the initiator of touch mirrors what the participant expects the recipient to experience. There is also a significant interaction with the customer's level of comfort with initiating touch such that those who are comfortable initiating touch did not think the salesperson was more or less comfortable in the interaction (β = .06, $t(193) = .51$, $p = .61$) while those uncomfortable with initiating touch thought that the salesperson was significantly less comfortable when asked to touch (β = -.41, $t(193) = -3.22$, $p = .002$).

Figure 39. Customer Initiating Touch Lab Study - Customer's Perception of Salesperson's Interaction Comfort by CITi (Study 13)

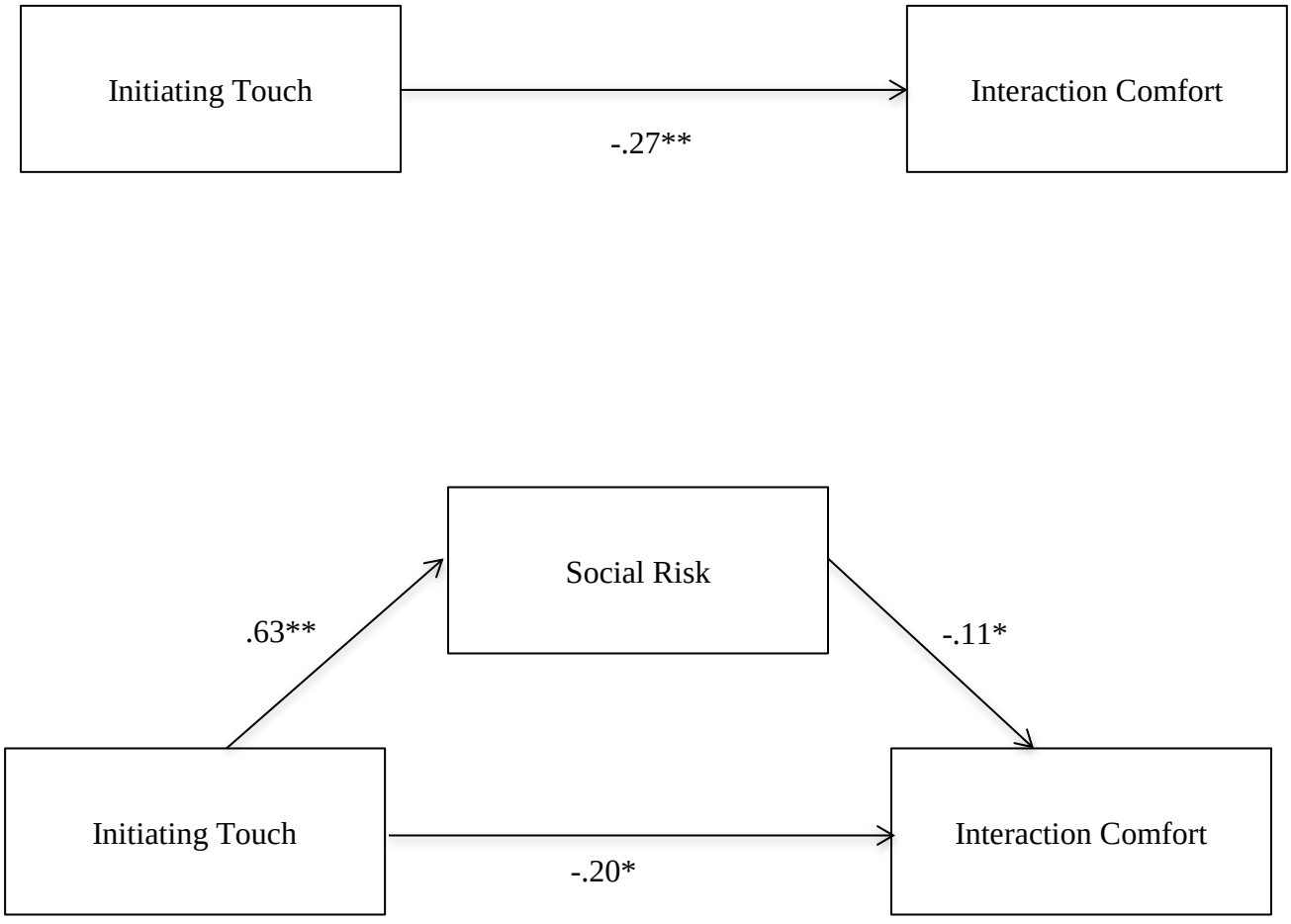


Customers also were more concerned about how the salesperson might feel in the interaction, thus exhibiting concern over the social implications of touching and acknowledgement of the social risk associated with touch ($\beta = .19$, $t(195) = 1.95$, $p = .05$, $M_{\text{No Touch}} = 4.65$, $M_{\text{Touch}} = 5.02$). This was not qualified by a significant CITi interaction. Similar to the previous study, the mediational role of social risk was investigated. Following similar procedures, a nonparametric bootstrapping method computed a confidence interval around the indirect effect (Preacher and Hayes 2004). With the touch condition as the independent variable, social risk as the mediator, and the customer's perception of interaction comfort as the dependent variable, results revealed that the indirect effect via one's perceptions of social risk equaled .25, the 95% confidence interval ranging from .01 to .95 indicating a significant mediation effect $p < .05$ (see Figure 40).

With these data, the video recordings of the interaction allow for independent coding of interactional measures. The coder was asked to indicate whether a touch on the arm occurred, rate their perception of the comfort of the interaction, and the total duration of the interaction. The observation of touch on the arm ensured that the proper touch manipulation occurred in the conditions in which it was intended to occur. The results reveal no effect of touch or CIT on the researcher's observation of the interaction comfort. This is interesting because although customers may feel uncomfortable (especially those low in CITi) when asked to touch a stranger, an independent observer cannot detect that discomfort. Pearson correlation coefficients were calculated between the interaction comfort evaluated by the independent coder and the interaction comfort stated by each of the interactors. The correlation between the customer's interaction comfort and the independent coder's perception of interaction comfort was .10 and not significant. The correlation between the salesperson's interaction comfort and the

independent coder's perception of interaction comfort was .22 ($p < .01$). This is interesting because it affirms the notion that an initiator's discomfort in an interaction is not likely to be detected by the recipient or a 3rd party observer.

