SCHILHAVY, RICHARD ARTHUR MILTON, Ph.D. The Moral Milieu of Information Technology: Using Domain and Affordance Theory to Explain Situational and Technological Effects on Ethical IT Decision Making. (2012)
Directed by Dr. Lakshmi Iyer and Dr. Al Salam, pp. 215

Unethical behavior in the use of IT may result in significant negative impacts on the productivity, profitability, and reputation of the organization. IT exacerbates moral problems through its constant evolution, multi-faceted nature and encroachment into our personal and professional lives. People have difficulty recognizing moral characteristics, applying moral decision-making heuristics, and anticipating consequences of ethical problems when IT is present. These qualities highlight the moral milieu of ethical IT problems in organizations.

The dissertation investigates this phenomenon through three perspectives. First, while moral development in childhood and adolescence predispose people toward particular moral reasoning, situational and contextual factors of ethical IT dilemmas may unearth other different moral reasoning patterns. The deviation of people's situational moral reasoning from broader moral dispositions is explored. Second, the scenario-specific situational moral reasoning is further framed into patterns of decision-making heuristics using the domain theory of moral development. Third, research in IT ethics has largely ignored the properties and characteristics of IT artifacts in ethical decision-making. Using affordance theory from ecological psychology, the dissertation proposes a framework of moral affordances, including ownership, anonymity, reproducibility, etc. that shapes ethical IT decision-making, intentions and behaviors.

The study surveys 321 individuals across three ethical IT dilemmas of varying moral character and technology use. Ethical intentions and decisions deviated significantly from when situational moral judgments were considered, emphasizing utilitarian and relativist judgments. These decision-making models are transformed when ethical IT dilemmas were attributed to different domains of morality, exhibiting not only different patterns of moral reasoning but also an entirely different moral character. Finally, the salience of IT moral affordances varied between ethical dilemmas and demonstrated some influence on ethical IT decisions and intentions; however, these moral affordances lacked predictive efficacy within the broader ethical IT decision-making model.

THE MORAL MILIEU OF INFORMATION TECHNOLOGY: USING DOMAIN AND AFFORDANCE THEORY TO EXPLAIN SITUATIONAL AND TECHNOLOGICAL EFFECTS ON ETHICAL IT DECISION MAKING

by

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A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
2012

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CHAPTER I

INTRODUCTION

Highly publicized corporate scandals have significant impact on the perception of ethical and unethical behavior in business, shifting the attitudes of public opinion, management and academia toward ethical, legal, and socially responsible perspectives and behaviors (Conroy and Emerson 2006; Nevins et al. 2007). Corporate ethical issues may also result from the use and misuse of information technology (IT) in organizations (Mason 1986). Rashes of viruses and worms cripple personal and corporate workstations, not only questioning the morality of hackers and virus designers, but also software developers who bear a social or contractual obligation to customers to produce secure and stable software (De George 2003; Oz 1994). The pursuit of security and privacy policies and legislation as adequate solutions to managing and governing IT presupposes an understanding of the problem—one of ethics and morality—a problem that suffers from a lack of complex understanding by many professionals and executives (Crane 1996). The misalignment between legislation and policies with personal ethical beliefs and behaviors may reflect our poor understanding of moral values, moral reasoning and ethical situations involving information technology and computers (Conger and Loch 1995). The perception of a poor understanding of computer ethics issues may stem from a difficulty drawing analogies between ethical issues and computer abuses (Conger and Loch 1995). In other words, people may lack "moral sense" in ethical decision-making involving IT, possibly resulting from poor socialization of moral norms through childhood and adolescent development, education, and organizational training (Wren 1990).

Unethical IT behavior can lead to severe consequences in the workplace. Organizations often fall victim to ethical oversights not due to systemic problem with business processes or a culture nurturing amoral values, but due to the immoral behaviors of a select few individuals (Vitell and Davis 1990). Inappropriate and unethical use of IT is a prominent concern for managers that are accountable for their employee's workplace behavior, resulting in negative impacts for organizations beyond merely a decrease in productivity (Paradice 1990; Paradice and Dejoie 1991). Managers and employees with access to IT systems and sensitive information in particular are inundated with opportunities to engage in unethical behavior (Vitell and Davis 1990). IT professionals who are charged with the design and construction of information systems must address ethical issues and abide by unspoken duties, as evidenced by Conger and others:

> Everyone who develops applications, designs equipment, performs any kind of testing, uses methodologies, analyzes jobs, designs human interfaces, writes documentation, or prescribes the use of computers, will face ethical [quandaries] on every project; they just might not recognize them. (Conger et al. 1995)

Consequentially, concerns about unethical IT behavior have drawn the attention of IS researchers to continue investigating how people make ethical decision and what factors drive ethical decision-making (Haines and Leonard 2007b; Leonard et al. 2004; Moores and Chang 2006).

Information Technology and New Ethical Problems

Information technology affords people the ability to change our surrounding environment in numerous ways previously impractical or unattainable. The use of well-established technologies is ingrained into the normative practices of a society, culture, or group, and, therefore, the use of the technology is governed by the same normative practices (Bijker 1997). Normative rules and practices, both explicit (policies and codes) and implicit (social practices and patterns of behavior), reflect the moral values of the society, culture or group (Schein 1985). However, technological innovation disrupts established norms or engenders new domains of

social behavior creating new ethical problems that people must address in the use of the newfound technology (Maner 1996; Marshall 1999). For example, on-line communication and Internet technologies introduces new moral problems by broadening the scope and speed of communication, allowing for anonymous communication and free reign of content distribution, and the inability to control the reproduction of data and information (Johnson 2004). The unique characteristics of on-line communication, enabled through information technology, create new moral hazards that lack the normative and legal precedence of their "real world" corollaries, such as the proliferation of identity theft (Berghel 2000; Mercuri 2006). Further exacerbating the problem, legislatures lack sufficient understanding of not only the technical issues, but also the moral justification for the legislation to create fair, just and effective legislation to govern the ethical use of IT. This results in a policy-gap between people's moral attitudes and beliefs and those attitudes and beliefs reflected through technology and technology policy (Maner 1996).

In many perspectives, technology is considered intrinsically amoral, in other words, no technology bears as part of its design a deterministic moral component, neither good nor evil. We as social agents construct the moral nature and ethical use of a technology through the use of the technology (Bijker 1997). However, some scholars would argue against this hypothesis (De George 2003; De George 2006; Spinello 2005). Information systems (IS) and IT are not inherently neutral, nor are the decisions to implement a particular system or technology, or incorporate a design flaw in the final implementation (Smith and Hasnas 1999). Whether IT is or is not inherently moral, research suggests that IT may dull or exacerbate people's attitude toward and ability to engage in ethical or unethical behavior (Banerjee et al. 1998; Gattiker and Kelley 1999a). In other words, an individual's disposition toward ethical or unethical behaviors and affordance offered by IT to engage in those behaviors may be dependent on the situational presence and use of particular technologies. Indeed, the design and use of information and

computer technology affords it's users with particular abilities beyond the human capacity, such as accessing data from geographically disparate locations or reproducing large amounts of data with near-instantaneous speeds (Albrechtsen et al. 2001; Gibson 1979). Although the manner we use technology for ethical or unethical behaviors dictates our perception of the moral character of the technology, different information technologies may promote or deter particular ethical or unethical behavior by the manner it is designed (Chatterjee et al. 2009). For example, peer-to-peer (P2P) technologies provide a platform to transfer and reproduce large amounts of information without the need of a centralized server. While we as users are capable of only sharing information that is not copyrighted material, the *vast majority* of information shared online via P2P services are copyrighted content (Eining and Christiensen 1991).

The question remains: *does IT introduces new, unique ethical philosophies, or merely represents a new context for the application of established ethical philosophy?* On one hand, Johnson (2004) argues that information and computer technology merely constitutes a new domain of moral problems that current moral principles and philosophy are sufficient to derive solutions to these moral dilemmas. In other words, information and computer technology introduces new ethical *problems*, but not new ethical *theories* unique to the domain of information and computer technology. On the other hand, Maner (1996) argues that some qualities inherent to information and computer technology make existing moral philosophy inappropriate and unable to properly address ethical problems in this domain. Groniak-Koakawska (1996) is particularly optimistic that IT will usher in a new era of global moral philosophy. Specifically, the manner people address ethical issues will be judged on a global stage, precisely due to the nature of information technology *itself*—its ability to quickly change form, function and connect institutions, groups and people, whom otherwise would be disconnected. Is current moral philosophy sufficient to address moral problems involving

information and computer technology? While answering this question is a daunting task indeed, well beyond the scope of this work, I explore the application of moral reasoning based on established moral philosophy and extend the determinants of moral reasoning to incorporate information and computer technology effects.

Nevertheless, technology does create ethical problems or shape the capabilities of the decision-maker, creating new alternatives for unethical behavior and increasing the severity of consequences. Specific *design* choices may influence the available and potential ethical choices of decision-makers; however, such design choices operate through established normative and institutional structures. Technology constrains and extends, dulls and emphasizes the universe of potentials for ethical and unethical actions. The manner by which this universe is manipulated is shaped by the manner the technology influences our reality.

Regardless of the implications computer and information technology have on the future directions of moral philosophy and discourse, each of the aforementioned theories agree that technology by its nature is disruptive to established moral norms and ethical behaviors, even requiring reconsideration of our existing moral values and ethical philosophy. Several studies investigating the effects of ethical IT behavior on moral attitudes and judgments have supported such a conjecture (Banerjee et al. 1998; Cappel and Windsor 1998; Sproull and Kiesler 1991), where moral attitudes are feelings and impressions about a ethical situation, while moral judgments are conclusions about the ethical nature of the situation based in reason. Sproull and Keisler (1991) found that the recognition and identification of potentially harmful activities was significantly disrupted when computer technology was introduced, suggesting a difference between an individual's assessment of ethical issues due to the presence of information technology. Cappel and Windsor (1998) found both IT students and professionals had difficulty identifying ethical issues and acting accordingly, and even more difficulty achieving consensus

with student and professional groups on *any* ethical IT issue. Indeed, Banerjee and others (1998) provide further support for this premise, suggesting that ethical IT behavior is highly contextual, dependent largely upon the immediate organizational environment and ethical scenario. In other words, one's ethical or unethical behavior is more dependent upon presence of an IT artifact in an ethical dilemma, or the environment surrounding the individual, instead of the individual's attitudes and beliefs toward the ethical dilemma itself. Therefore, ethical behaviors are not always consistent across situations and contexts, as the ethical content of the situation and environmental factors change so does the efficacy of ethical decision-making models (Haines and Leonard 2007b; Haines et al. 2008; Leonard and Cronan 2001; Leonard et al. 2004).

Research Motivation and Development

Even though situation and artifact of an ethical IT dilemma are salient factors in ethical decision-making, strong individual differences are present in how the artifact and situation are morally perceived. People may employ particular moral reasoning schema, or patterns of moral reasoning and ethical decision-making, more often than others across a variety of scenarios as part of a dispositional propensity (Rest 1986b; Rest et al. 2000a). Nevertheless, variation remains in the type of moral reasoning evoked during a particular scenario despite of or in conflict with individual dispositions toward moral reasoning. This study proposes that there are situational influences or factors in ethical IT decision-making that change *how* people reason through a moral problem. Moreover, individuals may employ situation-specific moral reasoning capacities that are significantly different from their dispositional moral reasoning schema.

Individuals and managers may employ different and various ethical philosophies based on the situation (Fraedrick and Ferrell 1992; Grover and Hui 1994), becoming more unethical as the perceived risks and consequences of unethical action decrease. This suggests that although people may be predisposed to a particular level of cognitive moral development, people may

deviate from this disposition due to situational factors. Researchers in ethics ought to expand their conception of moral reasoning and judgments, acknowledging the limitations of purely dispositional measures of cognitive moral development. Therefore, the first research question is as follows: *Does situational moral reasoning and judgments differ from dispositional moral reasoning and judgments when faced with an ethical IT dilemma? Moreover, if so, in what manner does situational and dispositional moral reasoning and judgments differ?* [1] In order to address this question, this study proposes that by measuring an individual's disposition towards moral reasoning through cognitive moral development (Rest 1986b; Rest et al. 1974; Rest et al. 2000a) and the application of ethical philosophies towards situation-specific contexts (Reidenbach and Robin 1988; Reidenbach and Robin 1990) we can determine the presence of a divergence and the manner and extent of this divergence between dispositional and situational moral reasoning. For example, a person may be strongly predisposed toward conventional moral reasoning, relying heavily on social norms and authority for moral guidance; however, the person may exhibit strong egoistic or selfish behaviors depending on the ethical IT dilemma faced, such as when pirating software or other media. By separating the dispositional and situational decision-making patterns, we as researchers are more equipped to understand how the context itself plays a role in shaping not only how we behave in moral dilemmas, but how we *think* about them.

Ethical dilemmas create situational influence on the moral reasoning and judgments of individuals making ethical IT decisions; however, solid theoretical explanations on how we organize moral thought in light of these situational influences are few and far between (Ford and Richardson 1994; Trevino et al. 2006). One theoretical explanation of the situational effects of ethical IT decision-making comes from development psychology, specifically the Domain theory of Moral Development (DTMD) (Turiel 1983; Turiel et al. 1987). To understand that moral

[1] Research question is addressed in the first study in Chapter 3.

reasoning varies in different ethical situations is one matter; understanding why moral reasoning differs is another entirely. In order to address this inquiry, scenario specific moral reasoning, attitudes and intentions are assessed through the DTMD. The DTMD postulates that people organize moral attitudes, judgments, and subsequent ethical behaviors in response to ethical dilemmas based upon perceived, governing social norms and consequences of the behavior (Gattiker and Kelley 1999a; Turiel 1983; Turiel et al. 1987). DTMD creates bounded contextual factors by organizing a person's attitudes and judgments of an ethical dilemma into various domains of morality. People categorize ethical dilemmas (and their corresponding judgments and behavioral responses) into three different domains of morality: (1) personal (matters of taste and preference), (2) conventional (matters of social or cultural concern), and (3) principled (matters of moral principle)[2]. Depending on the perceived normative and consequential factors, a person may "attribute" an ethical problem to one of the three domains, thus evoking a corresponding set of moral attitudes and judgments as a reasonably appropriate moral response. Gattiker and Kelley (1999a) briefly explore the application of DTMD in an IT context and find that people have markedly different moral attitudes to ethical dilemmas involving IT depending on how people attribute ethical IT dilemmas to domains of morality. Similarly, this study hypothesizes significant differences in not only the moral attitudes of the participants, but also the formation of situational moral judgments and ethical IT behavior intentions based on a person's attribution of ethical IT dilemmas to one of the three moral domains. In addition, it is suspect that DTMD provides sufficient explanation for the lack of support of the theory of planned behavior (TPB) in the context of ethical IT dilemmas (Banerjee et al. 1998), which has been a consistently well

[2] In order to reduce future confusion and draw more effective parallels, the conventional knowledge domain will hereafter be referred to as the conventional domain, while the moral domain will be referred to as the principled domain. This makes the names of each domain of morality (a) consistent with naming conventions from other moral theories, such as cognitive moral development, and (b) removes the confusing distinction with "domains of morality" and "moral domain."

supported theory in other contexts (Ajzen 1985; Ajzen 1991; Armitage and Christian 2004; Armitage and Conner 2001). Furthermore, Leonard and others (2004) also find that ethical decision-making (EDM) changes significantly based on the scenario, where in some scenarios all factors considered (e.g. moral attitudes, judgments, etc.) were predictive of ethical IT behavior, while in other scenarios only a few of the factors predicted ethical IT behavior. This suggests that EDM models do not hold in some IT-related situations. Applying STMD to the context, it is suspected that moral attitudes and judgment become more predictive of ethical IT intention and behaviors in the principled domain, but are less salient in the conventional and even more so in the personal domain. Therefore, the second research question follows: *Does the attribution of different domains of morality to an ethical IT dilemma influence the manner people make ethical decisions involving information technology?* [3] To address this question, three scenarios are proposed. To avoid the same pitfall as Gattiker and Kelley (1999a) who attributed scenarios *a priori* to the three domains of morality, the study will validate the attribution of the scenarios to particular domains of morality by assessing responses to attitudes, judgments and intentions, and the explicit attribution and confidence of attribution by a small subset of the population. The study will explore the effects of how people attribute scenarios to moral domains on the EDM model, proposing that moral domain attribution will significantly influence the efficacy of the EDM model.

As suggested by some ethical theorists, IT introduces new ethical problems (Johnson 2004; Maner 1996), but the manner IT shapes our moral decisions is unclear. IT and the manner by which it is designed afford users certain actions and abilities beyond our human capacity. In some cases, the actions afforded may engender new unethical behaviors or even extend the reach and impact of existing unethical behaviors. Understanding whether these affordances encourages

[3] Research question is addressed in the second study in Chapter 4.

or discourages ethical or unethical behavior in the constantly evolving landscape of IT proves difficult. Nevertheless, many IS researchers have sought to open the proverbial "black box" that characterizes the intersection of information technology and ethical problems. Richard Mason (1986) was one of the first IS researchers who sought to encapsulate landscape of IT ethics through four dimensions, namely privacy, access, property and accuracy (PAPA, for short). Although largely a review of the future ethical problems of the coming information age, these ethical IT problems truly underscore much of the research and discourse in IT ethics (Banerjee et al. 1998; Conger et al. 1995; Leonard and Cronan 2001; Leonard et al. 2004). Indeed, Conger and others (1995) continued the work by determining the ethical problems that commonly arise from IT by empirically surveying IT professionals and conducting an extensive factor analysis. The authors determined that five salient dimensions of ethical IT dilemmas are salient: (1) access, (2) ownership, (3) privacy, (4) motivation, and (5) responsibility. The latter two dimensions, motivation and responsibility, are not specific to IT itself and have been well researched in other fields. Johnson (2004) also review the importance of technology and online communication as it relates to the resurgence of new ethical problems. Johnson identifies three dimensions that IT exacerbates ethical IT issues: (1) through access to private or protected information, (2) through the speed that information can travel and the reach or number of people affected, and (3) through the ease that digital information can be duplicated. Surprisingly, however, few researchers have continued the work to understand precisely how IT influences the ethical problem, buried under the sheer multitude of situational factors (Ford and Richardson 1994; Jones 1991; Ross and Robertson 2003). Therefore, this work seeks to address a third and final research question: *How do dimensions of IT ethics (e.g. access, ownership, speed, reach, etc.) influence ethical IT decision-making? In addition, does the presence of different information technology artifacts vary*

the importance and salience of each dimension of IT ethics? [4] This work makes several contributions by addressing these questions. First, it is theorized that ethical dimensions of IT are salient through the affordances, specifically moral affordances, perceived by the actor that uses an IT artifact in a particular ethical IT dilemma. Second, no instrument measures have been properly developed to assess the salience of different dimensions of IT on ethical decision-making. In order to develop such an instrument, a series of questions are developed from the aforementioned dimensions of ethical IT problems from Mason (1986), Conger and others (1995), and Johnson (2004). Finally, respondents assess this instrument across several different scenarios, each depicting different IT artifacts and ethical IT dilemmas, namely a phishing, software piracy, and hacking ethical problems. It is suspected that different dimensions of ethical IT issues will become more or less salient on ethical IT decision-making with the presence of different IT artifacts across multiple ethical IT situations.

Contributions to Theory

The first contribution to theory is exploring the divergence of moral reasoning and judgments from a person's current cognitive moral development, or, in other words, the situationality of moral reasoning. Although previous research has investigated the application of ethical philosophies in situation-specific contexts, such as ethical predispositions or deontological and consequentialist philosophies (Reynolds 2002; Reynolds 2006), the divergence of dispositional and situational moral reasoning is not explored thoroughly, even outside the IT context. Much previous research has established that moral recognition and importance are highly dependent on the ethical situation (Banerjee et al. 1998; Gattiker and Kelley 1999a; Jones 1991); and, in addition, that ethical behaviors and intentions vary widely from situation to situation (Banerjee et al. 1998; Gattiker and Kelley 1999a). Despite the existence of theory (Turiel 1983;

[4] Research question is addressed in the third study in Chapter 5.

Turiel et al. 1987) and measures (McMahon and Harvey 2007; Reidenbach and Robin 1988; Reidenbach and Robin 1990) that support the situationality of moral reasoning, how it compares to the broader constructs of moral reasoning, namely cognitive moral development (Rest 1986b; Rest et al. 1974) remains particularly elusive in an IT context.

The second contribution is to explain the aforementioned situational and contextual nature that is common of EDM models through the DTMD (Turiel 1983; Turiel et al. 1987). Research in IT ethics have shown mixed results in affirming well established theories in moral psychology, finding significant results by often increasing power through larger sample sizes or lower significance levels (Banerjee et al. 1998; Leonard and Cronan 2001; Leonard et al. 2004). While more advanced and robust statistical techniques have improved the study of ethical IT behavior (Haines and Leonard 2007a; Haines and Leonard 2007b; Haines et al. 2008), IS researchers have not addressed the theoretical foundations for the highly situational and contextual nature of IT ethics, and the mixed results for traditional EDM models by extension. DTMD also isolates the confounding effects of multiple ethical IT scenarios by creating bounded situational factors. By investigating IT ethics within a domain theory context, we are better able to understand how employees and managers make ethical decisions, not only based upon the type of ethical scenario, but more importantly how the individual organizes ethical dilemmas into domains of morality based on past experiences.

This study explores how individuals classify ethical dilemmas into moral domains, and how such classification influences EDM and behavior. Previous research in IT ethics investigating the effects of domain categorization on EDM only investigated moral attitudes, forgoing the remainder of the EDM model (Gattiker and Kelley 1999a). In addition, literature in DTMD has attributed ethical dilemmas *a priori* on behalf of the researchers, as opposed to measuring the attribution of EDM models by a sample of possible respondents. Therefore, this

study seeks to expand the literature on DTMD by (1) how the domains of morality influence the entire EDM process, and (2) measuring how individuals classify ethical dilemmas into the various domains of morality.

Finally, by isolating the dimensions of IT ethical issues that influence moral judgments and ethical behavior, we can begin to unravel the complex intersection of situational ethics and information and computer technology. Previous research have investigated the different ethical dimensions of IT only from a nomological standpoint, attempting to create a sense of the ethical IT issues and problems that concern managers and organizations (Conger et al. 1995; Mason 1986). The field, however, is silent on how the IT artifact itself influences our ethical behaviors and decisions. Therefore, by applying affordance theory (Gibson 1979; Heft 1989; Heft 2001) to ethical IT decision-making through a series of vignettes, this work isolates the effects of the IT artifact on ethical decision-making. In addition, the work contributes a set of measurement items to assess the dimensions of IT design that affords particular ethical or unethical behavior. These measures are an extension of previous work exploring the ethical dimensions of information (Conger et al. 1995) and communication (Johnson 2004) technology.

Contributions to Practice

Business ethics is a murky field, with many personal, situational, and environmental factors affecting the decision-making of managers and employees (Ford and Richardson 1994; Ross and Robertson 2003). IT contributes to this complexity, by its constant evolution and unyielding encroachment into our personal and professional lives and all aspects of the business enterprise. However, our understanding of the moral problems that arise from the use of IT in business cannot evolve fast enough, and from this lagging understanding of ethical IT issues comes poorly established ethical norms and practices, ill-conceived legislation and corporate policy, and ineffective codes of conduct (Harrington 1996). Therefore, by understanding the

conditions employees recognize the important moral characteristics and consequences of ethical IT problems, we further our ability to address these issues through directed effects to notify or educated employees. Using the study by Moores and Chang (2006) as an example, we find a fairly significant social group (young university students in Hong Kong) who have an alarmingly high rate of acceptance of software piracy behavior—at least by some standards on this issue. Herein lays the practical significance of this research: that not only does the situation effect (software piracy) shape moral attitudes and ethical behaviors in the use of IT, but as do the surrounding cultural, legal and social environment (university students in Hong Kong).

By understanding the situational factors that lead to ethical decision-making or even the factors that do not, managers are more capable of devising effective policies and procedures that require little enforcement, but nevertheless meet legal and organizational ends for ethical IT behavior and conduct. Managers are then able to design policies that incorporate the ethical norms that exist within the organization, instead of enforcing an alienating normative framework. By incorporating our understanding of individual's beliefs on IT issues within the organization, management may construct effective codes of conduct based on the moral attitudes and beliefs of employees, potentially increasing the acknowledgement and acceptance of a company's code of conduct.

Finally, by assessing the impacts of the IT artifact on ethical decision-making a connection is drawn between the manner IT is designed, the behaviors the technology affords, and the ethical decision-making and behaviors of the individual. This is an important contribution for two reasons. First, by establishing a connection between specific situation and the IT artifacts involved with ethical IT decision-making and behavior, a groundwork is established for continued work that enables managers and policy makers to determine the antecedents that lead to particular ethical (or unethical) behaviors. For example, by isolating the effects of situation and

technology, managers and policy makers may be more (or less) justified in regulating the use and implementation of particular technologies. Second, the contribution of bridging information technology design, through affordance theory, to ethical IT decision-making and behavior has implications for software and hardware designers and developers. Previous research has agreed that IT is not amoral (De George 2003; De George 2006) and it is not only the users responsibility, but that of the designers and developers of IT to consider the unethical applications of the technology consideration. This research seeks to establish this claim of moral reasonability on a cognitive and behavioral level by demonstrating a connection between the IT artifact and EDM behaviors.

Organization of Dissertation

This dissertation is organized as follows. In Chapter 2, I review the applicable and important literature on ethical philosophy, business and IT ethics, and the psychology of ethical decision-making. Chapter 3 addresses the first research question by assessing the differences between dispositional and situational moral reasoning across multiple ethical IT dilemmas. This is in order to establish a difference of moral reasoning by the situational application of ethical philosophies. Chapter 4 introduces the domain theory of moral development as an explanation for the situation specific differences in order to establish a causal, developmental link with past moral experiences and current moral attitudes, judgments and behaviors. DTMD also provides a platform to suggest that teachers, managers, professionals, and peers play an important role in shaping moral perceptions toward IT. In Chapter 5, I continue the emphasis on situational moral reasoning, but extend current EDM models by incorporating aspects of information and computer technology design. Specifically, these design aspects are operationalized through a set of moral affordance dimensions of IT, capturing the extraordinary uses that IT affords, which shape the moral character and experience of IT.

CHAPTER II

LITERATURE REVIEW

Introduction & Organization of Literature Review

Disciplines approach ethics in different manners. For example, psychology may approach the question of morality in terms of experience ("How is morality experienced?") while philosophy approaches moral questions for the perspective of nature and being ("What is morality like?") (Wren 1990). Despite the constant pursuit of universal ethical theory in western ethical philosophy for several millennia, many contemporary ethical philosophers and scholars from a variety of disciplines have proposed non-universalistic ethical theories.

The Foundations of Ethical Philosophy

In the following sections, I will briefly review the foundation of ethical and moral philosophy not only to inform readers on the progression of moral thought, but also to reveal the complex considerations of ethical decision-making that is informed by ethical philosophy. Ethical and moral philosophy forms the basis for moral reasoning, judgments and ethical decision-making; and, therefore, situational moral reasoning (Brady and Wheeler 1996; Reidenbach and Robin 1988; Reidenbach and Robin 1990). This study posits that people either explicitly through some understanding of ethical philosophies, or implicitly through normative influences or emotional affect, evolve ethical and moral philosophies to reason through ethical problems or validate moral judgments. The problem with ethical philosophy in the past is that human decision-making about moral problems either (a) does not completely understand and employ particular ethical philosophies in a rational, directed manner, or (b) ethical decision-making is

highly complex and humans employ a broad spectrum of ethical philosophies where not a single philosophy is sufficient to fully explain or justify the range of ethical behaviors of people.

A Tradition of Universalism

The history and tradition of ethical thought, particularly philosophical ethical thought, is subsumed predominantly by a single aim: to define a *universal* theory of "goodness" and "rightness," or, in other words, a universal theory of ethics. The two dominant *act-based* traditions of universal ethical theories are *deontological* and *consequentialist*. Deontological moral principles hold the manner of action justifies the ethical or unethical nature of the action, such as whether all parties are equally represented, or the individual believes such an action as a universal maxim and are generally process-oriented. Teleological moral principles, on the other hand, emphasize the consequences of the moral action as the determining factor of an ethical or unethical behavior. Commonly, utilitarianism is evoked here, wherein the ethical criteria are measured by doing the "greatest good for the greatest number." Teleological moral principles emphasize the ends over the means, and are therefore goal-oriented. *Virtue ethics* may be considered a separate tradition, focusing not on moral actions as with act-based traditions like deontological and consequentialist, but on moral persons and characters.

Deontological Ethics

Deontological ethics relies on "correct method" and "correct thinking" to arrive at valid moral action. Different philosophers rely on different methods to achieve the same aim, such as reason, rational thinking or duty (Kant 1785/2002; Kant 1797/1991; Rawls 1971). Immanuel Kant's seminal work *Ethical Philosophy: Metaphysics of Morals* (Kant 1785/2002; Kant 1797/1991) is singlehandedly the strongest proponent of a long line of deontological ethical thought based on rational, *a priori* conclusions. Immanuel Kant characterizes moral action as

those behaviors possessing a moral motive, duty or 'a sense of moral obligation' as opposed to motivations of behavior from instinct, inclination or desire. In other words, a moral action is one when a person may necessarily act against their instincts and inclinations for the sake of duty. Kant's formulations of the categorical imperative form the basis for many ideas in business ethics, including arguments for the rights of employees, customers, and stakeholders. Similarly, other notions of ethical behaviors and principles, such as justice, fairness, dignity, and rights are based on such deontological arguments.

The crucial junction of all moral action rests on the question: *What should I do?* The question, however, is not that simple, resulting in two different formulations: (1) What should I do to fulfill my inclinations?; (2) What should I do, no if, ands, or buts? Kant refers to the answers to these questions as rules or imperatives. All practical judgments (judgments about what one ought to do) are imperatives.

All hypothetical imperatives are known as qualified oughts, such moral judgments based upon utility or a person's designs or inclinations. For qualified oughts, goodness is defined by the prudence by which the goal is accomplished. In other words, good is defined by the amount and distribution of harm caused by one's actions, regardless of the underlying motivation behind the act itself. By extension, an imprudent act would be inefficient and result in undue harm to unnecessary recipients. Unqualified oughts, on the other hand, are known as *categorical imperatives*. The oughts are unqualified as no other external justification is necessary to perform a particular action justly. An action is moral in and of itself, defined by one's duty based on rational thinking and deduction. Categorical imperatives are the basis for unequivocal ethical judgments and behaviors, and ought to be the basis for all ethical rules. By a rule assuming each of the three categorical imperatives, the action is therefore "objectively necessary in itself,

without reference to another end." It is therefore an individual's duty to follow the rule. The three categorical imperatives are as follows.

The *first formulation of the categorical imperative* states that one ought to "Act as you can will the maxim of your actions to become a universal law" (Kant 1797/1991). A *maxim* is defined as a person's reason for acting, e.g. "don't repay debts (keep promises) if it's inconvenient to do so." One must will the maxim as a universal law. While willing the maxim as universal would indeed result in unforeseeable results for society (a utilitarian response), the will also has a practical reason—as a universal law to will such a maxim as deception is a logical contradiction. If promise breaking was universal, there will be no trust (A) and trust is required for promises (B), one can therefore deduce that A **cannot** lead to the negation of B. In other words, universal promise breaking would lead to the negation of promises through the reduction and elimination of trust. The same contradiction holds for other immoral activities, including stealing, lying, cheating and adultery. The *second formulation of the categorical imperative* is that humans are free and autonomous, and are therefore "ends in themselves." Specifically, one should "act in such a way that you treat humanity, whether in your own person or in the person of another, always at the same time as an end and never simply as a means" (Kant 1797/1991). In other words, humans are able to determine their moral life, and are therefore autonomous and self-regulating. The *third and final formulation of the categorical imperative* states that "every rational being must so act as if he were through his maxim always a legislating member of the universal kingdom of ends[5]" (Kant 1797/1991). All are morally equal and should be treated with dignity and respect. The third formulation addresses the utilitarian problem of *illicit means* as one cannot use or harm another for the sake of society or the greater good. Exploitation of employees

[5] The universal kingdom of ends is the "system of rational human beings united by common laws were human dignity is paramount." Chatterjee, S., Sarker, S., and Fuller, M.A. 2009. "A Deontological Approach to Designing Ethical Collaboration," *Journal of the Association for Information Systems* (10), pp. 138-169.

by their employers for the sake of increased profits, businesses that deceive customers for increase in sales and other benefits through false advertising, and breaking promises and contracts (which leads to the basis for contractualism, social contract, and much of modern business ethics) all count as business examples of illicit means.

Using both Kant's *categorical imperative*, deontological ethics maintains that the *means* one reaches moral action is more important than the *end* of the action. Thusly, deontological ethics may be construed as *process-oriented* decision making of ethical problems. Deontological ethics, however, is not without problems. The problems with deontological ethics are as follows: *Why be virtuous?* Answers to why one ought to be dutiful or virtuous are often reduced to utilitarian arguments that defeat the purpose of deontological ethics. *What if duties conflict? How do we handle this conflict?* Observance of duties can create conflict between multiple moral obligations. *How do you choose which duty to uphold?* – Utilitarians claim that one must look toward the consequences of actions to decide. There is an argument between deontological egoists and utilitarians that ethics is something to be known, in other words, ethical knowledge is possible. However, others disagree that objectively valid reasons to justify action may be reached.

Consequentialist Ethics

Consequentialist ethical theories, on the other hand, affirm that the most ethical action is that which *results* in the "greatest good for the greatest number." The focus on results of the actions, the *consequences* situate consequentialist and utilitarian ethics as *ends-based* (and not *means-based* unlike deontological ethics). Since for every situation a set of possible actions may result in another set of possible consequences, each having different people affected at different degrees, the process of making ethical decisions using consequentialist ethics is often overbearing and impractical. Few people would disagree that one should act in the best interest of all concerned, therefore, the discourse between consequentialist theorists revolve around defining

what the "greatest good" actually is, and how one determines the *amount* of good from a particular action. Utilitarianism employs a form of moral decision-making aptly named *utilitarian calculus* (Bentham 1781/1970). Jeremy Bentham's *An Introduction to the Principles of Morals and Legislation* (Bentham 1781/1970) introductions the notion of utilitarian calculus, or that people may systematically calculate the utility gained form a particular action. Or, for non-hedonistic considerations, John Stuart Mill's *Utilitarianism* (Mill 1861/1998) frames the concept in terms of the *Greatest-Happiness* principle, which holds that actions are moral that promote the greatest happiness, but not only for the individual actor, but promotes the greatest happiness overall, including others directly and indirectly involved.. Modern consequentialist ethics takes a more pragmatic approach, focusing on the legitimacy of ethical arguments and claims. For example, Moore's *Principia Ethica* (Moore 1903/1993) buttresses the argument against deontological and non-consequentialist ethics by introducing the *naturalist fallacy*, that arguments supporting or proving a claim based on "natural" qualities such as being "good" or "reasonable" is insufficient and fallacious.

As with deontological ethics, utilitarianism has several fundamental problems as a universal, consequentialist ethic. The problems with utilitarianism are as follows: (1) *Formulation problem* – Should one always maximize utilitarian calculus (and the expense of effort in finding the maximum solution) or should one settle for the most reasonable, generally beneficial solution? (2) *Distribution problem* – Should one favor more happiness for fewer people, or less happiness for more people (assuming that the distribution of an equal number of "units" of happiness)? (3) *Problems of deciding what is good* – How can people decide what precisely is 'good'? If multiple people are affected, how can one person define morality for another? (4) *Problem predicting the future* – How can one account for and predict externalities, side effects, and future possible worlds in relation to 'goodness' and 'utility'? and (5) *Problem of illicit means*

– Are immoral actions that lead to good outcomes justified? Or, in other words, do the ends justify the means?

Justice and Virtue Ethics

Inspired by standards and principles of democratic governments, John Rawl's *Theory of Distributive Justice* (1971) holds that fairness ought to form the basis for all sociopolitical systems, and that justice be conceived *as* fairness. The theory of distributive justice consists of three fundamental ideas. First, the *veil of ignorance* must be maintained, or that policy makers should not be cognizant, or at least not consider their position in society relative to the position of others. In other words, policy makers ought to be unbiased lacking preconceived notions. Second, "each person is to have an equal access to the most extensive basic liberty compatible with a similar liberty for others " (Rawls 1971)—also known as the *principle of equal liberty*. Finally, the *principle of fair equality of opportunity*, also known as the "difference principle," states that society's opportunities should be equally available to all, especially to those that are disadvantaged.

Virtue ethics "concentrates its attention on the moral nature and development of the individual agent who performs the action. It can therefore be properly described as an action-oriented, 'subjective' ethics" (Floridi 1999). In other words, people not actions are judged as ethical or unethical. Virtue ethics is also intrinsically individualistic and anthropocentric; in other words, the theory is often not extended to explain the actions of organizations, political parties, and other institutions. However, much of the work in justice and virtue ethics is universalistic, seeking abstracted rights of people and character of person, others view justice and virtue ethics as situated within social movements and historical perspectives (O'Neil 1996).

Ethical Philosophy and Ethical Decision-Making

The discourse on moral philosophy will focus on two issues: (1) moral philosophy is unable to account for the wide range of moral action and justification; however, (2) moral philosophy remains important in informing social, psychological, and organizational theories on ethics. Therefore, in light of the second issue and to address the first issue, moral philosophies may be employed in a *contextual* and *situational* manner to address specific moral problems, instead of a singular moral philosophy to address *all* moral problems. Reidenbach and Robin (1990) succinctly outline five moral principles offered by philosophical and psychological literature that support ethical decision-making, specifically (1) deontological, (2) utilitarian, (3) relativist, (4) egoist, and (5) justice. People rely on a broad set of moral principles and values in the formation of moral judgments and action, and as such, people do not to rely solely on idealistic teleological principles, such as utilitarianism (Reidenbach and Robin 1990). Instead, a combination of deontological and teleological principles is used depending on the situation, the individual's personal moral values, and the cultural and ethical norms comprising the situation's environment. This smorgasbord of ethical philosophies and our haphazard application of those philosophies underscore the importance of exploring situational moral reasoning further, particular in the context of business and information technology.

In the following sections, business and information technology ethics is investigated from two perspectives. First, the broad ethical theories applied in business and information technology ethics are reviewed. Second, we investigate the *situational* and *contextual* factors of both business and information technology ethics as they related to ethical decision-making and moral action.

Philosophy of Business Ethics

Business ethics is murky field as strong ethical theories and overarching frameworks remain elusive (Lewis 1985). Despite the vast array of ethical philosophies in existence, ethical

philosophy only selectively and/or partially informs the ethical behavior and research of organizations. Some authors not only have observed the poor understanding and application of ethical philosophy in business practice and research, but also suggested that ethical philosophy may not have sufficient application to business activities to warrant its consideration by managers (Smith and Hasnas 1999). Smith and Hasnas lament: "Unfortunately, the doctrine of philosophical ethics are highly abstract and are essentially meaningless to one with little or no philosophical training" (Smith and Hasnas 1999). In addition, although a particular initiative or action may make good 'business sense' the absence of ethical philosophy informing management practice and academic research necessitates that such initiatives and actions are veiled in ethical ignorance (Smith and Hasnas 1999).

Walsham (1996) echoes the lamentation that the business community and academic business researchers have avoided of ethical philosophy, and fervently argues that ethical philosophy is necessary, particularly when developing ethical codes of conduct. Smith and Hasnas (1999) echo Walsham's lament and call for more ethical philosophy in IS research; however, the practical significance to IT ethics research and IT management is questionable. However, theories borne of the business ethics domain may be more acceptable and appropriate to business activities. Prominent theories of business ethics would include stakeholder theory, stockholder theory, and contractualism. However, theories of business ethics are rarely applied in IS research, and are often oriented toward firm-level initiatives instead of individual-level behaviors (Bull 2008). "Disappointingly, almost all of the authors are moving beyond Smith and Hasnas' dimension of philosophical ethics approach and by-passing ethical theories completely" (Bull 2008). If, as proposed by Bull (2008), IS research lacks the direction of philosophical and business ethical theories, researchers are relying heavily on only a small, normative understanding of ethical IT behavior.

Social Responsibility of the Firm

Arthur Carrol's (1991) formulation of the corporate social responsibility pyramid provides a counter example. Carrol clearly separates the responsibility of business to make profit from the three, higher-level social responsibilities: legal, ethical, and philanthropic. Overlap clearly exists among these four dimensions; for example, ethical and philanthropic actions may be the most profitable, legal actions may be simultaneously ethical and profitable. However, while the distinction is by no means necessary, the combination is not either: legal actions may not be ethical, ethical actions may not be legal. Others consider the social responsibility of the firm much narrower, while still maintaining an ethical component that is less pro-social than Carrol's conception: "There is one and only one social responsibility of business: to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, *without deception or fraud*." (Friedman 1970).

