THE EFFECTS OF INDIVIDUAL, CONTEXTUAL, AND MORAL INTENSITY FACTORS ON ENVIRONMENTAL ETHICAL DECISION MAKING

by

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DISSERTATION TITLE

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Most extant studies of organizational ethical decision making have been remiss in doing one or more of the following: (a) building theoretical foundations; (b) encompassing the individual, contextual, and issue-specific determinants impacting ethical judgments; (c) offering testable hypotheses; and/or (d) establishing methodological rigor. This study confronted those challenges aiming to understand the decision intentions of top managers in the metal finishing industry concerning the treatment of hazardous wastewater.

This study employed an extended version of Ajzen's (1988) theory of planned behavior. The theory accommodatingly modeled the individual (i.e., attitudes, self-efficacy, personal moral obligation), contextual (subjective norms, organizational climate, and financial cost), and issue-specific (i.e., moral intensity) factors relative to the top managers' decision intentions. Hypotheses were developed and tested for each of the seven influences.

The development of the decision scenarios and instrument necessitated iterations with diverse information sources. Data collected from 140 top managers was assessed using correlational and hierarchical multiple regression analyses. The findings showed that managers' attitudes toward the treatment of hazardous wastewater, subjective norms influence, perceptions of the instrumentality of their respective climates, and financial cost considerations significantly influenced the managers' decision intention concerning the treatment of hazardous wastewater.

Contrary to previous studies, the personal moral obligation factor did not contribute to the power of Ajzen's model. However, Jones' (1991) moral intensity construct did moderate the relations between Ajzen's other determinants and the managers' decision intention. Specifically, under conditions of high moral intensity-- defined as harmful consequences to either persons and/or nonpersons-- the determinants of the extended theory of planned behavior contributed less to explaining top managers' ethical decision intention than under the low moral intensity condition.

In conclusion, this study's results revealed to practitioners and researchers the complex interplay of individual, organizational, and issue-specific factors upon individual's ethical decision intentions. Implications for future investigations, training, and the influence of contextual information (e.g., organizational climate) were discussed.

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CHAPTER 1

INTRODUCTION

Environmental problems and risks are becoming a more prevalent issue for modern organizations. Reasons for the increased attention include stringent federal, state, and local environmental regulations, escalating disposal costs, natural resource concerns, increased social and community awareness, and other costs associated with environmental damage (e.g., litigation, lost customers, etc.). Likewise, managing environmental concerns is a strategic issue of major import for many companies. A 1991 Booz-Allen and Hamilton survey of more than 220 executives in industries such as consumer goods, chemicals, electronics, automotive services, and food and beverage revealed that companies "spend an average of 2 percent of sales on environmental expenditures " (p. 8). Another survey of U.S. industrial corporations found that 98 percent of those surveyed rated environmental issues as having "critical or important" strategic importance. All companies surveyed felt that environmental considerations would continue to be important in all areas of their business; however, pollution was targeted as one of the most urgent and dominate issues (Deloitte & Touche, & Stanford University, 1990).

Likewise, more researchers in the organizational sciences are studying the interface between organizations and the natural environment (e.g., see Post, Collins, & Starik, 1995 and the 1995 Special Topic Forum in the Academy Management Review on Ecologically Sustainable Organizations). We are becoming more concerned with the natural environment in our study of organizations because as Hawken (1993) stated, business transacts with the natural environment in "what it takes, what it makes, and what it wastes" (p. 12). This open systems perspective verifies that organizations impact the natural environment because of (a) their need for natural resources and energy, (b) the

type of products and services they offer, and (c) the pollutants and other wastes they create.

Organizations transact with the environment in many ways; however, it is proposed that individual organizations and managers vary in how they interact or respond to environmental issues (Flannery & May, 1994). Their responses depend upon many factors including the nature of the organization's business (e.g., chemical manufacturer vs. retail store), environmental regulations, organizational mission or climate, stakeholders concerns, and the attitudes, beliefs, and values of key decision makers toward the environment (Flannery & May, 1994). Because the organization's environmental activities are most often directed by top managers it is important to study the antecedents that direct their decisions. As such, this research aims to understand how well different individual and contextual factors explain managers' intentions concerning the specific environmental activity of hazardous wastewater treatment. More specifically, this environmental decision making dissertation study emanates from two primary research questions. First, what factors most affect a manager's environmental ethical decision intention concerning how hazardous wastewater should be treated? Second, does the influence of each factor in predicting the ethical decision intention change as the moral intensity of the environmental consequence increases?