Figure 40. Customer Initiating Touch Study - Mediational Model of Customer's Initiation of Touch (Study 13)



Note: Results of the mediational analysis show that the effect of touch on interaction comfort is mediated by perceptions of social risk. The numbers are unstandardized regression coefficients. *$p < .05$. **$p < .01$

The use of touch has an effect on the length of time in the interaction. There is a marginally significant effect of touch on the duration of the negotiation (β = -5.07, $t(164) = -1.92$, $p = .06$, $M_{\text{No Touch}} = 72.42$, $M_{\text{Touch}} = 62.27$). When negotiations involved touch, they tended to be briefer than negotiations without touch. This does not depend on the level of comfort of the interactors.

The data from the salespeople give us further insight into the interaction as well. Salespeople were no more or less likely to think the interaction was comfortable depending on whether or not they received touch (β = .10, $t(195) = 1.10$, $p = .27$), replicating what was demonstrated in Study 11. It is also interesting to note that this does not hinge on the level of comfort of the customer who touches the salesperson (β = .03, $t(193) = .36$, $p = .72$). Similarly, the salespeople do not perceive the customer's level of comfort in the interaction to be affected by touch (β = .07, $t(195) = .82$, $p = .42$). These results suggest, as seen previously, that the customers who initiate the touch may experience discomfort, but the recipient of touch does not experience the same discomfort in the interaction. This inability to detect comfort is abstracted even further with the data that suggest that an observer is not able to accurately evaluate the comfort experienced by an initiator of touch.

ESSAY 2: DISCUSSION

Social interactions in retail environments shape consumption and shopping behaviors. As consumers, we communicate constantly through our nonverbal behaviors and should recognize that our preferences for touch can impact how, when, and where we shop and how we interact with others in our environment. As marketers, a better understanding of consumer's touch

preferences and tendencies in retail contexts can aid in designing retail space, facilitating or inhibiting interaction, and enhancing consumer experiences.

The major contributions of this essay are four-fold. First, a latent class analysis reveals the underlying structure of preferences for initiating and receiving touch and identifies four groups with respect to comfort with initiating and receiving interpersonal touch. A large U.S.-based sample allows for estimates of the proportions of the population that belong to each of the four classes. The classes constitute either individuals high or low in initiating and receiving touch and have been named Touch Avoiders, Touch Acceptors, Touch Pursuers, and Touch Enthusiasts. Second, I dissect the existing positive effects of receiving touch that are found in the literature and highlight that Touch Acceptors and Touch Enthusiasts are the groups that drive these effects. Third, the manipulation of initiating touch has not been considered in the marketing literature and allows for consideration of the dyadic relationship, both the initiator of touch and the recipient of touch. Finally, this study illuminates the underlying mechanism of touch effects by testing various potential explanations including perceptions of coping with touch, affective responses to touch, and empathetic forecasting of the social risk involved in touching another person.

Based on the initial study the CIT structure, four classes of individuals are proposed. Analyses were run both categorically by these four classes and continuously using the interactive effects of the CITi and CITr dimensions. While the analyses produce very similar patterning in the direction of effects, the levels of significance vary based on which statistical method is used. The method considered to be most appropriate given the nature of these data is the continuous measure and all results are presented in that way.

Both Touch Avoiders and Touch Pursuers are groups that are low in comfort with receiving touch. When these individuals were touched in a retail store (Study 9), there were no positive effects or negative effects on attitude toward the store, the store's products, or the salesperson. Their likelihood of returning to the store in the future was also not affected and their affect was not more negative when they were touched. So, while these individuals say they are uncomfortable with receiving touch, when they are actually exposed to touch it does not affect them negatively.

Touch Acceptors and Touch Enthusiasts are highly comfortable with receiving touch. Together, they typically account for about 55% of the population in the United States and about 45% of the population in Sweden. When these individuals are touched in a retail environment, the effects are generally positive and significant. In response to touch, they tend to feel more positive affect, as well as rate the store, the store's products, and the salesperson more positively. With respect to touch reception, these analyses are important in that they highlight that only around half of the population drive the existing positive effects that we see in the literature. It is the individuals who are comfortable with receiving touch who are responsible for these positive effects. These data would suggest that the positive effects of touch in the literature persist given the fact that the other individuals in the population who are uncomfortable with touch are not negatively affected by its occurrence.

It was predicted that individuals could have discrepancies between their preference for initiating and receiving touch. The preceding analyses demonstrate that individuals can be polarized on the two dimensions and have a strong appreciation for one dimension but avoidance of the other with, for example, an individual who is comfortable with initiating touch, an approach orientation, but uncomfortable receiving touch, an avoidance orientation. While it

seems that these four classes are theoretically relevant, through further analyses in Essay 2 these data do not suggest that the groups are as empirically relevant as predicted. It can be seen that the important level of distinction occurs at the initiating/receiving level of analysis. That is, when investigating the effects of initiating touch, less relevant is the participant's preference for receiving touch; consideration of CITi is more relevant than the consideration of both CITi and CITr.

This essay also highlights the importance of initiation of touch and details its effects in various contexts relevant to the study of consumer behavior. When questioning actual salespeople about their use of touch in their job, high initiators of touch think that they are more effective salespeople. Given the previous findings that CIT is situated within an approach/avoidance framework, these high initiators are more likely to be approach-oriented and assertive in their jobs. Interestingly, interpersonal touch may prove to be a behavioral indicator of whether or not someone will be a good salesperson. While these data represent subjective measures of sales performance, it would be interesting to test whether or not touch could predict objective sales performance. High initiators also tend to think that touch is more effective than low initiators, they tend to use touch more and tend to think that others touch them more frequently as well. In general, actual salespeople who are comfortable with initiating touch view the touch as being used for more positive motivations whereas individuals uncomfortable with initiating touch view the motivations of touch more negatively.

Individuals who view a sales encounter that involves the use of touch are more likely to ascribe positive motivations to the salesperson if their own level of comfort with initiating touch is high. It is less frequently the case that low initiators of touch think that the motivations of touch are more negative than high initiator. Instead, the individuals comfortable with initiating

touch tend to view the motivations for the use of touch more positively than those who are uncomfortable with initiating touch.