Stakeholder and Stockholder Theories

An excellent example of the explicit commingling between moral norms and legal systems comes from Smith's (2004) formulation of stockholder and stakeholder theories on ethics. As formulated earlier in their argumentation for a normative business ethic, what one *ought* is by all means governed by economic, legal, and regulatory forces common in the business environment. One must consider the legal ramifications an action has on the business (such as with stockholder ethics) or the social and organizational customs in conducting proper business (as with stakeholder ethics). However, such forces are by no means deterministic of the moral behaviors of individuals or business.

Stockholder theory "… holds that executives should resolve ethical quandaries by taking actions that maximize the long-term profits to stockholders *without violating the law or engaging*

in fraud or deception" (Smith 2004). Stemming from managerial disciplines come the notion of stockholder theory as an ethical perspective. Within this perspective, ethical behaviors are those which benefit the company overall and the stockholder's in particular, insofar that the firm's greatest moral obligation is to that of the stockholders.

Another managerial perspective that has become particularly prevalent in ethics literature is s*takeholder theory* (Freeman 1984). "Stakeholder theory claims that executives should resolve ethical quandaries by balancing stakeholder interests without violating the rights of any stakeholder" (Smith and Hasnas 1999). Although stakeholder theory is broadly defined as the consideration of all parties affecting or effected by an organization's decision or behavior, stakeholder theory when applied to ethics requires ethical decision making to consider not only the effects on the firm and its stockholders, but also others who may be involved or effected by the decision, whether invested in the success of the company or not. Stakeholder theory attempts to address three questions regarding the relationship between firms and their stakeholders (Donaldson and Preston 1995):

1. Normative – How should the firm handle stakeholders?
2. Instrumental – What happens when the firm relates to stakeholders?
3. Descriptive – How does the firm relate to stakeholders?

Ultimately, while stakeholder and stockholder theory may influence our understanding of firm's ethical behavior and indirectly the ethical behavior of employees, such theories have similar deficiency in explaining the individual moral actions of people. Ethical theories of business ethics, however, are often more reflective of the motivations for ethical or unethical behavior of firms and individuals. Nevertheless, we must further consider the *situational* factors that may influence how people make ethical decisions, and the ethical theories that people draw from.

Ethics and Information Technology

Problems of information technology ethics stem not only from human action using information technology, and the moral imperatives surrounding ethical IT behavior, but also from the information technology itself (Floridi 1999). In other words, the many ethical problems originate from the manner by which the information technology is designed and implemented, creating a moral imperative for the *designers and creators* of information technology tools. De George (2003) in particular supported an anthropomorphic view of information technology ethics. The information technology artifact *itself* may be designed to explicitly support unethical behaviors and actions; or the artifact may be designed to prevent unethical behavior and actions, though sufficient safeguards to protect privacy, security, and quality control, etc.

Research in information technology and information systems ethics is also not without its own problems (Chatterjee et al. 2009; Laudon 1995). First, much of the research is not grounded in classical or contemporary theories and philosophies on morality and ethics; instead addressing moral and ethical problems as merely issues in managing employee and customer behavior. Second, IS/IT ethics research as a whole represents a "disorganized topology" (Chatterjee et al. 2009) of ethical problems, addressed in an *ad hoc* manner without a clear guiding research purpose or stream. Finally, much of the literature offers neither normative nor prescriptive "solutions" to ethical problems addressed in the research. Few studies in computer and information technology ethics address the primary question of "what should or ought I do?" Although this problem may seem to clash with the first issue, it is apparent that much prescriptive and normative research in this domain is problematic if it lacks a strong foundation in ethical philosophy.

Broadly speaking, however, certain ethical philosophies are more appropriate when applied in information technology and systems ethics (Floridi 1999). Deontological ethical

theories are often poor choices in supporting moral claims for normative and ethical behavior as the technology itself changes often introducing new moral problems. However, some researchers have been successful in applying deontological ethics to human *processes* and *collaboration* in designing and developing information technology solutions (Chatterjee et al. 2009). Utilitarian and consequentialist theories, on the other hand, are much more common and effectively applied in developing moral claims for ethical IT behaviors. Ultimately, however, "when consistently applied, both Consequentialism, Contractualism and Deontologism show themselves unable to accommodate CE-problems *(computer ethics problems)* easily, and in the end may well be inadequate" (Floridi 1999). Therefore, ethical IT problems are likely best addressed by a *set* of moral philosophies and reasoning that is highly *situational*.

Modeling Ethical Decision-Making for Information Technology

Interestingly, many of the situational and environmental factors had more impact on predicting ethical IT behavior than the EDM model itself. Leonard and others (2001) replicated the Banerjee and others (1998) study of the EDM model in an IT context, but with a much larger sample size and several other variables. Banerjee and others (1998) noted that a small sample size may have explained the lack of support for EDM model, but strong support for contextual and environmental variables, such as organizational ethical climate (or ethical work climate), personal normative beliefs, and organization-scenario interaction variable. Other variables previously unsupported were found significant due to the significantly larger sample size as theorized. These variables include moral attitudes (a person's perception of acceptability of the action), personal normative beliefs (a person's moral obligation to perform or not perform an act), and ego strength (or a person's strength of conviction to successfully turn attitudes and intentions and behaviors). Moral judgments, particularly those consistent with the post-conventional (principled) over and

above the pre-conventional (egoist) and conventional (social) judgments, were also a significant predictor of ethical IT behavior intention.

Moores and Chang (2006) investigated the effects of software piracy vignettes with varied degrees of availability of software, on the four-component model of ethical decision-making, i.e. recognition, judgment, intention, and use or buy behavior. Although the authors find significant support for the effects of moral judgments on intentions (and ultimately use or buy behavior), under no scenario was the recognition of moral components a significant predictor of moral judgments. Several explanations are given, including the pervasiveness and general acceptance of software piracy in the sample. The vast majority of respondents (over 87%) were common users of illegally copied software and other intellectual property, suggesting that respondents may not have considered the software piracy dilemma important, or were even desensitized to the problem.

Haines and Leonard (2007b) continue the tradition of exploring the situational influences of different vignettes on EDM involving IT use, again collecting data from student's perceptions of five different ethical vignettes. One must note that these vignettes differ not in their moral intensity or domain of morality, as proposed by this study and others (Gattiker and Kelley 1999a; Jones 1991), but vary by the ethical issue, such as privacy, software piracy, etc. Nevertheless, these findings corroborate those of previous studies that the EDM process changes significantly depending on the vignette (Gattiker and Kelley 1999a; Leonard and Cronan 2001; Leonard et al. 2004), concluding that ethical studies in IT use cannot rely on a single vignette for reliable results.

When these studies are taken together, one of the common themes among the ethical IT decision-making studies is the *highly contextual and situational* effect of different ethical decision-making construct, such as moral recognition, attitudes, and judgments. However, few

studies seek to explain how these contextual and situational factors influence ethical decision-making, and even fewer provide a sound theoretical basis for the manner by which situational factors shape ethical IT decision-making.

The Situational Ethics of Information Technology

Many information technology ethics studies have explored the concept of "situational ethics," or ethical considerations made highly dependent on the immediate ethical IT dilemma or surrounding environmental or social contexts (Banerjee et al. 1998; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004). Banerjee and others (1998) investigate the effects of some of these situational factors using ethical dilemmas involving IT, finding that the organizational ethical climate and more importantly the interaction between organizational environment and scenario to be more salient than common ethical decision-making factors. Continuing in the tradition of situational IT ethics, Leonard and others (2004) find that some factors consistently predict ethical IT behavior across all types of scenarios, while other factors are only predictive in a few scenarios. Only moral attitudes and personal normative beliefs were consistently supported across all scenarios, while ego strength, perceived importance, and sex were significant in all but one. These findings give credence to the proposition that ethical IT behavior is not only situation specific, but also the *relationship* between moral beliefs, intentions and ethical IT behavior is situational as well. Combining the results with the findings from Moores and Chang (2006), researchers cannot use either a single vignette, or a single *type* (e.g. software piracy, privacy, or intellectual property) of vignette for reliable results. Haines and Leonard (2007b) also refine their findings on the effects of perceived importance on EDM, finding that while perceived importance was an influential factor, it did not influence the entire EDM model. However, across all five vignettes, moral judgments were a significant positive

indicator of ethical IT behavior and perceived importance a significant positive indicator of moral judgments.

There is a long tradition of IS research exploring ethical decision-making, specifically the situational effects of different IT dilemmas on ethical IT decision-making models. However, these models have shown inconsistent results across a variety of scenarios, and the models rely heavily on highly contextual and situational factors. Furthermore, *contextuality* may play an important role, such as organizational climate, or the interaction between organization environment and the scenario (Banerjee et al. 1998). Few studies have investigated the surrounding organizational environment and how it influences ethical IT decision-making. However, the specific and infinitely numerous situational effects resulting for contextual differences surrounding the ethical IT dilemma are presently beyond the intended scope of the study.

Moral Domain Theory and Information Technology

Theories of ethical IT decision-making and behavior are few and far between, but some theories from psychology, sociology and ecology may be fruitful. A few authors have applied the domain theory of moral development (Turiel 1983; Turiel et al. 1987) to an ethical IT decision-making context, finding an association between application and attribution of particular moral domains to changes in moral attitude, judgments and intentions (Gattiker and Kelley 1999a).

First, even concerning moral dilemmas involving IT, people are able to distinguish between scenarios and, by extension, different domains of morality, which is in contradiction with the findings of Sproull and Keisler (1991) who suggest that people may not be able to identify moral characteristics and consequences of ethical dilemmas involving IT.[6] Furthermore,

[6] Although people are able to distinguish between scenarios of different domains of morality even in an IT context, bringing question to the findings of Sproull and Keilser (1991), one must be wary that ethical

people have different moral judgments toward ethical dilemmas involving computer technology including the degree of harm, whether the person should be stopped or punished, or whether the practice should be universally applied when respondents classify ethical dilemmas into different domains of morality (Gattiker and Kelley 1999a). However, broad support for the effects of moral attitudes on ethical behavior intentions was not supported. Only propositions relating to the effects of age and gender on an individual's moral judgments of an ethical dilemma were supported, *and even then* the relationship was found *only* in the moral domain, further supporting the importance of situationality driven by moral domains.

The domain theory of moral development provides a theoretical explanation for the mixed, highly situational findings of previous studies in situational IT ethics and ethical decision-making. The second study predicts that domain theory sufficiently explains the situational effects of ethical IT dilemmas on moral recognition, attitudes and judgments and how they influence ethical IT behaviors. More specifically, ethical IT dilemmas attributed to the personal or conventional knowledge domains will be insufficient to elicit moral recognition, attitudes, and judgments strong enough to predict ethical IT behavior intention. However, ethical IT dilemmas attributed to the moral domain will generate stronger moral recognition, attitudes and judgments sufficient to predict moral intent and ethical IT behavior.

Psychology of Ethics

Theory of Reason Action and Planned Behavior

The basis for the vast majority of studies in ethical decision-making behavior relies on the application of the Theory of Reason Action (TRA) (Fishbein and Ajzen 1975) and the Theory of Planned Behavior (TPB) (Ajzen 1985; Ajzen 1989; Ajzen 1991) in the realm of moral thought

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dilemmas in the personal domain have relatively low ratings in terms of moral attitudes and judgments. Ethical IT dilemmas in the personal domain may therefore be difficult to detect if moral attitudes and judgments are used to measure the identification of moral characteristics and consequences involving IT.

and ethical intent and behaviors. Early attitude-behavior research in psychology has shown little evidence and effect.[7] Wicker (1969), in particular, is highly critical of the direct attitude-behavior relationship, as people's attitudes have been consistently far removed from their actual behaviors. To address these problems, the TRA (Fishbein and Ajzen 1975) was developed to address the discrepancy in attitude-behavior relationship (Figure 1). TRA is a behavioral model explaining that motivational norms, attitudes and intentions lead to voluntary behavior and explains how the influence on attitude and behavior are mediated by the intention of the individual (Fishbein and Ajzen 1975).

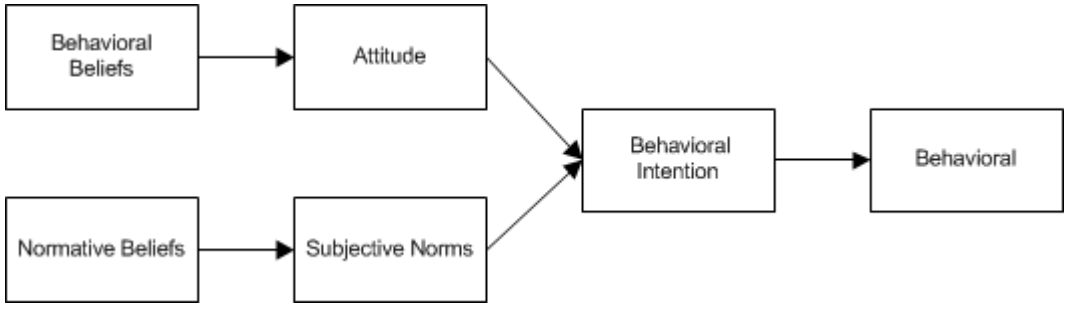

Figure 1. The Theory of Reasoned Action (TRA)

The foundation of the TRA (and attitude-behavior research in general) begins with behavioral and normative beliefs. Salient behavioral and normative beliefs lead to the formation of attitudes and subjective norms, respectively, which in turn predicts an individual's behavioral intent. *Behavioral beliefs* are a combination of beliefs regarding the likelihood a particular outcome will result from an action, and the evaluation of the outcome as positive or negative. The evaluation of the outcome (as moderated by its likelihood of occurring) contributes to the formation of attitudes about the action, and ultimately the individual's intention to act. *Normative beliefs*, similar to behavioral beliefs, are the combined effect of two components, namely referent

[7] Correlations between attitude and behavior only as high as 0.33, but often much lower, below 0.10 for the vast majority of contexts (Armitage and Christian, 2004).

beliefs and the motivation to comply. Referent belief is the source of the normative pressure, such as a manager or a coworker, while one's motivation to comply, or the desire to consider the wishes of another, moderates the influence of the referent person or group in the formation of subjective norms. However, it is critical that the behavior itself is voluntary, as many researchers investigating mandatory or coerced behaviors, such as the mandatory adoption of information technology, have found TRA models lacking in explanatory power.

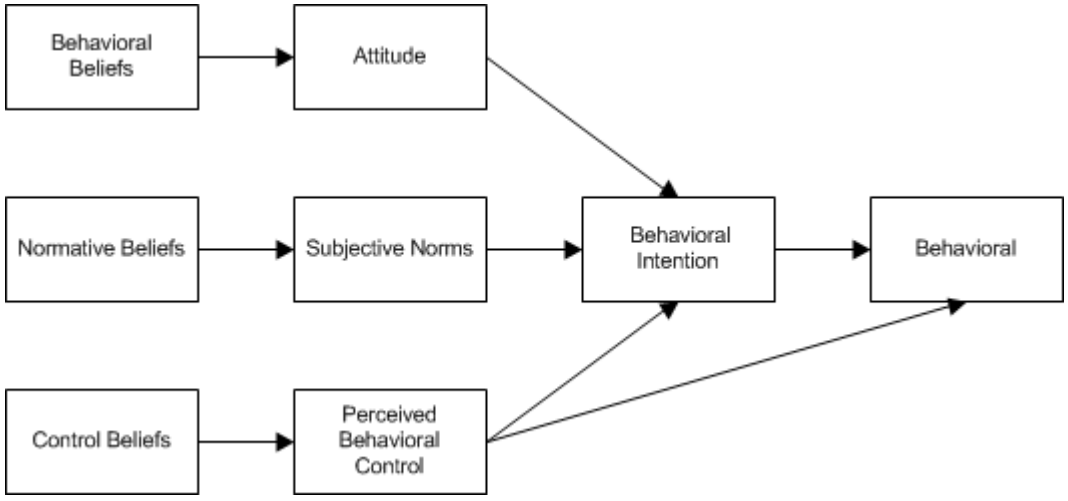

Figure 2. The Theory of Planned Behavior (TPB)

To address the issues of mandatory and particularly semi-voluntary behavior, researchers investigated individual's beliefs about the control they have over their own behavior. Perceived behavioral control (PBC) was added to TRA (Figure 2), and the overarching theory was thusly named the Theory of Planned Behavior (Ajzen 1985; Ajzen 1989; Ajzen 1991). While one's attitudes, norms, and intentions remain constant, an increase in a person's perception of their control over a situation should increase not only their intention to behave (an indirect effect through intention), but also their ability to perform the behavior (a direct effect on behavior). *Control beliefs* about the individual's ability to act in the context forms the foundation for PBC. More specifically, like behavioral and normative beliefs, control beliefs are a combination of the

probability of "facilitating or inhibiting factors" (Armitage and Christian 2004) occurring multiplied by the power of the or force of the factors to facilitate or inhibit one's behavior.

Rest's Four Component Model

The ethical decision-making (EDM) model is a four-component, or four-stage cognitive process (Rest 1983; Rest 1986b; Rest et al. 1974), from which the vast majority of EDM models originate (Figure 3). Although the EDM model is indeed process oriented (one component contributes to the formation of another), the EDM model is not explicitly causal. In other words, moral judgments are not a necessary component to *form* or *create* moral intentions, but moral judgments *contribute* to the formation of particular moral intentions.

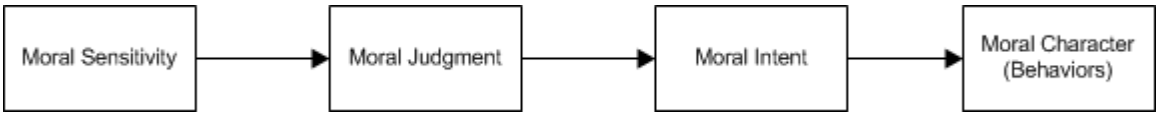

Figure 3. Four-component model for ethical decision-making

The first stage involves *sensitivity* to the moral characteristics and consequences of possible ethical actions, in other words, the ability to determine cause and affect relationships on how actions will affect the welfare others. Moral sensitivity, therefore, regards the recognition of the relationship between moral characteristics and consequences of the situation. During the second stage, moral actors use decision-making heuristics to form *judgments* of the relative morality of possible behaviors. Moral judgment is the capacity to apply moral principles and reasoning to an ethical dilemma, and make a conclusion about the morality (rightness or wrongness) of the dilemma (Rest 1986b). In other words, it is a person's capacity for moral thought and as such is indiscriminately linked to formations of moral reasoning. By engaging in moral reasoning about the "rightness" of possible actions, we are able to form judgments (or conclusions) about all actions within the realm of perceived possibility of human action in the

particular context.[8] Moral judgment is a cognitive attribute that is developed through repeated social interactions with others, structures, and institutions in the development of broader, long-term moral reasoning (Kohlberg 1976; Kohlberg 1984). The association of moral judgments as a predictor of ethical (or even unethical) behavior has been consistently supported in literature, across multiple professional associations (Rest and Narvaez 1994). The third (*intention*) and fourth (*behavior*) stages resemble a standard attitude-intention-behavior model similar to TRA/TPB. Therefore, based upon the similarities, attitudes about the ethical dilemma along-side moral judgments form intentions to behave ethically (moral motivation) or unethically and likely fulfill that behavior (moral character) (See Figure 4).

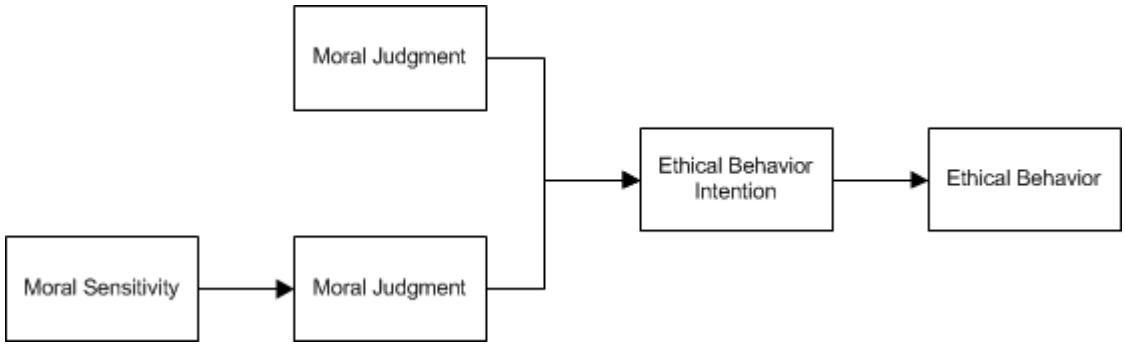

Figure 4. Combination of four-component model for ethical decision-making and theory of planned behavior

Immoral behavior can result from deficiencies in any of the four stages of morality (Moores and Chang 2006). Moral sensitivity can suffer from ambiguous ethical situations or simply a lack of concern or forethought to how behaviors can affect others. Moral judgments can suffer from incomplete reasoning regarding the consequences of ethical behaviors. Outside forces, such as situational or environmental factors such as an inability to realize ethical action or

[8] Such thinking evokes the problem of the idealized "rational man" and avoids non-rational (not necessarily irrational) moral reasoning and ethical behavior based upon emotion, intuitions, etc. The "rational man" problem will be addressed in further sections on Kohlbergian rational moral psychology.

strong normative and authoritative pressures to behave unethically, can compromise moral motivation or intention.

Moral Awareness and Recognition

One explanation of the contextual nature of ethical IT behavior proposed by this study is that the respondents may not have been cognizant that an ethical dilemma embodied in the moral characteristics or moral consequences was even present (Reynolds 2006). Moral awareness is the recognition that a person's decision or behavior will have consequences affecting the interests and welfare of the self or others (Reynolds 2006). Moral awareness is not necessarily the recognition of the act *as immoral*, but the recognition of the act as *being of moral nature*, whether moral or immoral, ethical or unethical. Rest (1986b) viewed moral awareness as the recognition of an individual that some ethical standard or principle applies. Previous research has assumed that respondents understood a scenario was at the very least an ethical quandary, but much more likely as assumption regarding identifying all salient moral characteristics and consequences (Banerjee et al. 1998; Gattiker and Kelley 1999a; Haines and Leonard 2007b; Leonard et al. 2004). By controlling for those who do not perceive the salient moral characteristics and consequences of the scenario, or even the scenario itself as an ethical dilemma, a more accurate picture of a person's moral judgments, attitudes, and intentions may be found.

Moral awareness is critical not only in managerial decision-making and the design and use of information systems, but also in the formation of future moral beliefs and ethical norms. Moral awareness is the first step in confirming the observation of decisions and behaviors carrying moral and ethical components. A person cannot judge or act on a decision or behavior from an ethical standpoint if one does not observe the ethical component (Rest 1986b; Rest et al. 2000b). Interestingly, the presence of a social norm governing the ethical or unethical behavior (i.e. code of ethics, policies, etc.) may not be sufficient to raise awareness of an ethical dilemma;

however, a visible consequence of such a behavior is more salient (Jones 1991; Schwartz 2005). Additionally, if a particular moral component is not perceived or recognized then an entire range of moral thought and possible moral actions may not enter into the decision-making process. Therefore, even an explicit notification whether each vignette contains an ethical dilemma may not be sufficient to raise awareness of the moral implications of the scenario.

In either case, formalist moral awareness suggesting people may be predisposed toward more moral sensitivity (and therefore moral awareness). Reynolds (2006) investigates the effects of ethical predispositions, specifically utilitarianism and formalism, on the moral awareness of ethical dilemmas, and responses to characteristics of a moral issue. Although both ethical predispositions influenced moral awareness, the formalist predisposition had a greater influence on moral awareness than utilitarianism, due to the emphasis on preventing harm under all circumstances. This finding is interesting as it suggest that moral reasoning dispositions may have influence on moral awareness, which is inconsistent with the well-established four-component model (Rest et al. 1974) mentioned previously. Moral awareness may depend on the (1) situation or (2) demographic. The awareness and recognition of moral characteristics and consequences is not universal among different groups and cultures. Moores and Chang (2006), for example, find that moral recognition is not a significant predictor of moral judgments, even though the remainder of the EDM model remains intact. By studying the morality of software privacy behavior with students in Hong Kong, an overwhelming (over 87%) number were common users of pirated software, which may explain the lack of significant effects of moral awareness on judgments. These findings have broader implications as it suggests that moral awareness (and possibly other moral components) varies significantly by the group or sub-group, as well as the type of ethical IT dilemma.

Other researchers investigating ethical IT behavior have explored the effects of *perceived importance*, a theoretically and operationally similar construct to moral awareness, on moral attitudes, judgments and ethical IT behavior (Haines and Leonard 2007b; Leonard et al. 2004; Robin et al. 1996). Perceived importance is defined as the "perceived personal relevance or importance of an ethical issue to an individual." The authors find the perceived importance of a moral behavior influences ethical IT behavior across several scenarios; however, support for the effects of perceived importance on moral attitudes and judgments only in select scenarios (Haines and Leonard 2007b; Leonard et al. 2004). Again, this suggests the salience of moral sensitivity varies with the scenario in question.

Kohlberg's Six Stages of Moral Reasoning

Moral psychology has been dominated by research into the moral reasoning capacity of people in a variety of backgrounds and situations. Lawrence Kohlberg is one of the most notable researchers in the field of moral psychology, developing a six-stage model of moral reasoning (Table 1) that forms the basis for cognitive moral development research (Kohlberg 1981; Kohlberg 1984; Kohlberg et al. 1983). Cognitive moral development is defined as "". These stages represent a progressive development of moral reasoning capabilities, extending from punishment avoidance and egoism to principled morality and moral justice. The six-stages of moral reasoning can be consolidated into three broader perspectives of moral reasoning in relation to "conventional" or "common morality": pre-conventional, conventional, and post-conventional.

The *pre-conventional* level represents moral reasoning based on direct consequences of our actions from our environment and other people (Kohlberg 1976; Kohlberg 1981; Kohlberg et al. 1983). Pre-conventional morality is common in young children and adolescence, although adults occasionally exhibit consequentialist moral reasoning. Pre-conventional moral reasoning is

inherently egoistic—focused on the welfare of the individual over and above the welfare of others. *Stage 1* emphasizes the importance of obedience in the most primitive form: the avoidance of punishment. Actions are deemed bad or wrong (and therefore unethical) relative to the likelihood of being caught and the severity of the punishment. In *Stage 2*, individuals judge actions morally based solely on self-interest, akin to the concept of egoism. Compared with Stage 1, which is decidedly passive in the judgment of moral action, in Stage 2 people actively consider the morality of action in terms of "what's in it for me?" Any concern about the welfare of others is framed in an egoist perspective where others are merely means to achieve a particular goal.

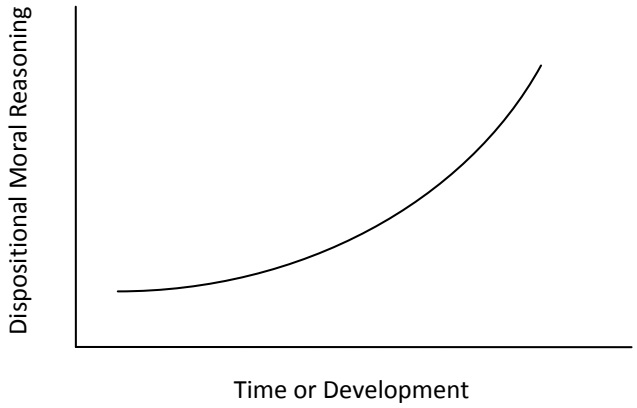

Figure 5. Cognitive moral development, or dispositional moral reasoning, increases over time

The *conventional* level represents morality determined by its relation to the perspectives, values, and judgments of social groups and society. A large majority of adolescents and adults commonly employ this level of moral reasoning. Stages 3 and 4 constitute this level of moral reasoning, although they vary by the scope of the referent group[9]. People consider broader, more abstract social norms beginning with close relationships, extending into social groups and immediate institutions, and ultimately based on society and culture. *Stage 3* represents morality

[9] A referent group is a group to which an individual or another group compares himself or herself or is compared by others. In the context of moral development, an individual may refer their judgment to that of another group, thus incorporating or internalizing the morality of a group.

couched in the favorable (or unfavorable) perceptions of actions in interpersonal, social relationships. Established social norms and the pressure to conform in close relationships and social groups form the basis of morality, and "good" and "bad" behavior is directly related to your ability to adhere to clearly defined social roles. *Stage 4* extends the boundaries of "norm maintaining" morality from interpersonal relationships and social groups to society in general. The maintenance of authority and social order is of utmost moral concern, and therefore, morality is determined by one's conformance with established laws, rules and conventions replicated by the institutions of society, such as religion, education, and of course organizations.

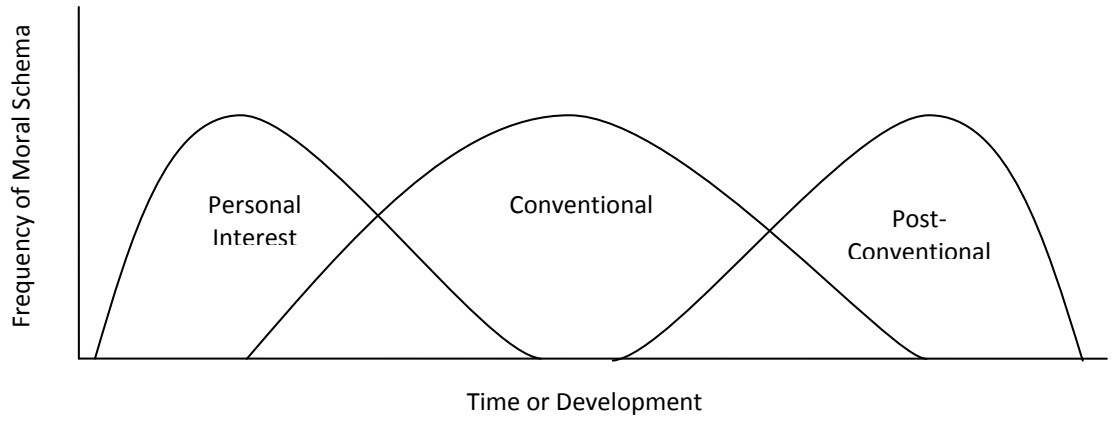

Figure 6. Use of different moral schema over time or personal development

The *post-conventional* or *principled* level represents morality based on universal moral principles that transcend inter-personal relationships, groups and society as a whole.[10] People employing this level of moral reasoning believe that morality extends beyond social norms, laws, codes and conventions; and, in other words, is universally applied to a set of moral actions and behaviors. Principles (often of the universal and deontological kind) drive the morality of people

[10] Another moment on the word "universal." Cultural anthropology has shown that some culture may develop moral norms that most "Western culture" considers depraved and immoral. The distinction then must operational, one of practical significance to the given referent group and not absolute, pervasive acceptance (or non-acceptance) of all people.

to ignore institutional authority and the consequences of violating ethical norms. Post-conventional reasoning may drive a business owner to develop open-source, copy-left software to the detriment to the bottom-line (ignoring pre-conventional moral reasoning) or disregard software patents and copyright regulations as a form of civil disobedience (ignoring conventional moral reasoning). *Stage 5* represents the first indication of post-conventional moral reasoning, where morality is rooted in social contracts, not oppressive social norms and institutions. People are regarded as having different, but equally valid, values, perspectives and opinions that may conflict with the prevailing social institutions maintaining ethical norms and standards. Therefore, while people have a general obligation to consider the welfare of society and others, society must respect and consider the values, perspectives and opinions of the person. Ethical norms and standards are established through a process of compromise and majority rule, in other words, morality is established that best reflects the perception of the "greatest good" to the "greatest number" through a process of democratic discourse. *Stage 6* represents abstract moral reasoning relying on universal ethical principles. Concepts such as rights and social contracts are irrelevant, as ethics and morality is based on *a priori*, deontological reasoning. In other words, decisions are made categorically, not hypothetically, thus representing categorical imperatives as conceived by Immanuel Kant (Kant 1785/2002; Kant 1797/1991). Similarly, moral actions are not merely a means to an end, but an end in and of itself. However, empirical evidence of the sixth stage of morality is tenuous at best (Colby et al. 1983).

Table 1. Kohlberg's six stages of moral reasoning

Stage	Level	Moral Perspective	Social Perspective
(1) Obedience orientation	Pre-conventional	Punishment avoidance	Blind Egoism
(2) Self-interest orientation	Pre-conventional	Self-interest	Instrumental Egoism
(3) Interpersonal accord and social conformity	Conventional	Social norms	Social relationships perspective
(4) Authority and social order maintaining orientation	Conventional	Law and order	Social systems perspective
(5) Social contract orientation	Post-Conventional	Voluntary association	Contractual perspective
(6) Universal ethical principles orientation	Post-Conventional	Principled consciousness	Universal mutual respect principle

Several criticisms, however, are levied against the six-stage model of moral reasoning as developed by Kohlberg. First, there has been little evidence in support of higher levels of moral reasoning (Wren 1990), suggesting that post-conventional moral thinking is only salient for some individuals under particular circumstances, which may suggest that stages of moral reasoning vary significantly not only from individual to individual, but also from the ethical dilemma in question.[11] Second, the Kohlbergian six-stage model of cognitive moral development relies on rational thought, logic and reason, which generally favors males and is evident in the original research that sampled almost exclusively men (Kohlberg 1976). Gilligan offers a strong rebuttal in the *Ethics of Care* against the absolutist developmental stages of morality, suggesting that for women post-conventional stages of morality are more akin to pre-conventional stages of morality due to the focus on friends, family and relationships (Gilligan 1982; Gilligan 1987). However, the relative importance of friends, family and relationships has little relationships to the intent of the

[11] Since the moral development stages are dispositional, they represent a general predisposition toward particular moral reasoning patterns and by extension judgments. By general I mean average, so on can deduce a person may engage in more egoist (pre-conventional) or principled (post-conventional) moral reasoning, depending on the situation and context in question. Therefore, moral reasoning is situational, and can fly in the face of one's broad moral dispositions.

actions, as pre-conventional moral reasoning assumes an egoist, "clan-like" mentality, where the interest of the individual, friends, family, etc. are fulfilled *at the expense* of the other.

Neo- Kohlbergian Schemas of Moral Reasoning

Neo- Kohlbergian theory consolidates the six-stages of moral reasoning into three moral reasoning schema: personal intent, monitoring norms, and post-conventional (Rest et al. 2000a; Rest et al. 2000b), which correspond to the level of moral reasoning. A comparison of the original six stages of moral reasoning and the three moral reasoning schemas can be found in Table 2. Schema are representations of prior stimulus phenomenon used to interpret new information, and they are evoked or actuated by current stimulus and facilitates information processing and moral understanding. Ethical dilemmas, like those contained in the DIT, activate moral schemas by using moral dilemma vignettes, wherein each item represents fragments of moral reasoning schemas. The reasoning fragments, often in the form of questions, do not advocate one form of moral reasoning over another, although easily attributable toward different moral reasoning schemas. Neo-Kohlbergian schemas offer several theoretical advantages over and above Kohlbergian stages; first, schemas are broader than individual stages and centered on empirically observed moral development predispositions; second, individuals moral development are centered on a specific moral reasoning schema for most moral actions, however, the specific moral reasoning and judgments employed are allowed to vary across situations. In other words, although an individual may be classified as having a particular moral reasoning *disposition* according to the schemas of moral reasoning, the strong situational effects may influence a decision-maker to employ either more ethical ('up-schema') or more unethical ('down-schema') behaviors.

Table 2. A comparison between moral reasoning stages and schema

Kohlbergian (DIT)		Neo-Kohlbergian (DIT2)	
Levels	**Stage**	**Stage**	**Schema**
Pre-Conventional	S1 & S2	S2 & S3	Personal Interest
Conventional	S3 & S4	S4	Maintaining Norms
Post-Conventional	S5 & S6	S5 & S6	Post-Conventional

In the *personal interest* schema, a person justifies a decision as morally right by appealing to the stake of the actor and the consequences of the action for the actor. The personal intent schema therefore combines Stage 2 and Stage 3 from the six stages into a more egocentric form of moral reasoning, similar to the pre-conventional level. People employing personal interest moral reasoning are not socio-centric or principle-centric in their decision-making, but are only concerned with relevant actors and personal consequences in the ethical dilemma. In the *maintaining norms schema*, morality is defined by the maintenance of social norms and social order. Individuals employing the maintaining norms schema identify with established practice, such as existing rules, norms, and ideas, and the de-facto authority figures, in other words, they exhibit a general acceptance of the authority and social norms as ethical standards. Although the monitoring norms schema is based heavily on the social context, where governing rules and authority figures have domain, ethical rules and norms are observed by all society. A clear and categorical set of rules and laws along with an established hierarchical structure of authority and duty is critical. In the *post-conventional schema*, one's moral obligations and duty are based on three components: (1) shared ideals, (2) full reciprocity, and (3) open to scrutiny. In other words, an ethical norm or standard must be logically consistent, accepted by the community, and consistent with current ethical norms and standards. Moral obligations are therefore based on shared moral ideals, such as utilitarianism, virtue, religious, or social contracts, which are subject to open debate by the community.

Discussion and Conclusions

This chapter reviewed the common literature forming the theoretical foundation to address the three research questions introduced in Chapter 1. First, important ethical philosophies for ethical IT decision-making were introduced, underscoring the multitude of potential perspectives individuals may employ in making ethical decisions. Specific ethical philosophies however do not account for the broad range of individual, contextual and situational factors that may sway moral actions. Second, the salient literature on business and information technology ethics was reviewed emphasizing the underlying ethical theories as well as the important factors that may influence ethical IT decision-making. Both business and information technology ethics are burdened with countless situational factors that underscore the complexity of ethical decisions, and, particularly for information technology ethics, this burden is carried without the support of strong foundation in ethical philosophies and theory (Bull 2008). Finally, moral psychology literature is introduced in order to understand how these situational factors influence ethical IT decision-making. Ethical decision-making models in moral psychology, however, suffer from some shortcomings in explaining ethical IT decision-making, specifically information technology creates new ethical problems that current decision-making models may not account for, and individual dispositional assessments of moral development are unsuitable for explaining and predicting complex decisions in organizational environments involving information technology. By combing the multitude of ethical philosophies with ethical decision-making models from more psychology, we are better equipped to understand how the situational and contextual factors from business and information technology ethical dilemmas shape ethical IT decision-making. The application of situational ethical philosophies with other theoretical foundations, such as domain theory of moral development and affordance theory, helps address a long standing issue of a lack of ethical theory in IS research (Bull 2008).

CHAPTER III

SITUATIONAL MORAL REASONING

Introduction

Previous research investigating the ethical IT decision-making have investigated situational factors using broad based conceptualizations of moral reasoning dispositions that are unable to assess the unique effects the context and technology itself on the moral reasoning of individuals (Banerjee et al. 1998; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004; Moores and Chang 2006). Individual characteristics, such as moral reasoning dispositions (as conceived through Kohlberg's six stages (Kohlberg 1976; Kohlberg 1984), locus of control and ego strength, are theoretically applied independent of the situation, the context and environment surrounding the situation, and the characteristics of the information technology used in the scenario. However, this may not always be the case with moral reasoning and judgments in particular. To establish differences in moral reasoning based on the specific IT ethical dilemmas, we must first compare the *situational* moral reasoning and judgments as measured by the Multi-Dimensional Ethics Scale (MES) (Flory et al. 1993b; Reidenbach and Robin 1988; Reidenbach and Robin 1990) to the often utilized *dispositional* moral reasoning and judgments as conceptualized using cognitive moral development (Kohlberg 1976; Kohlberg 1984; Rest et al. 2000a; Rest et al. 1999) measured by the Defining Issues Test (DIT/DIT2) (Rest et al. 1999). Therefore, the first study will address:

1. Do situational and dispositional moral judgments influence the ethical or unethical IT behavior intentions of people?

2. Do situational moral judgments have more influence on ethical IT intentions and behaviors than their dispositional moral judgments, or moral development stage?

In order to address these questions, we must first address what constitutes situational effects and situational moral reasoning, and the effects they have on ethical IT decision-making.

Situational Effects and Moral Reasoning

> Although some may argue that universal factors are indeed important, such factors may be overwhelmed by particular factors. The question remains: which particular factors are important to which individual under what circumstances. (Ross and Robertson 2003)

Although cognitive moral development displays a generalized propensity for particular schemas of moral judgments and behaviors, people struggle to maintain consistent application of these schema across a variety of context and situations, such as between work and non-work environments (Fraedrick and Ferrell 1992). Therefore, some have questioned whether cognitive moral development schema are indeed properties of the object itself (i.e. the person) or a theoretical construction to efficiently segment populations in a generalized fashion (Flavell 1982; Keil 1981).