One assumption of this dissertation research is that a decision concerning the environmental issue of hazardous wastewater treatment includes an ethical or moral element. As Trevino (1986) professed almost a decade ago, "Managers engage in discretionary decision-making behavior affecting the lives and well-being of others. Thus, they are involved in ethical decision making" (p. 601). Whether metal finishing managers decide to treat the facilities' wastewater prior to disposal can most definitely affect the health and welfare of others. Mathews (1988) also claims that the pollution of water and air by hazardous waste materials is a serious ethical issue for companies

because it can cause a great amount of harm to a great amount of people. This issue of harm to people, and also to the environment, will play a significant role in this dissertation study.

While studying the ethical decision making of managers is important, it has received limited attention. According to Jones (1991), "theoretical and empirical examinations of ethical decision making in organizations are in relatively short supply" (p. 366). Likewise, Hosmer (1994) recently proposed, "The concept of ethics as central, not peripheral to the managerial process is not foreign to the management literature; it has merely been neglected...Our task is to bring that concept back, to the forefront...in our research" (p. 203). As important as it is to research ethical decision making, it also is important that our research be strong in both theory and methodology.

In studying the first question, an extended version of Ajzen's (1988, 1991) theory of planned behavior was employed because it is equipped to capture both the individual and contextual factors impacting a manager's environmental decision intention. The individual factors of primary concern were the manager's (1) attitude toward wastewater treatment, (2) perceived level of personal moral obligation for the harmful consequences associated with that decision intention, and (3a) internal perceived behavioral control over that decision (i.e., self-efficacious feeling of control). The contextual factors will focus on the (3b) external perceived behavioral control factors of the instrumental climate of the organization along with the perceived financial costs associated with wastewater treatment, and (4) the social influences of subjective norms. Figure 1 is a representation of the extended theory of planned behavior that provided the theoretical framework for this research study. The extension is the personal moral obligation factor. Concurring with Trevino (1986), including both individual and situational variables in the study of ethical decision making "seems to hold the most promise for advancing our understanding of this complex phenomenon" (p. 602).

The second research question reflects an interest in discerning how the variability or intensity of the environmental issue moderates the impact of each of the individual and contextual factors on the decision intention. According to Collins (1989) and Jones (1991), ethical decision making is issue contingent, and that the content or characteristics of the issue should not be overlooked when studying moral decision making and behavior. He posits that the characteristics of the issue do not duplicate the idiosyncrasies of the individual making the decision nor do they reflect situational factors in which the decision is embedded. Jones (1991) collectively refers to the dimensions of the moral issue as moral intensity. Recently, Morris and McDonald (1995) used three ethical scenarios and found that two of Jones' (1991) dimensions of moral intensity, magnitude of consequences and social consensus, were the most important predictors of the respondents' moral judgments. The magnitude of consequences surrounding the issue has received the most empirical investigation to date (e.g., Fritzsche, 1988; Weber, 1994) and a variation of it was manipulated in this study's four decision scenarios.

A scenario methodology guided the investigation of these two research questions with top decision makers in the metal finishing industry. The metal finishing industry was chosen because it is an industry whose activities can potentially have a great impact on the environment. A scenario methodology has been used in previous studies of ethical or moral decision making (e.g., Fritzsche & Becker, 1984; Morris & McDonald, 1995; Randall & Gibson, 1991; Weber, 1990) because it allows researchers to provide a greater amount of background information and detail in the decision making episode. Fredrickson's (1986) scenario methodology, used previously to study strategic decision making, was followed closely in conducting this study. In brief, during the information gathering stage of the research, interviews were conducted with managers (i.e., decision makers) employed by Nebraska metal finishing companies. Information from these interviews, along with other industry-specific information, were used during the

instrument development stage to write the scenarios and develop questionnaire items. After writing the scenarios and the questions, the instrument was pre-tested with managers in the sample of Nebraska metal finishing companies. The final instrument was then mailed to a national sample of metal finishing managers.