In this essay, a series of studies highlight the effects of manipulating the use of initiating touch. Across all three of the initiating touch lab studies, the data suggest that initiating touch tends to have effects on the initiator of touch, but the recipient of touch is not affected based on the comfort level of the initiator. This is surprising. It would be reasonable to assume that when a person is forced to touch a stranger and is uncomfortable with doing so, that the recipient of touch would be able to detect that discomfort. This, however, does not seem to be the case. The data suggest that there is potentially a bi-directional empathy gap. In essence, initiators of touch worry about how the other person is going to feel, anticipate and report that the interaction goes more poorly, and believes the recipient of touch was less comfortable in the interaction. Yet, the recipients of touch do not evaluate the interaction as any more or less comfortable as a result of the touch. Thus, there is an empathy gap on both sides of the interaction with the initiator of touch believing that their discomfort is felt by the recipient and the recipient who is oblivious to the discomfort felt by the initiator.

While a variety of previous research uncovers the affective mechanism for the reception of touch, interestingly, when manipulating initiating touch, the affective mechanism is not what drives these effects. Empathetic forecasting, or consideration of how the touch recipient will feel, drives the effects of touch initiation. Rather than an internal explanation to the effects of initiating touch, this social risk explanation is an external account for the consideration of others in the social interaction.

GENERAL DISCUSSION AND FUTURE RESEARCH

Current touch research in marketing spans a wide range of contexts including person-to-product touch (Peck and Childers 2003a), product-to-product touch (Morales and Fitzsimons 2007), and person-to-person touch (Martin 2010). Other forms of more spontaneous or incidental touch have been acknowledged as well including how our physical experiences from interactions with the environment influence our cognitions (Barsalou 2008). Related to touch, some scholars note that haptic properties (Lederman and Klatzky 1987) such as the texture, weight, temperature, or hardness of an object can influence subsequent judgements of individuals. Ackerman, Nocera, and Bargh (2010) assert that physical touch may even create an "ontological scaffold" for the development of interpersonal conceptual and metaphorical knowledge, grounding our understanding of cognition in the body.

Investigating specifically person-to-person touch, this dissertation develops a measure of Comfort with Interpersonal Touch (CIT) for the purposes of understanding consumers' preferences for tactile communication and interaction. This construct is reflected by two related scale dimensions: comfort with initiating touch and comfort with receiving touch. The intent through the use of these dimensions is to show that individuals may have a generalized preference for touch, but also may have more subtle preferences for the initiation or reception of touch. In fact, a recent publication (Orth et al. 2013), in the context of interpersonal touch, used a measure of preference of product touch (Peck and Childers 2003a) because there is no current measure of the individual difference in comfort with interpersonal touch. Product touch and interpersonal touch are theoretically distinct concepts, which is demonstrated in this article through discriminant validity. Touching objects or products should be treated differently than

touching people since the decisions for use of touch and the effects it produces vary greatly. It is evident that this individual difference measure has great potential to aid in the clarification of existing effects of interpersonal touch in marketing contexts and to explore new contexts in which touch influences consumers' choices.

Personality traits are not isolated in real life, but exist in a dynamic system of other traits and constructs that give rise to our understanding of consumer behavior. Through this inquiry into the comfort with interpersonal touch (CIT) construct, its relation to other constructs, like extraversion and assertiveness, have been illuminated. We have gained a better understanding of the nomological network in which the construct resides and its theoretical grounding within an approach/avoidance framework. This has allowed for specialized tests of theory by examining consumer attitudes and behaviors in sales contexts.

Comfort with interpersonal touch may also fit into broader theoretical contexts through the use of personal space and preferences for socially dense retail environments. Edward Hall coined the term "proxemics" in its relation to distance and communication (Hall 1966). Hall's (1966) study of proxemics investigates the ways in which individuals use physical space in their interactions with others and how the use of space influences behavior. Some theorists concerned with proxemics have suggested that culture or geographical factors impact our use of space suggesting that individuals who live in colder climates use relatively large physical distances and engage in little physical interaction when they communicate, whereas individuals who live in warmer climates prefer closer distances and more physical interaction in communication (Lustig and Koester 1996; Sussman and Rosenfeld 1982). Even within a culture, one's comfort with interpersonal touch may illuminate concerns related to social crowding, use of retail space, and interpersonal interaction in confined spaces.

Currently, this research has been limited to studies within "noncontact" cultures. Although it is likely that within each culture, an individual difference in CIT exists, understanding how a contact culture would perceive initiating and receiving touch would expand our knowledge of the CIT construct. Perhaps individuals in contact cultures would experience offense at the lack of touch from a stranger than from the overuse of touch. Investigating how consumers' preferences for touch across different cultures impacts purchase decisions is a promising area of future research. It is my hope that the development of the CIT scale opens up many avenues for insights into a more thorough and nuanced understanding of interpersonal touch.

This construct is of great importance for field research in which consumers are making real decisions regarding interaction and consumption. Shopper studies in the field can provide deep insights (e.g., Inman, Winer, and Ferraro 2009) and the effects of CIT are illuminated in retail contexts. Comfort with initiating touch could be measured and applied to a setting where a salesperson is trained to either touch or not touch customers. Perhaps by repeatedly touching, a salesperson who is uncomfortable with initiating touch may grow to be more comfortable initiating touch with strangers.

It is also possible that the effects of touch have a lasting influence on consumers. We know from this research and previous research that touch has effects on people immediately after the social interaction; however, we know less about the long-term consequences of being touched. Many researchers cite compliance effects with touch (e.g., Hornik 1992), but perhaps individuals are simply complying with a request in order to exit the situation as quickly as possible. These effects in the literature seem to draw heavily on short-term compliance without acknowledging potential downstream negative effects on subsequent interactions with others or

enduring preferences or behaviors over time. In a related way, future research could also examine how individuals respond to situations in which repeated touches occur. It could be that repeated touches may build up negative or positive affect over time and could have potential long-term influences (Vaidis and Halimi-Falkowicz 2008).