Situational factors are defined as factors "particular to a time and place of observation, which do not follow from a knowledge of personal (intra-individual) and stimulus (choice alternative) that have demonstrable and systematic effect on current behavior" (Belk 1975). Many situational factors that influence organizational ethical behavior have been identified, including organizational rewards and sanctions, codes of conduct, types of conflict, opportunity for unethical behaviors, culture and climate, and competitiveness of the business or industry as factors that influence the ethical behavior of employees (Ford and Richardson 1994; Loe et al. 2000). However, few researchers have investigated the nature of technology-specific situational factors on ethical decision. Exceptions include the effects of computer literacy on ethical behavior

(Loch and Conger 1996) and enforcement and cost of software piracy (Moores and Chang 2006). Nevertheless, these factors are highly specific and only graze the surface of possible situational and technological effects in ethical IT decision-making.

Extending the EDM to include situation factors of the ethical dilemma, the Issue-Contingent Model (ICM) proposes strong situational factors that influence the ethical intentions and behaviors of individuals in a variety of scenarios (Jones 1991), and has become a dominant framework for understanding ethical decision-making in business (Haines et al. 2008). Jones identifies six situational characteristics involved in an ethical decision-making scenario, namely: (1) magnitude of consequences; (2) social consensus; (3) probability of effect; (4) temporal immediacy; (5) proximity; and (6) concentration of effect. The level of moral intensity increases monotonically, or in other words, an increase in one factor increases the overall level of moral intensity. The ICM situational factors, however, are largely dependent on the content of the ethical dilemma itself, and not on broad environmental factors such as normative pressures and resource constraints. As a derivative of the four-component model, the ICM theorizes that the sequential ethical decision-making model relationships are moderated by the above situational factors, specifically a subset of these that comprise the moral intensity construct, namely (1) probable magnitude of consequences, (2) proximity, and (3) social consequences.

Ross and Robertson (2003) further explore on the differential impact of situational factors over individual, dispositional factors. Situational variables may also be defined "as characteristics of the decision setting [versus characteristics of the decision-maker of the decision] that influences the decision-making process and outcome." (Ross and Robertson 2003). Situational factors are defined into four factors along two dimensions. The factors include: *universal factors* are defined as "factors in the decision-making environment that have a constant, on-going effect on the decision that the decision-maker focuses [e.g. organizations structure and culture]";

p*articular factors* "are specifically related to the decision under consideration [e.g. risks, likelihood of consequences, severity of consequences]"; *direct factors* "elicit ethical consideration, causing one or more alternatives to be considered in the decision process" (Ross and Robertson 2003); and *indirect factors* "[do] not elicit consideration of the alternative's ethics" (Ross and Robertson 2003).

Table 3. Two dimensions of situational factors for ethical decision-making

	Universal	Particular
Direct	Code of ethics Ethical climate	Who gets hurt How great is the harm
Indirect	Organizational structure Industry and company climate Control system and opportunity Performance pressure Conduct of referent others	Compensation Probability of getting caught

Categorizing situational factors in ethical decisions making is important for several reasons (Ross and Robertson 2003). First, by understanding the characteristics of specific categories of situational factors, we may better understand the pressures that direct decision-makers toward unethical behaviors, and therefore explore the policy and management decisions that help decision-makers respond to such pressures. Second, since situational factors are 'ubiquitous and diverse,' one may extrapolate the characteristics and effects of new and relatively unknown factors on decision-makers by assigning the factor *a priori* to a specific category. Several other practical benefits can be found as well. For example, researchers can more appropriately choose methodologies and levels of analysis appropriate to the category, e.g. firm level for universal factors, scenario-level for particular factors. In addition, managers may choose

to ‘legislate’ universal factors through the organization, and educate employee’s to make ‘good decision’ when faced with pressures from particular factors.

Many researchers IS researchers acknowledge the situationality of ethical IT dilemmas as well (Banerjee et al. 1998; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004). However, few researchers have investigated the nature of technology-specific situational factors on ethical decision *expressly and directly*. Exceptions include the effects of computer literacy on ethical behavior (Loch and Conger 1996) and enforcement and cost of software piracy (Moores and Chang 2006). This is of great importance to businesses and managers as “managers are less interested in individual dispositions than in situational factors because they can do little to alter dispositions [once hired]” (Ross and Robertson 2003). In fact, individual disposition such as cognitive moral development *slowly* evolve over time; the vast majority of development occurring during childhood and adolescence (Turiel 1983; Turiel et al. 1987), and secondarily through higher education and professional work experience (Rest 1986a; Rest et al. 2000a). Therefore, it is important to investigate how situational factors influence ethical behavior, particular how situational decision-making factors, specifically moral reasoning and judgments, shape our ethical IT intentions and behaviors.

Situational moral reasoning and judgments stem from these broad moral philosophies that have been defined in previous sections, and specifically include (1) deontological, (2) utilitarian, (3) relativist, (4) egoist, and (5) justice (McMahon and Harvey 2007; Reidenbach and Robin 1988; Reidenbach and Robin 1990). The *deontological dimension* consists of moral judgments relating to moral ‘rightness’ and violations of moral principles, such as fairness and social contracts. The *utilitarian dimension* consists of moral judgments relating to maximizing efficiency, pleasure, utility, and the ‘greatest good’ while minimizing cost and harm. The *relativist dimension* consists of moral judgments relating to the acceptability of actions by the

individual, other individual, family, culture, or tradition. The *egoist dimension* consists of moral judgments relating to selfishness, personal interests, and lack of moral obligation toward others. Finally, the *justice dimension* consists of moral judgments relating to perceptions of fairness, justice and results, or equal distribution of goods.

Table 4. Situational effects on ethical decision-making as organized by study

	Direct	**Indirect**
Particular	Situational Moral Reasoning (Study 1 & 2)	Technical Dimensions (Study 3)
Universal	Dispositional Moral Reasoning (Study 1 & 2)	

A well-established theory of ethical decision-making that incorporates the relative importance of individual disposition and situational factors can be found in Trevino's person-situation interactionist (PSI) model (Trevino 1986). The PSI model states that individual dispositions change how situational factors are perceived which, in turn, influences ethical decision-making (Ross and Robertson 2003). In other words, dispositional factors moderate the effects of situational factors on ethical decision-making; however, each factor maintains their direct effects on ethical behavior. This study explores the manner dispositional moral reasoning correlates with situational moral reasoning in ethical IT dilemmas. Consistent with the person-situation interactionist model, although individuals may be biased toward a particular line of moral reasoning *as defined by* the person's cognitive moral development, situational factors may direct the person toward particular ethical principles and moral reasoning. Individual, dispositional factors may be separated into several categories, including personality, demographic and developmental.

Research Design & Hypothesis Development

The basis for the research design is a combination of the theory of reasoned action (TRA) (Fishbein and Ajzen 1975), the theory of planned behavior (TPB) (Ajzen 1985; Ajzen 1991), and the four-component model of ethical decision making (Rest 1986b). Each of the component factors, moral recognition, moral judgments, attitude towards ethical behaviors, and personal normative beliefs, influences one's intention to behave ethically in a situation. Intention to behave ethically is commonly used in prior research as a surrogate to an individual's actual behavior in the scenario, and therefore ethical behavior is not explicitly shown in the model (Armitage and Christian 2004; Armitage and Conner 2001).

In the following sections, the original research model and relevant modifications are outlined. Throughout this discourse, hypotheses are developed based on the relevant literature. A summary of all hypotheses proposed in Study 1 may be found in Appendix X. The research model is based on previous research in IT ethics with several modifications, particularly situational moral judgments (Reidenbach and Robin 1988; Reidenbach and Robin 1990), moral recognition (Moores and Chang 2006; Reynolds 2006). The original research model (Figure 7) is as follows:

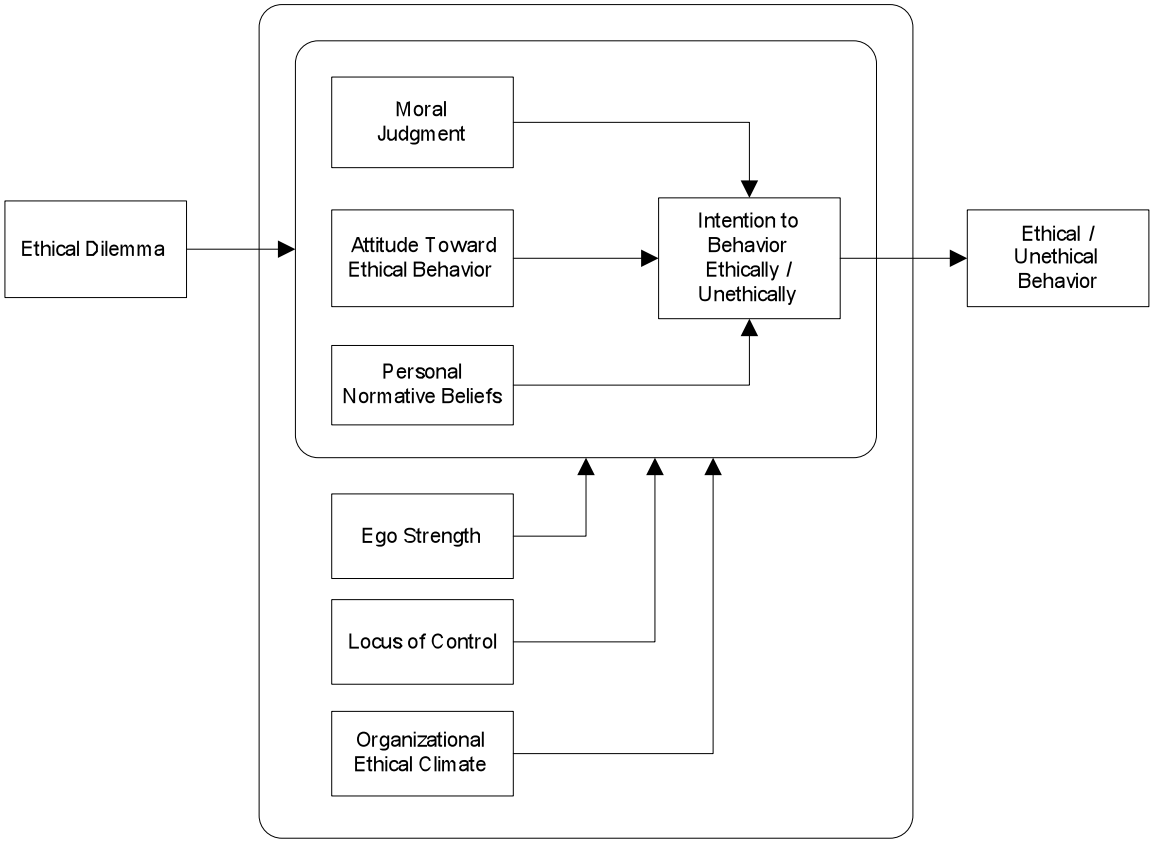

Figure 7. Research model on situational IT ethics

The model suggests that the *ethical IT dilemma* itself will have significant impact on moral judgment, attitude toward ethics behavior (i.e. moral attitudes) and personal normative beliefs. *Moral attitudes* and *moral judgments* both concern the individual's perception of ethical behaviors. *Moral attitudes* are the positive or negative impression an individual harbors toward a given ethical scenario (Haidt et al. 1993). *Moral judgments* are the individual's rationalization and justification, and corresponding conclusion whether a scenario is ethical or unethical (Banerjee et al. 1998; Rest 1986b). *Personal normative beliefs* are an individual's perception of the normative pressures that influence their decision in the context of ethical IT dilemmas (Ajzen 1985; Ajzen 1991; Banerjee et al. 1998). Moral attitudes, judgments, and personal normative beliefs each influence an individual's intention to behave ethically or unethically. However,

support for the effect of moral judgments and attitudes toward the ethical behavior (i.e. moral attitudes) is inconsistent. Preliminary studies of the ethical decision-making model in an IT context are non-significant (Banerjee et al. 1998), while subsequent studies directly addressing this problem[12] find support, albeit weak support, for the salience of moral attitudes and judgments on ethical IT intention and behavior (Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004). Personal normative belief, on the other hand, has been supported as a predictor of ethical behavior intentions across several studies (Banerjee et al. 1998; Leonard and Cronan 2001; Leonard et al. 2004).

Research Model and Design

The proposed research model is as follows. In the subsequent sections, each of the four research questions will be addressed by additions to the aforementioned EDM model. Hypotheses will be developed from previous literature supporting the possible theoretical relations described in the research model. The research model and hypothesis development is organized into four subsections consistent with the proposed research questions. The subsections are as follows: (1) dispositional moral judgments and individual level characteristics, (2) moral recognition, (3) moral attitude, and finally (4) situational moral judgments.

[12] A long stream of research follows this study addressing the non-significance of the results by expanding the sample size (Leonard and Cronan, 2001), and using different statistical methods (e.g. PLS) (Haines and Leonard, 2007b).

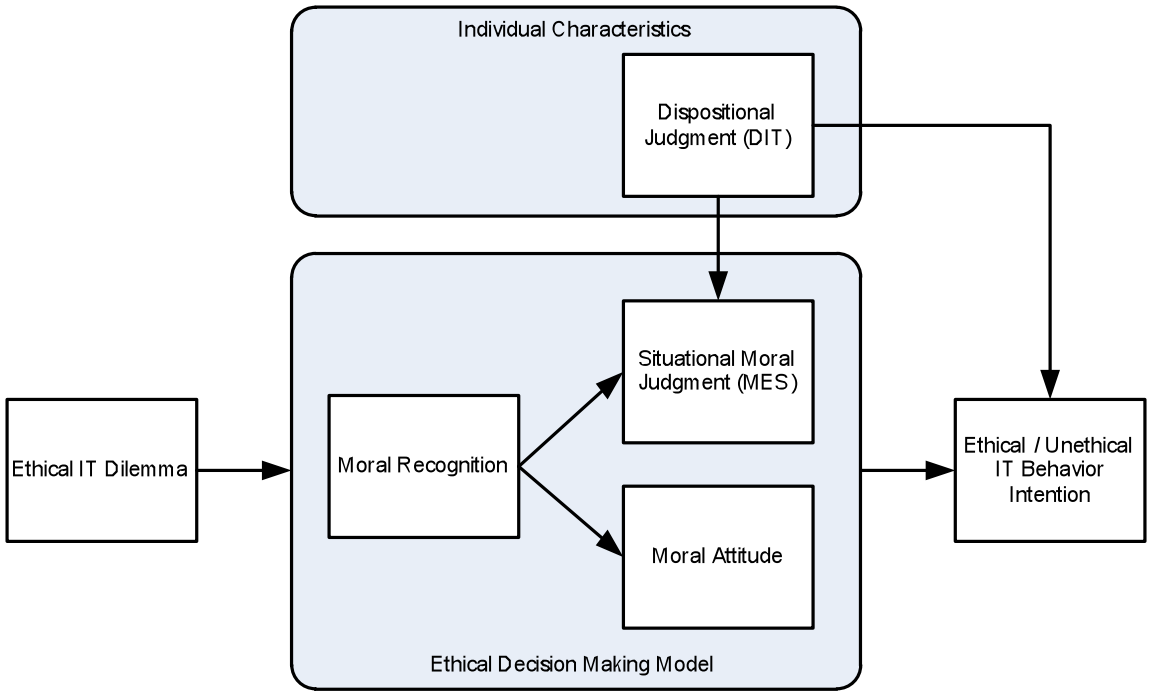

Figure 8. Research model for the effects of situational moral reasoning in an IT context

Moral Judgments on Ethical IT Behavior Intention

To operationalize the moral judgment construct for the research design effectively, it is critical to examine how moral judgments have been measured. Moral judgments have been measured using an individual-level dispositional scale measured by the Defining Issues Test (DIT) (Rest 1986b; Rest et al. 1974). The DIT results in three scores (P-score, D-score, and U-score) calculated from an individual's response of six different scenarios. Three types of assessments accompany each scenario: (1) whether the actor in the scenario should perform the action, (2) *rating* how important various statements about the scenario are to the decision, and (3) *ranking* the importance of each statement in relation to the other statements.

The *P-score* measures the "individual's stand with respect to principled morality" (Leonard et al. 2004). In other words, the P-score measures an individual's level of moral development, whether pre-conventional, conventional, or post-conventional, and is

operationalized by the percentage of response to post-conventional reasoning statements. The *D-score* measures the "individual's rating of specific questions with regard to their importance in defining the situation in the context of a particular ethical dilemma." The *U-score* measure "the degree to which moral judgments operate in determining a decision on a particular ethical dilemma." Therefore, although the P-score may determine the level or moral judgments the individuals operates, the moral reasoning determined by the P-score may not be a salient determinant of moral judgments, and the U-score determines the degree that moral reasoning is applicable in the ethical decision.

For reasons of measurement improvement including better psychometrics and length, the DIT has been updated to the DIT2 (Rest 1986a; Rest 1986b; Rest et al. 1999). While including the aforementioned measurement advantages, the DIT2 also has a stronger theoretical foundation and a strong correlation with the original DIT. With the updated DIT2 comes a new score or index measuring aspects of moral reasoning and judgments, specifically the N2 index. The N2 index accounts for the individual's preference for post-conventional moral schemas and subsequent rejection of personal interest schemas (Rest et al. 1999; Rest et al. 1997a). The N2 index incorporates new calculations that result in improved reliability, correlations with other moral constructs such as moral comprehension (Rest et al. 2000a; Rest et al. 1997a; Rest et al. 1997b). The N2 index represents a combination of the aforementioned P-score (a measure of individual disposition toward post-conventional moral thinking), and the "STAGE23" score (disposition toward pre-conventional moral reasoning, or the personal interest schema) and "STAGE4P" score (disposition toward conventional moral reasoning, or the maintaining norms schema)." Since the N2 index represents an individual's disposition towards post-conventional moral reasoning over pre-conventional moral reasoning (or favoring the post-conventional schema over the personal intent schema), the N2 index is expected to be associated with levels of

ethical IT behavior intention and more ethical decision outcomes (Banerjee et al. 1998; Rest et al. 1999; Rest et al. 1997a). Therefore, the following is hypothesized:

H1 *Higher levels of dispositional moral judgments (N2 score) will increase an individual's intention to engage in ethical IT behavior.*

Furthermore, dispositional moral judgments representing an individual level of cognitive moral development is expected to influence the *situational* moral judgments employed in a particular scenario. Individuals more predisposed towards higher levels of moral reasoning (such as the maintaining norms or post-conventional moral schemas) ought to be associated with some situational moral judgments, but disassociated with others. Based on the ethical philosophies supporting each dimension of situational moral reasoning, the N2 index will have varied effects (or lack of effects) on situational moral judgments directly. Therefore, this study hypothesizes the following:

H2 *Higher levels of dispositional moral judgments (N2 score) will be positively associated with deontological situational moral judgments.*

H3 *Higher levels of dispositional moral judgments (N2 score) will be unassociated with utilitarian situational moral judgments.*

H4 *Higher levels of dispositional moral judgments (N2 score) will be unassociated with relativist situational moral judgments.*

H5 *Higher levels of dispositional moral judgments (N2 score) will be negatively associated with egoist situational moral judgments.*

H6 *Higher levels of dispositional moral judgments (N2 score) will be positively associated with justice situational moral judgments.*

Moral Recognition

Some individuals may not be cognizant of the moral components of a particular ethical dilemma or scenario. Previous research has shown that the mere presence of IT in an ethical issue may cause confusion, changing the manner people make ethical decisions, and ultimately the ethical behavior of individuals (Loch and Conger 1996; Sproull and Kiesler 1991). The recognition of the situation as an important or critical ethical issues is important in the formation moral attitudes and judgments (Haines and Leonard 2007b; Leonard et al. 2004). Therefore, the moral awareness of people in each ethical situation must be considered when dealing with ethical decision-making in information technology. In a literature review of ethical decision-making literature, the authors acknowledge a lack of research relating awareness of ethical issues and codes of conduct to ethical behavior in organizations (Loe et al. 2000).

Moral recognition is the awareness that a person's decision or behavior will have consequences affecting the interests and welfare of the self or others (Reynolds 2006). Moral recognition has been measured by other researchers using a variety of different terms including moral sensitivity (Rest 1986b; Rest et al. 1974) and moral recognition (Moores and Chang 2006); however, each conceptualization shares common measures and a common theoretical basis: the awareness of important moral characteristics and consequences.

Reynolds (2006) found that different ethical predisposition (formalist and utilitarian) influenced the level of moral recognition of ethical situations. People who were predisposed to formalist ethics exhibited higher moral recognition than those predisposed to utilitarian ethics. These ethical predispositions reflect deep-seated moral reasoning dispositions; and therefore, the influence of ethical predispositions may be akin to that of moral judgments. Then, in other words, people who were more predisposed to higher levels of moral reasoning were more likely to be aware of salient moral characteristics and consequences, and therefore higher moral recognition.

In the context of ethical IT dilemmas, researchers have found mixed support for the effects of moral recognition on ethical decision-making, particularly moral judgments and attitudes. Other authors exploring the effects of perceived importance found significant effects on moral attitudes and judgments; however, the effects on moral attitudes and judgments varied significantly between scenarios (Haines and Leonard 2007b; Leonard et al. 2004) suggesting that moral recognition is context dependent. Finally, Moores and Chang (2006) explored the effects of moral recognition in the context of ethical decision-making on software piracy, finding no support for the effects of moral recognition on ethical decision-making. However, the authors explained the lack of support for moral recognition in the form of broad acceptance and support of software piracy by the sample population (college students).

H7 *Higher levels of moral recognition will increase an individual's moral attitudes toward an ethical IT dilemma.*

H8 *Higher levels of moral recognition will be positively associated with deontological situational moral judgments.*

H9 *Higher levels of moral recognition will be positively associated with utilitarian situational moral judgments.*

H10 *Higher levels of moral recognition will be negatively associated with relativist situational moral judgments.*

H11 *Higher levels of moral recognition will be negatively associated with egoist situational moral judgments.*

H12 *Higher levels of moral recognition will be positively associated with justice situational moral judgments.*

Moral Attitudes on Ethical IT Behavior Intention

Moral attitudes are the impression of salient characteristics of the ethical dilemma (Haidt et al. 1993). Moral attitudes are measured based upon a series of single-item questions involving

the action in the scenario… (Banerjee et al. 1998; Haidt et al. 1993). Attitudes can be a strong predictor of individual intentions and actions; however, *whether* attitudes are predictive and *how* predictive varies significantly across contexts and domains (Armitage and Conner 2001). Although early studies in IT ethics and ethical decision-making found no support for the effects of moral attitudes on ethical behavior intention (Banerjee et al. 1998), subsequent studies have using similar methods only with larger sample sizes (Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004). Each of these studies used a combined analysis of multiple scenarios, with many different situational factors including the type of issue, severity of issue, proximity of the action and consequences to the reader, etc. Some explanations for the inconsistent findings for moral attitudes, both within and outside the IT ethics domain, include lack of sample size and statistical power (Leonard and Cronan 2001; Leonard et al. 2004), lack of perceived importance (Haines and Leonard 2007b), and strong situational effects on moral attitudes and intentions (Banerjee et al. 1998; Haines and Leonard 2007b).

Despite the inconsistent findings within the IT ethics context, this study will remain consistent with previous TPB (Ajzen 1985; Ajzen 1989; Ajzen 1991; Armitage and Christian 2004; Armitage and Conner 2001) and IT ethics literature (Banerjee et al. 1998; Gattiker and Kelley 1999a; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004). Therefore, this study predicts that moral attitudes will significantly contribute to the formation of ethical IT behavior intentions *regardless* of the scenario in question. Therefore, a similar hypothesis is proposed:

H13 *Stronger moral attitudes toward the ethical dilemma will increase an individual's intention to behave ethically.*

Situational Moral Judgments

Moral judgments are the underlying moral principles and decision-making schemas used to rationalize and justify ethical or unethical behaviors. Common moral judgments include Kohlberg's stages of moral reasoning (Kohlberg 1984), Neo-Kohlbergian moral reasoning schemas (Rest et al. 2000a; Rest et al. 1999) and broad ethical philosophies such as egoism, utilitarianism, and justice, etc. (McMahon and Harvey 2007; Reidenbach and Robin 1988; Reidenbach and Robin 1990). Based on these aforementioned ethical philosophies that comprise our understanding of situational moral judgments, it is suggested that these situation-specific judgments have a strong impact on our intentions to behave ethically. Different behavioral intentions are predicted depending on the moral judgments arrived at by the individual considering the ethical IT dilemma.

H14 *Higher levels of deontological situational moral judgments will be positively associated with ethical IT behavior intentions.*

H15 *Higher levels of utilitarian situational moral judgments will be positively associated with ethical IT behavior intentions.*

H16 *Higher levels of relativist situational moral judgments will be positively associated with ethical IT behavior intentions.*

H17 *Higher levels of egoist situational moral judgments will be positively associated with ethical IT behavior intentions.*

H18 *Higher levels of justice situational moral judgments will be positively associated with ethical IT behavior intentions.*

Methodology

Organizational ethics research has used a variety of methodologies to explore ethical decision-making and behavior, including theoretical essays, to model building, to experimental

research using interviews, surveys, case studies, etc. (Collins 2000). Collins (2000) reports that while theoretical essays have been dominant in the business ethics literature, consistently accounting for over 50% of the methodologies between 1982 and 2000, survey methodologies has remained the second most common methodology (about 30 and 35%) and the most common experimental method. Other methods common in the business ethics literature include case studies, model building and interviews. However, despite the proliferation of survey research in the business and IT ethics research, some authors are critical of the overuse of survey research arguing that ethical discourse is too complex to fully operationalize ethical decision-making and other moral phenomenon and qualitative methods such as interviews, action research and other methods are more appropriate (Crane 1996; Lewis 1985). Nevertheless, previous research conducted in IT ethics has used survey methodologies containing scenarios depicting ethical dilemmas to elicit moral responses from participants (Banerjee et al. 1998; Gattiker and Kelley 1999a; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004; Parker 1988). Since this research seeks to continue and expand upon the tradition of ethical IT decision-making models, a survey approach is used wherein vignettes involving ethical IT dilemmas are accompanied by a set of questionnaires. Each vignette is followed by several questions concerning the moral recognition, moral domain, attitude, judgment and intention of the respondent. Following the scenario-based questions, the respondents will complete scenario-independent measures of the individual's cognitive moral development.

Sampling in IT Ethics Research

Before selecting an appropriate sample, we must consider the previous research in IT ethics using survey research to explore the effects of sample demographics, sample sizes, and the theoretical implications of each on relevant empirical findings. The vast majority of studies utilizing survey methodologies have used relatively large student populations (over 250

respondents, even more when multiple scenarios are accounted for) (Haines and Leonard 2007a; Haines and Leonard 2007b; Haines et al. 2008; Leonard and Cronan 2001; Leonard et al. 2004; Moores and Chang 2006). Similar studies have pulled from more appropriate, but not significantly different, populations of IT professionals (Banerjee et al. 1998; Banerjee and Jones 1996), finding few differences in ethical decision-making processes from subsequent studies. In many of these studies, the large sample size coupled with a equally large level of statistical confidence ($\alpha = 0.10$) resulted in the not-so-surprising broad support for the EDM model. Other studies particularly interested in differences between students and professional populations used a more diverse, stratified sample (Cappel and Windsor 1998; Paradice 1990; Paradice and Dejoie 1991). Other researchers used arguably more generalized sampling procedures by pulling from listserves, mailing lists, or other broad distribution media (Gattiker and Kelley 1995; Gattiker and Kelley 1999a), although one can argue that such environments may have disproportionally high levels of computer and information technology knowledge compared with a generalized population.

Student subjects have been found to be acceptable surrogates for business managers and decision makers particularly concerning psychological processes including ethical decision-making (Greenberg and Eskew 1993). Student populations have not significantly affected the generalizability of the findings of ethical decision-making research (Randall and Gibsom 1990). Wyld and Jones (1997) corroborated these assertions demonstrating no difference between student and managerial respondents. These findings are consistent with research on methodological issues between students and managers that find few differences when investigating cognitive processes, such as decision-making behavior, but significant differences when investigating actual behaviors using a predictive model (Greenberg and Eskew 1993). Concerning ethical differences between students and professionals in information systems, a high

correlations of attitudes toward ethical IT behaviors have been found concerning ethical and unethical behaviors in both normal and IT-related ethical issues (Paradice 1990; Paradice and Dejoie 1991).

Vignettes in Ethics and IT Ethics Research

Vignettes are a useful tool in creating sustained stimulus of a real-life decision-making environment, enabling the researcher to focus the respondent on important research-related factors, as opposed to factors impulsively read-into the abstract question (Alexander and Becker 1978). Vignettes are systematically elaborated descriptions of concrete situations used to create more valid and reliable measure responses than abstract questions, and allow the researcher to vary characteristics of the situation description systematically to analyze the effects of the respondent's judgments. More concretely, vignettes represent "short descriptions of a person of social situation which contain precise references to what are through to be the most important factors in the decision-making or judgment-making process of respondents" (Alexander and Becker 1978). To accommodate for a large number of dichotomous variables in vignettes, one can create a single vignette that correspondents to the scenario or environment at large, and then varying specific words and phrases to correspond to specific characteristics.

Previous research is plentiful with scenarios involving various IT issues (Banerjee et al. 1998; Gattiker and Kelley 1999a; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004; Moores and Chang 2006), including such issues as security, privacy, software piracy, viruses, hackers, etc. Banerjee and others (1998) distributed questionnaires to eight companies, were each questionnaire consisted of two of a total of five scenarios. In testing the structural model, the scenarios were aggregated regardless of the type of situation, with the exception of the *organization-scenario* control variable. The scenarios themselves ranged from a variety of topics, including the use of marketing data, electronic mail, voting machines, etc.;

however, the scenarios suffer from being overly long and complicated, which may explain why the authors only sent two or the five scenarios in the survey. Similarly, Leonard and others (2004) developed a questionnaire and used a survey methodology to replicate the Banerjee and others (1998) using a larger sample size, and exploring several other variables (such as perceived importance). The authors, however, used markedly different scenarios stemming from Dejoie and others (1991) and each respondent was given all five scenarios, as opposed to a small sample of them. The five scenarios included (1) a programmer hacking bank software, (2) receiving an extra software package with an order, (3) using company resources for a computer hobby, (4) using software without paying licensing fees, and (5) copying and using sensitive data for commercial use, and can be found in more detail in (Haines and Leonard 2007b). Scenario 1 (a programmer hacking bank software) and scenario 3 (using company resources for a computer hobby) will be slightly modified for this study.

Moores and Chang (2006) continues the tradition of using scenarios and survey methodologies in IT ethics research by exploring ethical decision-making with respect to software piracy in particular. However, unlike previous research that used a variety of scenario types, including hacking, privacy, etc., Moores and Chang focus on a single type of IT ethics: software piracy. By zeroing in on a specific scenario type, the researchers are afforded a more complete deconstruction of the salient situational factors in software piracy (availability, cost, and legality) each from two different perspectives (positive and negative viewpoints). The results, however, are difficult to capture due to the highly skewed perception of the survey respondents, as the vast majority of respondents, all being undergraduate students, considered software piracy an acceptable way to acquire computer software.

Scenario length limited to 50 to 100 words to reduce *response bias* due to scenario length (McMahon and Harvey 2006). In addition, to reduce the potential for social desirability response

bias, actors such as friends, coworkers, students, etc. were used instead of the participant specifically (Butterfield et al. 2000). Respondents choose the most ethically appropriate decision, and based on the decision judged various qualities (such as moral attitude, judgment, etc.).

Measures

Moral Attitudes

A single measure of *moral attitude* found in the IT ethics literature is used. The measure of moral attitude is operationalized by Banerjee and others (1998) and consists of three questions regarding the evaluation of the actor's behavior anchored on helpful / hurtful, good / bad, pleasant / unpleasant. The measure is similar to other measure of moral attitude (Haidt et al. 1993; Miller et al. 1990; Turiel et al. 1987) used in other IT ethics research (Gattiker and Kelley 1999a). However, the moral attitude measures utilized in Banerjee and others (1998) are more consistent with other bi-polar measures used in the study, particular the MES-10.

Since moral attitudes and judgments both act as behavioral beliefs that lead to the formation of behavior intention and action, one may deduce that moral attitudes and judgments are similar or at least highly correlated. However, as Rest (1986b) found in controlled experiments of moral actions, moral attitudes were not significantly correlated with moral judgments, although each contributed to the formation of ethical behavior intentions.

Moral Judgments and Reasoning

To differentiate between situational moral judgments (those dependent on the situation) we refer to the moral reasoning capabilities as measured by the DIT/DIT2 as dispositional moral judgments (those independent of the situation). Dispositional moral reasoning is measured through the Defining Issues Test (DIT/DIT2) (Rest et al. 1974; Rest et al. 2000a; Rest et al. 1999), while situational moral reasoning is measured through the Multi-dimensional Ethics Scale

(MES) (Flory et al. 1993a; Flory et al. 1993b; Reidenbach and Robin 1988; Reidenbach and Robin 1990).

The DIT has a staggering long tradition in measuring moral reasoning capabilities and dispositional moral judgments (Kohlberg 1984; Rest 1986b; Rest et al. 1974; Rest and Narvaez 1994). The DIT measures an individual's moral judgments, producing three scores: P-score, D-score, and U-score.[13] Previous research has used a combination of P-score and D-score to assess an overall measure of an individual's moral judgment and ethical behavior under various circumstances (Banerjee et al. 1998). The P-score measures the "individual's stand with respect to principled morality." The D-score measures the "individual's rating of specific questions with regard to their importance in defining the situation in the context of a particular ethical dilemma." Finally, the U-score measure "the degree to which moral judgments operate in determining a decision on a particular ethical dilemma." Subsequent measurement analysis has resulted in an updated version of the DIT, aptly name the Definition Issues Test 2 (DIT2) (Rest et al. 2000a; Rest et al. 1999). The DIT2 has also been used in many current studies (Haines and Leonard 2007b; Hren et al. 2006; Rest et al. 1999), and with the extensive validation and construction procedures (Rest et al. 2000a; 1999) the more advanced DIT2 will be used in this study. The DIT2 consists of a small battery of five scenarios where respondents first rank-order 10-12 statements relating to moral reasoning characteristics in the scenarios. The respondent's level of moral reasoning capabilities are assessed based on the rank of individual moral statements across all of the five scenarios.

In choosing a distribution method for the survey instrument, and the DIT2 in particular, no significant differences have been found between administering the DIT2 online versus pen-and-paper (Xu et al. 2007). The composite reliabilities and discriminant validity of the pen-and-

[13] Each of the individual scores has been defined in the previous chapter.

paper and online versions of the DIT2 had no significant differences attributable to the method of test taking. In addition, no differences were found between either version in regards to the student's satisfaction and ease of use. The only reported difference between the two tests was some variability in terms of per-item difficulty.

The DIT2 suffers from issues of non-contextuality; in other words, moral reasoning is measured as an individual, trait-based construct, and not a trait- and state-based construct. Each of the three resultant scores, P, U, and N (DIT2 only), are measured using a single questionnaire. Although the measure consists of different scenarios and items whose responses correlate with each schema of moral reasoning, the specific moral reasoning or schema used by the individual is not influenced by the salient, context-specific characteristics of the researcher's interest. The context-specific scenarios, in this case, have characteristics that embody the IT domain and the three domains of morality. Therefore, DIT2 is unable to capture the effects of salient, context-specific characteristics on the stage or schema of moral reasoning used by the individual, and thusly the subsequent moral attitudes and judgments these characteristics may elicit.

The Multidimensional Ethics Scale (MES) is "situation-specific, temporal, and process-oriented," whereas the DIT (and DIT2) is "general (not situation-specific), enduring, and trait-oriented" (Flory, et al 1993). A situation-specific instrument, the Multi-dimensional Ethics Scale (MES), accesses the application of different normative ethical philosophies (Brady and Wheeler 1996; Flory et al. 1993b; McMahon and Harvey 2007; Reidenbach and Robin 1988; Reidenbach and Robin 1990). Traditionally, the evaluation of ethical issues by individuals has been measured through a single-item scale judging the degree to which the individual considered the issue ethical or unethical (Reidenbach and Robin 1990). Such evaluations used Likert scales anchored on "very ethical" and "very unethical." The single-item scale used to evaluate ethical issues is known as the Single-dimensional Ethics Scale (SES), as it only measures ethicalness in terms of a

single dimension (ethical-unethical). In response, Reidenbach and Robin (1988; Reidenbach and Robin 1990) develop the Multi-dimensional Ethics Scale (MES) that evaluates an ethical situation using several dimensions of ethical reasoning and judgment. The original measure weighed-in at a lofty 33-items (Reidenbach and Robin 1988). Using a factor analysis of the original 33-item measure across 54 scenarios (three versions of 18 unique scenarios), the MES was scaled down to only 10 items (Reidenbach and Robin 1990) with no significant loss of explanatory power (Jones 1991; McMahon and Harvey 2007). Barnett (2001) tested and validated MES with moral intensity as an antecedent, demonstrating that not only was moral intensity (a common antecedent for moral judgment and moral reasoning constructs) a significant predictor of moral judgments, but also that the MES measure demonstrated sufficient reliability and construct validity.

Since no single ethical principle can adequately explain the moral reasoning used in the formation of moral judgments (Reidenbach and Robin 1990), the MES may be more appropriate to measure moral judgments and reasoning as it takes into account the situational variables that influence ethical decision-making and the multi-faceted application of moral principles to even a single situation. In other words, although the scales measure the same theoretical construct (moral reasoning), the two measures have sufficient discriminant validity to suggest that under specific scenarios individuals may employ different, situation-specific moral reasoning (as measured by the MES) that conflicts with their general moral reasoning disposition (as measured by the DIT2). Since the DIT2 represents the individual's *disposition* to particular moral reasoning capacities, one could suspect that the *dispositional* moral reasoning capacity of an individual would influence the *situational-specific* moral reasoning employed in a particular scenario, even though the two moral reasoning capacities may be different or even in conflict.

Analysis and Results

The results of the study were analyzed using a combination of SPSS 17.0 and SmartPLS 2.0 M3 (Ringle et al. 2005). SPSS 17.0 is used primarily to determine descriptive statistics (mean, standard deviation, skewness, etc.), construct reliability, factory analyses, and Pearson correlation matrices. Smart PLS 2.0 M3 is primarily used to assess the average variance explained, composite reliability, and most importantly the structural models path coefficients and significance tests. Significance of path coefficients were tested using the bootstrap sampling technique (500 subsamples) as used in similar ethical-decision making studies (Haines and Leonard 2007a; Haines and Leonard 2007b) and as recommended by other authors (Marcoulides et al. 2009; Marcoulides and Saunders 2006).

Construct Reliability

Reliability is an assessment of the internal consistency of construct items *within* a particular construct, testing whether the items "move" in the same direction and are therefore highly correlated (Nunnally 1967). Reliability as a measure of internal consistency also determines how certain the researcher is about the responses and the effects of those responses. The statistical comparisons and tests involving construct measures with low reliability scores (such as those with Cronbach's alpha below 0.7) are highly suspect since the research is unable to determine whether an effect or lack of effect is attributable to *actual* effects, or simply poor internal consistency. Suitable reliabilities scores differ significantly based on the purpose of the study and current development of measures (Bearden et al. 1993; Nunnally 1967; Yi and Davis 2003). Cronbach's alpha of 0.6 or more is sufficient for measurement development, while 0.7 or more is suitable for exploratory studies. However, if construct measures are mature and well defined, or the study is confirmatory in nature, higher reliabilities are necessary. For confirmatory studies, reliability scores of 0.8 or higher are expected, whereas if the study were to be used for

decision-making purposes, reliabilities of 0.9 or 0.95 are expected. Respondents assessed many of the constructs, such as moral recognition, attitude, situational moral reasoning, etc. across multiple vignettes. For these constructs, each vignette response was considered in the assessment of construct reliability (and other measures of reliability and validity for that matter).

The reliability for the N2 Score is computed by calculating the Cronbach's alpha for the calculated N2 scores for each of the five stories (Bebeau and Thoma 2003). The N2 score for each story is determined by comparing the decision with the weighted rank of each statement; where statements consistent with the decision are heavily contribute to the N2 score, while irrelevant or contrary statements lower the N2 score for each story.

Table 5. Construct means, standard deviations, and reliabilities

Construct	Mean	SD	α	α std	CR
Moral Recognition	9.018	4.418	0.947	0.947	0.931
Moral Attitude	10.606	2.884	0.888	0.889	0.955
Moral Reasoning - Deontological	7.600	2.083	0.849	0.851	0.931
Moral Reasoning - Utilitarian	7.670	1.898	0.871	0.871	0.940
Moral Reasoning - Relativism	7.332	4.421	0.835	0.835	0.923
Moral Reasoning - Egoism	6.857	1.652	0.011	0.011	0.444
Moral Reasoning - Justice	4.230	2.057	0.920	0.920	0.962
Ethical Behavior Intent	7.976	2.216	0.934	0.934	0.968

For the purposes of this study, a reliability of 0.8 is deemed sufficient given that all measures considered above have undergone significant measurement development, and have achieved similar reliabilities in other studies. Table 5 outlines the construct reliabilities (along with the means and standard deviations of composite scores) of all major latent constructs for the current study. All latent construct measures, with two exceptions, surpass the 0.8 alpha standard set forth. On average, the latent constructs associated with situational moral reasoning are slightly lower than other constructs since these constructs only consist of two measurement items.