Proposed Contributions to Literature

Randall and Gibson (1990) used the research process framework shown in Figure 2 (and adapted from Babbie, 1986) to highlight some of the major weaknesses with business ethics research. Again, that framework was used here to indicate where this study hopes to make its contributions to the organizational science literature. As shown in Figure 2, this research study attempted to make primary contributions in (a) theory development and (b) research methodology (i.e., scenario methodology). Secondary contributions in the areas of (c) hypothesis formation, (d) conceptualization and operationalization, (e) population and sampling, and (f) the assessment of the observation issue of social desirability response bias were also sought after.

Primary Contributions (see the activities marked with a (**) in Figure 2).

One of the weakest aspects of business ethics research has been in theory development. According to their review of empirical business ethics research, 64 percent of the articles "did not cite any previously established theoretical framework nor seek to develop one" (Randall & Gibson, 1990, p. 461). This omission is serious because it fails to establish a sound foundation for the remainder of the research process. This study was the first to apply an extended version of the theory of planned behavior (TPB; Ajzen, 1988, 1991) to environmental ethical decision making. To this researcher's knowledge, only two other studies have used Ajzen's TPB to empirically study ethical decision making with organizational participants (i.e., Kurland, 1995; Randall & Gibson, 1991). A study by Dubinsky and Loken (1989) did employ its predecessor, the theory of

reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), to study the unethical decision intentions (e.g., offering trips and gifts) of marketing sales personnel.

Based on Ajzen's (1991) contention that "in certain contexts we need to consider...personal feelings of moral obligation or responsibility to perform, or refuse to perform a certain behavior" (p. 199) the construct personal moral obligation was added to the TPB. Both Kurland (1995) and Randall and Gibson (1991) found very strong support for the addition of this construct to the TPB in their studies of ethical decision making. However, neither study developed a theoretical reason for this significance nor sought to identify a corresponding belief system underlying the construct. Kurland (1995) did call for more research in order to "further understand the role moral obligation plays in predicting ethical intentions" (p. 310). This call was met by employing Schwartz's (1970b) awareness of consequence (AC) and ascription of responsibility (AR) theoretical scheme in order to better understand personal moral decisions and behavior. This study is the first to offer such a theoretical foundation for the personal moral obligation construct.

Kurland (1995) also recommended that researchers using the TPB needed to "more consistently define and measure the perceived behavioral control construct" (p. 310). Ajzen (1988) did offer two broad types of behavioral control factors: internal and external. However, both Kurland (1995) and Randall & Gibson (1991) only used measures that tapped into their respondent's perceptions of "internal" control (i.e., similar to Bandura's notion of self-efficacy). This study considered external control factors as well. These external factors are more contextual and will include the organization's instrumental climate (Victor & Cullen, 1988) and perceived financial costs or constraints. This is the first ethical decision making study to expand the perceived behavioral control factor to include organizational variables. Considering these external control factors--especially the organization's instrumental climate--responds to Tetlock's (1985) call for a

"social contextualist approach" to study organizational decision making due to the link between individuals and the social systems to which they belong.

In assessing existing ethical decision making models (e.g., Dubinsky & Loken, 1989; Rest, 1986; Trevino, 1986), Jones (1991) concluded that "despite the fact that collectively these models are reasonably comprehensive...none...include characteristics of the moral issues itself as either an independent variable or a moderating variable" (p. 371). Jones (1991) labeled his issued-contingent construct moral intensity , and in the last five years only a small handful of researchers have included the construct in their investigations of ethical or moral decision making (e.g., Morris & McDonald, 1995; Weber, 1993, 1994). This study attempted to contribute to this overlooked research area by examining how the moral intensity characteristic of magnitude of consequences moderated the relationship between the four antecedents of the extended TPB and the criterion variable of behavioral intention (i.e., decision concerning the treatment of hazardous wastewater).

Another primary contribution emanated from the implementation of Fredrickson's (1986) scenario methodology in the development of this study and its instruments. Randall and Gibson (1990) endorsed Fredrickson's (1986) detailed methodology in order to ensure greater realism in business ethics research. This study, following both Fredrickson's (1986) and Ajzen's (1991) lead, used an inductive approach to develop the study's operationalization of variables based on information derived directly from the metal finishing industry.

Secondary Contributions (see the activities marked with a (*) in Figure 2).