A lack of comfort with interpersonal touch may drive individuals to choose different means through which they wish to interact and communicate. By thinking of interpersonal touch as a method of communication, we might expect that individuals who are lower in comfort with interpersonal touch would be less likely to put themselves in situations in which touch may occur, and that they will compensate for that loss of face-to-face communication by using other means of communication. Future research could consider investigating how and what types of media individuals consume based on their comfort with interpersonal touch.

Comfort with interpersonal touch may also link theoretically to research that has found that interpersonal touch is related to status. Henley (1973) investigated touching relationships between individuals of different status and found that lower status people are more easily the targets of touch whereas high status individuals exercise touch in order to maintain their status advantage. Stier and Hall (1984) note that perceptions of a person's dominance increase when a person initiates touch, suggesting that high status individuals want to display their dominance while low status individuals may want to acquire status through touch. In general, older individuals have higher status than younger individuals and this is consistent with prior research on status. This research begs the question of how CIT may change over time. Is it possible to become more comfortable with touch? Perhaps the introduction of touch gradually over time may desensitize individuals who are usually uncomfortable (Kinnealey, Oliver, and Wilbarger

1995). Or, perhaps someone who has experienced high mobility in their life (i.e., substantial status increases or decreases) changes their tactile interactions with others as a result.

While this dissertation has investigated CIT perceptions within individuals, it would be fruitful to more fully investigate across individuals' levels of CIT as well. Theoretically, it would be interesting to further investigate how CIT interaction conflicts are resolved, that is, how consumers handle interactions where the differences in CIT are great between the two interactors. These conflicts are bound to influence the way an individual chooses to consume products as well as experiences. How does touching behavior change as a result of similarities or discrepancies in levels of CIT across interactors?

This work only begins to understand individuals' interpretations of what touch is intended to convey. Touch between people who are not in a close relationship may be perceived to be offensive or produce anxiety (Wilhelm et al. 2001), while others suggest it is a tool to build stronger relationships and to convey personal closeness (Fuller et al. 2011). I recognize that individuals of differing CIT levels may have a tendency to interpret the motivations behind interpersonal touch differently. This should be explored further. Variations on level of CIT might not only influence interpretations of motivations but it also might dictate how and when different types of touch are used, if at all. A handshake, which is largely unobtrusive and formal in nature, would likely be considered comfortable even for the low CIT individuals. Therefore, a typology of the spectrum of touch types based on whether they evoke uncomfortable or comfortable responses from individuals would provide a clearer distinction of the consumer contexts in which high and low CIT individuals differ.

This research on comfort with interpersonal touch focuses primarily on individuals' perceptions and tendencies with respect to their own personal use of touch. More consideration

should be given to what can be inferred from observing others in touch-laden encounters. That is, how does one's CIT influence how they interpret touch between two other people? Whether in advertisements, consumer-to-salesperson interactions, consumer-to-consumer interactions, physical touch influences how we make inferences and form attitudes about other people as well as brands. Thus, CIT should be useful in empirical tests of theories regarding how messages and communication are interpreted by consumers, not simply through their own physical interactions but through the inferences made by others' interactions as well.

Managerially, this research may influence the way employee-training programs are constructed. On the whole, both receiving and initiating touch can produce positive effects. In some people, it elicits positive responses that impact an individual's attitudes in a positive manner. The results reveal that even people low in their comfort with initiating touch (Touch Avoiders and Touch Acceptors), when forced to touch in a sales situation may actually feel discomfort, but their discomfort was not evident to the recipients. Coupled with the fact that individuals do not display negative effects of receiving touch in a retail store, having a salesperson touch a shopper lightly on the arm and for a short duration will most likely yield positive effects.

For both Touch Acceptors and Touch Enthusiasts, both comfortable with receiving touch, a touch produces positive affect and more positive evaluations. Although there seem to be few negative consequences of touch, there is a marginally significant negative effect on affective state for low CITr consumers. If a company has an important client who contributes substantially to the company's sales, interpersonal touch should not be recommended in interactions with this individual until their preferences are understood. The risk associated with offending these clients is great, perhaps the loss of a contract. With the touch inducing even slightly more negative

emotions, perhaps this could carry over to ongoing interactions with the client. In situations with less critical clients, for example, a retail-clothing store, the relationship with each individual customer is likely to be less important, and it may be acceptable to bother a small percentage of individuals. On average, the store will not likely experience drastic negative effects of touch.

Extensions to this work could include theoretical development of how two theoretically distinct types of touch found in the literature impact one another. This dissertation investigates intentional interpersonal touch (IIT). Aside from IIT, which is typically perceived positively, other forms of interpersonal touch in the literature produce more negative reactions for those touched, namely, accidental interpersonal touch (AIT). Similar to the "butt brush" described by Underhill (1999), research conducted by Martin (2012) showed the being bumped from behind had negative effects on brand evaluations, product beliefs, willingness to pay, and time spent in-store. However, would the negative effects of AIT persist in the face of apologetic IIT from the transgressor? Perhaps congruence between the social norm violation (i.e., AIT) and the modality of apology (i.e., IIT) will result in the most recuperative effects of the violation. That is, an apology may mend the negative effects produced by AIT in situations in which the apology occurs in the same modality as the preceding infraction. It may also be the case that once interpersonal touch has already occurred through AIT, the offender is granted license to repair the infraction using IIT. In this sense, nonverbal as well as verbal communication likely have an influence on how apologies are perceived.

The order in which AIT and IIT occur may result in differential effects on consumers. It is possible that the negative effects of AIT could be inoculated by first using an IIT. That is, could a store greeter intentionally touch a customer on the upper arm as they enter the store in an attempt to prevent negative effects of touch that a consumer might experience while shopping?

Does an IIT from anyone suffice to inoculate against the negative effects of touch? Or, will IIT only repair the effects of AIT when the touches occur between the same individuals? A more nuanced understanding of the effects of an AIT/IIT pairing would be worthwhile.