Based on this calculation, the Cronbach's alpha for the DIT2 instrument in this study is very low *($\alpha = 0.38, n = 321$)*, which is considerably lower than demonstrated reliabilities for the DIT *($0.78 < \alpha < 0.82$)* (Rest et al. 1999) and much lower for the DIT instrument in similar studies *($\alpha = 0.81, n = 192$)* (Bebeau and Thoma 2003; Rest et al. 1999). The reliability is negatively affected by the homogeneity of the sample, since the sample did not consist of the entire range of age and education groups (junior high through graduate students). However, similar studies report that the absence of such age and education groups, the loss in reliability only accounts for a 0.1 decrease. Furthermore, other studies have evaluated the difference between online and pen-and-paper versions of the DIT2 instrument concluding that there is no loss of reliability or validity based on delivery mode (Xu et al. 2007). The administrators of the DIT2 at the Center for the Study of Ethical Development cautioned that the N2 scores were quite low for the age and education levels of the sample demographic; and furthermore, that these low N2 scores may be attributed to measurement error and poor implementation. However, the implementation of the instrument online was double-checked against a sanctioned online version from which it was drawn verbatim, and further double-checked during the analysis of the pilot study. In addition, several colleagues reviewed the consistency between online versions prior to the final data collection.

The *dismal* reliability of the egoism construct is unsettling *($\alpha = 0.011, n = 321$)*. Measurement pretests in the pilot study revealed similarly low reliabilities for this latent construct. Despite improvements to the measurement items to improve reliability, such as wording improvements and non-reversed coded items, reliability did not improve. This suggests that either (a) the egoism construct is unintelligible in the current context or in light of these particular scenarios (an assessment of egoism reliability within scenarios revealed low but different reliabilities for each scenario), (b) the egoism construct represents facets of two *other*

constructs given that the two items are essentially uncorrelated, or (c) respondents did not differentiate between the egoism and other constructs in the instrument. In either case, all results from the egoism construct ought to be considered highly suspect.

Convergent and Discriminant Validity

Convergent validity occurs when reflective items within the same construct are highly correlated in *the presence of* other reflective items from other constructs (Campbell and Fiske 1959). Discriminant validity is the compliment of convergent validity, and ensures that if measurement items from other latent constructs are included in another latent construct that those measurement items *do not* move in the same direction, or do not highly correlate (Campbell and Fiske 1959). Convergent and discriminant validity differs from reliability insofar as reliability is concerned with internal consistency between items *within construct* whereas convergent validity is concerned with internal consistency *between constructs*. Convergent/discriminant validity is assessed in several ways. Assessing convergent validity through factor analysis can be accomplished by ensuring the factory loadings of construct items are loaded on the same factor, and not cross-loaded with other factors. Recommendations for assessing factor analysis differ substantially. Shorthand cut-offs consider factor loadings of 0.5 or great sufficient, whereas cross-loadings of 0.3 or more are troublesome. Alternatively, convergent validity can be assessed by comparing the relative different of factor loadings on cross-loadings, where the different of factor loadings for construct items should be *at least* 0.3 greater than the cross-loadings of the same item on other factors.

In PLS structural modeling, convergent and discriminant validity is assessed in two ways. First, convergent and discriminant validity is assessed by comparing the loading of measurement items assigned to a latent construct to the loadings of all other measurement items on that construct (Gefen and Straub 2005; Gefen et al. 2000). If the loadings of measurement items for

the assigned latent construct are greater than one order of magnitude than the loadings of other constructs. This is essentially the same as assessing the convergent and discriminant validity in factor analysis using other modeling techniques. Investigating the cross-loadings between measurement items and latent constructs in Table 6, we find that the factor loadings of assigned measurement items satisfy standards for convergent validity using PLS, specifically the factor loadings are all *at least* one order of magnitude larger than other cross-loadings. Some measurement items cross-loadings are quite high (greater than 0.7), which is evident between situational moral reasoning constructs, particularly deontological and justice.

Second, discriminant validity is assessed by comparing the square roots of average variance extracted (SAVE) of each construct with the correlations between the construct and all other constructs in the model. Discriminant validity is confirmed when all SAVEs (shown in the diagonal) are greater than the values of the correlations between the construct and all other constructs (Chin 1998; Chin et al. 2003). A more stringent test of discriminant validity is to compare the cross-correlations between constructs with the AVE instead of the SAVE (Gefen et al. 2000). The Pearson correlation matrix in Table 7 reveals significant cross-correlations between ethical decision-making constructs such as moral recognition, attitude, situational judgments, and ethical behavior intention. However, since the SAVE along the diagonal is larger than any of the cross-correlations between the latent construct and any other construct, the measurement model does not appear to have any significant issues with convergent or discriminant validity between constructs.

Table 6. Measurement indicators, cross-loadings for convergent and discriminant validity

Measurement Items Cross-Loadings for Convergent/Discriminant Validity								
Indicator	**MA**	**MR**	**SMRD**	**SMRU**	**SMRR**	**SMRE**	**SMRJ**	**BI**
MA_01	**0.918**	0.309	0.533	0.608	0.539	0.396	0.530	0.517
MA_02	**0.878**	0.247	0.494	0.532	0.502	0.399	0.519	0.405
MA_03	**0.916**	0.281	0.521	0.619	0.534	0.405	0.561	0.474
MR_01	0.244	**0.914**	0.214	0.283	0.300	0.122	0.211	0.347
MR_02	0.259	**0.916**	0.245	0.294	0.322	0.160	0.249	0.358
MR_03	0.329	**0.929**	0.286	0.376	0.368	0.161	0.293	0.425
MR_04	0.297	**0.913**	0.278	0.319	0.352	0.153	0.272	0.378
SMR_01	0.546	0.240	**0.930**	0.635	0.661	0.641	0.746	0.489
SMR_02	0.521	0.285	**0.936**	0.636	0.677	0.663	0.774	0.490
SMR_03	0.627	0.317	0.670	**0.942**	0.719	0.501	0.682	0.608
SMR_04	0.599	0.342	0.612	**0.940**	0.708	0.466	0.649	0.582
SMR_05	0.487	0.292	0.626	0.649	**0.907**	0.537	0.642	0.514
SMR_06	0.580	0.380	0.696	0.746	**0.944**	0.555	0.699	0.649
SMR_07	0.444	0.168	0.701	0.523	0.592	**0.994**	0.715	0.386
SMR_08	-0.001	0.033	-0.023	0.063	-0.006	**-0.101**	0.045	-0.063
SMR_09	0.573	0.256	0.786	0.669	0.686	0.683	**0.960**	0.501
SMR_10	0.569	0.287	0.782	0.691	0.712	0.677	**0.965**	0.525
BI_01	0.515	0.396	0.504	0.624	0.627	0.380	0.513	**0.970**
BI_02	0.490	0.405	0.513	0.600	0.603	0.378	0.520	**0.967**

Table 7. Pearson correlation matrix with SAVE to assess convergent and discriminant validity

Pearson Correlation Matrix with Cronbach's Alpha and Composite Reliability												
Construct		**α**	**CR**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
MA	1	0.89	0.93	**0.90**								
MR	2	0.84	0.96	0.32	**0.92**							
SMRD	3	0.87	0.93	0.57	0.31	**0.93**						
SMRU	4	0.89	0.94	0.65	0.37	0.68	**0.94**					
SMRR	5	0.87	0.92	0.58	0.39	0.72	0.78	**0.93**				
SMRE	6	0.50	0.44	0.30	0.14	0.45	0.36	0.39	**0.71**			
SMRJ	7	0.93	0.96	0.59	0.30	0.82	0.71	0.73	0.51	**0.96**		
BI	8	0.94	0.97	0.52	0.44	0.53	0.63	0.63	0.21	0.53	**0.97**	
N2SCORE	9	n/a	n/a	-0.05	0.06	-0.04	-0.01	-0.01	0.00	-0.03	-0.02	**1.00**

Sample Issues and Control Variables

In order to determine whether there are any systematic confounding effects of control variables that underscores a difference within the sample between a set of demographics, a series of analysis of variance (ANOVA) procedures were performed using the primary dependent variable: ethical IT behavior intention. The demographics for the sample used as control variables in this analysis include: gender, age, education, number of IT courses, programming experience and employment status (see Table 8 for distribution). Despite the skewed distribution in some instances (such as age, education, and the number of IT courses), the ANOVA results should no significant differences between the demographic groups listed in Table 8.

Table 8. Sample demographics

Demographic	Category	Frequency (n)	Percentage
Gender	Male	117	36.4%
	Female	204	63.6%
Age	18-25	173	53.9%
	26-35	79	24.6%
	36-45	39	12.1%
	46-55	21	6.5%
	55+	9	2.8%
Education	High School	5	1.6%
	Some College	172	53.6%
	Bachelors'	77	24.0%
	Master's	58	18.1%
	Doctorate	9	2.8%
IT Courses	1-2	206	64.2%
	3-5	65	20.2%
	6-10	15	4.7%
	10 or more	17	5.3%
	None	18	5.6%
Programming Experience	Much experience	42	13.1%
	Experienced	132	41.1%
	Some experience	116	36.1%
	Little experience	28	8.7%
	No experience	3	0.9%
Employment Status	Full-time employee	63	19.6%
	Part-time employee	50	15.6%
	Self-employed	7	2.2%
	Student	196	61.1%
	Other	5	1.6%

Structural Model

Hypothesis H1 states that dispositional moral reasoning (or cognitive moral development as measured through the DIT2 N2-score) will be positively associated with ethical behavior intention. N2-score represents the propensity of individuals to favor post-conventional moral reasoning over pre-conventional, or personal intent, moral reasoning. Based on Table 9, we find a negative but insignificant association *($\beta = -0.025$, $p < 0.463$)* of the N2 score with ethical behavior intention, therefore rejecting H1. The other calculated scores associated with the DIT2 are also included in Table 9, but corroborate the insignificant effects of dispositional moral reasoning on ethical IT behavior intention.

Table 9. Effects of dispositional moral reasoning scores on ethical behavior intention

Path			β	T-Stat	P-Value [1]
n/a	Stage 2/3	Ethical Behavior Intent	-0.048	1.233	0.218
n/a	Stage 4	Ethical Behavior Intent	-0.050	1.303	0.193
n/a	P-Score	Ethical Behavior Intent	-0.001	0.027	0.978
H1	N2-Score	Ethical Behavior Intent	-0.025	0.735	0.463

*(1) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Hypotheses H2 through H5 states that dispositional moral reasoning also influences ethical behavior intention indirectly through situational moral judgments (deontological, utilitarian, etc.), or our disposition toward a schema of moral reasoning drives out situational application of moral reasoning. Based on Table 9 and Figure 9, dispositional moral judgments have no significant effect on any form of situational moral reasoning. Therefore, hypothesis H2 through H5 is unsupported.

Table 10. Effects of dispositional moral reasoning scores on situational moral reasoning

Path			β	T-Stat	P-Value
H2	N2-Score	Deontological	-0.026	0.781	0.435
H3	N2-Score	Utilitarian	0.008	0.259	0.796
H4	N2-Score	Relativist	0.010	0.316	0.752
H5	N2-Score	Egoism	-0.017	0.486	0.627
H6	N2-Score	Justice	-0.007	0.209	0.835

** p < 0.05; ** p < 0.01; *** p < 0.001*

Hypotheses H7 through H12 concern the relative effects of moral recognition on the rest of the ethical decision-making model, specifically moral attitudes and situational moral reasoning (see Table 11). H7 states that higher levels of moral recognition will be related to higher levels of moral attitudes, which is strongly supported by the structural analysis *($\beta = 0.311$, $p < 0.000$)*. H8 states that higher levels of moral recognition will be associated with higher levels of deontological situational judgments, which shows significant evidence of a strong effect *($\beta = 0.282$, $p < 0.000$)*. Similarly, H9 states that higher levels of moral recognition will be associated with higher levels of utilitarian situational judgments, with substantial evidence support a strong effect on utilitarian moral judgments *($\beta = 0.350$, $p < 0.000$)*. H10 similarly states that higher levels moral recognition will be associated with higher levels of relativist situational judgments, showing again substantial evidence of a strong effect *($\beta = 0.368$, $p < 0.000$)*. Hypothesis H11, on the other hand, states that higher levels of moral recognition will be related to *lower* levels of egoist moral judgments, or moral recognition on egoism will be negatively associated. Although the effects of recognition on egoism are indeed a strongly supported relationship *($\beta = 0.164$, $p < 0.000$)*; however, H11 must be rejected since the relationship between moral recognition on egoism and relativism is positively correlated, not negatively correlated as expected. H12 is strongly supported for the effects of moral recognition on justice situational moral reasoning *($\beta =$*

0.282, p < 0.000). Overall, the effects of moral recognition are significant and broadly well supported on various dimensions of situational moral reasoning.

Table 11. Effects of moral recognition on attitude and situational moral reasoning

Path			β	T-Stat	P-Value	
H7	Recognition	Attitude	0.311	9.209	0.000	***
H8	Recognition	Deontological	0.282	8.303	0.000	***
H9	Recognition	Utilitarian	0.350	10.499	0.000	***
H10	Recognition	Relativist	0.368	11.185	0.000	***
H11	Recognition	Egoism	0.164	4.835	0.000	
H12	Recognition	Justice	0.282	8.480	0.000	***

** p < 0.05; ** p < 0.01; *** p < 0.001*

Hypothesis H13 states that high levels of moral attitudes (impressions of an action being "bad" or "hurtful") will be positively associated with ethical behavior intention (refer to Table 12 and Figure 10). The effect of moral attitude on ethical behavior intention is moderately strong *(β = 0.311)* and well supported by the model *(p < 0.000).* These results are unsurprising as they are well established in recent IT ethics literature (Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004).

Table 12. Effects of moral attitude, situational moral reasoning on behavior intention

Path			β	T-Stat	P-Value	
H13	Attitude	Ethical Behavior Intent	0.133	4.259	0.000	***
H14	Deontological	Ethical Behavior Intent	0.041	0.753	0.452	
H15	Utilitarian	Ethical Behavior Intent	0.272	5.824	0.000	***
H16	Relativist	Ethical Behavior Intent	0.340	6.853	0.000	***
H17	Egoism	Ethical Behavior Intent	-0.046	1.169	0.243	
H18	Justice	Ethical Behavior Intent	0.015	0.301	0.763	

** p < 0.05; ** p < 0.01; *** p < 0.001*

Hypotheses H14 through H18 concern the effects of situational moral reasoning on ethical behavior intention. Since, in the current model, the scenarios are combined into a single model, we are presently unable to ascertain precisely which ethical philosophy is being employed as the primary mode of moral reasoning. However, this model provides the most generalized view of ethical philosophies commonly applied *across multiple* ethical IT dilemmas. In other words, well supported situational moral reasoning constructs are employed by people across a wide range of scenarios, whereas unsupported situational moral reasoning effects suggest that these ethical philosophies are selectively applied to a handful of ethical IT dilemmas. Hypothesis H14 states that deontological moral judgments will increase ethical IT behavior intentions. Based on the Table 12, H14 is unsupported as there is no evidence of an effect of deontological moral judgments on ethical IT intentions. Hypothesis H15 states that utilitarian moral judgments will have a positive effect on ethical IT behavior intention, and the results show substantial evidence supporting this hypothesis *($\beta = 0.272$, $p < 0.000$)*. Hypothesis H16 states that relativistic moral judgments will have a positive effect on ethical IT behavior intention, and the results show substantial evidence supporting this hypothesis *($\beta = 0.340$, $p < 0.000$)*. Hypothesis H17 states that the egoist will have *negative* effect on ethical IT behavior intention. Given that the effects of egoist moral judgments are weak and non-significant *($\beta = -0.046$, $p < 0.243$)*, H17 is therefore

unsupported. Finally, hypothesis H18 suggests that justice moral judgments will increase ethical IT intentions, which the results suggest is unsupported as there is no evidence of this effect *(β = 0.015, $p < 0.763$)*.

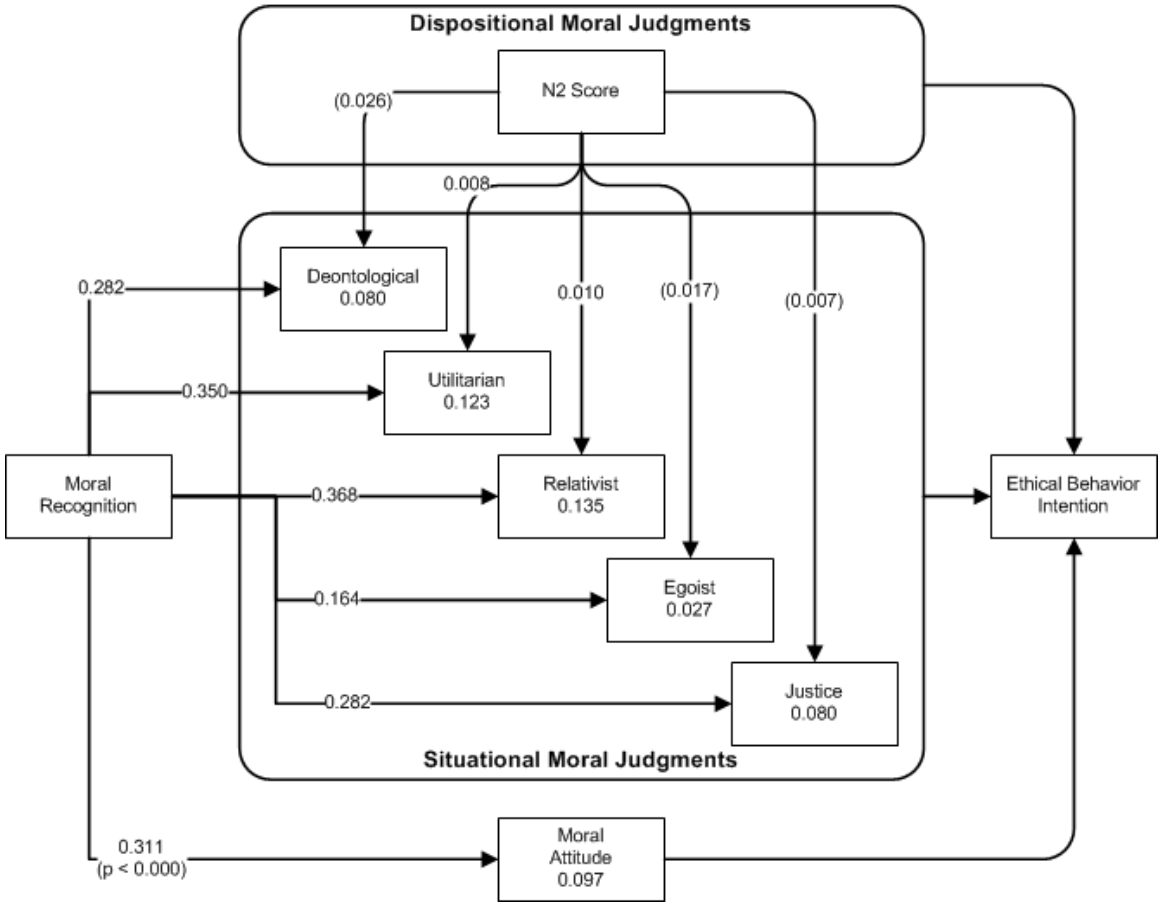

Figure 9. Effects of moral recognition on moral attitudes, situational and dispositional moral reasoning

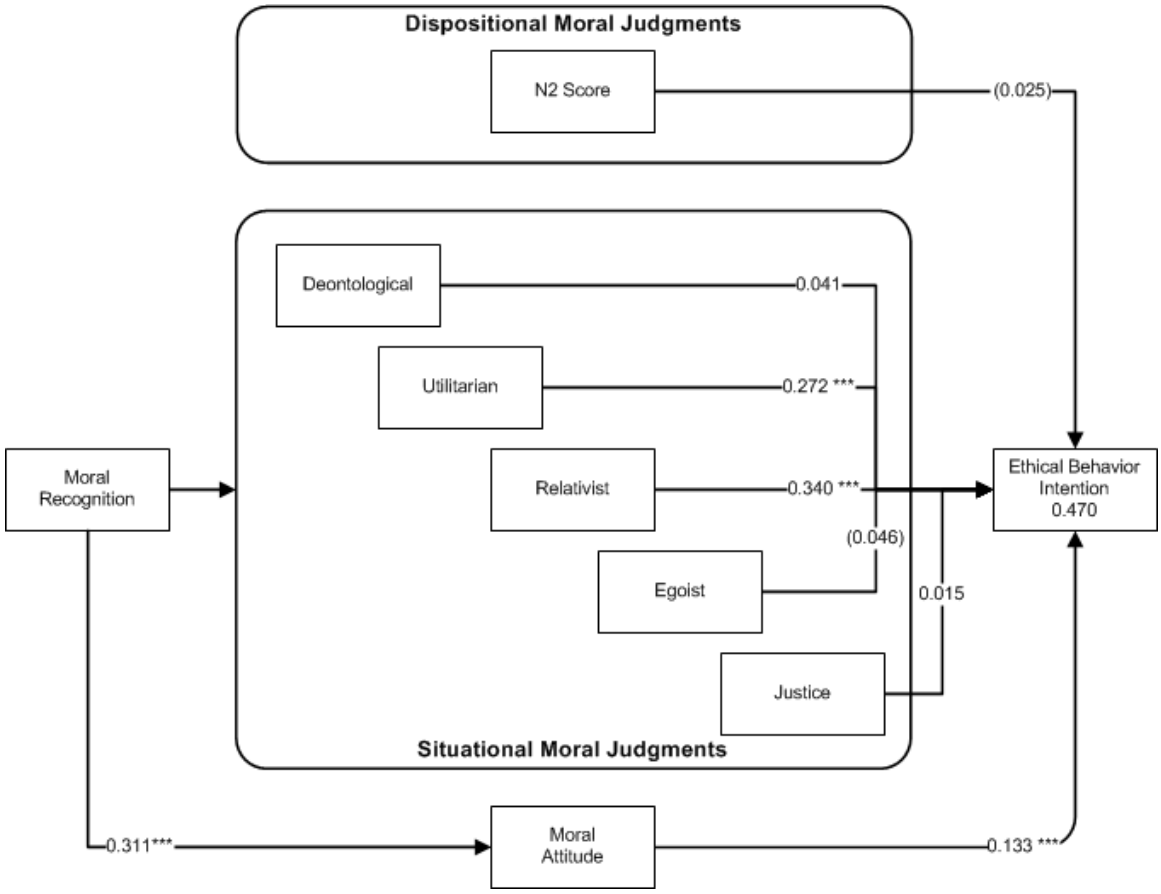

Figure 10. Effects of moral attitude, dispositional and situational moral judgments on ethical behavior intention

Discussion and Conclusions

The *highly* unexpected rejection of H1 has many potential implications, but some plausible explanations. First, the rejection of H1 would suggest that within the context of ethical IT decision-making, dispositional moral reasoning and cognitive moral development have little or no effect on the ethical intentions (and by extension behaviors) of individuals when faced with ethical IT dilemmas. This implication would highly support either (a) information technology is a unique domain that current theories of moral development are unable to account for at the individual level, or (b) the significant variation in the character of the ethical IT dilemmas in

terms of moral recognition, attitude, intensity, etc. clouds a *situational or contextual* relationship between cognitive moral development and ethical behavior intentions. The first consideration cannot be addressed until specific dimensions of the technology itself are taking into account in the third study. The second consideration as to be addressed in the second study, on the other hand, may be entertained at this point. By creating a set of scenarios that engender a broad range of moral judgments, attitudes and intentions, the survey experiment creates a large variation of ethical behavior intentions by cognitive moral development is compared. Without isolating the situational and contextual effects of the ethical IT dilemma, the effects of cognitive moral development on ethical behavior intention cannot be fully ascertained. In other words, cognitive moral development only becomes salient as a predictor of ethical IT intention and behavior under particular situations and contexts, and those situations and contexts are framed and filtered through internal, implicit heuristics. As conjectured in the following study, the domain theory of moral development (Gattiker and Kelley 1999a; Glassman and Zan 1995; Turiel 1983; Turiel et al. 1987) informs the development and application of such moral heuristics, and how the effects of cognitive moral development on ethical decision-making is highly situational and contextual.

The negligible and insignificant effects of dispositional moral judgments on situational moral judgments are also surprising and unexpected; however, several explanations are applicable. First, the significant variation of moral character and intensity of the scenarios contribute to the volatility of situational moral judgments used. This volatility in situational moral judgments not only affects the relationships between individual moral judgments (deontological, utilitarian, etc.) but also the effects of dispositional moral judgments *on* situational moral judgments, as only a few moral judgments (relativist and utilitarian) are salient across all scenarios and all moral judgments have significant variance when all scenarios are considers. Second, moral attitude, moral judgments, moral intensity and other measures of situational moral

reasoning (including the MES) are likely not only to vary between people, but vary significantly for individual people between times and contexts (Robin et al. 1996).Nevertheless, these results taken together imply that *dispositional* moral judgments do not direct our *situational* moral judgments consistently across ethical IT dilemmas. This implication is inconsistent with previous models on situational factors in ethical decision-making, specifically the person-situation interactionist model (Trevino 1986). However, this does not imply there are no dispositional effects on situational moral judgments, especially in light of the *unexpectedly low reliability* of the N2 score. Instead, the scenario may engender particular situational moral judgments consistent with an individual's dispositional moral reasoning.

The unexpected effect of egoism is likely related to the poor reliability of the measurement items on the latent construct, whereas the significance of the effects attributed to the considerable sample size. The results for the effects on relativism is surprising, but may be explained by moral consistency and social desirability. Moral consistency is the concept that people maintain consistency moral thought, feeling, and action across a variety of different scenarios, and those people with higher levels of cognitive moral development actually have lower moral consistencies, and vice versa. A person's relativism score will only likely deviate from other forms of situational moral reasoning, particularly deontological and utilitarian, only in instances of *low moral consistency*, which in turn is often associated with higher levels of moral reasoning. Another explanation may be social desirability is that in light of potentially negative personal responses, individuals will favorably bias their response in contrast to realities as a form of impression management. Therefore, the high correlation of moral recognition and other situational moral reasoning with relativism items such as "individually acceptable/not acceptable" may be an attempt to appear more ethical (or ethically consistent), as opposed to showing an

earnest moral inconsistency (e.g. “piracy is morally wrong, but I find it individually acceptable due to the benefits gained”).

Overall, the findings indicate that individual *dispositions towards general* moral attitudes and behaviors are not predictive of *particular* ethical attitudes and behaviors across a broad array of ethical IT dilemmas. Furthermore, some authors have similarly confirmed that cognitive moral development (or dispositional moral judgments) is not as strongly predictive of ethical attitudes and behaviors as the ethical perspectives employed through the MES-10 or variants (or situational moral judgments) (Flory et al. 1993a; Flory et al. 1993b). In addition, only utilitarian and relativist situational moral judgments are predictive of ethical behavior. While these results are unexpected, they are not necessarily inconsistent with ethical theory. Utilitarian moral judgments are consequentialist by nature, and even though it is difficult to universally determine the amount of “utility” gain (or lost) by a particular moral action, one can readily apply utilitarian judgments in numerous ethical situations regardless of their relative clarity, intensity, or severity.

CHAPTER IV

DOMAIN THEORY OF MORAL DEVELOPMENT

Introduction

The findings of the first study suggest that when situational moral judgments are considered along-side individual, dispositional moral judgments, i.e. cognitive moral development, the situational overshadows any effects of an individual's specific morality. However, although situational factors relating to ethical decision-making appear dominant, personal development may mold our perspectives of ethical behaviors, resulting in varied response to different ethical dilemmas. In other words, it is proposed that, based on an person-situation interactionist model (Trevino 1986), the situation is not an entirely dominant and pervasive force in defining ethical IT decision-making and behavior; however, represents an critical lens through-which personal dispositional judgments are transformed into moral actions.

Different types of ethical reasoning are incompatible since people unable to employ multiple, conflicting rationales in creating moral judgments (Gilligan 1982; Gilligan 1987; Kohlberg 1984). The conflict between ethical reasoning in the formation of moral judgments creates limited potential alternatives for moral judgment and action. This limitation, coupled with the complex milieu of rationales (Reidenbach and Robin 1988; Reidenbach and Robin 1990), factors (Ross and Robertson 2003), and referent groups (Victor and Cullen 1987; Victor and Cullen 1988), impels people to create heuristics for ethical decision-making, and hence the necessity of moral domain theory. Scenarios create situational influence on the moral reasoning and judgments of individuals making ethical IT decisions, and the sheer multitude of situational factors that influence ethical decision-making is staggering (Jones 1991; Ross and Robertson

2003). This situational multitude requires that individuals develop schema and heuristics to address moral and ethical problems. However, solid theoretical explanations on how we organize moral thought in light of these situational influences are few and far between (Ford and Richardson 1994; Trevino et al. 2006). One explanation of the contextuality and situationality of IT ethics lies in the *domain theory of moral development* (DTMD) (Turiel 1983; Turiel et al. 1987), which theorizes that the manner that social domains of behavior and ethical attitudes develop in children and adolescence. Children and adolescents classify ethical dilemmas into different moral domains based on their behaviors in moral domains and the social consequences that result from those behaviors (Turiel 1983; Turiel et al. 1987). The classification developed by moral behaviors and resulting consequences establishes the manner and degree of moral development of people in adulthood.

Domains of morality are categorizations of ethical decision-making patterns and heuristics, where a person develops standardized models or schema of reasoning for particular classes of ethical problems (Gattiker and Kelley 1999a; Turiel 1983; Turiel et al. 1987). When confronted with a moral problem people attribute particular domains of morality, and therefore particular moral reasoning patterns, to specific situations. Therefore, while the situation itself can be a significant driver of different moral judgments of IT scenarios, as developmental factors construct domains of morality these same developmental factors can have a strong influence on ethical IT decision making. Therefore, the second study will address the following question: *Does the attribution of different domains of morality to an ethical dilemma influence the manner people make ethical decisions involving information technology?*

In order to address this research question, we first explore the underlying theory to the domain theory of moral development, and how it relates to ethical IT decision-making. Scenarios are developed create situational responses eliciting varying moral domains, and therefore, varying

ethical decision-making heuristics. In response to these domain-specific scenarios, this study is expected to expose not only different moral responses to ethical dilemmas, but fundamentally different thought processes when considering moral problems.

Literature Review

The moral judgments of people are shaped early on through the realization of social consequences from particular activities—through consequences people learn how to identify "right" and "wrong" behaviors, and therefore, make moral judgments as to whether such behaviors are indeed "right" and "wrong." Throughout our development as a child, student, and even professional, we are exposed to ethical dilemmas, decisions, behaviors, and the social consequences of those decisions and behaviors within the context of the dilemma. The social consequences of our decisions and behaviors either reward or sanction our behavior, influencing our future behaviors and ultimately how we construct our system of ethics and decision-making behavior.

The basis of the DTMD is developmental as it informs researchers as to *how* moral reasoning and particular moral judgments are created and reinforced through the development of children into adolescence and adulthood (Glassman and Zan 1995; Turiel 1983; Turiel et al. 1987). Therefore, one may conclude that people establish different patterns of moral judgments regarding ethical dilemma, resulting in a fundamental reflection of a person's moral reasoning and development. Over time each domain of morality becomes associated with a set of moral judgments and behaviors. Since a person has organized a wide array of ethical issues into different moral domains by adulthood, one can expect significantly different moral judgments (and ethical behaviors) by a person's attribution of an ethical dilemma to a particular domain of morality.

DTMD states that people attribute an ethical dilemma to different domains of morality, which correspond to different sets of moral reasoning depending on the context and perceived consequences of the behavior. The DTMD proposes that people organize ethical dilemmas into three moral domains: (1) personal, (2) conventional, and (3) principled. The *personal domain* encompasses moral behavior that is primarily of individual concern. In other words, ethical dilemmas in the personal domain are a function of personal tastes, preferences and/or the psychological state of the individual. Behaviors classified in the personal domain do not bear consequences or sanctions in social contexts, hence the emphasis on an *individual's* personal tastes and preferences. In addition, consequences to others, the group or society are irrelevant since the outcome of that behavior does not have any social consequences and are not intrinsically harmful to the individual or to others. An example of an ethical dilemma in the personal domain is as follows:

> One of your friends is a technical whiz and has just developed a new data encryption device (i.e. similar to a phone scrambler, as the device helps to protect conversations from wiretapping) and related software. You friend quickly demonstrates how the device works by sending an encrypted message to you. You subsequent decoding efforts fail, illustrating that the encryption device does its job very well. You and your friend then proceed to install this device and software on both of your machines for use when communicating with each other (Gattiker and Kelley 1999a).

The *conventional domain* includes behaviors that are not considered intrinsically harmful by the individual or society but carry social consequences. These behaviors are considered ethical or unethical depending on the social context of the behavior; therefore, due to their socially dependent nature these behaviors are not universally accepted among people. Such actions are what would often be considered “taboo” in a social context by one group and not another. Behaviors in the conventional domain reflect social norms and values are established

over time through consensus between individuals participating in the social context. An example of an ethical dilemma in the conventional domain is as follows:

> One of your friends is a real computer nut and has just written a new computer virus program. Your friend then proceeds to load the virus program into a BB or an electronic new-latter/listerver (EDL) (Gattiker and Kelley 1999a).[14]

Many behaviors of employees within organizations would appear predominately attributed to the conventional domain, reflecting the norms and values consistent with the organizational culture. Alternatively, the conventional domain may reflect norms and values spanning multiple organizations, but relegated to a single professional sub-group, such as accountants or IT professionals.

Finally, the *principled domain* includes behaviors that are considered intrinsically harmful, either perceived directly by the individual or inferred from direct perceptions (Turiel 1983). The behavior is universally considered unethical since harm is an inherent consequence of the action (Haidt et al. 1993). Such behaviors are not simply a matter of personal taste or normative for a specific group as they have social consequences outside the individual or group. Consequences of unethical behaviors perceived in the principled domain are universally considered harmful to other individuals[15]; therefore, behaviors perceived within the moral domain are not dependent on social norms and values. An example of an ethical dilemma in the moral domain is as follows:

> Your friend has just received a new computer game through an EGL located abroad. The game is banned in this country because of its violent, sexual, and racist content. Your friend tests the game. Although he or she finds it somewhat

[14] One must note the previous issue of a prior attribution, as the results of Gattiker and Kelley (1999) would suggest that this scenario, attributed to the conventional domain, would be more appropriately attributed to the forthcoming moral do main.

[15] Actions considered universally moral *for the most part*. Many relativist and skeptical moral philosophers, such as Fredrich Nietzsche (1966), would vehemently disagree that any action, even those cause undue harm, are intrinsically and universally wrong.

> disgusting, your friends sends a copy to another friend abroad, where no regulation exists banning the game. Your friend does not keep a copy of the game (Gattiker and Kelley 1999a).

Research Design and Hypothesis Development

Turiel's domain theory of moral development (Turiel 1983; Turiel et al. 1987) may be assess through a person-situation interactionist perspective (Trevino 1986), where the individual's cognitive development interacts with situational components, such as perceived consequences, relevant referent groups, or organizations environments. Essentially, a person's cognitive moral development only accounts for a portion of the variations in moral reasoning, and may be drawn towards more ethical or unethical behaviors given the situation and context. Domain theory of moral development extends the theoretical explanation by framing moral development within a situational system of behaviors and consequences. Moral domain attribution frames the ethical dilemma, having situational and contextual factors, may cause moral judgments and behaviors to deviate significantly from ethical decision-making heuristics consistent with cognitive moral development. The situational moral reasoning espoused by the individual when faced with a particular ethical dilemma may depart significantly from their present level of cognitive moral development depending on which domain of morality the individual attributes the ethical dilemma. However, results from the previous study showed no evidence of an association between levels of cognitive moral development and ethical behavior intention *when situational moral judgments were also considered.* Therefore, cognitive moral development may not be a suitable manner to assess how moral reasoning changes in based upon either the situation or domain attribution.

Table 13. Proposed associations between domains of morality, dispositional and situational moral reasoning

Domains of Morality	Dispositional Moral Reasoning (Cognitive Moral Development)		Situational Moral Reasoning
	Moral Reasoning Stages	*Moral Reasoning Schema*	
Personal	Pre-conventional	Personal Intent	Egoist
Conventional	Conventional	Maintaining Norms	Utilitarian, Relativist
Principled	Post-Conventional	Post-conventional	Deontological, Justice

The ethical dilemma scenarios are filtered by the domain of morality attributed by the individual upon reading and interpreting the scenario and its context. This interpretation elicits moral judgments and attitudes towards the ethical behavior consistent with the domain of morality attributed. Essentially, the domain of morality becomes a sufficiently strong predictor of an individual's moral judgments and attitudes towards an ethical IT behavior. Furthermore, a person may use different decision-making models for ethical IT dilemmas depending on initial perceptions of the context and consequences of potential actions. This study proposes that different attributions of domains of morality result in not only markedly different ethical IT behaviors, but also in different ethical decision-making models. Different ethical decision-making models have been assessed and compared in other studies within an information systems context.

The present study, however, does not refute the findings of other IT decision-making studies on the basis of insufficient power (Banerjee et al. 1998; Leonard and Cronan 2001; Leonard et al. 2004), but theoretically on the basis that the domain of morality may invoke stronger (or weaker) moral recognition, attitudes and judgments mediating the effects of the situation. More specifically, ethical IT dilemmas attributed to the personal or conventional domains will be insufficient to elicit moral recognition, attitudes, and judgments strong enough to predict ethical IT behavior intention. However, ethical IT dilemmas attributed to the moral

domain will generate stronger moral recognition, attitudes and judgments sufficient to predict moral intent and ethical IT behavior.