Randall and Gibson (1990) indicated that only 25 percent of empirical business ethics research offered testable hypotheses. This study uses a priori hypotheses to test the relationships among the variables presented in the model. Randall and Gibson (1990) noted that very few business ethics studies appeared concerned with either the

conceptualization or operationalization of the study's key constructs. For example, only a small percentage of the studies defined ethical belief or behavior (p. 462). This study merges the business ethics and environmental literatures to yield a definition for the environmental ethic construct. Also important, the moral intensity construct was tailored to capture the magnitude of consequences (i.e., level of harm) to both persons and nonpersons (i.e., animals and the environment). Likewise, the two extended TPB constructs of personal moral obligation and perceived behavioral control were broadened to improve our understanding of ethical decision making in organizational contexts.

Using Randall & Gibson's (1990) recommendations, this study implemented the following to improve the operationalization of the theoretical constructs (much of this follows Fredrickson's [1986] scenario methodology). First, interviews and pretests took place prior to administering the final instrument. Second, the scenarios helped to establish a common decision stimulus for the respondents (Fredrickson, 1986) and also improved the saliency of the ethical question. Thirdly, the reliabilities (i.e., Cronbach's coefficient alpha) were assessed and reported for each of the TPB variables.

The majority of business ethics studies do not employ random sampling techniques in choosing practicing managers. This study used a type of representative sampling endorsed by Randall and Gibson (1990) with managers in the metal finishing industry. The sample respondents were derived from the National Association of Metal Finishers, a national metal finishing association for management executives with over 850 member companies. Randall and Gibson (1990) noted that sampling from a membership list of a professional association was a particularly good sampling technique (p. 463).

Reducing, and understanding, the social desirability bias -- an important observation issue according to Randall and Gibson (1990) -- needs to be to be addressed by more studies employing self-report sampling techniques. According to Randall and

Fernandes (1991), only one in 96 business ethics empirical studies from 1960-1989 attempted to assess the impact of social desirability response bias upon its results. This study attempted to (a) prevent, (b) detect, and (c) understand the social desirability response bias (Nederhof, 1985).

In summary, this dissertation study aimed to make the following contributions to the ethical decision making literature: (a) Used an extended TPB, along with an issue-contingent variable of moral intensity, to understand environmental ethical decision making; (b) Rigorously employed the scenario methodology; (c) Presented a developed agenda of testable hypotheses; (d) Conceptualized and operationalized key constructs such as ethical decision, moral intensity, personal moral obligation, and perceived behavioral control; (e) Employed a representative sample of managers in the metal finishing industry; and (f) Attempted to detect and analyze the social desirability bias.

Issue of Study

The Metal Finishing Industry and Hazardous Wastewater Treatment

The metal finishing industry includes organizations who "clean, etch, and plate metallic and nonmetallic surfaces to provide desired surface properties" (USEPA, 1992, p. 5). Companies that electroplate, plate, polish, anodize, color, coat, or engrave metal products would be considered metal finishers and would be listed under Standard Industrial Classification (SIC) codes 3471 and/or 3479 (USEPA, 1990a). Figure 3 depicts a typical metal finishing process and the generation of waste, usually considered hazardous, at different stages of the process. Some of the wastes include: (a) plating wastes (e.g., heavy metals such as copper, nickel, zinc, and cadmium) generated from electroplating operations; (b) heavy metal wastewater sludges-- often including arsenic, barium, chromium, lead, mercury, silver, or selenium depending on the operations-- generated from wastewater pre-treatment at the facility; and (c) air emissions that include vapors from degreasing and solvent cleaning and mists from chromium plating operations

(USEPA, 1990b; USEPA 1992). These types of wastes have made the metal processing industry, which includes metal finishing companies, the third largest generator of hazardous waste in the U.S. (the chemical industry is the largest and petroleum refiners are the second largest) (NSWMA, 1989). The specific hazardous waste issue of interest for this study was the treatment of hazardous wastewater.

As a modern chemical and industrial society, we generate almost five pounds of hazardous waste-- especially by the three industries cited in the above paragraph--each day for every U.S. citizen (Gore, 1992, p. 146). A 1983 estimate proposed that only ten percent of our hazardous waste was disposed of, at that time, in an environmentally sound manner (Lester & Bowman, 1983, p. 8). Since then, stricter environmental legislation has improved how commercial hazardous waste is handled. However, the problem persists because, according to one assessment, world chemical waste production is doubling in volume every seven to eight years (Gore, 1992).