Going further, perhaps the effects of accidental interpersonal touch may hold when investigating accidental touch that occurs between objects rather than individuals. For example, in a retail context, customers may bump each other's carts or shopping baskets. Theoretically, the shopping basket, when in use, would become a part of one's "extended self" (Belk 1988). That is, simply touching and having physical control over the basket makes an individual feel greater ownership over it (Peck and Shu 2009), and consequently, becomes a part of their psychological boundaries of self. Assuming that consumers view a bump as a spacial violation, the offender will likely offer an apology, and apologetic communication that involves IIT may restore equity or may even have residual positive effects. Therefore, the effects of tactile apologies may be interesting to study in both person-to-person and object-to-object accidental touch situations.

Marked by a dramatic shift in how consumers and marketers communicate, the study of nonverbal behaviors is of utmost importance as traditional consumer-marketer communication shifts from largely static, unidirectional, and depersonalized to a more dynamic, bidirectional, and personalized process. Social media and online communities offer brands the opportunity to engage with consumers in more nuanced ways. Engagement, whether verbal and nonverbally, can now take place both in person and virtually. There is renewed interested in understanding nonverbals due to the fact that we now have the ability to communicate with others across distance, time, and space. The nature of what nonverbal communication, like interpersonal touch, looks like in these contexts is being investigated (Gallace and Spence 2014) through an influx in

devices that have attempted to physically connect people in different locations. MIT Media Lab's Tangible Media group is product concept testing devices such as "Like-A-Hug," a jacket designed to inflate to simulate a hug when friends on social media "like" your content (Gallace and Spence 2014). Future development and success of tactile-stimulating products will inevitably rely on our foundational understanding of consumers cognitive and affective processing of tactile information.

Interpersonal Touch in Other Fields

Research on interpersonal touch is not limited to the marketing domain, but has been found to have profound effects in other fields of study as well. For example, in the education domain, interpersonal touch causes children to engage in less disruptive classroom behavior and become more involved in a task (Wheldall, Bevan, and Shortall 1986). Student engagement and participation are also affected by touch. An instructor asking for student volunteers to correctly place the solution to a mathematical problem on the blackboard found that those students who had been touched by the instructor on the forearm were more likely to volunteer to participate in the activity (Guéguen 2004).

Touch has been acknowledged to be very important in health care as well and is thought to have healing power. If a patient is touched by a nurse when receiving pre-surgical recommendations the day before an operation, patients have been shown to experience decreases in stress levels both objectively, by physiological measures such as heart rate and blood pressure, and also subjectively, by patients stated stress levels; and interestingly, these patients were more likely to adhere to preoperative recommendations as well (Alagna et al. 1979). In psychotherapy, patients will talk longer and about more intimate issues with their therapist after being touched

(Jourard and Friedman 1970). In elderly care, when staff combine their verbal encouragement to eat with tactile contact, the elderly consume more calories and protein. In this particular study, these effects on eating behavior lasted up to 5 days (Eaton, Mitchell-Bonair, and Friedmann 1986). In these highly social health care fields, touch carries the potential to have potentially positive effects even for providers who may be uncomfortable with touch.

An interesting area within healthcare that deserves more attention is in the area of robotic or virtual surgery. These surgeries often use advanced technology that limits touching interaction between doctors and patients. In 2001, the first remote surgery was conducted by a surgeon in New York on a patient in France (Marescaux et al. 2001). While there are many advantages to this type of technology (e.g., access to most qualified surgeons, small incisions, no hand tremors) there are certainly issues that warrant consideration. The surgeons are granted no tactile feedback. When using robotic surgery one's vision becomes a surrogate for tactile feedback. This undoubtedly requires a lot of cognitive resources in order to be performed successfully. Thus, touch-laden and touch-inhibited health care environments offer an interesting and important context to understand effects of touch. Certainly, the notion of CIT transverses various contexts and fields and could have many implications outside of marketing.

Conclusions

At the intersection of social psychology, nonverbal communication, and marketing is an evolving area of work that seeks to understand how consumers behave and interpret in-store consumption experiences. There is immense potential for interpersonal touch research in consumer contexts and beyond. Interpersonal touch is a tool that can be abandoned or leveraged based on the appropriateness of the context. In this way, touch can be manipulated and used at

the discretion of a manager or customer. Interpersonal touch is especially important in the field of marketing because nonverbal communication influences practically all face-to-face business interactions. Researchers have just begun to illuminate the insights that could be gleaned from interactional studies, and the comfort with interpersonal touch (CIT) construct holds much potential to contribute to the development and advance of sensory and interactional consumer experiential research while providing insightful implications for consumers and managers alike.

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APPENDICES

Appendix 1. Scale Items

Unless otherwise noted, all scales were measured on a semantic differential scale or a 7-point Likert scale with 1 = “strongly disagree” to 7 = “strongly agree”. The indication (r) signifies a reverse-coded item.

Comfort with Interpersonal Touch (CIT) Scale Items
(items 1-3 pertain to the initiating dimension, items 3-6 pertain to the receiving dimension, measured using a 7-point Likert scale with 1 =”strongly disagree” to 7 = “strongly agree")

1. I consider myself to be a more ‘touchy’ person than most of my friends.
2. I feel more comfortable initiating touch than most people.
3. When talking to people, I often touch them on the arm.
4. During conversation, I don’t mind if people touch me.
5. I don't mind if someone touches my arm.
6. I typically don't mind receiving touch from another person.

Nomological Validity Scale Items (Study 4a)

Extraversion (Costa and McCrae 1992)

1. Feel comfortable around people.
2. Make friends easily.
3. Am skilled in handling social situations.
4. Am the life of the party.
5. Know how to captivate people.
6. Have little to say. (r)
7. Keep in the background. (r)
8. Would describe my experiences as somewhat dull. (r)
9. Don't like to draw attention to myself. (r)
10. Don't talk a lot. (r)

Ten-item personality inventory (Gosling, Rentfrow, and Swann 2003)
I see myself as:
Agreeableness:

1. Critical, quarrelsome (r)
2. Sympathetic, warm

Openness to Experiences:

1. Open to new experiences, complex
2. Conventional, uncreative (r)

Assertiveness (Rathus 1973)

1. Most people seem to be more aggressive and assertive than I am.
2. When the food served at a restaurant is not done to my satisfaction, I complain about it to the waiter or waitress.
3. When I am asked to do something, I insist upon knowing why.
4. To be honest, people often take advantage of me.
5. I enjoy starting conversations with new acquaintances and strangers.
6. I will hesitate to make phone calls to business establishments and institutions.
7. I find it embarrassing to return merchandise.
8. If a close and respected relative were annoying me, I would smother my feelings rather than express my annoyance.
9. I avoid arguing over prices with clerks and salesmen.
10. When I have done something important or worthwhile, I manage to let others know about it.
11. I often have a hard time saying ‘‘No.’’
12. I tend to bottle up my emotions rather than make a scene.
13. When I am given a compliment, I sometimes just don't know what to say.
14. If a couple near me in a theater or at a lecture were conversing rather loudly, I would ask them to be quiet or to take their conversation elsewhere.
15. I am quick to express an opinion.