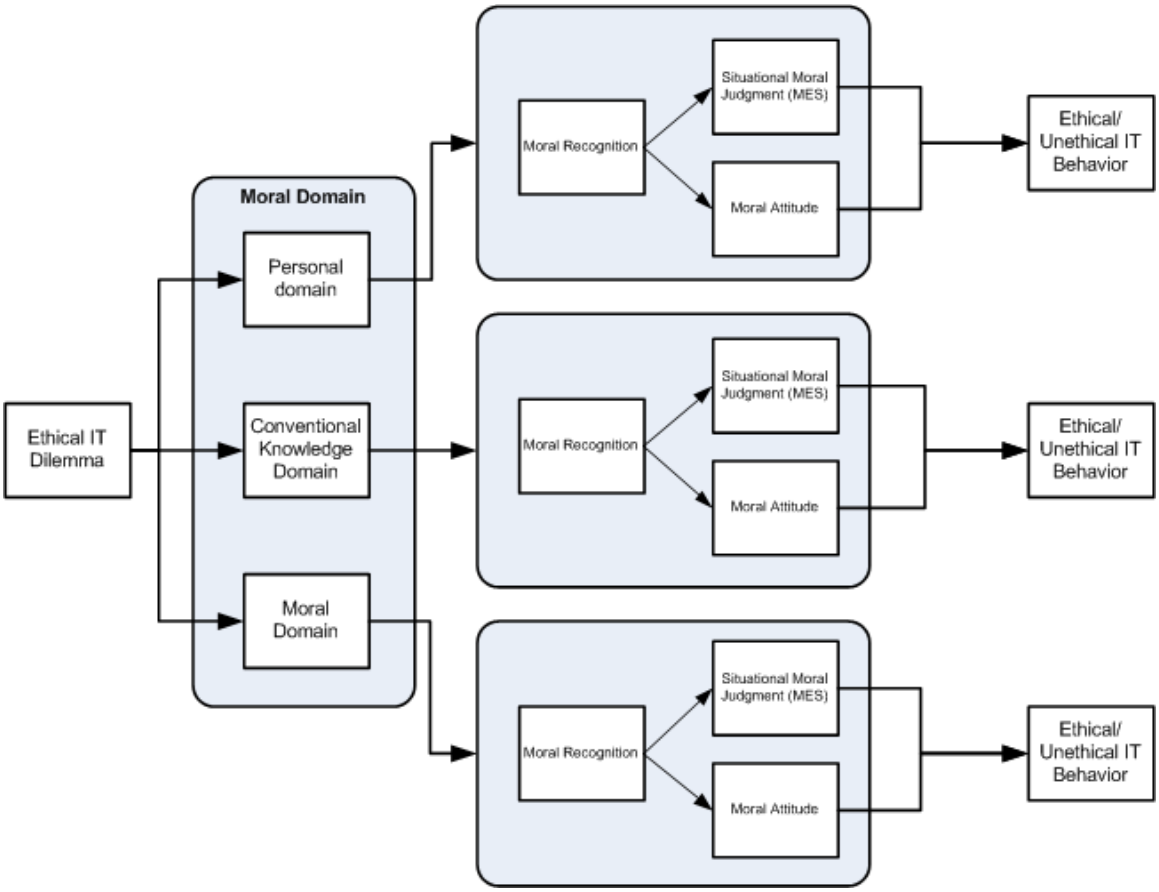

Figure 11. Research model for the effects of moral domain attribution on ethical decision-making

Personal Domain

The *personal domain,* which is based in individual preferences and limited consequences, corresponds with markedly different effects on ethical IT decision-making. Consistent with previous work combining ethical decision-making and domain theory (Gattiker and Kelley 1999a), the importance of ethical dilemmas attributed to this domain are expected to decrease substantially (lower moral recognition), along with evaluations of the situation as "bad" or

"harmful" (lower moral attitudes), since the consequences of these behaviors do to not result in consequences are harmful socially or to others. In addition to decreases in the level of moral recognition and moral attitudes in the personal domain, it is also hypothesized that people will employ different ethical decision-making models, where the effects of moral recognition and attitude become non-significant or significantly decrease when compared with all scenarios considered. Therefore, the following effects of personal domain attribution on ethical decision-making are hypothesized:

H19 *Personal domain attribution will decrease levels of moral recognition.*

H20 *Personal domain attribution will decrease the effects of moral recognition on ethical IT behavior intention.*

H21 *Personal domain attribution will decrease levels of moral attitudes.*

H22 *Personal domain attribution will decrease the effect of moral attitudes on ethical IT behavior intention.*

Situational moral reasoning should also change substantively in the personal domain; however, since no research has investigated the interaction between DTMD and situational moral reasoning we must develop hypotheses based upon conceptions of moral reasoning types and moral domain definitions. As personal domain attribution is focused on an individual locus of analysis, moral judgments that conclude a particular behavior as intrinsically harmful to others (deontological and justice judgments) and that are rooted in social- or context-dependent considerations (utilitarian and relativist judgments) ought to have less influence on ethical IT behaviors (Reidenbach and Robin 1988; Reidenbach and Robin 1990; Robin et al. 1996). Egoist moral judgments, on the other hand, correspond with behaviors that are motivated by individual preferences and gain, and therefore should become more salient in the personal domain compared with others. Similar to ethical decision-making constructs, it is hypothesized that as levels of

situational moral reasoning increase and decrease due to domain attribution, so does the salience of these judgments in ethical decision-making, ultimately decreasing (for deontological, justice, utilitarian, and relativist judgments) and increase (for egoist judgments) the effects on ethical behavior intention. Therefore, the following is hypothesized:

H23 *Personal domain attribution will decrease levels of deontological moral judgments.*

H24 *Personal domain attribution will decrease the effect of deontological moral judgments on ethical IT intention.*

H25 *Personal domain attribution will decrease levels of utilitarian moral judgments.*

H26 *Personal domain attribution will decrease the effect of utilitarian moral judgments on ethical IT behavior intention.*

H27 *Personal domain attribution will decrease levels of relativist moral judgments.*

H28 *Personal domain attribution will decrease the effect of relativist moral judgments on ethical IT behavior intention.*

H29 *Personal domain attribution will increase levels of egoist moral judgments.*

H30 *Personal domain attribution will increase the effect of egoist moral judgments on ethical IT behavior intention.*

H31 *Personal domain attribution will decrease levels of justice moral judgments.*

H32 *Personal domain attribution will decrease the effect of justice moral judgments on ethical IT behavior intention.*

Table 14. Hypothesized effects of domain attribution on levels and effects of EDM constructs

Construct / Domain	Personal	Conventional	Principled
Moral Recognition	Decrease (H19 & H20)	No Effect (H33 & H34)	Increase (H47 & H48)
Moral Attitude	Decrease (H21 & H22)	No Effect (H35 & H36)	Increase (H49 & H50)
Moral Judgments (Dispositional)	Decrease	No Effect	Increase
Moral Judgments (Situational)			
Deontological	Decrease (H23 & H24)	Decrease (H37 & H38)	Increase (H51 & H52)
Utilitarian	Decrease (H25 & H26)	Increase (H39 & H40)	No Effect (H53 & H54)
Relativist	Decrease (H27 & H28)	Increase (H41 & H42)	No Effect (H55 & H6)
Egoist	Increase (H29 & H30)	No Effect (H43 & H44)	Decrease (H57 & H58)
Justice	Decrease (H31 & H32)	Decrease (H45 & H46)	Increase (H59 & H60

Conventional Domain

The *conventional domain*, on the other hand, is somewhat more complex. Since the conventional domain is associated with moral judgments and consequences rooted in a social context, a marked increase in corresponding unethical perceptions and ethical decision-making constructs is expected. Similar to the attribution of the personal domain having effects on levels of key ethical decision-making constructs and their respective relationships with dependent variables, particularly ethical behavior intention, we continue the trend investigating the effects of conventional domain attribution. In the conventional domain, moral attitudes, judgments and behaviors are driven by an expectation of social consequences from defined referent groups, neither considered matters of individual taste (personal domain) or broad condemnation (principled domain). The importance of a situation (moral recognition) along with the manner that we evaluate the behavior's moral character (moral attitude) may vary from organizational context to context as group norms and authorities change. However, since conventional domain attribution is compared to a decision-making model combining a plethora of ethical issues and corresponding contexts, it is expected that the influence of social context will be similarly

important to the "base model" and thusly show no significant differences in terms of moral recognition and attitudes. Therefore, the following results are hypothesized:

H33 *Conventional domain attribution will have no influence on levels of moral recognition.*

H34 *Conventional domain attribution will have no influence on the effects of moral recognition on ethical IT behavior intention.*

H35 *Conventional domain attribution will decrease levels of moral attitudes.*

H36 *Conventional domain attribution will have no influence on the effect of moral attitudes on ethical IT behavior intention.*

Due to the socially dependent nature of ethical dilemmas attributed to the conventional domain, it is theorized that individuals draw from different moral reasoning, as conceived through situational moral judgments, in order to address ethical dilemmas. Socially- and context-dependent judgments (particularly utilitarian and relativist) become the dominant lines of reasoning (Reidenbach and Robin 1988; Reidenbach and Robin 1990; Robin et al. 1996). Other forms of moral reasoning (deontological, egoist, and justice) may vary from social context to context, but the manner a respondent's social context influence ethical decision-making is beyond the scope of this study. Deontological and justice judgments are expected to decrease in magnitude and effect on ethical IT behavior intention, since each concern broad, principled stances on moral issues. Finally, egoist judgments are expected remain unchanged, both in magnitude and effect, since moral attitude in the conventional domain are often driven by self-preservation and social maintenance within a referent group in avoidance of social consequences; however, are not driven by personal preferences or gain. Therefore, the following effects are hypothesized:

H37 *Conventional domain attribution will decrease levels of deontological moral judgments.*

H38 *Conventional domain attribution will decrease the effect of deontological moral judgments on ethical IT behavior intention.*

H39 *Conventional domain attribution will increase levels of utilitarian moral judgments.*

H40 *Conventional domain attribution will increase the effect of utilitarian moral judgments on ethical IT behavior intention.*

H41 *Conventional domain attribution will increase levels of relativist moral judgments.*

H42 *Conventional domain attribution will increase the effect of relativist moral judgments on ethical IT behavior intention.*

H43 *Conventional domain attribution will have no influence on levels of egoist moral judgments.*

H44 *Conventional domain attribution will have no influence on the effect of egoist moral judgments on ethical IT behavior intention.*

H45 *Conventional domain attribution will decrease levels of justice moral judgments.*

H46 *Conventional domain attribution will decrease the effect of justice moral judgments on ethical IT behavior intention.*

Principled Domain

Finally, we must consider the effects of principled domain attribution on levels of key ethical decision-making constructs and their respective relationships with dependent variables. Since the *principled domain* is based on broadly acceptable ethical standards and are attributed to behaviors that are intrinsically harmful to others. Therefore, principled domain attribution should increase perceptions that the ethical dilemma is important or critical (moral recognition), and

emotive evaluations that the action is bad or harmful (moral attitudes) (Gattiker and Kelley 1999a).

H47 *Principled domain attribution will increase levels of moral recognition.*

H48 *Principled domain attribution will increase the effects of moral recognition on ethical IT behavior intention.*

H49 *Principled domain attribution will increase levels of moral attitudes.*

H50 *Principled domain attribution will increase the effect of moral attitudes on ethical IT behavior intention.*

Furthermore, particular situational moral reasoning is expected to become more salient when the ethical dilemma is attributed to the principled domain. Both deontological and justice moral judgments are concerned with moral correctness *ideally* independent of social context or situational factors, or the behavior is right or wrong by its own merits, in and of itself (Reidenbach and Robin 1988; Reidenbach and Robin 1990; Robin et al. 1996). Since utilitarian and relativist moral judgments maintain significant contextual and social dimensions, and egoist moral judgments emphasize individual gain over moral rightness, these moral reasoning heuristics are expected to become *less* salient in the principled domain. On the other hand, deontological and justice moral judgments are expected to become more salient, increasing in both magnitude and effect on ethical behavior intention. Therefore, the following are hypothesized:

H51 *Principled domain attribution will increase levels of deontological moral judgments.*

H52 *Principled domain attribution will increase the effect of deontological moral judgments on ethical IT behavior intention.*

H53 *Principled domain attribution will have no effect on levels of utilitarian moral judgments.*

H54 *Principled domain attribution will have no influence on the effect of utilitarian moral judgments on ethical IT behavior intention.*

H55 *Principled domain attribution will have no effect on levels of relativist moral judgments.*

H56 *Principled domain attribution will have no influence on the effect of relativist moral judgments on ethical IT behavior intention.*

H57 *Principled domain attribution will decrease levels of egoist moral judgments.*

H58 *Principled domain attribution will decrease the effect of egoist moral judgments on ethical IT behavior intention.*

H59 *Principled domain attribution will increase levels of justice moral judgments.*

H60 *Principled domain attribution will increase the effect of justice moral judgments on ethical IT behavior intention.*

Methodology

Much of the methodology discussion revolves around proper vignette selection and domain attribution to confirm the manipulation effect of different domains of morality on ethical decision-making processes and outcomes. Details on the overall method and measurements used for other ethical decision-making constructs may be found in the previous chapter.

Vignettes and Moral Domains

Gattiker and Kelley (1999a) are the first to offer ethical IT dilemmas developed toward domains of morality; however, the authors did not account for the unique development of individuals by attributing *a priori* three ethical scenarios according to the personal, conventional, and principled domains (Gattiker and Kelley 1999a). From this *a priori* attribution of scenarios to domains of morality researchers find significantly different results than originally expected. For example, a virus scenario was attributed to the conventional domain, while an illegal game was

attributed to the principled domain; however, the results of the study associated with stronger perceptions of unethical and immoral judgments were associated with the virus scenario. These inconsistent results suggest a gulf between an individual's attribution and the *a priori* attribution of scenarios by the principle researchers. In addition, these scenarios were highly technical even at the time of publication—referring the listserves and bulletin boards—representing technology and terminology that have largely been replaced. Therefore, validated scenarios for the purpose of this study are rare and must be adapted from more accessible and relevant scenarios, in addition to being validated to proper domain attribution.

Domains of morality may be operationalized in the following manner. Three scenarios are validated with regards to the moral recognition, moral attitudes and ethical behavior intentions formed in order to operationalize domains of morality. Each of the three scenarios have been selected or written to elicit targeted domain attribution similar to Gattiker and Kelley (1999a). While these vignettes themselves are assumed to be sufficient to engender proper domain attribution; however, as evidenced by the conventional-principled domain flip in Gattiker and Kelley (1999a) one cannot safety make that assumption. In order to avoid a similar problem of a *priori* attribution of moral domains while applying the domain theory of moral development, a manipulation check was performed. The manipulation check consists of two tests that confirm the attribution of each scenario to particular domains of morality.

Table 15. Average weighted probability of attributing scenario to domains of morality

Scenario	Personal	Conventional	Principled
Phishing	0.42	0.39	0.03
Software Piracy	0.31	0.61	0.20
Hacking	0.16	0.36	0.62

The first manipulation instructs respondents to attribute domains of morality to each scenario directly. A sample of faculty, graduate and undergraduate students completed an instrument consisting of three ethical scenarios. The survey first defines the domain theory of moral development, each domain of morality, and provides an example of how a scenario may be attributed to a domain of morality. Then, respondents review each of the three scenarios, and (1) rank order domains of morality that the respondents would most likely attribute to the scenario, and (2) rate the confidence of this rank order of domain attribution. The confidence rating is then used to weight the ranking of each scenario. In order to assess the probability that a respondent will attribute the scenario to a particular moral domain, the rank is converted into a probability (1.0 for highest ranking, 0.5 for second, and 0.0 for lowest ranking), and then this probability is weighted against the confidence rating that has also been converted into a probability. The *highest* confidence rating of 1 would weigh the probability completely; the *second highest* confidence rating of 2 would decrease the weight to 0.8; the *third highest* would decrease the weight to 0.6; and so forth. The weighted probabilities are then averaged for each scenario, and the weighted average probabilities are shown in Table 15. The weighted average probabilities for the *phishing* scenario show some conflict between attribution toward the personal and conventional domains; however, it is clear this scenario is unlikely to be attributed to the principled domain. The attribution of the *software piracy* scenario suggests that respondents are more likely to attribute the scenario to the conventional domain, although the personal and principled domains cannot be discounted. These results suggest that the personal domain requires

significant modification, which had been made prior to the second manipulation check to follow, and the software piracy scenario should likely be attributed to the conventional domain, but further confirmation is necessary.

Table 16. Comparison of means of each scenario and attributed domain of morality

Scenario	Domain	Moral Recognition [1]		Moral Attitude [2]		Behavior Intention [3]	
		Mean	SD	Mean	SD	Mean	SD
Phishing	Personal	3.500	1.506	3.086	0.930	2.155	0.825
Software Piracy	Conventional	2.874	1.487	3.086	0.930	2.514	0.776
Hacking	Principled	2.762	1.418	3.640	0.991	2.645	0.730

(1) Lower values of moral recognition represent a perception the action is a critical and important issue

(2) Higher values of moral attitude represent a perception the action is wrong or bad

(3) Higher values of behavior intention represent the likelihood and intention to behavior differently (more ethically)

The second manipulation check uses data from the pilot study to compare key ethical decision-making constructs (moral recognition, moral attitude, and ethical behavior intention) of each scenario. Based on previous research (Gattiker and Kelley 1999a; Turiel 1983; Turiel et al. 1987), domains of morality (personal, conventional, and principled) ought to be associated with increasingly higher levels of moral recognition and attitudes, typically towards the unpleasant/immoral anchors of corresponding measures. Therefore, the vignettes would be considered adequate of proper moral domain attribution if personal, conventional, and moral domains have significantly different moral recognition and attitudes, and the severity of moral recognition and attitudes are lowest in the personal domain vignette, and increase through the conventional and principled domain vignettes. The mean scores of moral attitude and ethical behavior intention for the personal domain should be significantly lower (perceived as less wrong or bad) than the conventional and moral domains. Alternatively, the mean scores of moral recognition should be higher for the personal domain and lower for the conventional and moral domains, as lower scores of moral recognition correspond to perceptions of greater ethical

importance. The results for the mean score comparison may be found in Table 17, where the largest expected difference between scenarios (phishing—hacking) is first, followed by the two smaller expected differences (phishing—software piracy, software piracy—hacking).

Table 17. Pair-wise comparison of ethical decision-making constructs for manipulation check

Pair-wise Comparison		Mean ($x_1 - x_2$)	SD	T-Stat	P-Value [4]
Moral Recognition [1]					
Phishing	Hacking	0.738	1.706	5.119	0.000
Phishing	Software Piracy	0.626	1.875	3.952	0.000
Software Piracy	Hacking	0.112	1.810	0.731	0.466
Moral Attitude [2]					
Phishing	Hacking	-0.555	0.999	-6.569	0.000
Phishing	Software Piracy	-0.043	1.119	-0.453	0.651
Software Piracy	Hacking	-0.512	1.159	-5.225	0.000
Behavior Intention [3]					
Phishing	Hacking	-0.490	0.820	-4.910	0.000
Phishing	Software Piracy	-0.360	1.029	-2.513	0.013
Software Piracy	Hacking	-0.131	0.854	-2.149	0.033

(1) Lower values of moral recognition represent a perception the action is a critical and important issue

(2) Higher values of moral attitude represent a perception the action is wrong or bad

(3) Higher values of behavior intention represent the likelihood and intention to behave similarly (perceived as more ethical)

*(4) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

First, levels of moral recognition must be compared. Lower values of the moral recognition scale are associated with greater perception of ethical importance (e.g. "highly critical" or "of great importance), whereas higher values of moral recognition are interpreted as "not critical" and "unimportant." When comparing levels of moral recognition between scenarios, there is substantial evidence supporting significant differences between the phishing (personal) scenario with the piracy (conventional) *($\Delta\bar{x} = 0.626$, $p < 0.001$)* and hacking (principled) scenario *($\Delta\bar{x} = 0.738$, $p < 0.001$)*; however, no difference between the software piracy and hacking scenarios *($\Delta\bar{x} = 0.112$, $p = 0.466$)*. Therefore the results suggest that the hacking and piracy

scenarios are perceived as the most "critical" and "important" issues, whereas the phishing scenario is clearly the least of the three.

Unlike moral recognition, lower values of moral attitudes are associated with positive ethical emotions (e.g. "good" and "helpful") whereas higher values are associated with negative values (e.g. "bad' and "harmful"). When comparing levels of moral attitude, substantial evidence is found supporting stronger perceptions of unethical moral attitude of the hacking scenario than the phishing *($\Delta\bar{x} = -0.555, < 0.001$)* and piracy scenarios *($\Delta\bar{x} = -0.512, p < 0.001$)*; however, there is no moral attitude difference between the phishing and software piracy scenarios *($\Delta\bar{x} = -0.430, p = 0.651$)*. Therefore, these results suggest that the hacking scenario is clearly perceived as more "bad" and "harmful" than the phishing and software piracy scenarios. The phishing and piracy scenarios, however, show no evidence of differences in moral attitude, demonstrating a potential misattribution between the phishing and piracy scenarios, at the very least for moral attitudes. Despite the lack of evidence supporting differences between the phishing and piracy scenarios, there is broad evidence that the variation of moral attitudes is consistent with the *a priori* domain attribution, but further results of moral attitudes between these two scenarios may be suspect.

Finally, scenario differences for the dependent variable, ethical IT behavior intention, are compared. Similar to moral attitudes, lower values of ethical IT behavior intention are associated with an intention to behave similarly (i.e. behave "ethically"), while higher values are associated with intentions to behave differently (i.e. behave "unethically"). The results show substantial evidence of a difference between the phishing and hacking scenarios *($\Delta\bar{x} = -0.490, p < 0.001$)*. Furthermore, there is evidence supporting a significant difference between the phishing and piracy scenarios *($\Delta\bar{x} = -0.360, p < 0.05$)* and the piracy and hacking scenarios *($\Delta\bar{x} = -0.131, p < 0.05$)*. The results not only suggest that there is significant difference in the perception of the three

scenarios, but also that the phishing scenario is perceived as the most ethical, followed by the piracy and then hacking scenarios, which is consistent with the suggested *a priori* attribution.

Table 18. Comparison of decision outcomes for each scenario for manipulation check

Decision	Frequency	Percentage
Phishing		
Should sign up for the prize offer	48	34.5%
Can't decide	27	19.4%
Should not sign up for the prize offer	64	46.0%
Software Piracy Decision		
Should download the software	30	21.6%
Can't decide	29	20.9%
Should not download the software	80	57.6%
Hacking Decision		
Should have modified the software	20	14.4%
Can't decide	27	19.4%
Should not have modified the software	92	66.2%

In addition to investigating differences between EDM and behavior intention constructs, it is important to examine differences in decision outcomes for each scenario. These decision outcomes represent whether the actor in the scenario should or should not engage in the behavior given the context of the scenario. Respondents may also indicate whether they are unsure. Table 18 outlines the decision options for each scenario, and the frequency and relative percentage for each decision option. The hacking (principled) scenario clearly results in the intended perceptions based on the decision outcomes, since the overwhelming majority decides the actor should not engage in the behavior. The comparison of decision outcomes shows significant differences between all three scenarios; however, there are some issues of concern. Respondents indicated that the actor should more than likely engage in the behavior considered in the phishing scenario than the piracy scenario $(\Delta\bar{x} = -0.236,\ p = 0.013$, and much more likely still compared with the hacking scenario $(\Delta\bar{x} = -0.407,\ p < 0.000)$. Furthermore, respondents indicated that the actor

should more than likely engage in the phishing scam scenario than the hacking scenario *($\Delta\bar{x} = -0.171$, $p = 0.033$)*, which is consistent with the *a priori* attribution.

Table 19. Pair-wise comparison of decision outcomes for manipulation check

Pair-wise Comparison		Mean	SD	T-Stat	P-Value [2]
Decision Outcomes [1]					
Phishing	Hacking	−0.407	0.981	−4.910	0.000
Phishing	Software Piracy	−0.236	1.110	−2.513	0.013
Software Piracy	Hacking	−0.171	0.944	−2.149	0.033

(1) Lower values of decision outcomes are associated with a higher probability that the actor should engage in the action

*(2) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

In conclusion, the results from the two manipulation checks reveal a clear attribution of the scenarios to particular domains of morality based on the moral recognition, attitudes, and ethical behavior intention responses, confirming the *a priori* attribution tested by the second manipulation check. In some instances there was not sufficient evidence of clear differences between the scenarios, particularly regarding moral recognition with the piracy and hacking scenarios, and moral attitudes between the phishing and piracy scenarios. Nevertheless, there is no evidence that the student sample misattributed the scenarios to particular domains of morality, further confirming the *a priori* attribution and the results of the first manipulation check.

Analysis and Results

As with the research model and hypothesis development in the previous section, the analysis and results are organized by moral domain. New structural models are created for each domain to isolate the domain-specific effects. The magnitude of the constructs are compared using pair-wise comparison to address differences in the overall level of ethical decision-making constructs per-domain. However, this study claims that not only do levels of ethical decision-making constructs change based upon attribution of domains of morality, but also the patterns and

heuristics of ethical decision-making. In other words, the relationship between moral attitude, judgment and reasoning components on ethical IT behavior intention will change with domain attribution. In order to address this, the *base model* in study 1 is compared against *domain-specific, or domain models*, particularly (a) whether there is a chance in the significance level of the path between two constructs, and (b) whether a change in the magnitude of the path coefficient is significant or not. Path coefficients between groups were compared based on Chin's (2004) multi-group analysis technique. Structural differences in ethical decision-making heuristics due to domain-specific effects are considered supported *if either one of the conditions is achieved*. Any significant differences in the magnitude or significance of path coefficients between the base and domain models are considered first separately from the hypotheses developed in the previous section. The addition of statistically comparing path coefficients builds on other studies that have compared differences in structural models of ethical decision-making (Haines et al. 2008; Moores and Chang 2006) by increasing the validity of any differences in path coefficients.

Personal Domain

In this section the findings related to the scenario attributed to the personal domain, the phishing scenario, are considered as they impact the magnitude and effects of ethical decision-making constructs. The personal domain or morality consists of ethical dilemmas that are broadly of individual concern. Judgments consists of matters of personal taste and preferences, while consequences are relegated to the individual, and do not bear any direct social or societal consequences. The structural model is assessed by isolating the responses to the personal domain scenario in order to assess the effects of personal domain attribution.

Table 20. Pair-wise comparison of base and personal domain (phishing) moral reasoning constructs

Construct/Domain	$\bar{x}$ (Base)	$\bar{x}$ (Personal)	$\Delta\bar{x}$ ($x_p - x_b$)	SD	T-Stat	P-Value
Moral Recognition	3.703	3.778	0.075	0.850	1.592	0.112
Moral Attitude	3.535	3.368	−0.168	0.630	−4.771	0.000
Moral Judgments (S)						
Deontological	3.800	3.168	−0.632	0.689	−16.429	0.000
Utilitarian	3.835	3.729	−0.106	0.727	−2.612	0.009
Relativist	3.666	3.315	−0.351	0.724	−8.680	0.000
Egoist	3.429	3.246	−0.183	0.613	−5.338	0.000
Justice	3.747	3.251	−0.496	0.720	−12.329	0.000

$* p < 0.05; ** p < 0.01; *** p < 0.001$

Hypothesis H19 states that personal domain attribution will decrease the magnitude of moral recognition when compared with the base model. Based on Table 20, we find no evidence supporting hypothesis H19 *($\Delta\bar{x} = 0.075, p = 0.112$)*, suggesting respondents consider scenarios attributed to the personal domain no less critical than other ethical IT dilemmas. Hypothesis H21 states that personal domain attribution will decrease the magnitude of moral attitude. The results show substantial evidence supporting this ascertain *($\Delta\bar{x} = -0.168, p < 0.001$)*, suggesting that personal domain attribution is consistent with "good" and "helpful" perceptions compared with other ethical IT dilemmas. The results show mixed effects regarding magnitude differences of situational moral reasoning. Hypothesis H23 states that personal domain attribution will decrease levels of *both* deontological and justice moral judgments. The results show substantial evidence for a sharp decrease in both deontological *($\Delta\bar{x} = -0.632, p < 0.001$)* and justice moral judgments *($\Delta\bar{x} = -0.496, p < 0.001$)*; therefore, hypothesis H23 is supported. Hypothesis H25 states that personal domain attribution will *decrease* levels of utilitarian and relativism moral judgments. The results show substantial evidence that personal domain attribution decreases utilitarian *($\Delta\bar{x} = -0.106, p < 0.01$)* moral judgments supporting hypothesis H25.

Hypothesis H27 states that personal domain attribution will *decrease* levels of relativist moral judgments. The results show substantial evidence that personal domain attribution decreases relativist *($\Delta\bar{x} = -0.351$, $p < 0.001$)* moral judgments. Therefore, hypothesis H27 is supported. Finally, hypothesis H29 states that egoist moral judgments *increase* due to personal domain attribution. The results show no evidence that egoist moral judgments increase due to personal domain attribution *($\Delta\bar{x} = -0.183$, $p < 0.001$)*; therefore, hypothesis H29 is not supported.[16] Hypothesis H31 states that personal domain attribution will decrease levels justice moral judgments. The results show substantial evidence for a sharp decrease in justice moral judgments *($\Delta\bar{x} = -0.496$, $p < 0.001$)*; therefore, hypothesis H31 is supported.

Table 21. Comparison of path coefficients and significance between base and personal (phishing) domain model

Construct	Base			Personal			Personal − Base		
	β	T	Sig	β	T	Sig	Δβ	T	Sig
Moral Recognition	0.131	3.507	0.001	0.102	1.694	[1] 0.091	−0.028	−0.387	0.699
Moral Attitude	0.123	3.958	0.000	0.003	0.073	[2] 0.942	−0.119	−1.993	[3] 0.046
Moral Judgments (D)	−0.021	0.626	0.532	0.012	0.191	0.849	0.033	0.481	0.630
Moral Judgments (S)									
Deontological	0.031	0.570	0.569	−0.003	0.027	0.979	−0.034	−0.309	0.758
Utilitarian	0.248	5.389	0.000	0.369	4.334	0.000	0.121	1.289	0.198
Relativist	0.346	7.233	0.000	0.255	3.394	0.001	−0.091	−0.974	0.330
Egoist	−0.053	1.319	0.188	−0.095	1.625	0.105	−0.042	−0.546	0.585
Justice	0.078	1.593	0.112	0.075	0.795	0.427	−0.004	−0.038	0.970
Adjusted R^2	0.495			0.348					
Δ R^2				−0.147					

** $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Based on Table 29, the results indicate that the effects of moral awareness, or the perception an ethical dilemma is important or critical, on ethical IT behavior intention *($\beta = 0.102$,*

[16] All findings that deal with the egoist moral judgments construct should be highly suspect due to significant reliability problems of the egoism moral judgments measure.

$p = 0.091$) becomes non-significant in the personal domain in comparison to the base model ($\beta = 0.131, p < 0.001$). This suggests that the perception of an ethical dilemma as important or critical is no longer a predictor of an individual's intentions when faced with a similar ethical dilemma. Similarly, the effects of moral attitudes on ethical behavior intention become non-significant under personal domain attribution ($\beta = 0.123, p < 0.001$) versus the base model ($\beta = 0.003, p = 0.942$). This suggests that emotive evaluations of ethical dilemmas as good or bad have no influence on behavioral intentions in the personal domain. In addition, as to be expected with such a large swing in path coefficient ($\beta_{personal} = 0.003; \beta_{base} = 0.123$) and significance ($p_{personal} = 0.942; \beta_{base} < 0.001$), the results shows a large and significant difference in path coefficients between the two models ($\Delta\beta = -0.119, p < 0.05$), but since the effects of moral attitudes on ethical IT behavior intention in non-significant, a significant change in path coefficients provides little actionable findings.

Hypothesis H20 states that personal domain attribution will *decrease* the effects of moral recognition on ethical IT behavior intention. Although the results show no evidence of a decrease in the effects of moral recognition on ethical IT behavior intention ($\Delta\beta = -0.075, p = 0.112$), the effect of moral recognition does become non-significant in the personal domain model ($\beta = 0.102, p = 0.091$) when compared to the base model ($\beta = 0.131, p < 0.001$). Therefore, hypothesis H20 is supported. Hypothesis H22 states that personal domain attribution will *decrease* the effects of moral attitudes on ethical IT behavior intention. The findings indicate no evidence that moral attitudes are less predictive of ethical IT behavior intention ($\Delta\beta = -0.028, p = 0.699$); however, the effect of moral attitudes does become non-significant in the personal domain model ($\beta = 0.002, p = 0.924$) when compared to the base model ($\beta = 0.123, p < 0.001$). Therefore, hypothesis H22 is supported.

Hypothesis H24 states that personal domain attribution will *decrease* the effects of deontological and justice moral judgments on ethical IT behavior intention. The results show no evidence of either a decrease in the effects of deontological *($\Delta\beta = -0.034$, $p = 0.758$)* or justice *($\Delta\beta = -0.004$, $p = 0.970$)* moral judgments; and furthermore, there is no change in significance of either effect in the personal domain model. Therefore, hypothesis H24 is not supported. Hypothesis H26 states that personal domain attribution will *decrease* the effects of utilitarian moral judgments on ethical IT behavior intention. The results show no evidence of either a change in significance, or a significant decrease in the effects of utilitarian moral judgments *($\Delta\beta = 0.121$, $p = 0.198$)*. Therefore, hypothesis H26 is not supported. Hypothesis H28 states that personal domain attribution will *decrease* the effects of relativist moral judgments on ethical IT behavior intention. The results show no evidence of neither a change in significance, nor a significant decrease of relativist *($\Delta\beta = -0.091$, $p = 0.330$)* moral judgments. Therefore, hypothesis H28 is not supported. Hypothesis H30 states that personal domain attribution will *increase* the effects of egoist moral judgments on ethical IT behavior intention. The results, however, show no evidence that the effect of egoist moral judgments neither changes in significance nor decreases significantly *($\Delta\beta = -0.042$, $p = 0.585$)*. Hypothesis H32 states that personal domain attribution will *decrease* the effects of justice moral judgments on ethical IT behavior intention. The results show no evidence of a decrease of the effects of justice moral judgments *($\Delta\beta = -0.004$, $p = 0.970$)*; and furthermore, there is no change in significance of the effect in the personal domain model. Therefore, hypothesis H32 is not supported.

Table 22. Summary of hypotheses for personal (phishing) domain

	Hypothesis		Δx̄ / Δβ	P-Value		Supported?
H1	Recognition	<	0. 075	0.112		Yes
H2	Recognition - Intention	<	−0.028	0.699		Yes
H3	Attitude	<	−0.168	0.001	***	Yes
H4	Attitude - Intention	<	−0.119	0.046	*	Yes
H5	Deontological	<	−0.632	0.001	***	Yes
H6	Deontological - Intention	<	−0.034	0.758		No
H7	Utilitarian	<	−0.106	0.009	**	Yes
H8	Utilitarian - Intention	<	0.121	0.198		No
H9	Relativist	<	−0.351	0.001	***	Yes
H10	Relativist - Intention	<	−0.091	0.330		No
H11	Egoist	>	−0.183	0.001	***	No
H12	Egoist - Intention	>	−0.042	0.585		No
H13	Justice	<	−0.496	0.001	***	Yes
H14	Justice - Intention	<	−0.004	0.970		No

** p < 0.05; ** p < 0.01; *** p < 0.001*

The structural model for the personal domain offers much less explanatory power *(Adj. R^2 = 0.348, ΔR^2 = -0.147 or -14.7%)* of ethical behavior intention below the base model. The decrease due to personal domain-specific effects is startling to say the least. This suggests that the situations attributed to the personal domain offers different patterns of moral attitudes and judgments compared with other scenarios; however, these ethical decision-making patters are less consistent with ethical IT behavior intentions. One explanation of this phenomenon may be that situations attributed to the personal domain are often localized to the individual, both in terms of judging the correctness of an action, as well as evaluating the consequences of the action. In other words, the situation may possess little or no *moral character* than situations attributed to other moral domains.

A few important considerations are required when understanding and interpreting the explanatory power (assessed through *adjusted r-squared* values) of multiple regression models. First, due to the decrease in degrees of freedom from the base model *(n = 963)* to the domain-

specific models *(n = 321)*, all *adjusted r-squared* and *delta r-squared* values are biased *toward the base model*. In other words, any situation-specific explanatory differences in r-squared values by comparing structural models are *conservative*. Second, the two models cannot be compared *statistically using f-test* due to several reasons. The base model and the domain-specific models have significantly different degrees of freedom, as previously described, due to the reduction in the number of scenarios considered in the structural model. In addition, comparing the explanatory significance of multiple regression models requires a *full* and *reduced* model with different numbers of independent variables being tested, where the full model contains at least one additional independent variable. In conclusion, although the *delta r-squared* values are conservative due to smaller degrees of freedom in the domain-specific models, drawing strong conclusions from the differences in explanatory power through adjusted r-squared comparisons is suspect.

Conventional Domain

In the following section the results related to the conventional domain, the piracy scenario, are considered, and the respective hypotheses are evaluated based upon the results. The ethical dilemmas attributed to the conventional domain are largely matters of group concern, and bear social consequences to the actor; therefore, these behaviors move beyond individual evaluation but remain highly contextual based on the social environment and referent group.

Table 23. Pair-wise comparison of base and conventional (piracy) domain moral reasoning constructs

Construct/Domain	$\bar{x}$ (Base)	$\bar{X}$ (Conventional)	$\Delta\bar{x}$ ($x_c - x_b$)	SD	T-Stat	P-Value
Moral Recognition	3.703	3.395	−0.308	0.728	−7.582	0.000
Moral Attitude	3.535	3.319	−0.216	0.580	−6.680	0.000
Moral Judgments (S)						
Deontological	3.800	3.852	0.052	0.646	1.439	0.151
Utilitarian	3.835	3.645	−0.190	0.580	−5.865	0.000
Relativist	3.666	3.509	−0.157	0.675	−4.168	0.000
Egoist	3.429	3.396	−0.033	0.566	−1.044	0.297
Justice	3.747	3.666	−0.081	0.684	−2.121	0.035

** $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Hypothesis H33 states that conventional domain attribution will have no effect on the magnitude of moral recognition when compared with the base model. Based on Table 18, we find substantial evidence of a *large decrease* in levels of moral recognition *($\Delta\bar{x} = -0.308$, $p < 0.001$)*; therefore, hypothesis H33 is not supported. Hypothesis H35 states that conventional domain attribution will have no effect on the magnitude of moral attitudes, for which we also find substantial evidence of a *large decrease* in levels of moral attitudes *($\Delta\bar{x} = -0.216$, $p < 0.001$)*. Therefore, hypothesis H35 is not supported.

Regarding the differences in situational moral reasoning, we find mixed domain effects on the magnitude. Hypothesis H37 states that conventional domain attribution will decrease levels of deontological moral judgments. There is no evidence that deontological moral judgments do not decrease significantly Due to conventional domain attribution *($\Delta\bar{x} = 0.052$, $p = 0.151$)*; therefore, hypothesis H37 is unsupported. Hypothesis H39, on the other hand, states that conventional domain attribution will *increase* levels of utilitarian moral judgments. The results show no evidence that conventional domain attribution *increases* utilitarian judgments; however, the results do demonstration substantial evidence that utilitarian *($\Delta\bar{x} = -0.190$, $p < 0.001$)* judgments *decrease*. Therefore, hypothesis H39 is not supported. Hypothesis H41

states that conventional domain attribution will *increase* levels of relativist moral judgments. The results show no evidence that conventional domain attribution *increases* relativist judgments; however, the results do demonstration substantial evidence that relativist $(\Delta\bar{x} = -0.157, p < 0.001)$ judgments *decrease*. Therefore, hypothesis H41 is not supported. This would suggest that relativism and utilitarian judgments in the conventional domain are lower than the base model, which may imply that either (a) conventional domain attribution is closer to principled domain attribution than personal or (b) utilitarian and relativist judgments are more highly associated with personal domain attribution. Hypothesis H43 states that egoist moral judgments will neither increase nor decrease due to conventional domain attribution. The results show no evidence of an increase of decrease in egoist moral judgments due to conventional domain attribution $(\Delta\bar{x} = -0.033, p = 0.297)$; therefore, hypothesis H43 is supported. Finally, hypothesis H45 states that conventional domain attribution will decrease levels of justice moral judgments. Due to conventional domain attribution, justice moral judgments $(\Delta\bar{x} = -0.081, p < 0.05)$ levels do decrease significantly; therefore, hypothesis H45 is supported.

Table 24. Comparison of path coefficients and significance between base and conventional (piracy) domain models

Construct	Base			Conventional			Conventional − Base		
	β	T	Sig	β	T	Sig	Δβ	T	Sig
Moral Recognition	0.131	3.507	0.001	0.316	6.291	0.000	0.185	2.622	[1] 0.009
Moral Attitude	0.123	3.958	0.000	0.123	1.992	0.047	0.001	0.008	0.994
Moral Judgments (D)	−0.021	0.626	0.532	0.091	1.463	0.144	0.111	1.640	[2] 0.101
Moral Judgments (S)									
Deontological	0.031	0.570	0.569	0.165	2.362	0.019	0.134	1.323	0.186
Utilitarian	0.248	5.389	0.000	0.132	1.614	[3] 0.108	−0.116	−1.342	0.180
Relativist	0.346	7.233	0.000	0.421	6.635	0.000	0.075	0.840	0.401
Egoist	−0.053	1.319	0.188	0.006	0.108	0.914	0.058	0.743	0.458
Justice	0.078	1.593	0.112	−0.008	0.140	0.889	−0.087	−0.930	0.352
Adjusted R^2	0.495			0.546					
ΔR^2				0.050					

** p < 0.05; ** p < 0.01; *** p < 0.001*

The effects of moral recognition on ethical IT behavior intention shows strong evidence of being stronger *($\Delta\beta = 0.185, p < 0.01$)* in the conventional domain *($\beta = 0.316, p < 0.001$)* than in the base model *($\beta = 0.131, p < 0.001$)*. Based on Table 29, the results suggest that moral recognition, or the perception that a moral behavior is perceived as important or critical, becomes more important in ethical IT decision-making when attributed to the conventional domain. Interestingly, although there is substantial evidence that utilitarian moral reasoning is crucial in ethical IT decision-making in the base model *($\beta = 0.248, p < 0.001$)*, there is no evidence that utilitarian moral reasoning contributes to ethical IT behavior intention *($\beta = 0.132, p = 0.108$)*. However, despite the chance in significance of utilitarian moral reasoning under conventional domain attribution, there is no evidence of a significant difference in magnitude between the two models *($\Delta\beta = -0.116, p = 0.180$)*, although the difference itself is negative.

Thus far we have not considered effects with significance levels at or below an alpha level of 0.10, although this is common in other ethical IT decision-making literature (Banerjee et

al. 1998; Banerjee and Jones 1996; Leonard and Cronan 2001; Leonard et al. 2004). However, due to the dismal effects of cognitive moral development on ethical IT behavior intention in both the base and domain-specific models, we will suspend statistical rigor in order to entertain the differences in cognitive moral development due to domain-specific effects. Although neither path coefficient shows evidence of influencing ethical IT behavior intention ($\beta_{base} = -0.021$, $p_{base} = 0.532$, $\beta_{conventional} = 0.091$, $p_{conventional} = 0.144$), please note that in the personal domain there is some evidence that the path coefficient increased significantly in the personal domain model *($\Delta\beta = 0.111$, $p = 0.11$)*. Contrary to expectations that the effect of cognitive moral development would *decrease* in the personal domain, we find some evidence that the effect *increases*, which may be due to the concentration of cognitive moral development levels towards personal intent and conventional schemas.