To be more exact as to what constitutes a hazardous waste, one definition is that it is a waste product "potentially dangerous to human health or the environment in one or more of these ways:

> • It may ignite easily, posing a fire hazard;
> • It may be corrosive, capable of damaging containers or other materials, or of injuring people;
> • It may be reactive, likely to explode or catch fire when in contact with water or other materials;
> • It may be toxic, capable of causing serious illness or other health problems if handled incorrectly; or
> • It may be a listed waste, a substance that may or may not possess one or more of the above attributes, but is deemed by regulatory authorities to be potentially hazardous." (NSWMA, 1989, p. 2-3).

Because of the harm it can potentially cause the environment, people and animals some assert that solid and hazardous waste may be one of our country's most threatening environmental problems (Lester & Bowman, 1983). Reason for such concern emanates from highly publicized disasters such as Love Canal where the improper underground disposal of hazardous wastes by a chemical company in the 1940s and 1950s directly

resulted in contaminating drinking water for almost 240 families living in the area in the late 1970s (Sturdivant, 1985). Another example includes an aging copper smelter in Tacoma, Washington that was releasing 310 tons of airborne arsenic annually, a carcinogen known to be associated with lung cancer (Steiner & Steiner, 1994). Treating hazardous wastewater so that it does not contaminate the water we or animals drink and use are primary objectives of hazardous waste management and handling (Lester & Bowman, 1983).

Top managers in the metal finishing industry are responsible for making decisions about the management and treatment of hazardous waste streams generated by their industrial activities. For example, they first must decide whether or not to recognize that a waste stream may be hazardous and have it analyzed to determine its classification as a waste stream. After determining its nature as a hazardous material, they must then decide how to contain, pre-treat and dispose of the waste. Because how these managers decide to handle the various hazardous waste streams can have significant consequences for the health and welfare of both the environment and people, their decisions fundamentally include an ethical component.

Hazardous Wastewater Treatment as an Ethical Decision

Having determined that decisions concerning hazardous wastewater treatment and discharge contain an ethical element, it is important to delve deeper into defining this ethics construct. Most ethical decision making studies do not begin by defining or delineating the ethics construct (Randall & Gibson, 1990). To remedy this oversight, Jones (1991) offered the following as a starting point in defining what qualifies as an ethical decision: "An ethical decision is defined as a decision that is both legal and morally acceptable to the larger community" (p. 367). Morris and McDonald (1995) proposed that an ethical decision involves "an ethical or moral issue, as opposed to not involving ethical/moral issues" (p. 715). While these definitions do provide at least some

operational direction, they fail to clarify what is ethical or moral. The following, offered by De George (1995), provides a bit more clarification.

> Ethics studies morality. Morality is a term used to cover those practices and activities that are considered importantly right and wrong; the rules that govern those activities; and the values that are embedded, fostered, or pursued by those activities and practices (p. 19).

What is normatively "right and wrong" when it comes to the environmental decision of hazardous wastewater treatment? Defining environmental ethics has been an exercise primarily embraced by philosophers (see Seligman, 1989; Bormann & Kellert, 1991 for a more comprehensive discussion on this topic), and their definitions vary according to how they believe human systems ought to relate to ecological systems. For this study, this normative inquiry would encompass how metal finishing companies ought to treat their hazardous wastewater before it leaves the facility.

An anthropocentric ethic-- defined as "the belief that there is a clear and morally relevant dividing line between humankind and the rest of nature, that humankind is the only principal source of value or meaning in the world (Eckersley, 1992)-- dominants most of our organizational science theories (Purser, Park, & Montuori, 1995). This anthropocentric or utilitarian viewpoint conceptualizes the environment as "necessary to satisfy a variety of human wants, including recreational, aesthetic, convenience, and survival needs" (Seligman, 1989). In the case of this study, this viewpoint would focus on how hazardous wastewater affects human health and safety.

The other polar viewpoint, referred to as biocentric or ecocentric, intrinsically and equally values all members of the biotic community (i.e., humans, air, water, soil, flora, and fauna). At its most extreme, this viewpoint would not place the health and safety of humans above the health and welfare of the land, water, air, or any other plant and animal species. For this study, this viewpoint would be concerned with how hazardous

wastewater might equally affect all members of the biotic community (i.e., persons and nonpersons).