Behavioral Inhibition and Behavioral Activation Systems: BIS/BAS Scales (Carver and White 1994)

<u>BIS</u>

1. If I think something unpleasant is going to happen, I usually get pretty worked up.
2. I worry about making mistakes.
3. Criticism or scolding hurts me quite a bit.
4. I feel pretty worried or upset when I think or know somebody is angry at me.
5. Even if something bad is about to happen to me, I rarely experience fear or nervousness. (r)
6. I feel worried when I think I have done poorly at something.
7. I have very few fears compared to my friends. (r)

<u>BAS Drive</u>

1. When I want something, I usually go all-out to get it.
2. I go out of my way to get things I want.
3. If I see a chance to get something I want, I move on it right away.
4. When I go after something, I use a "no-holds-barred" approach.

Brief Coping Questionnaire (Finset et al. 2002)

1. I say so if I am angry or sad. (Ap)
2. I like to talk with a few chosen people when things get too much for me. (Ap)
3. I am well on my way towards feeling I have given up. (Av)
4. I withdraw from other people when things get difficult. (Av)

Ap = Approach; Av = Avoid

Agoraphobia scale (Ost 1990)

1. Being alone in your home
2. Crossing a street in the city alone
3. Being in a crowd without the company of a friend
4. Unaccompanied riding the bus at rush hour.
5. Walking straight across large open spaces in the city, e.g. a square
6. Driving a car alone through a long tunnel
7. Walking away from your home alone
8. Standing in long lines in the post office, bank or department store, unaccompanied
9. Going to a cinema or theatre and sitting in the middle of a row
10. Shopping unaccompanied in a department store full of people
11. Having a haircut at the hairdresser, unaccompanied
12. Riding in an elevator alone

Claustrophobia Scale (Ost 2006)

1. Standing in such a crowd that you cannot move at all.
2. Being in a small room without windows.
3. Trying out clothes in a small fitting room with the door locked.
4. Sitting by the window in the middle of an airplane.
5. Trying out garments that are narrow in the neck.
6. Sitting in the middle of a crowded cinema or theatre.
7. Walking through a narrow passage.
8. Going in the back seat of a small car with two other people.
9. Riding a small elevator with the maximum number of passengers.
10. Being outdoors in a fog when you only can see a few yards in front of you.
11. Getting stuck between two floors in a small elevator.
12. The lock of the door to a small windowless lavatory has jammed.

<u>Discriminant Validity Scales (Study 4b)</u>

NFT Need For Touch (Peck and Childers 2003)

1. When walking through stores, I can't help touching all kinds of products. (A)
2. Touching products can be fun. (A)
3. I place more trust in product that can be touched before purchase. (I)
4. I feel more comfortable purchasing a product after physically examining it. (I)
5. When browsing in stores, it is important for me to handle all kinds of products. (A)
6. If I can't touch a product in the store, I am reluctant to purchase the product. (I)
7. I like to touch product even if I have no intention of buying them. (A)
8. I feel more confident making a purchase after touching a product. (I)
9. When browsing in stores, I like to touch lots of products. (A)
10. The only way to make sure a product is worth buying is to actually touch it. (I)
11. There are many products that I would only buy if I could handle them before purchase. (I)
12. I find myself touching all kinds of products in stores. (A)

A = Autotelic Dimension; I = Instrumental Dimension

Touch Anxiety Scale (Fuller et al. 2011)

1. It scares me to think that I could damage my relationship with someone at work if I touch them and they take it the wrong way.
2. I hesitate to touch others at work for fear of offending them.
3. I hesitate to touch others at work for fear of making the wrong impression.
4. I feel apprehensive about touching other people at work.
5. When I'm at work, I worry that touching other people may make them uncomfortable.
6. I'm careful about who I touch in my workplace.
7. I often worry about giving the wrong impression when I touch other people at work.

Predictive Validity Scales (Study 7a)

Service Enjoyment

I enjoy the following: (If you've never done the item listed, indicate how much you think you would enjoy it):

1. Getting a massage
2. Getting my hair cut
3. Getting a clothing item custom tailored
4. Ballroom dancing
5. Buying books online (r)

Predictive Validity Scales (Study 7b)

Experiential Shopping Motivation Scale (Dawson, Bloch, and Ridgway 1990)

1. To watch other people.
2. To enjoy the crowds.
3. To see and hear entertainment.
4. To meet new people.
5. To experience interesting sights, sounds and smells.
6. To get out of the house.

Consumer self-confidence (Bearden, Hardesty, and Rose 2001)

1. I am afraid to ask "to speak to the manager."
2. I don't like to tell a salesperson something is wrong in the store.
3. I have a hard time saying no to a salesperson.
4. I am too timid when problems arise while shopping.
5. I am hesitant to complain when shopping.

Predictive Validity Scales (Study 7c)

Evaluation of Campus

1. unattractive – attractive
2. negative – positive
3. uncomfortable – comfortable
4. bad - good

Evaluation of Tour Guide

1. unfriendly – friendly
2. negative – positive
3. not helpful – helpful
4. bad – good

Receiving Touch Field Study (Study 9)

Attitude Toward the Salesperson

The salesperson was:

1. Good – bad
2. Unpleasant – pleasant
3. Not knowledgeable – knowledgeable
4. Unapproachable – approachable
5. Untrustworthy – trustworthy
6. Unattractive – attractive

Attitude Toward the Store

I think [sporting goods store] is:

1. Low quality – high quality
2. Negative – positive
3. Bad – good
4. Unfavorable – favorable
5. Unpleasant – pleasant

Attitude Toward the Store's Products

I think the products that [sporting goods store] carries are:

1. Low quality – high quality
2. Negative – positive
3. Bad – good

Likelihood of Shopping at Store in Future

1. How likely will you be to shop this store in the future?
2. How likely will you be to buy something from this store in the future?