Hypothesis H34 states that conventional domain attribution will have no influence on the effects of moral recognition on ethical IT decision-making compared to the base model. The results show strong evidence of a significant *increase* in the effects of moral recognition *($\Delta\beta = 0.185$, $p < 0.01$)*; therefore, hypothesis H34 is not supported. Hypothesis H36 states that conventional domain attribution will also have no influence on the effects of moral attitudes on ethical IT decision-making. There is substantial evidence supporting this hypothesis *($\Delta\beta = 0.001$, $p = 0.994$)*. Hypothesis H38 states that conventional domain attribution will *decrease* the effects of deontological and justice moral judgments. The results show no support for this assertion as the effects of deontological moral judgments neither increase nor decrease in the conventional domain *($\Delta\beta = 0.184$, $p = 0.186$)*. In addition, this construct does not become significant when compared with the base model. Therefore, hypothesis H38 is unsupported. Hypothesis H40 states that conventional domain attribution will *increase* the effects utilitarian moral judgments. The results show no evidence that conventional domain attribution has any effect on utilitarian moral

judgments *(Δβ = −0.116, p = 0.180)*. Although this is surprising given initial predictions, this is unsurprising when the significant decrease in the magnitude of this construct (see Table 18). Hypothesis H42 states that conventional domain attribution will *increase* the effects relativist moral judgments. The results show no evidence that conventional domain attribution has any effect on relativist *(*moral judgments *Δβ = 0.075, p = 0.401)*. Although this is surprising given initial predictions, this is unsurprising when the significant decrease in magnitude of this construct (see Table 23). Hypothesis H44 states that conventional domain attribution will have *no influence* on the effect of egoist moral judgments. The results show evidence for this ascertain as there is no significant increase or decrease in the effects of egoist moral judgments on ethical IT behavior intention *(Δβ = 0.058, p = 0.401)*; therefore, hypothesis H44 is supported. Hypothesis H46 states that conventional domain attribution will *decrease* the effects justice moral judgments on ethical IT behavior intention. The results show no evidence to support for this assertion as the effects of justice moral judgments showed neither increased nor decreased in the conventional domain *(Δβ = −0.087, p = 0.352)*. In addition, the construct did not become significant when compared with the base model. Therefore, hypothesis H46 is unsupported.

Table 25. Summary of hypotheses for conventional (piracy) domain

	Hypothesis		$\Delta\bar{x}$ / Δβ	P-Value		Supported?
H15	Recognition	=	−0.308	0.000	***	No
H16	Recognition - Intention	=	0.185	0.009	***	No
H17	Attitude	=	−0.216	0.000	***	No
H18	Attitude - Intention	=	0.001	0.994		Yes
H19	Deontological	<	0.052	0.151	*	No
H20	Deontological - Intention	<	0.134	0.186		No
H21	Utilitarian	>	−0.190	0.000	***	No
H22	Utilitarian - Intention	>	−0.116	0.180		No
H23	Relativist	>	−0.157	0.000	***	No
H24	Relativist - Intention	>	0.075	0.401		No
H25	Egoist	=	−0.033	0.297		Yes
H26	Egoist - Intention	=	0.058	0.458		Yes
H27	Justice	<	−0.081	0.035	*	Yes
H28	Justice - Intention	<	−0.087	0.352		No

** p < 0.05; ** p < 0.01; *** p < 0.001*

The structural model for the conventional domain offers some additional explanatory power *(Adj. R^2 = 0.546, ΔR^2 = 0.050 or 5%)* of ethical behavior intention over and above the base model. Given the base model already maintains a high-level of explanatory power for cognitive models, the increase due to conventional domain-specific effects is modest. Nevertheless, this suggests that the situations attributed to the conventional domain elicit different patterns of moral attitudes and judgments that are more consistent with ethical IT behavior intentions.

Principled Domain

In the following section the results related to the principled domain, the hacking scenario, are considered, and the respective hypotheses are evaluated based upon the results. The ethical dilemmas attributed to the principled domain are largely considered intrinsically harmful independent of social context or referent group. Although these behaviors may result in personal or social benefits for the actor, these benefits are often at the expense of others.

Table 26. Pair-wise comparison of base and principled (hacking) domain moral reasoning constructs

Construct/Domain	$\bar{x}$ (Base)	$\bar{x}$ (Principled)	$\Delta\bar{x}$ ($x_h - x_b$)	SD	T-Stat	P-Value
Moral Recognition	3.006	3.935	0.232	0.761	5.471	0.000
Moral Attitude	3.535	3.920	0.384	0.614	11.213	0.000
Moral Judgments (S)						
Deontological	3.800	4.380	0.580	0.631	16.470	0.000
Utilitarian	3.835	4.131	0.296	0.644	8.234	0.000
Relativist	3.666	4.174	0.508	0.671	13.555	0.000
Egoist	3.429	3.644	0.215	0.576	6.705	0.000
Justice	3.747	4.323	0.577	0.649	15.912	0.000
Ethical Behavior Intention	3.988	4.359	0.371	0.712	9.339	0.000

$* p < 0.05; ** p < 0.01; *** p < 0.001$

Hypothesis H47 states that the levels of moral recognition will increase in the principled domain in comparison to all domains considered, and the results show substantial evidence supporting this ascertain *($\Delta\bar{x} = 0.232, p < 0.001$)*; therefore, hypothesis H47 is supported. Hypothesis H49 states that the levels of moral attitudes will increase in the principled domain. The results indicate substantial evidence supporting a strong increase in levels of moral attitudes *($\Delta\bar{x} = 0.384, p < 0.001$)*. Therefore, hypothesis H49 is supported. Hypothesis H51 states that levels of deontological judgments will increase in the principled domain. The findings show substantial evidence that deontological moral judgments increase significantly. Therefore, hypothesis H51 is supported *($\Delta\bar{x} = 0.580, p < 0.001$)*. Hypothesis H53 states that principled domain attribution will have no effect on levels of utilitarian moral judgments. The results show strong evidence of an *increase* in utilitarian moral judgments in the principled domain *($\Delta\bar{x} = 0.296, p < 0.001$)*. Therefore, hypothesis H53 is unsupported. Hypothesis H55 states that principled domain attribution will have no effect on levels of relativist moral judgments. The results show strong evidence of an *increase* in the effects of relativist moral judgments in the principled domain *($\Delta\bar{x} = 0.508, p < 0.001$)*. Therefore, hypothesis H55 is unsupported. These results suggest that utilitarian and relativist moral judgments may not be as clearly related to the

conventional domain as initially predicted, but rather principled domain attribution results in an increase in moral judgments *in general*. Hypothesis H57 states that principled domain attribution will decrease the levels of egoist moral judgments. However, the results show strong evidence of an *increase* in egoist judgments *($\Delta \bar{x} = 0.215, p < 0.001$),* rather than a *decrease* as initially predicted. Similar with utilitarian and relativist moral judgments, this may suggest that domain attribution may not result in *particular* moral judgments, but rather a broader increase or decrease in moral judgments. Hypothesis H59 states that justice moral judgments will increase in the principled domain. The findings show substantial evidence that justice moral judgments increase significantly *($\Delta \bar{x} = 0.577, p < 0.001$)*. Therefore, hypothesis H59is supported.

Table 27. Comparison of path coefficients and significance between base and principled (hacking) domain models

Construct	Base			Hacking			Hacking - Base		
	β	T	Sig	β	T	Sig	Δβ	T	Sig
Moral Recognition	0.131	3.507	0.001	0.351	7.063	0.000	0.221	3.131	[1] 0.002
Moral Attitude	0.123	3.958	0.000	0.102	1.590	[2] 0.113	−0.021	−0.318	0.751
Moral Judgments (D)	−0.021	0.626	0.532	0.035	0.576	0.565	0.056	0.858	0.391
Moral Judgments (S)									
Deontological	0.031	0.570	0.569	0.252	2.670	[3] 0.008	0.221	2.019	[4] 0.044
Utilitarian	0.248	5.389	0.000	0.146	1.844	[5] 0.066	−0.102	−1.111	0.267
Relativist	0.346	7.233	0.000	0.336	4.126	0.000	−0.010	−0.109	0.913
Egoist	−0.053	1.319	0.188	0.003	0.037	0.970	0.056	0.668	0.504
Justice	0.078	1.593	0.112	−0.029	0.315	0.753	−0.107	−1.070	0.285
Adjusted R^2	0.495			0.548					
Δ R^2				0.053					

** p < 0.05; ** p < 0.01; *** p < 0.001*

Interestingly, although moral recognition remains a significant indicator of ethical IT behavior intention in the base model *($\beta = 0.131, p < 0.01$)* as well as the principled model *($\beta = 0.351, p < 0.001$)*, we have a *significantly stronger* beta coefficient *($\Delta\beta = 0.221, p < 0.01$)*. This finding suggests that the perception of the situation as important or critical *becomes more salient*

in ethical decision-making in situations attributed to the principled moral domain. Surprisingly, although there is no evidence that the path coefficient between moral attitudes and ethical IT behavior intention, the path *loses significance* in the principled domain model *($p_{base} < 0.000$, $p_{principled} = 0.113$)*. This suggests that moral attitudes are no longer an indicator of ethical IT behavior intention, likely in favor of other ethical decision-making factors becoming more salient, such as moral recognition and deontological moral reasoning.

Deontological moral reasoning in the base model *($\beta_{base} = 0.031$, $p = 0.569$)* and other domain-specific models was irrelevant in determining ethical IT decision-making. However, in the principled domain deontological moral reasoning becomes a salient factor *($\beta_{principled} = 0.252$, $p < 0.01$)*. First, the path coefficient *becomes significant* in the principled domain model *($p_{base} = 0.569$, $p_{principled} < 0.01$)*. Second, there is some evidence that the path coefficient of deontological moral reasoning is greater in the principled domain model than the base model *($\Delta\beta = 0.221$, $p < 0.05$)*. This suggests that for moral behaviors that are perceived as "universally" unacceptable via principled domain attribution, people rely on different moral reasoning heuristics employing deontological moral reasoning in favor of other ethical decision-making patterns, possibly moral attitudes. Although the difference between path coefficients effects of utilitarian moral reasoning is not significantly different *($\Delta\beta = -0.102$, $p = 0.267$)*, the effect of utilitarian moral reasoning does *lose significance* in the principled domain model *($p_{base} < 0.000$, $p_{principled} = 0.066$)*, which suggests that there is no relation between utilitarian moral reasoning and ethical IT behavior intention in situations attributed to the moral domain.

Hypothesis H48 predicts that the effect of moral recognition on ethical IT behavior intention increases in the principled domain. The results show strong evidence that moral recognition does indeed influence ethical IT behavior intention more when the scenario is attributed to the principled domain *($\Delta\beta = 0.221$, $p < 0.01$)*; therefore, hypothesis H48 is

supported. This suggests that when a person attributes a scenario to the principled domain, the perception that a dilemma is critical or important *is even more consistent* with ethical intention. Hypothesis H50 states that the effects of moral attitudes on ethical IT behavior intention increases in the principled domain. The results, however, show no evidence of increased effects due to moral attitudes in the principled domain *($\Delta\beta = -0.021$, $p = 0.391$)*; therefore, hypothesis H50 is not supported. Hypothesis H52 states that the effects of deontological moral judgments will increase in the principled domain. The results show evidence of an increase in the effects of deontological moral judgments *($\Delta\beta = 0.221$, $p < 0.05$)*. Therefore, hypothesis H52 is supported. Hypothesis H54 states that the effects of utilitarian moral judgments will no significantly change in the principled domain. The results show no evidence that the effect of utilitarian moral judgments increases or decreases *($\Delta\beta = -0.102$, $p = 0.267$)*, although the non-significant coefficient is moderately negative. Therefore, hypothesis H54 is supported. Hypothesis H56 states that the effects relativist moral judgments will not change in the principled domain. The results show no evidence that the effect of moral judgments increases or decreases relativist *($\Delta\beta = -0.010$, $p = 0.913$)*. Therefore, hypothesis H56 is supported. Hypothesis H58 states that the effects of egoist moral judgments will *decrease* in the principled domain. The results show no evidence of this ascertain *($\Delta\beta = 0.056$, $p = 0.514$)*; therefore, hypothesis H58 is unsupported. Hypothesis H60 states that the effects justice moral judgments will *increase* in the principled domain. The results show no evidence of an increase in the effects of justice moral judgments *($\Delta\beta = -0.107$, $p = 0.285$)*. Interestingly, although the change in path coefficient is not statistically significant, the coefficient or justice moral judgment is clearly negative. In addition, justice moral judgments remain insignificant in the principled domain. Therefore, hypothesis H60 is unsupported.

Table 28. Summary of hypotheses for principled (hacking) domain model

	Hypothesis		Δx̄ / Δβ	P-Value		Supported?
H29	Recognition	>	0.232	0.000	***	Yes
H30	Recognition - Intention	>	0.221	0.002	***	Yes
H31	Attitude	>	0.384	0.000	***	Yes
H32	Attitude - Intention	>	−0.021	0.751		No
H33	Deontological	>	0.580	0.000	***	Yes
H34	Deontological - Intention	>	0.221	0.044	***	Yes
H35	Utilitarian	=	0.296	0.000	***	No
H36	Utilitarian - Intention	=	−0.102	0.267		Yes
H37	Relativist	=	0.508	0.000	***	No
H38	Relativist - Intention	=	−0.102	0.913		Yes
H39	Egoist	<	0.215	0.000	***	No
H40	Egoist - Intention	<	0.056	0.504		No
H41	Justice	>	0.577	0.000	***	Yes
H42	Justice - Intention	>	−0.107	0.285		No

** p < 0.05; ** p < 0.01; *** p < 0.001*

The structural model for the principled domain offers some additional explanatory power *(Adj. $R^2 = 0.548$, $\Delta R^2 = 0.053$ or 5.3%)* of ethical behavior intention over and above the base model, strikingly similar to the conventional domain model. Given the base model already maintains a high-level of explanatory power for cognitive models, the increase due to principled domain-specific effects is modest. Nevertheless, this suggests that the situations attributed to the principled domain elicit different patterns of moral attitudes and judgments that are more consistent with ethical IT behavior intentions. This difference is striking when compared with the personal domain model, but the similarity with the conventional domain model is surprising. This may suggest that despite the significant structural differences between the conventional and principled models, both are highly explanatory of ethical IT behavior intention, only drawing upon different decision-making heuristics.

Discussion and Conclusions

Moral recognition showed varied results across the three domains of morality. In the personal domain, moral recognition was no longer a salient factor in determining ethical behavior intention. This suggests first that moral recognition is no longer a salient factor once the scenario moves from a normative morality to a personal morality—regardless of whether the issue is critical or not, people may engage in personally perceived unethical behaviors. In the conventional domain, moral recognition was significantly diminished both in terms of magnitude and effect size. Although this ran contrary to initial predictions, this is not necessarily inconsistent with domain theory, and may be rooted as an artifact of the analysis. Since the phishing and software piracy scenarios may be perceived as of lesser ethical importance than the principled domain, the staggeringly stronger perceptions of ethical importance, such as the hacking scenario portrayed in the principle domain, may have drowned out the perceptions of less critical importance in the other two scenarios. Nevertheless, although moral recognition remains a salient factor in determining ethical IT behavior intention, the results suggest those scenarios attributed to the conventional domain are perceived as much less important, and the moral importance of the scenario is less salient a factor. Principled domain attribution, however, results in both much stronger perceptions of ethical importance and a corresponding increase in salience on ethical IT behavior intention, suggesting that as ethical IT dilemmas have clear, harmful consequences to others, perceptions of ethical importance become more consistent with ethical IT intentions than with other domains of morality.

Moral attitudes did increase and decrease in magnitude due to moral domain attribution consistent with initial predictions. However, despite initial predictions, little evidence was found that domain attribution influences the manner that moral attitudes behave in ethical decision-making. The influence of moral attitudes, or emotive evaluations of good and bad, did

not decrease in the personal domain and increase in the principled domain as expected, but remained constant. However, there is no evidence that moral attitudes are an important factor in the principled domain, and much weaker evidence in the conventional domain. Moral attitudes, however, has been consistently shown to have weak or inconsistent effects on ethical behavior intention in other studies (Banerjee et al. 1998; Leonard and Cronan 2001), and the relationship between moral attitudes and domain attribution continues this story.

The relationship between moral domain attribution and these two "core" ethical decision-making constructs requires further investigation. A fascinating separation was found between moral recognition and moral attitudes with situational moral reasoning. In a single scenario, software piracy (conventional) for example, a single respondent may identify this as a non-critical issue (low moral recognition) that is 'good' or 'pleasant' (high moral attitude) but nevertheless consider the action morally questionable (low deontological reasoning) and unfair (low justice reasoning). Interestingly the opposite was found true for the phishing (personal) scenario, where moral recognition, attitude, and behavior intention tended toward more *unethical* side, while the situational moral reasoning tended toward more *ethical* responses.

Domain theory of moral development has many caveats, as it suggests that through our moral development during our childhood and adolescence resulting in defined patterns of ethical decision-making. Situational moral reasoning (McMahon and Harvey 2007; Reidenbach and Robin 1988; Reidenbach and Robin 1990) may help unravel some of these patterns of ethical decision-making contained within domains of morality, in an IT-context at the very least. However, the findings are not as staggering as originally predicted. When all scenarios are considered, only two dimensions of situational moral reasoning were salient: utilitarian and relativist. Domain attribution was expected to result in significantly different ethical decision-making models, particularly in terms of situational moral reasoning. For example, in the

personal domain egoist moral judgments were expected to become a salient factor, while deontological and justice judgments were expected to become salient in the principled domain. At the same time the findings of the analysis are expected, unexpected, underwhelming and surprising.

When all scenarios were considered in the base model, deontological judgments were inconsequential in determining ethical IT behavior intention. In both the personal and conventional domain, deontological judgments are also inconsequential, although the levels of deontological judgments do chance significantly in the personal domain. However, in the principled domain deontological judgments become a salient decision-making factor, indicating some of the first evidence that people use different moral reasoning strategies depending on the scenario at hand, and how that scenario is attributed to domains of morality. Moral reasoning based on notion of justice, however, was not a salient factor in any of the domains, although there are some minor differences in the conventional domain and major differences in the principled domain. Utilitarian and relativist moral judgments, the two highly salient forms of moral reasoning, remain salient ethical decision-making factors in each domain. However, the use of utilitarian and relativist moral judgments did not follow initial predictions, which were that personal and principled domain attribution would decrease the use of utilitarian and relativist judgments, whereas conventional attribution would increase the use of utilitarian and relativist judgments. Instead, utilitarian moral reasoning was significantly lower and the lowest in the conventional domain and second in the personal domain, while substantially increase in the principled domain. On one hand, given utilitarian judgments are centered on weighing actors and consequences in maximizing good, may suggest such reasoning would be more consistent with principled domain attribution. On the other hand, other forms of moral judgments, specifically deontological and principled, ought to have been more salient in the principled domain. Similarly,

relativist judgments, expected to increase in the conventional domain and decrease in others, show similar patterns, decreasing in both the personal and conventional domain, and increasing substantially in the principled domain. This reveals the surprising finding about domain attribution that will be echoed shortly—that domain attribution increase or decreases the use of *all* moral judgments, and this increase *overshadows particular* changes in moral judgments.

The relationship between personal domain attribution and situational moral judgments, particularly egoism, sheds additional light on how domain attribution may influence ethical decision-making. Although the egoism construct may be considered highly suspect due to poor reliability. The *decrease* in egoist moral judgments (perceptions of selfishness) and *no increase* in the effects of egoist judgments in the personal domain appear to run contrary. However, personal domain attribution may not manifest itself in an absence of particular moral judgments (deontological, justice, etc.) and a stronger presence of other moral judgments (egoist, in particular), but may manifest itself in an *absence of moral character* altogether. In other words, personal domain attribution does not reflect morality of *personal intent* (Rest et al. 2000a; Rest et al. 2000b), but rather a domain of morality centered around the immediate individual; and therefore not perceived by outside observers as necessarily egoistic or selfish since the consequences of the action are also relegated to the individual. Furthermore, this is consistent with the previous findings from deontological, utilitarian and relativist judgments: that moral domain attribution influences the use of *all* moral judgments, more so than *particular* moral judgments.

Implications for Theory and Practice

The study has found many interesting results in applying the domain theory of moral development to ethical IT decision-making and behavior. The study contributes two different manipulation checks to ensure proper domain attribution of scenarios prior to conducting a full

study. The first manipulation check seeks direct attribution by individuals varying based upon confidence of the attribution, while the second manipulation check extends some assumptions used by Gattiker and Kelley (1995; 1999a). In addition, this study reveals many interesting findings about ethical IT decision-making, and how domain theory of moral development plays a role. On one hand, we find some evidence that people do indeed engage in broad *segmenting* of ethical IT decision-making patterns in different moral domains, as evidenced by varied increases and decrease in moral recognition, attitudes, and situational moral reasoning. However, of particular contribution is that domain attribution seems to be consistent with a *broad magnification* of perceptions of ethical importance, emotive evaluations, and various moral judgments, while in some highly specialized instances (deontological judgment in the personal and principled domain, for example) do we find *particular* moral judgments becoming more and less salient. Nevertheless, consistent with domain theory of moral development, this study reveals that people engage in markedly different ethical decisions-making patterns depending on the ethical IT dilemma in question, but the questions remains: *what role does information technology play in fashioning our ethical decision-making, and how can we understand this role?*

Limitations

Several limitations may be identified in this study. First, ethical decision-making is a complex endeavor where many rationales (Reidenbach and Robin 1988; Reidenbach and Robin 1990) and factors (Ross and Robertson 2003) contribute to our ethical or unethical intentions. Since the effects of different psychological states and normative influences are often small and disparate, many ethical decision-making studies in IT ethics have used large sample sizes in order to find these effects (Banerjee et al. 1998; Leonard and Cronan 2001). Investigating how moral domain attribution *interacts* with ethical decision-making models continues this trend of uncovering complex decision-making patterns in IT ethics. Albeit many of the results of domain

attribution, particular for situational moral reasoning, are not only *exploratory* but *unexpected*, expanding the study to incorporate a more robust factorial vignette design and include a larger, more varied set of scenarios may help bolster the current findings, or uncover new revelations of domain attribution in situational IT ethics. Second, since no previous work has combined situational moral reasoning with moral domain theory in this context, some exploratory predictions has to be made regarding the nature of domain attribution and its effects on ethical decision-making. For example, since the conventional domain is rooted in and highly dependent on the immediate social context and normative landscape surrounding the ethical dilemma, an assumption is clearly made that the *specific* social context will be underscored by a *general importance* of context, for example, though relativist judgments.

Some of these results may also be explained by the limitations in the vignettes or vignette-style studies. The vignettes are sensitive to several potentially confounding factors. When dealing with perceptions, attributes and judgments about moral action, people draw from a multitude of different experiences and values to form a moral judgment or decision, and it may be difficult to isolate that vignette, or particular aspects of the vignette (such as the action, responsible party, or information technology used) to the resulting responses. First, since each of the vignettes is concerned about the actions of a "friend" or "co-worker" there is an impersonal, anonymous element that may depress moral attributes and judgments that lead to ethical behavior intentions. Nevertheless, given the variance between vignettes and the strong attributes and judgments in the universal vignette depicting the hacking scenario, it appears there was not a pervasive problem of desensitization due to the anonymity of the actor. Second, another limitation of vignette studies concerns the disconnect between the attitudes and judgments elicited by the individual in response to the vignette, and the *expected* attitudes and judgments. However, these issues are addressed in the manipulation check for domain attribution in this chapter. Third,

vignettes studies are sensitive to not only individual experiences and values, but also temporal changes in those experiences on page. Many vignettes become more or less salient to the proximity of similar events in a person's life that has a meaningful impact or impression on their well-being.

CHAPTER V

MORAL DIMENSIONS OF INFORMATION TECHNOLOGY

Introduction

To continue dismantling the nondescript situational specificity of IT ethics, we have considered first how situational moral reasoning may diverge from dispositional moral reasoning, and how entrenched moral reasoning patterns (moral domains as developed from experiences), we have neglected a most important dimension of the situation: *the technology itself*. In addition to study IT artifacts, we must consider beliefs, values, norms, and attitudes of the artifacts (Reich and Benbasat 2000), including moral attitudes and judgments. IT creates new dynamics in ethical decision-making, introducing new ethical problems and reconsidering how we address old ethical problems (Johnson 2004; Maner 1996). Rarely, however, is the technology itself considered outside the context of the situation, with exception of highly focused studies on a single domain of IT ethics (e.g. software piracy) (Moores and Chang 2006). In fact, the vast majority of IT ethics research either investigates personal responses to (1) a broad set of ethical IT situations but with no theoretical differentiation (Banerjee et al. 1998; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004) or (2) a small set of highly topical (e.g. software piracy) and theoretically differentiated situations (Moores and Chang 2006). Nevertheless, neither stream of research may generalize beyond situation specific information technologies situated within an ethical issue. Therefore, it is proposed that the properties and characteristics of information technology are perceived within an ethical IT dilemma or situation, and these properties and characteristics may be extrapolated and generalized into a set of *dimensions* for information technology ethics that are salient in ethical decision-making. Therefore, the following study

addresses two research questions: first, *how do dimensions of IT ethics influence ethical IT decision-making?* And, second, *does the presence of different information technology artifacts vary the importance and salience of each dimension of IT ethics?* These questions are addressed through the *properties* of the IT artifact and the *actions afforded* by the properties of the IT artifact.

Although information technologies are quite different in their qualities and description, they are excruciatingly similar in that they all shape our possible actions, behaviors, consequences and outcomes in the same manner. Furthermore, simply relying on an IT artifact's properties and characteristics ignores the importance of individual perceptions and motivations within the immediate context and environment of the ethical IT dilemma. Therefore, to address how IT artifact properties and characteristics are perceived and acted upon, this study draws upon the theory of affordances (Gibson 1979; Heft 1989; Wells 2002) to explain how properties of information technology are acted upon towards some action, which may be perceived as ethical or unethical. Affordance theory holds that properties of the environment or object perceived by an animal or person convey actionable information as to potential behaviors (Gibson 1979). Many affordances in human action are *functional* in that the potential behaviors are performed through affordances support some purpose or goal (Markus and Silver 2008), and through objects and tools a different set of functional affordances support other behaviors and action (Dennett 1996). Therefore, this study proposes that information technology artifacts, being objects and tools with unique properties and characteristics, create different sets of functional affordances. These affordances provide humans with the potential for ethical or unethical actions (Narvaez and Lapsley 2005), and furthermore, that these "moral affordances" of information technology are constrained not merely by the properties of the object, but the moral perspectives and discourse in information technology. Therefore, first, *how are dimensions of information*

technology ethics related to moral affordances? Furthermore, the perception of different affordances by humans may influence how moral judgments and attitudes are formed, and by extension influence ethical IT decisions, intentions and behaviors. Therefore, second, *do moral affordance dimensions capture situational effects of information technology on ethical decision-making and behaviors?*

Literature Review

Revisiting Situational Factors of Ethical Decision-Making

Just as situational factors derived from the ethical dilemma and moral context may influence ethical decision-making processes, so may the moral affordances of information technology perceived by the actor. However, one must avoid problems of technological determinism in regards to the moral status and properties of an artifact (De George 2003; De George 2006), instead accounting for the interaction between artifact and user within a context in use for a particular purpose (Markus and Silver 2008). Nevertheless, the physical properties of an artifact must play a role in shaping possible moral actions, and these physical properties may have both direct-technological and indirect-technological situational effects on moral actions (Ross and Robertson 2003). However, to conceive of a information technology driven situational effect removes, in part, the importance of the human actor in the ethical or unethical behavior. The matter of IT ethics does not merely concern the situationality of technology, the context of the dilemma, and how IT is (or is not) interwoven, but the potentiality for ethical (or unethical) action afforded by the technology within the context and dilemma in the relationship between actor and environment. *How can we best capture the properties of information technology that are salient in ethical IT decision-making?* To address this issue, the theory of affordances (Gibson 1977; Gibson 1979; Heft 1989; Stoffregen 2003) is applied to not only to information technology but also moral perceptions and actions.

The theory of affordances originates from ecological psychology, particularly Gibson's work on visual perceptions (Gibson 1979). An affordance refers to the actionable properties between the world and an actor underscoring the relationship between world and actor in actionable behaviors (Gibson 1977; Gibson 1979). Affordances can be conceived as "opportunities for action… properties of the animal-environment system that determine what can be done" (Stoffregen 2003), or in other words "acts or behaviors that are afforded or permitted by an object, place, or event" (Michaels and Carello 1981). Tools, providing access to additional un-perceived or un-actionable affordances, often mediate the affordances conferred by the world to the actor. The affordances that we perceive are properties of neither the actor nor the environment, but properties of the relationship between them (Neisser and Fivush 1994).

Objects nevertheless retain these properties even though the individual does not directly perceive them. Instead, the properties of the object provide information cues as to the potential set of actions, or affordances, offered by the object in the environment (Michaels and Carello 1981). The real properties of objects are necessary for affordances be perceived by the actor; however, these real properties are not the affordances themselves (Heft 2003). Low-level physical descriptions of objects can be viewed as *impoverished descriptions* as they do not take into account the relationship between the human or animal, and the object or environment, and by focusing on possible actions through affordances instead of merely physical properties researchers have a more robust language to describe the granular contributions of objects toward completing specific activities and goals (Markus and Silver 2008). Furthermore, just as the object and environment are crucial considerations in describing affordances, so is the animal or human actor that engages with the object. Different specifies or people may lack the *perceptual* or *cognitive* ability to take advantage of real affordances, or particular species or people may lack the *physical* capabilities (Michaels and Carello 1981). Furthermore, affordances are considered to

be emergent properties of the animal-environment, or person-object relationship (Stoffregen 2003); and how this person-object relationship is situated within a particular context and environment (Chemero et al. 2003).

One extension of affordance theory and specific type of affordance is *functional affordances*, which may be defined as "… the possibilities for goal-oriented action afforded to specified user groups by technical objects" (Markus and Silver 2008). A person in possession of a tool is capable of different actions than a person without the tool (Dennett 1996). As with all affordances, functional affordances are considered with *potential* uses of an object or tool by the actor toward a specific goal or purpose. The object the manner an actor relates to or perceives the object determines the affordances available, but the actor may not recognize all of the available actions the world affords. Functional affordances may therefore be both *real* and *perceived*, and as such affordance theory is often employed in human computer interaction (HCI) research to explore how an artifacts interface design moderates an actor's perception of affordances (Norman 1988; Norman 1990). *Real affordances* are those for which the objects properties afford *some actor whoever* the potential for an action; however, sine affordances are highly dependent on the actor in the situation; real affordances represent a way of talking about the entire range of potential actions *across actors.* However, as previously mentioned, particular actors may not *perceive* all of the real affordances offered by the properties of an object or tool. Therefore, *perceived affordances*, on the other hand, refer to the affordance perceived only by a particular actor, either consciously or subconsciously. Regardless of how actors perceive affordances of tools, particularly information technology, the potentiality of action afforded by the tool to the user is determined by the possible *physical* consequences; however, the social and moral facets of the transformed action are rarely considered. Therefore, in the following section the concept of social and moral affordances are reviewed.

Moral Affordances

The relevance and significance of moral affordances depend on the individual situated within an environment, context and referent group. Affordances can be extended from emphasizing the *physical* consequences of potential action to the *social* consequences, and by further extension to the *moral* judgment of the physical and social consequences. Just as physical properties are perceived in a physical environment, so are *moral properties* be perceived in a *moral environment* (Mason 1987; Neisser and Fivush 1994). In other words, the moral properties of an object or environment create perceived *moral affordances* to an actor within a moral environment. The moral environment is formulated by "all traditions, institution, practices, settings, and roles of the society or group…" (Mason 1987); however, as information technology artifacts act as objects within an environment, a moral environment, and the IT artifact possess different properties, moral properties, objects and tools including information technology artifacts generate perceived moral affordances to an actor within an environment. Therefore, the moral affordances and associated ethical behaviors are necessarily situated within the immediate moral environment of an actor; however, to limit the scope of the study to a manageable microcosm of the moral environment we focus on the information technology artifact/object itself. *Moral affordances* themselves are ways to "discern possibilities" of either enhancing the lives of ourselves and others (performing ethical behaviors that result in good or positive) or evoking suffering on ourselves and others (performing unethical behaviors that result in bad or negative consequences) (Mason 1987). Since information technology creates new affordances extending the domain of possible actions,

Moving Beyond Technological Determinism

Many information systems researchers have argued that technology, specifically information technology, necessarily contains a moral status, or in other words morality in use of

technology is *deterministic* (Chatterjee et al. 2009; De George 2003; De George 2006; Floridi 1999). Some authors have argued that information technology *necessarily maintains* a moral status, and the manner information technology is designed has a direct impact on said moral status (De George 2003; De George 2006), while other have more conservatively demonstrated how ethical considerations may be incorporated into the design of information technology artifacts as ethical "features" in support of some deontological ethical viewpoints (Chatterjee et al. 2009). However, this *embeddedness* of morality in information technology assumes there is a set of properties that are objectively determine physical, social, and moral consequences in the world, regardless of user and context. As such, whether morality and how morality becomes embedded in the tool is a matter of dispute.

On one hand, the existence of a tool transfers some of the morality of the action out of the hands of the individual or group, and the embedded morality *becomes* a part of the object and the world by changing the manner we relate to it. In essence, the object created carries affordances that directly affect moral action, and since the affordances are based upon the *consequence* of using the tool morality is thusly transferred and embedded in the object. One the other hand, affordances can be perceived as not merely properties of the object and the world, nor purely subjective perceptions, but as relationships between the actor and the world extended or constrained by the tool (Heft 1989; Heft 2001). Just as objects and tools within the environment afford an actor or user of the tool different capabilities, so is information technology situated in the relationship between the actor and environment, thus providing affordances, including physical, social and *moral*. Technology, specifically information technology, and the manner by which it is designed shape the affordances available to the user in the context or environment (Markus and Silver 2008). Affordances, however, are not perceived in a vacuum of environment-technology-user triad, but are situated in a complex context full of motivations and purposes,

actors and stakeholders, institutions and authorities, etc. Furthermore, information technology, as a new tool that is constantly evolving, affords new activities and behaviors previously unavailable or impractical for the user (Dennett 1996). For example, information technology has provided for our ability to reproduce data and information easily, using physical media such as floppy disks and CD-ROMs, along with digital, networked media, particularly the Internet.

Few studies have explored the manner information technology artifacts influence ethical decision-making beyond exploring "scenario types," either focusing on particular issues such as software piracy (Moores and Chang 2006; Peace et al. 2003), or a broad set of ethical issues (Banerjee et al. 1998; Gattiker and Kelley 1999a; Haines and Leonard 2007b; Leonard and Cronan 2001; Leonard et al. 2004). The latter set of studies, although empirically based, apply no theory *ad hoc* in justifying the scenarios selected as a representative set of ethical IT dilemmas, nor is theory applied *post hoc* in explaining differences between scenario types. Therefore, a significant gap exists in the IS/IT ethics research regarding how different scenario types influence ethical decision-making, but more specifically and importantly, how the information technology artifact shapes individuals' perceptions, attitudes and intentions regarding this ethical IT dilemmas. The remainder of this section will explore several studies (Conger et al. 1995; Johnson 2004; Mason 1986) that begin to investigate different dimensions of ethical IT dilemmas, and characteristic of information technology that are salient in those ethical IT dilemmas as they influence ethical decision-making.

Mason (1986) identifies four major ethical issues that will arise in the "information age": privacy, accuracy, property and access (or PAPA for short). Ethical issues of privacy concern the amount of control a person ought to have over personal information on the Internet, whether it is right, or even good, to have complete control, or only some control. Accuracy is an important issue, since information can be disseminated quickly with little trace of its origin (an issue

increased many fold with the popularization of the Internet), and governments and companies rely on large databases and automated decision-making to streamline business processes. Inaccurate information can traverse the Internet in seconds, and automated decision-making based on inaccurate information causes substantive real-world consequences. Intellectual property has increasingly become more of an issue, again exacerbated by the Internet, as the duplication and modification of information becomes cheaper and easier. Individuals have difficulty claiming damage since the duplication of digital information has little cost, and the ease by which others can duplicate and disseminate intellectual property removes many boundaries to action. The final issue involves access, specially addressing questions involving either who has access to what information (questions of security), or the accessibility of information due to individual circumstances (questions of disability and digital divides).

Conger (1995) extended the work of Mason (Mason 1986) by conducting an extensive factor analysis of many ethical IT statements and IT professionals perceptions of these statements. The ethical IT statements were categorized into five dimensions, and within each dimensions, multiple sub-dimensions. The dimensions included ownership, access, motivation, responsibility, and privacy (see Table 29). *Ownership* concerns several factors that relate the presence and maintenance of intellectual property, how information *as property* is managed and used by the owner and others alike, etc. *Access* refers to moral considerations relating to who may read, modify, and delete information, to what extent these users have these rights, and what roles these users have. *Privacy* refers to moral considerations relating to a person's ability to protect and control personal information using information technology. *Motivation* and *responsibility* are common factors in any ethical dilemma; however, Conger (1995) argues that the findings indicate that IT may alter how the motivations of moral actors are perceived by others, and whether the actor is responsible for the consequences by using IT. Regardless, although motivation and

responsibility are transformed by the presence of an IT artifact, these factors are not included in the dimensions of moral affordances, and issue discussed in greater detail in the following section.

In the advent and proliferation of Internet technologies, the manner people communicated changed drastically as more and more people have begun to rely on online communication. Therefore, Johnson (2004) explores the moral and ethical implications of the ubiquity of online communication in personal and business interactions. Johnson focuses on how information technology specifically employed for online communication has fundamentally *changed* the manner that we communication, and by extension, raise new ethical issues and considerations previously unconsidered in offline interactions. Three dimensions by which online communication creates new ethical issues are identified: scope, anonymity and reproducibility. *Scope* refers to new ethical issues relating to the rate and breadth that information can be communicated to a vast number of people quickly, which may be construed as two distinct aspects: speed and reach. *Speed* refers to the rate that information can be communicated to others, while *reach* refers to the breadth of the communication, or the number of people who can simultaneously receive the same information. *Anonymity* refers to new ethical issues relating to how online communication provides users the ability to communicate with little or no identifiable information. *Reproducibility* refers to new ethical issues relating to the ability of information technology to duplicate new information with little effort and cost.

Table 29. Relevant IS/IT studies identifying dimensions of ethical IT issues

Dimension Type	Source	Study Type	Dimensions Identified
Ethical IT Issues	(Mason 1986)	Literature review; theory development	Privacy Property Access Accuracy
Online Communication	(Johnson 2004)	Literature review; theory development	Scope (Speed/Reach) Anonymity Reproducibility
Ethical IT Issues	(Conger et al. 1995)	Survey; factor analysis	Ownership Access Motivation Responsibility Privacy

Based on these aforementioned dimensions of information technology ethics, this study argues and develops that these dimensions of information technology ethics reflect moral affordances of information technology. Specifically, the physical properties and the manner IT is designed defines the moral properties by which a human actor may engage in moral actions using the IT artifact. The presence of these moral properties and subsequent perception of moral affordances defines the realm of potential moral actions afforded to the user. Furthermore, this "realm of potential moral actions" may be constructed based on this set of moral affordance dimensions for information technology. The following section expands on this argument

Refining Moral Affordances of Information Technology

Based on the literature review of dimensions of ethical IT issues and moral affordances, set of seven moral affordance dimensions for information technology is developed (see Table 30). These dimensions combine the research of multiple authors using multiple methods of analysis (Conger et al. 1995; Johnson 2004; Mason 1986). Each of the moral affordance dimensions are discussed in greater detail in the following sections.

Table 30. Definitions and sources with moral affordance dimensions

Moral Affordance	Source	Definition
Ownership	(Conger et al. 1995; Mason 1986)	Rights to and control of information technology and intellectual property
Access	(Conger et al. 1995; Mason 1986)	Control availability of information technology and information
Anonymity	(Johnson 2004)	Create isolation from others and act without identifiable information
Privacy	(Conger et al. 1995; Mason 1986)	Control personal information and the dissemination thereof
Speed (Scope)	(Johnson 2004)	Quickly disseminate information between two points
Reach (Scope)	(Johnson 2004)	Broadly disseminate information between multiple simultaneous points
Reproducibility	(Johnson 2004)	Duplicate information without any loss of quality

Why Are These Affordances?

Affordances are perceived opportunities or actions that an actor perceives in the environment or using a tool to complete a specific task. Affordances are not inherent properties or qualities of the information technology, but arise from the interaction between the actor, the environment, and the technology (Markus and Silver 2008). Moral actions and behaviors are purposeful, and ethics is a resultant of the judgments of the consequences of moral actions and behaviors as "good" or "bad." Information technology, as a tool, often helps us achieve the purpose of moral action faster, better, or with fewer errors. Conversely, information technology may create new ethical problems and issues (Groniak-Koakawska 1996; Maner 1996). The interaction between the human users and the information technology towards purposeful action that has moral character and is judged ethically forms the basis of the concept of moral affordances. The affordances provided by the technology and technology in use often carry a moral component in some situations and contexts; for example, a fast, open campus network affords student the opportunity to easily shared copyrighted material including software and media. The physical properties and the manner IT is designed defines the moral properties by

which a human actor may engage in moral actions using the IT artifact. The presence of these moral properties and subsequent perception of moral affordances defines the realm of potential moral actions afforded to the user. Furthermore, this "realm of potential moral actions" may be constructed based on this set of moral affordance dimensions for information technology. Furthermore, since human actions are necessarily purposeful—humans motivated to achieve a goal through some means—and because these actions are purposeful the qualities of the technology perceived by the individual (affordances) are necessarily judged ethically.

Ownership

Ownership is defined as the presence and maintenance of intellectual property, and how information *as property* is managed and used by the owner and others alike, etc. (Conger et al. 1995). The ownership of information technology *as an artifact* also plays an important role in shaping moral actions. On one hand, IT artifacts are considered common goods for common consumption (e.g. municipal or state broadband, Internet infrastructures, organizational networks and infrastructures, etc.). On the other hand, the ownership of IT artifacts may be highly individualistic, particularly with the increase ubiquity of personal and laptop computers and smart phones. The social and moral structure surrounding the ownership of an IT artifact may determine the perceived moral affordances of actors, particularly the extent to which these IT artifacts are viewed as common or shared resources. Second, ownership of information *as intellectual property* also may determine the moral affordances perceived by the user, and the manner the IT artifact is designed may promote or subvert these conceptions. Traditionally, IT artifacts have possessed few safeguards to protect intellectual property rights; however, more recent technologies have started introducing clear right-based access controls for the consumption and modification of information, in some cases for the express purpose of enforcing intellectual property rights. However, other technologies are expressly developed to subvert intellectual

property rights (particular some peer-to-peer downloading programs), often in support of a common good or a principle of sharing information.

Access

Access is defined as moral considerations relating to who may read, modify, and delete information, to what extent these users have these rights, and what roles these users have (Conger et al. 1995). Although the concept of access to information is relatively simple, the moral implications of access are quite complex as are the manner access affordances change moral action. Access affordances may first be viewed in an emancipator light, where access to information provides a social good. In other words, people with greater access to actionable information are likely to make better and more meaningful decisions, improving their lives and the lives of others, and therefore, providing such access through information technology represents a moral position and ethical behavior. Second, access affordances may also be viewed in a negative light, first based on unintended access to sensitive information and second based on access to harmful or misleading information. When we consider explicit unethical behaviors online, at least as they relate to moral affordances, information technology allows for unprecedented access to information that is otherwise private and inaccessible. While simultaneously providing access to intended users, information technology must prevent and constrain access to sensitive information from those who would use such information for identity theft or other unethical (and often illegal) behaviors. Finally, for those who would engage in unethical behaviors that are harmful to others, access affordances of information technology may make such unethical behaviors more available to the general populace.

Privacy

Privacy is defined as a person's ability to protect and control personal information using information technology (Conger et al. 1995). Information technology represents a double-edge sword in terms of protecting personal information and upholding privacy rights. On one hand, through entirely digital communication that affords significant anonymity, personal privacy is maintained by reducing the amount of identifiable information available to other users. On the other hand, information technology provides a platform that personal information may be easily transferred from party to party with few repercussions. Privacy issues are likely to be more of a concern due to the *lack* of privacy afforded by information technology than the presence due to the low level of privacy afforded by information technology *in light of* the anonymity afforded. Issues of privacy may also relate to other ethical issues of information technology, particularly access, ownership and anonymity. The ability for third parties to have access to personal information and for other parties to have the right to transform personal information to third parties are important considerations in ethical privacy issues. The manner ownership of information is morally and legally defined also plays an important role in a person's privacy expectations when dealing with information technology. Other affordances may exacerbate the problem, such as scope or reproducibility. Finally, the ability to maintain anonymity in personal and professional transactions online is crucial for protecting one's privacy.

Anonymity

Another issue in IT ethics stems from the anonymous, remote, immaterial, and virtual characteristics of interacting with other people using information technologies (Floridi 1999); hereafter simply termed *anonymity*. Anonymity is conceived of as the ability for people to engage in behaviors (both online and offline) without identifiable personal information being attributable to their action (Johnson 2004). Information technology makes achieving an anonymous state

much easier compared with achieving the same goals outside of online communication. Anonymity offline requires significant effort (and isolation), whereas on-line anonymity is a "natural state" too many people and for many behaviors. In essence, effort must be made to *create an identity* online rather than hide it. Anonymity leads to problems of integrity of data and information, specifically Data can be "taken, altered, and then distributed" with little to no trace (Johnson 2004). Only those with experience with (and access to) detailed information contained in network logs can trace and identify other on-line individuals who choose not to identify themselves. Trust in the integrity of the information and the information source is therefore important, but difficult to foster in an on-line environment.

Scope (Speed and Reach)

Johnson (2004) conceives of scope as "power," or the ability of information technology to quickly and broadly dissemination information, and thusly have a greater impact on others in a shorter period of time than traditional communication methods. Scope shall be conceived as a formative construct comprised of two components afforded by the online communication technology: speed and reach. *Speed* is the rate by which information is transferred from one person or system to one or more person(s) or system(s). From a technical perspective, speed may be directly related to the processing power and bandwidth of computer technology, whose constant evolution affords more and more information of greater complexity, such as audio and video information, to be much more accessible in a timely manner. *Reach* is the degree of interconnectedness between individuals through communication channels, such that as the amount of interconnectedness increases, so does the ability of an individual to "reach" many others by merely publically publishing some information via these online communication channels Naturally, the breadth of people exposed to information and other media increases substantially as the popularity and centralization these communication channels increase.

However, even decentralized communication mediums that are hugely popular can have great reach, particularly with the rise of social networking and social media (Parameswaran and Whinston 2007).

Ethical issues derived from the speed and reach of online communication specifically regards the power afforded through the rate and breadth of information sharing and transfer. No longer are information channels centralized and top-down, controlled by central institutions and "authorities" such as news media outlets and government agencies. Online communication in most countries has provided a platform for bottom-up communications by individual actors, including consumers, activists, etc., to quickly disseminate information to a wide-variety of information consumers across the globe. The sheer scope and power afforded by online communication is staggering, as well as its benefits. But this power also has some negative influences, allowing viruses and worms to spread with infectious ease. Furthermore, scope may influence other moral affordances as well, such as ownership and reproducibility. As information technology provides greater speed, and more people are connected through common channels, such as social networking and other media, intellectual property and personal information can be disseminated quickly to a wide variety of other users. Often once information is "released" into online communication networks, it is impossible to retrieve. This impossibility of irretrievability is due to the scope and power afforded by online communication.

Reproducibility

The ability that information technology affords users to readily duplicate data and information and disseminate to others without the loss of quality or value is a unique characteristic of online communication using information technology (Johnson 2004). Since reproduction of data and information occurs with no loss of value; therefore, there is little evidence that a copy has been made. This threatens many aspects of moral behavior raising

several ethical questions regarding private property, personal privacy, data integrity, etc. There have been many attempts to manage and curtail reproducibility affordances to protect traditional notions of property, privacy and integrity, including encryption, intellectual property rights, reputation systems, etc.; therefore, reproducibility is not an inherent or intrinsic quality of information technology networks and communication, simply a unique, ubiquitous quality of current information system designs.

Reproducibility is an important ethical issue for information technology as it represents an affront to our traditional, normative concepts of private property and personal privacy. Property is defined by the scarcity of the property and the owner's ability to exert control upon it. Information technology affords individuals the ability to easily reproduce information, i.e. intellectual property, with great ease and speed. This threatens the scarcity of intellectual property since the information becomes readily available for those with sufficient hardware and software to consume the information; furthermore, the potential of the integrity and credibility degradation increases through further reproduction of the information away from the source. In addition, Johnson (2004) points out in both reproducibility issues of property and privacy, it is the "irretrievability of action" when private and personal information becomes public available and reproduced at large. The "owner" of the private or personal information is often unable to exert control of such information once reproduced and disseminated by another actor, or group of actors.

The concept of reproducibility relates to other dimensions of ethical decision-making, including scope, anonymity, and ownership. Reproducibility relates to scope a dialectic manner. On one hand, the ability to easily reproduce data quickly disseminates information across networks, allowing information to be easily available to a vast number of users. However, due to the same ease of reproducing data, information no longer maintains a sense of permanence and

value as a scarce commodity. Due to anonymity, integrity of data is threatened by the ease in which data in reproduced. Since information technology often affords people communicating online varying degrees of anonymity, data and information reproduced and disseminated by these actors has decreased legitimacy from the source's uncertainty. Finally, reproducibility has a negative effect on the ownership of data and notions of intellectual property. As data and information may be reproduced, often under the veil of anonymity and thusly without knowing the owner, there is little assurance about the origin and integrity of the information consumed.

A Few Absent Dimensions

This study is primarily concerned with the underlying dimensions of the information technology, or unique phenomenon of information technology, that drives the differences in perceptions, actions, and responses for ethical IT dilemmas. Therefore, some issues previously identified as important ethical IT dimensions may not have any application to exploring the moral affordances and ethical behaviors influenced directly by qualities and relationships with qualities of information technology. Nevertheless, the information technology artifact itself may have secondary influence on these dimensions of an ethical IT issue. The two dimensions of note are (1) responsibility and (2) motivation. *Responsibility* is defined as a sense of personal, group or organizational obligation to perform (or not perform) a particular moral, computer related action (Conger et al. 1995). Although the information technology my change who is deemed responsible for the moral consequences, responsibility represents a dimension of the *ethical issue* itself, and not of the technology contained within the ethical issue. *Motivation* is defined as the rationale for performing an ethical or unethical computer related action in consideration of who suffers or who benefits as a consequence of the moral action (Conger et al. 1995). Similarly, although information technology may play a role in the motivation of the actor to behave unethically, the motivation is rooted outside of the information and information technology. For example, since

information technology often affords additional anonymity in many settings, my motivation to say a disparaging or controversial concept may be less tempered from anonymity afforded by the information technology.

Moral Affordances and Ethical IT Decision-Making

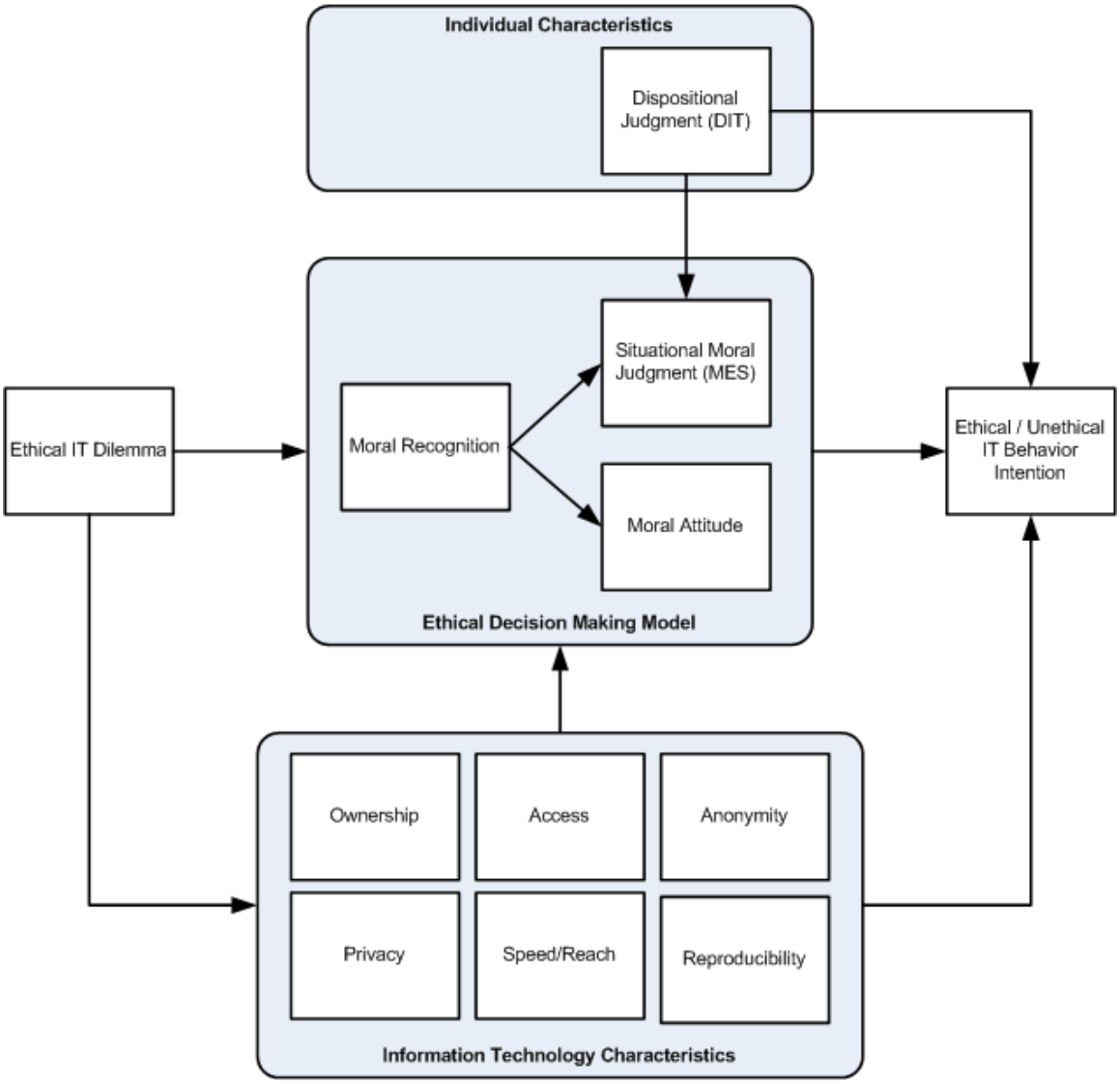

Figure 12. Research model for the effects of moral affordances of information technology

Many authors have considered in depth how information technology influences the nature of ethical theory and principles (Groniak-Koakawska 1996; Johnson 2004; Maner 1996), and also how technology and the manner technology is design permits or constrains moral behaviors (De George 2003; De George 2006); however, none of these works engaged in empirical studies

investigating the effects of information technology and the moral behaviors the technologies afford on ethical IT decision-making and intentions. Ultimately, then, the research design is largely exploratory for several reasons. The concept of moral affordances, much less dimensions of information technology ethics, has not been explored in previous literature as to how they impact ethical IT decision-making, intentions and behaviors. Due to the exploratory nature of the study, several broad propositions are explored in the research design, methodology and analysis.

First and foremost, the exploration of situational ethics focuses on the disparities between ethical decision-making, intentions, and behaviors as the immediate situation and context changes, while the individual's dispositions remain *relatively* constant. This study extends the notion of situational ethics, but focuses primarily on the properties and affordances of the information technology situated in the context as perceived by the individual. The information technology artifact, and the moral affordances perceived by the actor, is theorized to change across various contexts, situations, and artifacts in several ways. First, the individual's perception of the affordances provided by the IT artifact, through framing and sense making processes, will likely shape the set of possible moral actions and consequences. This situational factor can be viewed as a *person-affordance* relationship, where the salient factors are perceived directly between the person and the artifact's affordances. Second, the *artifact-in-context* may be an important salient situational influence, wherein the affordances of the artifact perceived by the individual and other moral attitudes and judgments change not due to the technology and context necessarily, but how these related to the specific set of moral actions in the ethical dilemma. This third relationship may be viewed as a *person-affordance-context* relationship. Finally, the *artifact-in-dilemma* may hold important situational effects on how moral affordances are perceived. Exploring these specific relationships between people, technology and moral actions rooted within a context and dilemma, however, is beyond the scope of the study. Clearly the

relationships between people and the moral affordances provided may evolve considerably as the context and dilemma change. Ultimately, this study simply proposes the following relationship between moral affordances and ethical dilemmas:

Proposition 1 – The salience of moral affordance dimensions will vary significantly between ethical IT dilemmas.

Beyond the varying salience of moral affordances based on the situational effects of context and ethical dilemma, this study posits that moral affordances will also have a direct effect on processes of situational ethical IT decision-making as explored in previous literature and chapters within this dissertation. Current models of situational ethical decision-making do not systematically address the technology artifact itself and its influence on ethical decision-making and ethical IT behavior. Not only will the salience of moral affordances change significantly from situation-to-situation, but this change in salience *through* perceived moral affordances will directly impact the ethical decisions and intentions of people in those situations. Specifically, this study is exploring the direct effects of the salience of moral affordances on ethical IT decisions and behavior intentions; thusly proposing the following:

Proposition 2 – Moral affordances has a direct effect on ethical IT decisions and ethical IT behavior intentions.

Finally, similar to the hypothesized effects of domains of morality as explored in the previous chapters, moral affordances are expected to significantly change the structure of ethical IT decision-making heuristics (such as the relative effects of moral attitudes, judgments, etc.), and how these heuristics influence ethical IT decisions and intentions. As shown in the previous chapter and other literature (Banerjee et al. 1998; Moores and Chang 2006), the ethical dilemma may have significant influence on ethical decision-making processes, where particular moral constructs become more or less salient depending on the ethical dilemma and context. Just as

situational factors derived from the ethical dilemma and moral context may influence ethical decision-making processes, so may the moral affordances of information technology perceived by the actor. Therefore, the following is proposed:

> *Proposition 3 – Moral affordances influence the manner and structure of ethical IT decision-making.*

The aforementioned propositions are assessed using a methodology that builds upon previous work from the proceeding chapters and is developed in the following section. Furthermore, the analysis and results sections follow closely these three propositions, exploring how the results of the exploratory study either supports or denies the assertions of these three propositions.

Methodology

Vignettes and Survey Design

Each vignette is designed to elicit a broad array of varying information and technology factors related to the aforementioned moral affordance dimensions. Due to the exploratory nature of the moral affordance research, and the possible confounding effects of other situational factors such as motivation, responsibility, and moral intensity, specific relationships between salient information and technology factors prevalent in the scenarios and moral affordance dimensions are avoided. Furthermore, the intention of the ethical IT dilemmas is not to elicit *specific* moral affordances of information technology, but to engender a wide spectrum of varying moral affordances.

The *phishing* ethical dilemma illustrates a phishing scam where a website requests a small amount of personal information for a chance to win a prize offer. The respondent has little information about what the website will do with the information (whether to sell it to third-party advertisers, or aid in identify theft), and whether the company or individual hosting the website will follow through with completing the prize offer. One dilemma with the phishing scenario is

that the actor (your friend) is not responsible for the unethical action, but instead is the direct victim of potential unethical actions by the company or individual receiving the personal information. The phishing dilemma introduces several issues relating to ethical IT issues and technological factors. First and foremost, since the phishing scam is intended to elicit personal information concerns about promoting privacy to protect personal information, and anonymity to protect identities on the web. Furthermore, the degree of availability of this phishing website to online users may increase the salience of concerns about access (likelihood that users have access to the website) and reach (the number of users affected by the phishing scam). Since this phishing scam is implemented online, the nature of online communication is intended to afford additional moral issues and problems not present when the information technology is absent.

The *software piracy* ethical dilemma illustrates a student downloading some statistical software for which there is a heavily discounted student version available. The cost associated with the statistical software is intended to be *reasonably* in reach of even a student's budget, but often the availability and ease by which individuals can download comparable software for no charge makes even small costs uneconomical. The software piracy scenario is expected to be salient with several moral affordance dimension, and different moral affordances than those salient in the phishing scenario. Ownership is expected to be particularly salient since all piracy issues are fundamentally issues of intellectual property. Individuals a broad sense of intellectual property and property right enforcement are likely to find ownership a particularly salient dimension in the software piracy scenario. Access and speed affordances are also likely to be more salient to most individuals as the ability to download pirated software is premised on first the availability of the software online, and the speed by which the software may be downloaded and obtained. Reproducibility affordances may also play a role in shaping software piracy intentions and decisions and in shaping the role ownership and intellectual property perspectives.

The ability of information technology to duplicate data and information (including software) is a necessary condition (a physical and moral affordance) to pirating software.

Finally, the *hacking* ethical dilemma illustrates a programmer at a bank who has access to crucial systems software, and users this access to modify the bank software to avoid a mere bank fee. The ethical implications for the access to the bank system software are vast, and the potential for unethical behavior is great. Therefore, moral affordances of information technology relating to the availability of the bank system software to the programming (i.e. access) ought to be particular salient to respondents. Also, issues of ownership ought to play a particular role, both in terms of ownership of the system (as an artifact) and the software (as intellectual property). Given that the bank likely formally owns both the systems and software, the legal ownership is without questions, but nevertheless, if the programmer is authorized access based upon his role as a systems programmer, we may conclude that there is an implicit ownership of the software and the software developed by the system.

Measure Development

The measure of salient moral affordance dimensions was developed based upon existing literature identifying important dimensions of information systems and information technology ethics (Conger et al. 1995; Johnson 2004; Mason 1986; Mason 1995). Two studies are particularly important in developing a measure of the moral affordances of information technology: Conger's (1995) factorial study identifying five dimensions (three used) of information technology ethics, and Johnson's (2004) three unique dimensions of computer and on-line communication that have salient effects on information technology ethics. As previously mentioned, Conger and others (1995) developed five dimensions of information technology ethics using an extensive factor analysis in order to confirm Mason's (Mason 1986; Mason 1995) identification of important IT ethics issues. The five dimensions identified through the factor

analysis were: ownership, access, responsibility, motivation, and privacy. Of these five, only three are used (ownership, access, and privacy) since responsibility and motivation are specific to the *scenario-itself*, applicable to scenarios irrelevant of the information technology employed; and therefore, have little relation to the information technology used in the scenario. Johnson (2004) further explicates several dimensions and future issues of information technology for on-line communication, including anonymity, scope (speed and reach), and reproducibility. Three items each measure the three dimensions, with the exception of scope that contains four items, two for both speed and reach. Questions were developed to elicit the relative important of each moral affordance, including deontological and consequential implications of each of the moral affordances. For example, the speed and reach dimensions contains questions relating to, while the privacy dimension contains questions relating to whether the action in the scenario threatens personal privacy or other's access to personal information. Table 31 outlines the finalized set of measurement items developed to assess the moral affordance dimensions.

Table 31. List of moral affordance constructs and measurement items

Item	Construct	Measurement Item
TD_01	Ownership	Who owns [the technology] is important in this situation.
TD_02		Who created the [technology] changed my opinion about this situation.
TD_03		I would be less likely to [behavior similarly] if ownership was enforced.
TD_04	Access	The ease the [technology] can be accessed is important in this situation.
TD_05		[This behavior] would be less likely if the [technology] was not easily available.
TD_06		Fewer people would be affected if the [technology] was more difficult to access.
TD_07	Privacy	Protecting personal privacy is important in this situation.
TD_08		Privacy risks changed my opinion about [this behavior].
TD_09		I would be less likely to [behavior similarly] if my privacy was at risk.
TD_10	Anonymity	It is important to maintain anonymity in this situation.
TD_11		This situation would be much worse if I could not remain anonymous.
TD_12		I would be less likely to [behave similarly] if I cannot remain anonymous.
TD_13	Speed	The speed information is sent and received is important in this situation.
TD_14		The faster information is transferred, the worse the situation becomes.
TD_15	Reach	Fewer people would be affected if information technology was absent from this situation.
TD_16		Many more people are affected in this situation because of information technology.
TD_17	Reproducibility	Copying data and information is important to [this behavior].
TD_18		The ability to duplicate data and information changed my opinion about the situation.
TD_19		I would be less likely to [behave similarly] if it was more difficult to duplicate.

Analysis and Results

The analysis and results are organized as follows. First, the reliability, convergent validity and discriminant validity is assessed to determine whether the measurement items developed to assess the moral affordance dimensions load consistently on predicted latent constructs, and that the latent constructs. Second, the relative importance (means, standard deviations) is compared between moral affordance constructs, as well as between ethical IT scenarios using pair wise comparisons. Third and finally, once the validity of the measurement moral is established and the ethical IT scenarios show unique differences regarding moral affordance dimensions, the effects of the moral affordance dimensions on ethical IT behavior and

ethical IT decisions is evaluated in isolation, and then the effects are evaluated in light of the ethical decision-making model from previous chapters. The comparisons of structural models are developed in order to address questions of whether aspects of the information technology contribute to our ethical IT behavior intention and ethical IT decisions.

Measurement Model and Validity Assessment

The second step in assessing the reliability and validity of the measurement model is performing a confirmatory factory analysis (CFA) on the 19 items developed for the seven moral affordance dimensions (Brown 2006; Campbell and Fiske 1959). In conducting a confirmatory factory analysis, each of the indicator items is associated with the latent constructs representing the corresponding moral affordance dimension. A CFA is crucial in determining suitable convergent and discriminant validity, particularly for newly developed items for theoretically established phenomena. First, convergent validity in partial least squares modeling is determined by assessing the significance of the indicator's measurement loading on the corresponding latent construct. The latent construct has maintained convergent validity if the p-value of the corresponding t-statistic for each associated indicator is less than 0.50 (Gefen and Straub 2005). Table 32 outlines each indicator, the corresponding latent construct, and the loading mean, standard deviation, t-statistics and p-value. The loading of each indicator is highly significant and satisfies the aforementioned criteria of a significance level less than 0.50; therefore, the criteria for convergent validity are satisfied.

Table 32. Indicator loadings, standard deviation, t-statistic, and p-value per latent construct

Indicator	Construct	Loading	SD	T-Stat[(a)]	P-Value[(b)]	
TD_01		0.794	0.018	43.142	0.001	**
TD_02	Ownership	0.773	0.020	38.431	0.001	**
TD_03		0.780	0.017	44.886	0.000	***
TD_04		0.758	0.020	38.831	0.001	**
TD_05	Access	0.864	0.011	75.724	0.000	***
TD_06		0.818	0.019	43.888	0.001	**
TD_07		0.780	0.020	38.655	0.001	**
TD_08	Privacy	0.893	0.008	107.568	0.000	***
TD_09		0.853	0.012	72.225	0.000	***
TD_10		0.862	0.013	65.944	0.000	***
TD_11	Anonymity	0.888	0.011	80.756	0.000	***
TD_12		0.854	0.013	65.194	0.000	***
TD_13	Speed	0.897	0.011	81.088	0.008	**
TD_14		0.896	0.010	87.619	0.007	**
TD_15	Reach	0.887	0.014	65.593	0.010	*
TD_16		0.919	0.008	115.867	0.005	**
TD_17		0.773	0.023	33.290	0.001	**
TD_18	Reproducibility	0.822	0.015	55.408	0.000	***
TD_19		0.739	0.023	31.816	0.001	**

*(a) df = 962; (b) * p < 0.05; ** p < 0.01; *** p < 0.001*

Discriminant validity in partial least squares modeling is achieved through two criteria (Gefen and Straub 2005; Gefen et al. 2000). First, measurement items, or indicators, should load heavily (greater than 0.7) on the associated latent construct, while having loadings on other construct at least one order of magnitude lower than the same loading on the associated latent construct (Gefen and Straub 2005). For example, if an indicator loads on the associated latent construct with 0.83, then the indicator should not load on other latent constructs greater than 0.73, and preferably below 0.5 (Gefen et al. 2000). Table 33 shows each of the 19 indicators developed and their loadings on each of the seven moral affordance dimensions, where the associated latent construct is emphasized in bold. Although some indicators have moderate loads on unassociated

constructs (for example, the loading of TD_01 on the privacy dimension is 0.51), these moderate cross loadings are at least one order of magnitude lower than indicators loading on the associated latent construct (in the same example, the loading of TD_01 on the ownership dimension is 0.794). Therefore, the measurement items developed to assess the moral affordance dimensions pass the first criteria for discriminant validity.

Table 33. Cross-loadings of indicators on latent constructs of moral affordance dimensions

Indicators	Ownership	Access	Privacy	Anonymity	Speed	Reach	Reproducibility
TD_01	**0.794**	0.131	0.510	0.176	0.108	0.120	0.236
TD_02	**0.773**	0.105	0.402	0.188	0.129	0.035	0.288
TD_03	**0.780**	0.390	0.381	0.309	0.218	0.175	0.385
TD_04	0.261	**0.758**	0.176	0.235	0.339	0.171	0.277
TD_05	0.212	**0.864**	0.143	0.261	0.258	0.245	0.303
TD_06	0.228	**0.818**	0.188	0.225	0.236	0.293	0.295
TD_07	0.408	0.160	**0.780**	0.277	0.181	0.170	0.257
TD_08	0.513	0.140	**0.893**	0.400	0.192	0.162	0.334
TD_09	0.458	0.221	**0.853**	0.549	0.124	0.191	0.340
TD_10	0.282	0.212	0.482	**0.862**	0.232	0.169	0.314
TD_11	0.199	0.263	0.382	**0.888**	0.256	0.225	0.303
TD_12	0.286	0.293	0.423	**0.854**	0.261	0.201	0.351
TD_13	0.158	0.323	0.162	0.295	**0.897**	0.180	0.342
TD_14	0.201	0.288	0.186	0.221	**0.896**	0.257	0.345
TD_15	0.105	0.256	0.134	0.195	0.234	**0.887**	0.278
TD_16	0.160	0.270	0.232	0.216	0.208	**0.919**	0.360
TD_17	0.307	0.267	0.246	0.240	0.270	0.345	**0.773**
TD_18	0.391	0.209	0.428	0.305	0.319	0.252	**0.822**
TD_19	0.214	0.377	0.171	0.327	0.306	0.241	**0.739**

The second criteria to achieve discriminant validity apart from the confirmatory factor analysis presented previously are based on comparison the variance explained by each latent construct to that construct's cross-correlations with each other construct. If the amount of variance explained is greater significantly greater than any cross-correlation of the latent construct with other constructs, then the latent construct contributes a significant amount of

information to the structural model, more so than other constructs. However, if the variance explained is equal or less than the cross-correlations with other latent constructs, the latent construct does not contribute a significant amount of unique information to the structural model. The square root of variance explained (SAVE) should be both much larger than the cross-correlations with other constructs (Chin 1998), or the variance explain (AVE) should be larger than the cross-correlations (Gefen et al. 2000). Generally, if the AVE is larger than the cross-correlations, the SAVE will also be significant greater (Gefen et al. 2000). Second, the AVE should exceed a threshold of 0.5 (Fornell and Larcker 1981). Based on the cross-correlations between latent constructs and the AVE of latent constructs along the diagonal in Table 34, the latent constructs fulfill both of the criteria for the second test of discriminant validity. The AVE for each latent construct is greater than 0.5, and the AVE of each latent construct is greater than the cross correlations with other constructs, fulfilling the more stringent standard (Gefen et al. 2000).

Table 34. Latent construct means, standard deviations, cross-correlations and variance explained

Latent Construct [a]	Mean	SD	1	2	3	4	5	6	7
Ownership	2.617	1.230	**0.612**						
Access	2.387	1.167	0.287	**0.663**					
Privacy	2.172	1.186	0.547	0.207	**0.843**				
Anonymity	2.330	1.104	0.296	0.296	0.495	**0.868**			
Speed	3.137	1.142	0.201	0.341	0.194	0.288	**0.896**		
Reach	2.276	1.011	0.149	0.291	0.206	0.228	0.244	**0.903**	
Reproducibility	2.690	1.058	0.396	0.359	0.371	0.373	0.384	0.356	0.779

(a) Lower values represent a greater salience of the moral affordance dimension

To further explore the reliability and validity of the measurement model, the Cronbach's alpha for each scenario is calculated, and then compared to the base or combined model. The comparison is shown in Table 35. Some changes in reliability are expected and tolerated, but large swings or systematically higher or lower reliability may be problematic. Overall, the

reliability within each scenario is stable when compared to the combined measurement model; however, some isolated anomalies and systematic variations are present. The most significant anomaly is the reliability of the ownership dimension within the phishing scenario *($\Delta\alpha = -0.404$)*. One explanation of such as significant anomaly is that ownership rights of personal information are a highly disputed topic, and individual's positions on information and intellectual property ownership varies significantly. Furthermore, a few other dimensions show significant decreases in reliability, particular access, speed, and reproducibility, while other dimensions also show marginal decreases, such as privacy and reach. As demonstrated in the previous chapter, the phishing scenario in particular lacked a "moral character" where all responses to ethical decision-making constructs and relationships between constructs of interests were much lower or absent, respectively, when compared with the other two scenarios. This absence of moral character in the phishing scenario may explain the systematic decrease in reliability, resulting in undue variation in the importance of specific moral affordances since respondents had little moral investment in the issues or outcome outlined in the scenario. Conversely, the piracy and hacking scenarios show little signs of a systematic increase or decrease in the reliability of each moral affordance dimension. A few moral affordance construct show moderate *increases* of reliability in the piracy (speed and reproducibility) and hacking (ownership and reach) scenarios, but increase are generally expected when comparing the combined reliabilities across all scenarios to scenario-specific reliability as differences in situation-specific variations are removed.

Table 35. Moral affordance dimension reliability per scenario

Latent Construct [a]	Base	Phishing		Piracy		Hacking	
	α	α	Δα	α	Δα	α	Δα
Ownership	0.688	0.284	-0.404	0.651	-0.037	0.762	0.074
Access	0.744	0.653	-0.091	0.794	0.05	0.760	0.016
Privacy	0.796	0.754	-0.042	0.686	-0.11	0.726	-0.07
Anonymity	0.836	0.833	-0.003	0.822	-0.014	0.849	0.013
Reach	0.755	0.729	-0.026	0.708	-0.047	0.818	0.063
Speed	0.775	0.707	-0.068	0.851	0.076	0.754	-0.021
Reproducibility	0.676	0.582	-0.068	0.655	0.076	0.790	-0.021

Assessment of Means and Scenario Differences

First, before comparing mean responses between constructs and between scenarios, some spot comparisons based on Table 36 are warranted. *Lower* values are associated with *greater* salience of particular moral affordance. For the phishing scenario, we find that the most salient moral affordance dimensions are privacy *($\bar{x}$ = 1.387, SD = 0.682)*, ownership *($\bar{x}$ = 2.095, SD = 0.953)*, and anonymity *($\bar{x}$ = 2.191, SD = 1.051)*. Ethical issues of information phishing are wrought with privacy concerns from users, and questions of ownership of personal information is frequently debated and tested online; therefore, these salient moral affordance dimensions for the phishing scenario appear reasonable. For the software piracy scenario, the most important dimensions are speed *($\bar{x}$ = 2.095, SD = 0.954)*, access *($\bar{x}$ = 2.291, SD = 1.153)*, and anonymity *($\bar{x}$ = 2.294, SD = 1.046)*. Based on these more salient dimensions, one may infer that respondents are more concerned with the ease, efficacy and safety of downloading software than the important issues surrounding software piracy. Speed and access in terms of software piracy are intimately related to a person's ability to quickly and effectively procure software using "illicit" means. Furthermore, others would correlate anonymity in this context with people's concerns of discovery, either in one's referent group who may frown on such behavior, but more likely to avoid discovery from "authorities." This is further corroborated since ownership and

reproducibility dimensions are not important for the software piracy scenario. Ownership may not be an important dimension for respondents as intellectual property rights is a highly debated ethical issue, and variations in availability and cost have significant effects on ethical behaviors regarding piracy (Moores and Chang 2006). Reproducibility may not be comparatively important either, not because the ability for information technology to duplicate information is not *necessary*, but that the ability is not *important* since most consumer IT devices are not constrained by significant hardware limitations. Finally, for the hacking scenario, the access *($\bar{x}$ = 2.305, SD = 1.196)*, speed *($\bar{x}$ = 2.454, SD = 1.077)*, and anonymity *($\bar{x}$ = 2.506, SD = 1.181)* dimensions are the most salient moral affordances. Again, similar to software piracy, it appears users are focused on the *efficacy* by which the unethical IT behavior can be performed by using the information technology (as demonstrated by the important of access and speed), and also on *risk avoidance* when performing the unethical IT behavior (as demonstrated by the important of anonymity). However, unlike software piracy, key issues that ought to be salient for hacking behaviors, such as access, rank among the most important and most salient moral affordance dimensions.

Table 36. Means and standard deviations of moral affordance domains

Moral Affordance [a]	Base		Phishing		Piracy		Hacking	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Ownership	2.617	1.230	2.095	0.953	2.619	1.195	3.138	1.232
Access	2.387	1.167	2.564	1.130	2.291	1.153	2.305	1.196
Privacy	2.172	1.186	1.387	0.682	2.487	1.118	2.642	1.235
Anonymity	2.330	1.104	2.191	1.051	2.294	1.046	2.506	1.181
Speed	3.137	1.142	3.325	1.125	3.058	1.114	3.028	1.162
Reach	2.276	1.011	2.280	0.963	2.095	0.954	2.454	1.077
Reproducibility	2.690	1.058	2.658	1.000	2.513	1.034	2.898	1.057

(a) Lower values represent a greater salience of the moral affordance dimension

Each of the scenarios employs different information technology and ethical IT dilemmas, intended to elicit markedly different responses to moral affordance dimensions. Therefore, we should find significant differences between each of the scenarios across many of the moral affordance constructs if the measurement items created to capture these moral affordance constructs. Table 37 outlines the comparison of the composite score for each construct between pairs of scenarios.

In regards to the importance of 2.ownership issues in ethical dilemmas, the phishing scenario was significantly more salient than either the software piracy $(\Delta\bar{x} = -0.524, p < 0.000)$ or hacking $(\Delta\bar{x} = -1.043, p < 0.000)$ scenario, and furthermore that ownership is similarly more salient in the software piracy scenario than the hacking scenario $(\Delta\bar{x} = -0.519, p < 0.000)$. These findings are similar to the previous *ad hoc* means comparison, and corroborate that ownership of personal information is a crucial consideration for people faced with a phishing dilemma. Furthermore, at least in comparison to the hacking scenario, ownership was also an important issue in the software piracy scenario. Access was least important for the phishing scenario when compared with either the software piracy $(\Delta\bar{x} = 0.273, p < 0.000)$ or hacking scenarios $(\Delta\bar{x} = 0.259, p < 0.000)$. However, access was equally important in both the software piracy and

hacking scenarios, showing no significant different in salience *($\Delta\bar{x} = -0.014$, $p > 0.05$)*. Access was one of the most important dimensions from the *ad hoc* means comparison in both the software piracy and hacking scenarios. Privacy was greatly and significantly more salient in the phishing scenario than either the piracy *($\Delta\bar{x} = -1.255$, $p < 0.000$)* or hacking scenarios *($\Delta\bar{x} = -1.100$, $p < 0.000$)*, while the software piracy and hacking scenarios showed a much smaller but significant difference toward the software piracy scenario *($\Delta\bar{x} = -0.155$, $p < 0.01$)*. Therefore, privacy seems to be a very important dimension in ethical decision-making for the phishing scenario, but less so in the other scenarios.

The relative important of anonymity between scenarios is much less extreme and clear than in other moral affordance dimensions previously addressed. Anonymity is moderately less salient in the hacking scenario than either the phishing *($\Delta\bar{x} = -0.316$, $p < 0.000$)* or software piracy *($\Delta\bar{x} = -0.212$, $p < 0.000$)* scenarios. However, there is no significant difference between the phishing and software piracy scenarios in terms of anonymity *($\Delta\bar{x} = -0.103$, $p > 0.05$)*. Interestingly, anonymity was one of the more important moral affordance dimensions for the hacking scenario. However, anonymity was also ranked among the more salient dimensions for the other scenarios, and the difference between the hacking scenario and other scenario although significant is moderate. Speed was regarded as less important in the phishing scenarios than either the software piracy *($\Delta\bar{x} = -0.297$, $p < 0.000$)* or hacking *($\Delta\bar{x} = -0.266$, $p < 0.000$)* scenario; however, there are no differences in salience between the piracy and hacking scenario *($\Delta\bar{x} = 0.03$, $p > 0.05$)*.

Regarding the salience of reach between ethical IT dilemmas, significant differences are found between them. Reach, as the number of possible people influenced by an unethical action online, was much more salient in the phishing scenario than in the hacking scenario *($\Delta\bar{x} = -0.530$, $p < 0.001$)*, but less salient in the software piracy scenario *($\Delta\bar{x} = 0.185$, $p < 0.01$)*.