Affect

Currently, I am feeling:

1. Sad – Happy
2. Negative – Positive
3. Uncomfortable – Comfortable
4. Bad – Good

Salesperson Initiating Touch Questionnaire (Study 10a)

Touch Effectiveness

1. The use of physical touch makes me a better salesperson.
2. Touch helps me create a better relationship to the customer
3. I sell more with touch

Use Touch

1. How often do you use physical touch in your job when interacting with customers? (1 = Never, 5 = Always)

Customers Use Touch

1. How often do customers initiate physical touch with you? (1 = Never, 5 = Always)

Motivation Inferences

I believe that salespeople tend to use physical touch to:

1. be helpful
2. be friendly
3. be warm
4. be strategic
5. be trustworthy
6. be manipulative
7. be aggressive
8. assert status
9. make a sale
10. satisfy the customer
11. build a good relationship
12. communicate effectively

Motivation Inferences (Study 10b)

I believe the Kate [Michael] (the clothing store employee) is trying to:

1. be manipulative
2. be helpful
3. be supportive
4. be trustworthy
5. be appropriate
6. be fair
7. be respectful
8. be friendly
9. be aggressive
10. be warm
11. assert status
12. make a sale
13. satisfy the customer
14. build a good relationship
15. communicate effectively

Initiating Touch Lab Study (Study 11)

Comfort with the Interaction

1. The interaction with the buyer [seller] seemed to flow naturally.
2. The interaction with the buyer [seller] seemed uncomfortable. (r)
3. The interaction with the buyer seemed awkward. (r)
4. Personally, I felt comfortable during this interaction.

Desirability of Control (adapted from Burger and Cooper 1979)

1. I try to avoid situations where someone else tells me what to do.
2. I would prefer to be a leader rather than a follower.
3. I enjoy being able to influence the actions of others.

Dining Initiating Touch Lab Study (Study 12)

Prospective Evaluations of Interaction (for Servers only, measured *before* interaction)

1. How well do you expect this interaction to go? (1 = Very Poorly, 7 = Very Well)

Retrospective Evaluations of Interaction (for Servers only, measured *after* interaction)

1. How well do you think the interaction with the diner went? (1 = Very Poorly, 7 = Very Well)

Tipping Behavior

(Diner) Imagine that you were actually dining in a restaurant. Your total bill came to: $6.20. Based on the service that you received today, indicate how much tip you would like to leave for the server.
(Options included: No Tip, 1% ($0.06), 2% ($0.12)… 40% ($2.48), Other: _____)

(Server) Imagine that you were actually serving the diner in a restaurant. The diner's total bill came to: $6.20. Based on the service that you provided today, how much tip do you anticipate that the diner would leave for you?
(Options included: No Tip, 1% ($0.06), 2% ($0.12)… 40% ($2.48), Other: _____)

Affect

During the interaction, I felt:

1. Negative – Positive
2. Bad – Good
3. Unpleasant – Pleasant

Comfort with Interaction

Regarding the interaction with the server, indicate your agreement with the following statements:

1. The interaction with the server seemed to flow naturally.
2. The interaction with the server seemed uncomfortable.
3. The interaction with the server seemed awkward.
4. Personally, I felt comfortable during this interaction.

Perceptions of Others' Comfort in the Interaction
I think the server [diner] thought that our interaction was:
1. Uncomfortable – Comfortable
2. Awkward – Natural
3. Unpleasant – Pleasant
4. Tense – Relaxed

Social Risk
1. I worry that the diner might feel uncomfortable.

Coping Ability
1. I feel like I can cope with the task of being a server.

Evaluation of Pizza
In your opinion, the pizza that you [ate/served] was:
1. The worst pizza I've ever seen – The best pizza I've ever seen
2. Low Quality – High Quality
3. Not Delicious – Delicious
4. Bad – Good
5. Not Appetizing – Appetizing

Customer Initiating Touch Lab Study (Study 13)

Price
1. For what price did you buy the t-shirt? (fill in the blank)

Interaction Comfort
1. The interaction with the salesperson seemed to flow naturally.
2. The interaction with the salesperson seemed uncomfortable.
3. The interaction with the salesperson seemed awkward.
4. Personally, I felt comfortable during this interaction.

Perception of Others' Interaction Comfort
I think the salesperson thought that the interaction was:
1. Uncomfortable – Comfortable
2. Awkward – Natural
3. Unpleasant – Pleasant
4. Tense – Relaxed

Social Risk
1. Before beginning the interaction, I worried that the salesperson would feel uncomfortable.

Appendix 2. Photos from Consumers' Inferences of Touch Study (Study 10b)

Appendix 3. Instructions for Initiating Touch Lab Study (Study 11)

SELLER Instructions:

This study is a hypothetical scenario, and we will ask you to play a role. You have been assigned the role of a SELLER. You work for a t-shirt company and you are a salesperson for your company. In a moment, you will be led to a room where a buyer will be deciding between two t-shirts. This is a sales simulation in which you will interact with this interested buyer.

As in many retail contexts, buyers may or may not make a purchase, but as a salesperson, it is your job to make the buyer feel welcome. Your job is to help the buyer make a decision that is best for them and to answer any questions that they might have about the products. There is evidence that a welcoming, friendly salesperson is more effective with buyers. When you enter the room we would like you to engage in helpful communication, which includes both verbal and nonverbal communication.

So, we want you to enter the room and say to the buyer, "Do you have any questions about these shirts?" [Touch Condition: When you say this we would like you to 1) *maintain eye contact with the buyer*, and 2) *touch the buyer on the upper arm* when talking to them. Limit the touch to a brief touch, only on the upper arm.] [No Touch Condition: When you say this we would like you to maintain eye contact with the buyer when talking to them.] If the buyer has questions, answer them politely until the buyer has no further questions. If the buyer has no questions to begin with, say, "Ok, thanks" and leave the room. Here's some additional information regarding the shirts that might help you in answering the buyer's questions:

- Different sizes available
- Machine washable

- 100% cotton
- Other colors are not available.
- Each is $10.