By extension, reach was much more salient in the software piracy scenario than in the hacking scenario *($\Delta\bar{x} = -0.715$, $p < 0.001$)*. Respondents were likely focusing on the expansive effects that online phishing scams and rampant software piracy have on the number of potential users affected, whereas the hacking scenario only marginally benefits the actor, and negatively affects the bank.

In terms of the affordance of reproducing data and information, the differences between scenarios remain large and significant. Reproducibility was significantly more salient in the phishing scenario than the hacking scenario *($\Delta\bar{x} = -0.240$, $p < 0.001$)*, but not the software piracy scenario *($\Delta\bar{x} = 0.145$, $p < 0.01$)*. Furthermore and by extension, reproducibility affordances in the software piracy scenario were much more salient than in the hacking scenario *($\Delta\bar{x} = -0.386$, $p < 0.001$)*. Reproducing data is of critical concern in phishing scam, and of critical importance in the software piracy scenario. However, the hacking scenario, being only a slight modification with no data duplication, only potential data integrity and access issue, was unsurprisingly the lowest of the three scenarios.

Table 37. Pair-wise comparison of moral affordance dimensions

Pair-wise Comparison		Mean ($x_1 - x_2$) [a]	SD	T-Stat [b]	P-Value [c]	
Ownership						
Phishing	Hacking	−1.043	1.151	−16.231	0.000	***
Phishing	Software Piracy	−0.524	1.036	−9.059	0.000	***
Software Piracy	Hacking	−0.519	1.076	−8.646	0.000	***
Access						
Phishing	Hacking	0.259	1.142	4.064	0.000	***
Phishing	Software Piracy	0.273	1.099	4.458	0.000	***
Software Piracy	Hacking	−0.014	1.017	−0.252	0.802	
Privacy						
Phishing	Hacking	−1.255	1.065	−21.104	0.000	***
Phishing	Software Piracy	−1.100	0.948	−20.787	0.000	***
Software Piracy	Hacking	−0.155	0.914	−3.039	0.003	**
Anonymity						
Phishing	Hacking	−0.316	1.251	−4.520	0.000	***
Phishing	Software Piracy	−0.103	1.089	−1.700	0.090	
Software Piracy	Hacking	−0.212	0.933	−4.078	0.000	***
Speed						
Phishing	Hacking	0.297	1.143	4.651	0.000	***
Phishing	Software Piracy	0.266	1.064	4.484	0.000	***
Software Piracy	Hacking	0.030	0.993	0.548	0.584	
Reach						
Phishing	Hacking	−0.530	1.113	−8.536	0.000	***
Phishing	Software Piracy	0.185	0.965	3.427	0.001	**
Software Piracy	Hacking	−0.715	1.061	−12.072	0.000	***
Reproducibility						
Phishing	Hacking	−0.240	0.943	−4.566	0.000	***
Phishing	Software Piracy	0.145	0.948	2.742	0.006	**
Software Piracy	Hacking	−0.386	0.938	−7.363	0.000	***

*(a) Lower values represent greater moral affordance salience; (b) df = 320; (c) * p < 0.05; ** p < 0.01; *** p < 0.001*

Effects of Moral Affordance Dimensions

Table 38 shows the effects of moral affordance constructs on ethical IT behavior intention and ethical IT decisions. Regarding ethical IT behavior intentions, or the likelihood that the respondent would perform similarly in the same context, only *one* dimension has a consistent

effect when all ethical IT scenarios are considered: ownership. Ownership has a moderate, *positive* effect on ethical IT behavior decision, suggesting that in general those who consider issues of ownership an important factor in forming an ethical decision, . The fact that other moral affordance dimensions are not significant has several implications. First, it may suggest that the salience of moral affordance dimensions are indeed highly situational and contextual, as demonstrated previously in the pair wise comparison of mean responses of moral affordances. Second, these results may also suggest those moral affordances are not a salient decision-making factor in terms of ethical IT behavior intention, or the likelihood that a respondent would behave similarly in a similar situation and context.

Table 38. Effects of moral affordance dimensions on ethical behavior intentions and decisions for all scenarios

Moral Affordances Dimensions	**Ethical Behavior Intention (1)**				**Ethical Decision (2)**			
Construct	**β**	**T**	**P-Value (3)**		**β**	**T**	**P-Value (3)**	
Ownership	0.128	3.286	0.006	**	0.164	5.362	0.000	***
Access	0.043	1.184	0.258		-0.161	5.250	0.000	***
Privacy	0.012	0.250	0.807		0.444	12.331	0.000	***
Anonymity	0.010	0.223	0.827		-0.038	1.290	0.220	
Speed	0.087	1.454	0.170		-0.177	4.762	0.000	***
Reach	-0.098	2.023	0.064		-0.001	0.031	0.976	
Reproducibility	-0.089	1.068	0.305		0.139	1.333	0.205	

*(1) $R^2 = 0.038$; (2) $R^2 = 0.368$; (3) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Table 39 shows the effects of moral affordance constructs on ethical IT behavior intention and ethical IT decisions for the phishing scenario. Regarding ethical IT behavior intentions, or the likelihood that the respondent would perform similarly in the same context, both privacy *($\beta = -0.227$, $p < 0.000$)* and anonymity *($\beta = -0.313$, $p < 0.000$)* have moderate to strong negative effects on intent, respectively. These results suggest that as concerns of privacy and anonymity become *more* salient, respondents are *less* likely to engage in similar behaviors.

Ethical decisions appear to coincide with ethical intentions for both the privacy and anonymity constructs; however, access becomes an important factor in forming decisions about how the actor in the scenario should behave. This effect is moderately positive *($\beta = 0.239$, $p < 0.05$)* and suggests that concerns about access to information and technology *increases* the propensity that the actor should perform the behavior, that is, complete an obvious phishing scheme for a chance at a prize offer. Considering the wording of the measurement items along with the scenario description, it would appear that respondents from a technical standpoint—that having access to this phishing scam, and the victim of the phishing scam providing access to personal information, are important considerations and salient factors in this scenario.

Table 39. Effects of moral affordance dimensions on ethical behavior intentions and decisions for phishing scenario

Moral Affordances Dimensions	**Ethical Behavior Intention [1]**				**Ethical Decision [2]**			
Construct	**β**	**T**	**Sig [3]**		**β**	**T**	**Sig [3]**	
Ownership	-0.043	0.690	0.254		-0.052	0.685	0.255	
Access	0.131	1.566	0.076		0.239	2.615	0.014	*
Privacy	-0.227	3.456	0.004	**	-0.196	2.843	0.010	**
Anonymity	-0.313	5.282	0.000	***	-0.261	4.686	0.001	***
Speed	0.024	0.322	0.378		-0.051	0.885	0.200	
Reach	-0.010	0.186	0.428		-0.025	0.505	0.313	
Reproducibility	-0.068	0.900	0.196		-0.050	0.786	0.226	

*(1) $R^2 = 0.247$; (2) $R^2 = 0.213$; (3) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Table 40 shows the effects of moral affordance constructs on ethical IT behavior intention and ethical IT decisions for the software piracy scenario. Regarding ethical IT behavior intentions, or the likelihood that the respondent would perform similarly in the same context, only the reach dimensions have a moderate, negative effect *($\beta = -0.172$, $p < 0.01$)*. These results suggest that as more people are affected by the consequences of the unethical action, in this downloading pirated software, than individuals are less likely to behave similarly. Furthermore,

reach also has a moderate, *negative* effect on ethical IT decisions *($\beta = -0.216$, $p < 0.01$)*, again suggesting that as the consequences of unethical actions become broader people believe that other's in similar situations ought not engage in software piracy.

Table 40. Effects of moral affordance dimensions on ethical behavior intentions and decisions for piracy scenario

Moral Affordances Dimensions	**Ethical Behavior Intention [1]**				**Ethical Decision [2]**			
Construct	**β**	**T**	**Sig [3]**		**β**	**T**	**Sig [3]**	
Ownership	0.165	0.867	0.204		0.075	0.668	0.260	
Access	0.097	1.443	0.092		0.073	1.002	0.171	
Privacy	0.057	0.902	0.195		0.055	0.861	0.206	
Anonymity	0.086	1.205	0.129		0.059	0.873	0.203	
Speed	0.196	1.004	0.171		0.214	1.178	0.135	
Reach	-0.172	3.199	0.005	**	-0.216	3.867	0.002	**
Reproducibility	-0.094	0.887	0.199		-0.094	0.866	0.204	

*(1) $R^2 = 0.167$; (2) $R^2 = 0.138$; (3) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Table 41 shows the effects of moral affordance constructs on ethical IT behavior intention and ethical IT decisions for the hacking scenario. Regarding ethical IT behavior intentions, or the likelihood that the respondent would perform similarly in the same context, several moral affordance dimensions have a significant effect on both ethical IT behavior intention and decisions. Ownership has a moderate, *positive* effect on intention *($\beta = 0.204$, $p < 0.01$)* and small, *positive* effect on decisions *($\beta = 0.137$, $p < 0.05$)*, suggesting that the salience of ownership is associated not only with an individual's likelihood to behave similarity, but also that the actor ought to engage in the hacking behavior. These results are both interesting and promising, as respondents seem to see a parallel between the ownership of the system or banking software and whether the employee has rights to access the modify the software or not. Furthermore, anonymity also has a small, *positive* effect on both intention *($\beta = 0.172$, $p < 0.05$)* and decisions *($\beta = 0.12$, $p < 0.05$)*. Again, these results suggest that as anonymity becomes a

more salient concern to the individual as the likelihood to behave similarly increases, which seems to fall in step with considerations of risk aversion and avoidance discussed previously. People may be more likely to make unethical decisions and engage in unethical behaviors when the information technology affords them certain protections (such as anonymity in this case) that help them reduce risk and avoid social or institutional consequences. Finally, reach has a small, *negative* effect on both ethical IT intentions *($\beta = -0.159$, $p < 0.05$)* and decisions *($\beta = -0.139$, $p < 0.05$)*, suggesting that as fewer people are affected by the unethical action, the more likely the individual are to behave similarly or decide the actor should engage in the behavior.

Table 41. Effects of moral affordance dimensions on ethical behavior intentions and decisions for hacking scenario

Moral Affordances Dimensions	**Ethical Behavior Intention [1]**				**Ethical Decision [2]**			
Construct	**β**	**T**	**Sig [3]**		**β**	**T**	**Sig [3]**	
Ownership	0.204	3.525	0.003	**	0.137	2.203	0.028	*
Access	-0.054	0.776	0.229		-0.095	1.469	0.088	
Privacy	-0.008	0.117	0.455		0.042	0.636	0.270	
Anonymity	0.172	2.807	0.010	*	0.120	2.231	0.026	*
Speed	0.023	0.284	0.392		0.072	0.958	0.182	
Reach	-0.159	2.248	0.026	*	-0.139	2.086	0.033	*
Reproducibility	0.109	1.571	0.075		0.048	0.756	0.234	

*(1) $R^2 = 0.119$; (2) $R^2 = 0.075$; (3) * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

Moral Affordances on Ethical Decision-Making Models

While in isolation there appears to be clear effects of moral affordances as perceived by the respondent on ethical IT behavior intention and ethical IT decisions, when considered in light of the ethical decision-making model developed previously a different story is portrayed. In the following sections, we extend the ethical decision-making model to include the moral affordance dimensions on their combined effects on ethical IT behavior intention. The inclusive model is compared to the previously developed model *sans* moral affordance dimensions for both the

combined or base model, which includes all the scenarios, and for each individual scenario in isolation.

The addition of the moral affordance dimensions also does not significantly change the original ethical decision-making constructs or their effects on ethical IT behavior intention. According to Table 42, only *one* of the seven moral affordance dimensions had any influence on ethical IT behavior attention across the three scenarios in question: anonymity. Anonymity had a small, negative, but significant effect $(\beta = -0.085,\ p < 0.05)$ suggesting that the more anonymity is a concern, the less likely an individual will behave similarly in the action. However, the additional of the moral affordance dimensions account for a meager 1% additional variance in the combined model $(\Delta R^2 = 0.01)$. Therefore, although specific dimensions seemed to contribute to ethical IT behavior intention *in isolation*, the effects are largely insignificant and meager when the broader ethical decision-making model is considered. By calculating the effect size using the f^2 statistic, one must conclude that there is *no effect* of moral affordance dimensions when all scenarios are included in the model $(f^2 = 0.01)$. One possibility explanation for this finding is strong situational differences within the scenarios that change the salience of moral affordance dimensions, as shown previously in the means comparison and isolated effects on ethical IT decisions and behavior intentions.

Table 42. Model comparison of the effects of moral affordance dimensions on ethical IT behavior intention

	Base				Base + Affordance			
Construct	**β**	**T**	**P-Value**		**β**	**T**	**P-Value**	
Moral Recognition	0.131	3.507	0.001	**	0.163	6.144	0.000	***
Moral Attitude	0.123	3.958	0.000	***	0.115	3.715	0.002	**
Moral Judgments (D)	−0.021	0.626	0.532		0.001	0.039	0.970	
Moral Judgments (S)								
Deontological	0.031	0.570	0.569		0.061	1.159	0.264	
Utilitarian	0.248	5.389	0.000	***	0.241	5.385	0.000	***
Relativist	0.346	7.233	0.000	***	0.288	6.188	0.000	***
Egoist	−0.053	1.319	0.188		-0.029	0.811	0.430	
Justice	0.078	1.593	0.112		0.016	0.349	0.732	
Moral Affordances								
Ownership					-0.001	0.017	0.986	
Access					0.045	1.626	0.125	
Privacy					0.006	0.194	0.849	
Anonymity					-0.085	2.383	0.031	*
Speed					0.057	1.216	0.243	
Reach					0.003	0.117	0.908	
Reproducibility					0.048	1.489	0.157	
Adjusted R^2	0.495				0.505			
ΔR^2					0.010			
f^2					0.010			

** p < 0.05; ** p < 0.01; *** p < 0.001*

Since there are no substantive effects of moral affordances on ethical decision-making models when scenarios are combined, the situational effects of moral affordances on ethical IT decision-making is explored by comparing the scenario-specific reduced ethical decision-making model from the previous chapter to a full model including moral affordance dimensions. The first model comparison (Table 43) investigates the effects of moral affordance dimensions on ethical decision-making in the phishing scenario. *Two* of the seven moral affordance dimensions had significant effects on ethical IT behavior intention: privacy and anonymity. Privacy has a moderate, negative effect on ethical IT behavior intention *($\beta = -0.144$, $p < 0.05$)* suggesting that

as privacy issues become of greater concern in the scenario people are less likely to behave similarly. Furthermore, anonymity has a moderate, negative effect on ethical IT behavior intention *($\beta = -0.222$, $p < 0.01$)* again suggesting that as anonymity become a greater concern, unethical IT behaviors are less likely. The ethical decision-making model undergoes some changes in the phishing scenario model that are absent in the combined or base model. When the moral affordance constructs are absent, moral recognition is not a significant predictor of ethical behavior intention. However, when the moral affordance constructs are added to the ethical decision-making model, moral recognition has a significant, moderate effect *($\beta = 0.187$, $p < 0.01$)* suggesting that once situational and technological factors, particularly privacy and anonymity affordances, are considered in the ethical decision-making process then perceptions that the situation is of critical importance align with ethical behavior intentions. When only the phishing scenario is considered, the additional of the moral affordance dimensions account for an additional 12% of variance explained *($\Delta R^2 = 0.116$)*, which has a moderate effect size on ethical IT intentions *($f^2 = 0.131$)*.

Table 43. Model comparison of moral affordance dimensions on ethical IT intention for phishing scenario

	Phishing				Phishing + Affordance			
Construct	**β**	**T**	**Sig**		**β**	**T**	**Sig**	
Moral Recognition	0.102	1.694	0.091		0.187	3.637	0.002	**
Moral Attitude	0.003	0.073	0.942		0.023	0.492	0.630	
Moral Judgments (D)	0.012	0.191	0.849		0.042	0.354	0.177	
Moral Judgments (S)								
Deontological	−0.003	0.027	0.979		-0.064	0.748	0.466	
Utilitarian	0.369	4.334	0.000	***	0.328	4.456	0.000	***
Relativist	0.255	3.394	0.001	**	0.210	2.934	0.010	*
Egoist	−0.095	1.625	0.105		0.000	0.006	0.995	
Justice	0.075	0.795	0.427		0.029	0.375	0.713	
Moral Affordances								
Ownership					0.022	0.453	0.657	
Access					0.025	0.373	0.715	
Privacy					-0.144	2.540	0.023	*
Anonymity					-0.222	4.371	0.001	**
Speed					0.060	1.094	0.291	
Reach					0.052	1.032	0.318	
Reproducibility					-0.108	1.717	0.107	
Adjusted R^2	0.348				0.464			
Δ R^2					0.116			
f^2					0.131			

** p < 0.05; ** p < 0.01; *** p < 0.001*

The second model comparison (Table 44) investigates the effects of moral affordance dimensions on ethical decision-making in the phishing scenario. Surprisingly, *none* of the moral affordance dimensions have a direct, significant effect on ethical IT behavior intentions *when including in the ethical decision-making model*. While the ethical decision-making model remains largely consistent, moral attitude is no longer a significant effect on ethical IT behavior intention *($\beta = 0.110$, $p = 0.051$)*. However, in comparison to the power and significance from the original model *($\beta = 0.123$, $p < 0.047$)*, the change due to inclusion of moral affordance dimensions is weak. When only the software piracy scenario is considered, the additional of the moral

affordance dimensions account for only an additional 4.2% of variance explained *($\Delta R^2 = 0.042$)*, which has a weak effect size on ethical IT intentions *($f^2 = 0.043$)*. This suggests that in the software piracy scenario, moral affordances contribute little in defining ethical behavior intention when considering the broader ethical IT decision-making model.

Table 44. Model comparison of moral affordance dimensions on ethical IT intention for piracy scenario

	Software Piracy				Software Piracy + Affordance			
Construct	**β**	**T**	**P-Value**		**β**	**T**	**P-Value**	
Moral Recognition	0.316	6.291	0.000	***	0.206	3.895	0.001	**
Moral Attitude	0.123	1.992	0.047	*	0.119	2.118	0.051	
Moral Judgments (D)	0.091	1.463	0.144		0.061	1.511	0.151	
Moral Judgments (S)								
Deontological	0.165	2.362	0.019	*	0.163	2.389	0.030	*
Utilitarian	0.132	1.614	0.108		0.089	1.112	0.284	
Relativist	0.421	6.635	0.000	***	0.353	5.530	0.000	***
Egoist	0.006	0.108	0.914		-0.010	0.209	0.838	
Justice	−0.008	0.140	0.889		-0.008	0.137	0.893	
Moral Affordances								
Ownership					0.030	0.397	0.697	
Access					0.045	1.073	0.300	
Privacy					0.036	0.756	0.462	
Anonymity					-0.035	0.731	0.476	
Speed					0.043	0.648	0.527	
Reach					0.006	0.138	0.892	
Reproducibility					0.021	0.350	0.731	
Adjusted R^2	0.546				0.588			
ΔR^2					0.042			
f^2					0.043			

** p < 0.05; ** p < 0.01; *** p < 0.001*

The third and final model comparison (Table 45) investingates the effects of moral affordance dimensions on ethical decision-making in the phishing scenario. Only *one* of the seven moral affordance dimensions had any influence on ethical IT behavior intention for the hacking

scenario: ownership. Ownership had a small, positive effect on ethical IT behavior intention *(β = 0.119, $p < 0.01$)* suggesting that the more issues of ownership are a concern the more likely the individual will behave similarly in the situation. Given the context of the scenario as a programmer modifying a bank's software, this significant positive effect of ownership appears to have some face validity as the individuals who consider it important *who* particularly the *programmer* performing the modification are more likely to behave similarly. Although there is no information alluding that the programmer has sufficient ownership within the bank to be considered an "owner" of the software, some respondents may have made the assumption or connection, and based their assessment and judgment of the ethical IT dilemma on such conclusions. Again, while the ethical decision-making model remains largely consistent, there was one significant, surprising change when moral affordances are considered. Moral awareness, or the perception that an ethical IT dilemma is an important and critical moral issue, which had a strong effect on ethical behavior intention *($\beta = 0.351$, $p < 0.000$)*, becomes non-significant when moral affordances are introduced in the model *($\beta = 0.072$, $p > 0.05$)*. Considering the moderate effect of ownership may displace the influence of moral awareness, these results may suggest that matters of ownership of the bank software are more important to individuals in similar situations than is the act in any of itself. The additional of the moral affordance dimensions accounts for only an additional 2% of variance explained *($\Delta R^2 = 0.02$)*—a weak effect on ethical IT intentions *($f^2 = 0.043$)*—for the hacking scenario. However, although moral affordances, particularly ownership, do not significantly effect and significantly explain ethical IT behavior intention in the hacking scenario, there are significant changes in the ethical decision-making model in the form of moral awareness becoming a non-significant predictor of ethical IT behavior intention.

Table 45. Model comparison of moral affordance dimensions on ethical IT intention for hacking scenario

	Hacking				Hacking + Affordance			
Construct	**β**	**T**	**P-Value**		**β**	**T**	**P-Value**	
Moral Recognition	0.351	7.063	0.000	***	0.072	1.342	0.200	
Moral Attitude	0.102	1.590	0.113		0.115	1.697	0.110	
Moral Judgments (D)	0.035	0.576	0.565		0.032	0.756	0.462	
Moral Judgments (S)								
Deontological	0.252	2.670	0.008	**	0.269	2.828	0.013	**
Utilitarian	0.146	1.844	0.066		0.110	1.490	0.157	
Relativist	0.336	4.126	0.000	***	0.295	3.561	0.003	***
Egoist	0.003	0.037	0.970		-0.058	0.761	0.459	
Justice	−0.029	0.315	0.753		0.009	0.098	0.923	
Moral Affordances								
Ownership					0.119	3.040	0.008	**
Access					0.025	0.555	0.587	
Privacy					0.028	0.538	0.599	
Anonymity					-0.004	0.097	0.924	
Speed					-0.023	0.420	0.681	
Reach					0.000	0.005	0.996	
Reproducibility					0.037	0.683	0.505	
Adjusted R^2	0.548				0.568			
Δ R^2					0.020			
f^2					0.047			

** p < 0.05; ** p < 0.01; *** p < 0.001*

Discussion and Conclusions

The *first proposition* posited that the salience of moral affordance dimensions would change significantly between ethical IT dilemmas due to the situational effects such as the characteristics of the dilemma or immediate context. All of the moral affordance dimensions varied between at least two of the three ethical IT dilemmas; and most of the moral affordance dimensions varied significantly between each of the ethical IT dilemma. These findings contribute significant evidence that situational effects of ethical IT dilemmas influence how people perceived information technology and the potential action it affords in a moral context.

However, not all moral affordance dimensions showed situational differences across *all three scenarios*. The inconsistent differentiation of moral affordance dimensions within the limited sample of three ethical IT dilemmas provides some evidence that while two scenarios may have similar perceived moral affordances across some dimensions, they may be perceived as starkly different across other dimensions. The *second proposition* posited that moral affordance dimensions would affect ethical IT decisions and behavior intentions, and that this influence would also change based upon situational effects. We find mixed support for the effects of salient moral affordance dimensions on ethical IT decisions and behavior intentions, and these moral affordance effects varied significantly from scenario to scenario, providing some support for proposition two. The salient moral affordance dimensions varied for each scenario on ethical decisions and behavior intentions, and the effects were consistent *on* ethical decisions and intentions (with some exception). In other words, if a moral affordance dimension was salient for ethical IT decisions, behavior intentions followed suit. In the phishing scenario, only ownership had significant effects on ethical IT behavior intentions, but access, privacy, and speed in addition had effects on ethical IT decisions. This also suggests that there is a gulf between what an actor would do and how an actor would judge a situation and ethical IT dilemma in terms of the moral affordances perceived from the information technology. However, in the software piracy scenario only reach was salient on both ethical IT decisions and behavior intentions. Finally, in the hacking scenario ownership, anonymity and reach were salient on both ethical decisions and intentions. Interestingly, these effects not only associate with the *consequences* of the action (reach) but also the *legitimacy* (ownership) and *risk aversion* of performing the action (anonymity), suggesting that ethical IT decisions may incorporate may more heuristics outside of deontological and consequentialist moral philosophies.

The third proposition posited that moral affordance dimensions would change the structure and manner of ethical IT decision-making, or, in other words, the inclusion of moral affordances would change the structural model developed in previous chapters. The results show little support for moral affordance dimensions in all scenarios, but significant support in the phishing scenario. It would appear that moral affordance dimensions do have some effect on the manner we make ethical IT dimensions; contributing to the conjecture that information technology fundamentally changes how we understand and process moral quandaries and dilemma. Specifically, while with the exception of the phishing scenario moral affordances are largely ineffective when the entire ethical decision-making model is considered, there are some significant changes in the ethical decision-making model when moral affordances are considered. For example, moral attitude becomes insignificant in the software piracy scenario while moral recognition, a common salient factor in all models, becomes insignificant in the hacking scenario. These results may suggest that the underlying reasons why we consider an ethical dilemma as "bad" or a "critical issue" is based more so on specific ethical concerns of the *IT artifact*.

There are several plausible explanations for the greater contribution of moral affordance dimensions within the phishing scenario. First, we remove potentially conflicting effects caused by markedly different ethical scenarios and contexts since the situation specific effects are isolated. The previous chapter, in particular, shows that people engage in somewhat different ethical decision-making processes across a variety of scenarios, and this is corroborated by other ethical IT studies (Banerjee et al. 1998; Moores and Chang 2006). Second, the previous chapter also demonstrated that the phishing scenario in particular had much less moral intensity, or moral character, than the other scenarios. This lack of moral intensity was evidenced by a significant decrease in both the variance explained by the ethical decision-making model and a weaker or no significant effect of key constructs, particularly moral recognition and moral attitude. Other

specific moral considerations such as privacy and anonymity may play an important role when the moral dilemma is not clearly unethical.

The lack of explained variance and small effect size of moral affordance dimensions coincides with the non-significant effects of the dimensions on ethical IT behavior intention, and these results taken together suggest that moral affordance dimensions of information technology have little influence on ethical IT decision-making for the software piracy scenario. Although these results lend little to investigating the different effects of moral affordances on situational IT ethics, and by extension the efficacy of moral affordances as developed in exploring and understanding technological effects on ethical IT decision-making, they do give credence to two important implications. As discussed at length in previous chapters, it is clear when comparing the strikingly different results from the phishing and piracy scenarios that situational effects have a strong influence on ethical intentions and decisions. If we consider the salience of moral affordance dimensions on ethical IT decision-making, we find that in the phishing scenario moral affordance dimensions are particularly salient and contributed significantly to the variance explained. However, in the software piracy scenario, suddenly all of the moral affordance are insignificant against ethical IT behavior intention contributing little to the explained variance when the entire EDM model is considered. First, this disparity implies that

Implications for Theory

The notion of information technology affordances have been introduced in some theoretical literature (Markus and Silver 2008), but affordance theory has not been applied to empirical research and analysis in the information systems field. Furthermore, this research extends affordances beyond physical consequences into the social and moral domains (Heft 1989; Heft 2001) theorizing that not only does information technology artifact afford potential for actions that result in physical consequences, but also social and moral consequences that may be

evaluated and judged morally. Therefore, this study represents not only an early attempt to apply information technology affordances within an empirical IS study, but also a preliminary work introducing the notion of social and moral affordances to information systems.

Each of the three propositions developed and tested previously carry significant implications for moral theory in information systems research. The results from this study suggest that the salience of moral affordance dimensions vary significantly between ethical IT dilemmas, contributing to the long history that situational factors have a strong influence on people's perceptions (Trevino 1986; Trevino et al. 2006). However, when moral affordance dimensions were included in the broader ethical IT decision-making model developed in previous chapters their salience varied significantly between scenarios, and had some effect on changing the ethical IT decision-making model. When addressing the third proposition; however, this study shows little evidence that moral affordance dimensions affect the structure and manner of ethical decision-making in IT dilemmas.

Limitations

One major theoretical limitation of the research design is the assumption the salient affordances may be consciously perceived in forming ethical IT decisions and intentions, when in actuality such functional affordances, either real or perceived, are often acted upon subconsciously as part of a greater set of conscious activities toward a purpose or goal. Drawing from activity theory (Leont'ev 1978), the current formulation of moral affordances in information technology, as measured by this study, is situated within and between *activity supported by motives* and *actions supported by goals*, and not where affordances are broadly situated between *actions* and *operations supported by conditions*. Therefore, one limitation and confounding factor may stem from a poor theoretical level of analysis, where the salient factors of information technology that influence ethical decision-making explored rest not in the *physical properties* of

the artifact, nor the affordances perceived by the actor, but conscious actions and activities. Furthermore, one should not that the notion of *goals* in affordance theory and ecological model, particular *behavior intention* presupposes reflexive, conscious rationalization.

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APPENDIX A

VIGNETTES FOR FINAL INSTRUMENT

Phishing Scenario –Researcher Developed

A friend has received an e-mail offering a chance to win $10,000, a flat-screen television, and or an iPod. The attractive image links to an off-site website. Your friend must answer several questions relating to new and upcoming products to qualify. In addition, the site requests a few small pieces of information from your friend, including first and last name, and e-mail address to notify potential prize winners.

Software Piracy Scenario – Adapted (Moores and Chang 2006)

A student downloads a copy of a statistical package required for a course from a popular Bittorrent website. The cost of a legal copy of the same statistical package is $499, but the company offers a student version for only $50, which most of the other students have purchased. The student admits that student version is not expensive, but downloads the software anyways since free is always cheaper.

Unproductive Scenario – Adapted (Haines and Leonard 2007b; Leonard et al. 2004)

A friend of yours works a small branch of a local bank as the primarily web developer of the on-line banking system. She recently realized that she had accidentally overdrawn her checking account. She made a small adjustment in the bank's accounting system so that her account would not have an additional service charge assessed. As soon as she made a deposit that made her balance positive again, she corrected the bank's accounting system.

APPENDIX B

DESCRIPTIVE STATISTICS FOR ETHICAL DECISION-MAKING CONSTRUCTS

Item	Description	Lower (1)	Higher (5)
Moral Recognition 01	The [issue described] was a(an):	Extremely important issue	Unimportant issue
Moral Recognition 02		Highly significant issue	Insignificant issue
Moral Recognition 03		Issue is of great concern	Issue is of little concern
Moral Recognition 04		Critical issue	Trivial issue
Moral Attitude 01	In terms of how you feel about the situation, how would you evaluate the [behavior]?	Good	Bad
Moral Attitude 02		Helpful	Hurtful
Moral Attitude 03		Pleasant	Unpleasant
Deontological 01	In terms of the reasons you believe the situation is ethical or unethical, how would you evaluate the [behavior]?	Morally right	Not morally right
Deontological 02		Not a violation of fairness	Violation of fairness
Utilitarian 01	In terms of the reasons you believe the situation is ethical or unethical, how would you evaluate the [behavior]?	Tens to be good	Tend to be bad
Utilitarian 02		Leads to the greatest good	Leads to the least good
Relativism 01	In terms of the reasons you believe the situation is ethical or unethical, how would you evaluate the [behavior]?	Acceptable to my family	Unacceptable to my family
Relativism 02		Individually acceptable	Individually unacceptable
Egoism 01	In terms of the reasons you believe the situation is ethical or unethical, how would you evaluate the [behavior]?	Not selfish	Selfish
Egoism 02		Obligated to act otherwise	Not obligated to act otherwise
Justice 01	In terms of the reasons you believe the situation is ethical or unethical, how would you evaluate the [behavior]?	Fair	Unfair
Justice 02		Just	Unjust
Behavior Intention 01	Given the situation described, would [behave similarly]?	Definitely	Definitely Not
Behavior Intention 02	In a similar situation, I intend to [behave similarly].	Likely	Unlikely

	Combined [1]		Phishing [2]		Software Piracy [2]		Hacking [2]	
Item	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Moral Recognition 01	2.180	1.173	2.075	1.201	2.518	1.128	1.947	1.115
Moral Recognition 02	2.197	1.147	2.154	1.173	2.456	1.086	1.981	1.132
Moral Recognition 03	2.240	1.212	2.153	1.213	2.630	1.175	1.936	1.146
Moral Recognition 04	2.401	1.222	2.400	1.290	2.716	1.142	2.087	1.150
Moral Attitude 01	3.659	1.103	3.523	1.132	3.437	1.050	4.016	1.037
Moral Attitude 02	3.366	1.049	3.153	1.034	3.207	0.975	3.738	1.039
Moral Attitude 03	3.582	1.037	3.427	1.048	3.313	0.956	4.005	0.973
Deontological 01	3.890	1.072	3.287	1.003	3.981	0.994	4.402	0.908
Deontological 02	3.710	1.161	3.050	1.094	3.723	1.074	4.358	0.917
Utilitarian 01	3.893	1.016	3.752	1.051	3.700	0.966	4.226	0.948
Utilitarian 02	3.777	1.000	3.706	0.993	3.590	0.969	4.036	0.988
Relativism 01	3.678	1.066	3.343	1.034	3.545	1.052	4.145	0.945
Relativism 02	3.654	1.203	3.288	1.171	3.473	1.207	4.202	1.026
Egoism 01	3.835	1.102	3.198	1.046	3.853	1.056	4.453	0.809
Egoism 02	3.023	1.225	3.294	1.015	2.938	1.149	2.835	1.429
Justice 01	3.727	1.092	3.231	1.037	3.609	1.038	4.343	0.890
Justice 02	3.766	1.045	3.271	0.989	3.722	0.993	4.304	0.883
Behavior Intention 01	3.968	1.157	4.028	1.075	3.564	1.254	4.313	1.004
Behavior Intention 02	4.007	1.131	3.938	1.091	3.679	1.225	4.405	0.942

(1) n = 963; (2) n = 321

APPENDIX C

DESCRIPTIVE STATISTICS FOR TECHNO-MORAL CONSTRUCTS

Item	Item	Lower (1)	Higher (5)
Ownership 01	Who owns [the technology] is important in this situation.	Strongly Agree	Strongly Disagree
Ownership 02	Who created the [technology] changed my opinion about this situation.	Strongly Agree	Strongly Disagree
Ownership 03	I would be less likely to [behavior similarly] if ownership was enforced.	Strongly Agree	Strongly Disagree
Access 01	The ease the [technology] can be accessed is important in this situation.	Strongly Agree	Strongly Disagree
Access 02	[This behavior] would be less likely if the [technology] was not easily available.	Strongly Agree	Strongly Disagree
Access 03	Fewer people would be affected if the [technology] was more difficult to access.	Strongly Agree	Strongly Disagree
Privacy 01	Protecting personal privacy is important in this situation.	Strongly Agree	Strongly Disagree
Privacy 02	Privacy risks changed my opinion about [this behavior].	Strongly Agree	Strongly Disagree
Privacy 03	I would be less likely to [behavior similarly] if my privacy was at risk.	Strongly Agree	Strongly Disagree
Anonymity 01	It is important to maintain anonymity in this situation.	Strongly Agree	Strongly Disagree
Anonymity 02	This situation would be much worse if I could not remain anonymous.	Strongly Agree	Strongly Disagree
Anonymity 03	I would be less likely to [behave similarly] if I cannot remain anonymous.	Strongly Agree	Strongly Disagree
Speed 01	The speed information is sent and received is important in this situation.	Strongly Agree	Strongly Disagree
Speed 02	The faster information is transferred, the worse the situation becomes.	Strongly Agree	Strongly Disagree
Reach 01	Fewer people would be affected if information technology was absent from this situation.	Strongly Agree	Strongly Disagree
Reach 02	Many more people are affected in this situation because of information technology.	Strongly Agree	Strongly Disagree
Reproducibility 01	Copying data and information is important to [this behavior].	Strongly Agree	Strongly Disagree
Reproducibility 02	The ability to duplicate data and information changed my opinion about the situation.	Strongly Agree	Strongly Disagree
Reproducibility 03	I would be less likely to [behave similarly] if it was more difficult to duplicate.	Strongly Agree	Strongly Disagree

	Combined [1]		Phishing [2]		Software Piracy [2]		Hacking [2]	
Item	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Ownership 01	2.256	1.289	1.489	0.727	2.273	1.234	3.005	1.339
Ownership 02	2.914	1.229	2.266	1.075	3.084	1.157	3.393	1.170
Ownership 03	2.682	1.171	2.530	1.056	2.498	1.195	3.017	1.187
Access 01	2.485	1.246	2.640	1.204	2.491	1.241	2.326	1.275
Access 02	2.379	1.164	2.618	1.128	2.171	1.132	2.349	1.192
Access 03	2.296	1.092	2.435	1.058	2.212	1.085	2.241	1.122
Privacy 01	2.180	1.215	1.344	0.655	2.687	1.184	2.509	1.239
Privacy 02	2.363	1.222	1.528	0.782	2.688	1.156	2.874	1.215
Privacy 03	1.972	1.120	1.288	0.610	2.085	1.016	2.542	1.250
Anonymity 01	2.364	1.091	2.123	0.996	2.336	1.045	2.634	1.166
Anonymity 02	2.386	1.112	2.358	1.132	2.288	1.005	2.512	1.184
Anonymity 03	2.240	1.109	2.090	1.024	2.257	1.089	2.372	1.194
Speed 01	3.044	1.180	3.329	1.136	2.899	1.146	2.903	1.207
Speed 02	3.231	1.105	3.321	1.114	3.218	1.082	3.153	1.117
Reach 01	2.337	1.051	2.414	1.019	2.129	0.996	2.467	1.106
Reach 02	2.215	0.971	2.145	0.907	2.061	0.913	2.441	1.047
Reproducibility 01	2.465	1.006	2.464	0.917	2.163	0.957	2.768	1.049
Reproducibility 02	2.759	1.030	2.417	0.991	2.806	0.997	3.053	1.003
Reproducibility 03	2.845	1.139	3.092	1.093	2.569	1.148	2.874	1.119

(1) n = 963; (2) n = 321

APPENDIX D

IRB APPROVAL

From: UNCG IRB

Date: 10/28/2009

RE: Notice of IRB Exemption
Exemption Category: 2.Survey, interview, public observation
Study #: 09-0366
Study Title: Explaining Situation Ethics in Information Technology Within A Domain Theory Context

This submission has been reviewed by the above IRB and was determined to be exempt from further review according to the regulatory category cited above under 45 CFR 46.101(b).

Study Description:

The purpose of this study is to investigate factors contributing to the discrepancy between computer and non-computer related ethical dilemmas by proposing an individual's cognitive processes of ethical decision making change depending on the situation.

Investigator's Responsibilities

Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented. The IRB will maintain records for this study for three years from the date of the original determination of exempt status.

CC: Richard Schilhavy, Bryan School Of Busnss And Econ

From: UNCG IRB

Date: 2/12/2010 **RE**: Minor Contingencies to be addressed following IRB review.
Submission Type: Modification
Study #: 09-0366
Study Title: Explaining Situation Ethics in Information Technology Within A Domain Theory Context

This submission has been reviewed by the IRB. This is not an IRB approval. You may not implement the research activities described in your submission until you have received a memo indicating final IRBapproval. The IRB determined that this submission MAY BE APPROVED, pending stipulated changes and/or clarifications as detailed below:

Study Specific Details:

1. The changes to the consent form should tell participants exactly what identifiable information will be captured (email address). Your narrative explains this, and your consent form should as well.

Please address these contingencies in a revised submission, and provide a memo that includes **a point-by-point response to the item(s) listed above**. Any additional changes (including new materials) must also be listed and discussed in the memo. You will need to return 2 copies of all revised materials to theIRB, **one in which all changes are underlined, highlighted, or have tracked changes and the other a "clean" copy with no underlining/highlighting**. Please reference the study number on all IRBcorrespondence. Please note that the IRB must receive your response within 60 days of the date of this letter. If a response is not received within 60 days, the submission will be withdrawn.

CC: Richard Schilhavy, Bryan School Of Busnss And Econ

From: UNCG IRB

Date: 2/16/2010

RE: Notice of IRB Exemption
Exemption Category:
Study #: 09-0366
Study Title: Explaining Situation Ethics in Information Technology Within A Domain Theory Context

This submission has been reviewed by the above IRB and was determined to be exempt from further review according to the regulatory category cited above under 45 CFR 46.101(b).

Study Description:

The purpose of this study is to investigate factors contributing to the discrepancy between computer and non-computer related ethical dilemmas by proposing an individual's cognitive processes of ethical decision making change depending on the situation.

Study Specific Details:

This modification, dated 2/9/10, addresses the following:

1. Change in advertisement to increase incentives offered for participation that passes basic survey controls.
2. Change in consent to notify respondents that email addresses will be captured due to stipulation that prize offers apply only to qualified responses.

Investigator's Responsibilities

Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented. The IRB will maintain records for this study for three years from the date of the original determination of exempt status.

CC: Richard Schilhavy, Bryan School Of Busnss And Econ