If the buyer asks you a question to which you don't know the answer, feel free to make up a reasonable answer and respond as a salesperson would.

BUYER Instructions:

This study is a hypothetical scenario and we will ask you to play a role. You have been assigned the role of a BUYER. You are interested in buying a t-shirt from a local business. In a moment, you will be led to a room with two t-shirts. You will examine both t-shirts and decide whether you like one over the other, both of them, or neither of them. A salesperson will come by to answer any questions you might have and help you choose the t-shirt(s) that is right for you. Feel free to ask the salesperson any questions in order to make a good decision regarding the t-shirts.

Appendix 4. Instructions for Dining Initiating Touch Lab Study (Study 12)

SERVER Instructions:

In this study, you will be participating in a simulated dining experience. You have been assigned the role of a SERVER. We are asking you to imagine that you work for a new restaurant that is looking to get feedback on the service that it provides to customers as well as the pizza recipes on the menu. In a moment, you will be led to a room where a diner will be waiting to be served. Today, the diner has the choice between cheese or pepperoni pizza. You will 1) take the diner's order and 2) serve them the pizza of their choice.

Step 1: The diner has been seated and is waiting to place their order with you. So, you will enter the room and say to the diner, **"Hi. My name is _____ and I will be your server today. Would you like to order the cheese or pepperoni pizza?"** After taking their order, come back down the hallway toward this room. There is a room labeled "kitchen" where you will retrieve the type of pizza that the diner ordered.

Step 2: When serving food, there is evidence that a friendly server is more effective with diners. When you enter the room to deliver the pizza, we would like you to engage in friendly communication, which includes both verbal and nonverbal communication. Take the pizza to the diner, place it on the table in front of them, and say, **"Here is your pepperoni/cheese pizza. Enjoy!"** [Touch Condition: When you say this we would like you to 1) *maintain eye contact with the diner*, and 2) *touch the diner on the upper arm* when placing the pizza on the table.] [No Touch Condition: When you say this we would like you to *maintain eye contact with the diner.*]

Please do not discuss these instructions with the diner or with each other. You simply need to play the role and interact with the diner as a server normally would.

DINER Instructions:

In this study, you will be participating in a simulated dining experience. You have been assigned the role of a DINER. We are asking you to imagine that you are a diner in a restaurant. This restaurant is looking to get feedback on the service it provides to customers as well as the pizza recipes on the menu. Today, the restaurant is testing new recipes of their cheese and pepperoni pizzas. In a moment, you will be seated at a table and a server will be by to take your order.

Interact with the server as you would in a normal restaurant interaction. The server will take your order and deliver your food. Based on the food and the service experience, we will ask you to fill out a questionnaire. When we seat you at the table, this questionnaire will be face down on the table. Please do not flip over the questionnaire until you've been served your pizza.

Appendix 5. Instructions for Customer Initiating Touch Lab Study (Study 13)

CUSTOMER Instructions:

This study is a hypothetical scenario and we will ask you to play a role. You have been assigned the role of a CUSTOMER. You are interested in buying a t-shirt from a local business. In a moment, you will be led to a room with two t-shirts, a Bucky t-shirt and a Wisconsin t-shirt. You are interested in purchasing only one of the t-shirts.

A salesperson will come by to answer any questions you might have and help you choose the t-shirt that is right for you. Feel free to ask the salesperson any questions in order to make a good decision regarding the t-shirts. Each t-shirt costs $10, which you're willing to pay if you have to. However, since you are a college student on a budget, you would prefer to get a discount.

So, we would also like you to ask the salesperson if they would give you a discount. When asking questions, there is evidence that both verbal and nonverbal communication are important. So, we would like you to enter the room and take a closer look at the shirts. Then, when the salesperson enters the room, we would like you to go up to the salesperson and say, "I'm interested in this t-shirt, will you give me a discount?" [Touch Condition: When you're asking this, we would like you to 1) *maintain eye contact with the salesperson*, and 2) *touch the salesperson on the upper arm* when talking to them. Limit the touch to a brief touch, only on the upper arm.] [No Touch Condition: When you're asking this, we would like you to maintain eye contact with the salesperson.]

The interaction will end when you have agreed on a price for the t-shirt and after you have asked the salesperson all of the questions that you have regarding the t-shirts. At that point, say 'thank you' and pick up the questionnaire that says "CUSTOMER" on the top. Take that

questionnaire with you, and we'll guide you to a separate room to complete the questionnaire. Please do not discuss these instructions with the salesperson. You simply need to play the role and interact.

SALESPERSON Instructions:

This study is a hypothetical scenario, and we will ask you to play a role. You have been assigned the role of a SALESPERSON. You own a small t-shirt business selling UW-Madison t-shirts. In a moment, you will be led to a room where a customer will be deciding between two t-shirts – one "Bucky" t-shirt and one "Wisconsin" t-shirt. This is a sales simulation in which you will interact with this interested customer. As a salesperson, your job is to make a sale while helping the customer make a decision that is best for them.

As in many retail contexts, customers may or may not make a purchase, but as a salesperson, it is your job to make the customer feel welcome. You will need to answer any questions that they have about the products. Here's some information regarding the shirts:

- Different sizes available
- Machine washable
- 100% cotton
- White/Red lettering is the only color available.
- The shirt costs you $3.00 to produce, and you're selling them for $10. You have been known to give discounts to customers, but you get to choose to do so. Of course, it is important to make a profit so selling the t-shirt for less than $3.00 doesn't make sense.
- If the customer asks you a question to which you don't know the answer, feel free to make up a reasonable answer.

In a moment, you will be led to a room where you will interact with the customer. Immediately when you walk in the room, go up to the customer and say, "Hi, do you have any questions about these t-shirts?" After talking with the customer and answering their questions, there will be a questionnaire labeled "SALESPERSON" on the chair. Take that questionnaire with you, and we'll guide you to a separate room to complete the questionnaire.