Perhaps the most palatable and useful definition of environmental ethic for organizational theorists-- see Purser et. al. (1995) for a review of both anthropocentric and ecocentric approaches as they relate to organizational issues-- comes from a "modern" version of anthropocentrism proposing that as we learn more about the natural environment and its criticalness to our survival, the more we will come to value it (Murdy, 1975). Thus, we will increasingly value other members of the biotic community as we realize that our health as a species is closely linked to those non-person entities. Hayden (1993) may have said it best when he proposed that the question is not whether environmental policymaking (i.e., a form of decision making) will be anthropocentric, but which anthropocentric values, beliefs, and philosophies will guide the decision. In essence, he is saying that as a society, humans interests will always pervade our decision making, and that the real issue is what particular human values, beliefs, and philosophies guide those decisions.

Based on the ethics and environmental literature, decisions concerning the treatment of hazardous wastewater naturally include an ethical dimension because if not treated adequately, the wastewater-- laden with heavy metals and other toxics-- can jeopardize the health and welfare of both persons and nonpersons (this terminology comes from Collins, 1989 and will be used often in this study to easily differentiate between people and all other non-human facets of ecosystems). And causing harm to either the environment, and especially to people, is considered to be wrong by societal norms and rules evidenced in part by our environmental laws and regulations. Stated in terminology used for this study, whether hazardous wastewater is treated prior to leaving the facility can affect the health and safety of persons and nonpersons. Therefore, metal finishing managers' decisions concerning hazardous wastewater treatment contain an

ethical element with an ethical decision being one that ensures the health and safety of persons and nonpersons and the unethical decision being one that jeopardizes the health and safety of persons and/or nonpersons.

For this study, the environmental ethical decision centers around how managers in the metal finishing industry treat hazardous wastewater so as to minimize or eradicate the potential for harm to persons and nonpersons. Respondents in this study responded to one of four different decision scenarios concerning a plating company's non-treatment of hazardous wastewater. The scenarios were written using information gathered during interviews with a Nebraska sample of metal finishing managers and other industry specific information. The respondents' decision intention is this study's dependent variable.

Behavioral Intention and Behavior

This study measured metal finishing managers' decision intention, not their actual wastewater treatment behavior. If appropriately measured, Ajzen and Fishbein (1980) contend that intention provides the most accurate prediction of behavior because it is the immediate antecedent of the action. Thus, it is proposed that the best indicator of how someone would most likely behave is his/her intention to behave. However, what is the strength of the relationship between a person's intention to behave and his actual behavior? According to Ajzen (1988), many theory of reasoned action (TRA) studies have yielded intention-behavior correlations in the .72 - .96 range. The TRA assumes that the individual is both reasonable (as the name "theory of reasoned action" implies) and has willful or volitional control to perform (or not perform) the particular behavior. Thus it seems reasonable to expect that, barring unforeseen events, people will act in accordance with their intentions. The magnitude of the relation between intention and behavior also depends on the degree to which (a) the measures of behavioral intention and behavior correspond in their level of specificity, (b) time elapses between intent and

behavioral observation, and (c) the context remains stable. For example, Ajzen (1991) held that if the behavior to be predicted is "donating money to the Red Cross," then the "intention to donate money to the Red Cross" (p. 185) should be assessed (not intentions to donate money in general). Likewise the amount of time between the intention to donate money to the Red Cross and the actual assessment of the donation should be minimized in order to reduce the possibility of new information or events from entering the context. If these conditions are followed, intentions often predict behavior quite accurately.

The few studies that have used either the TRA or TPB to assess moral issues have differed in employing either behavioral intention or actual behavior as the dependent variable. In a study to assess the intention to be a medical transplant donor, Schwartz and Tessler (1972) did regress attitudes, personal normative beliefs (i.e., personal moral obligation), and social normative beliefs on intentions. They also performed a validation (behavioral study) to predict whether or not respondents would volunteer to become a bone marrow donor months later (i.e., a specific behavior). Interestingly, the "single component of personal norms (r = .382) was as good a predictor of overt behavior as behavioral intentions (r = .375)" (p. 234). In the context of blood-donating behavior, Pomazal and Jaccard (1976) assessed both intentions and actual behavior and found that beliefs regarding the negative consequences of donating (e.g., makes me feel faint) differentiated the intenders from nonintenders. In their prediction of dishonest actions, Beck and Ajzen (1991) employed self-reports of behavior with respect to cheating on a test, shoplifting, and lying to get out of assignments.

Other studies have sought to predict behavioral intentions rather than overt behavior. For example, Kurland (1995) employed a mail survey evaluating insurance agents' ethical intentions toward clients. Randall and Gibson (1991) and Vallerand, Deshaies, Cuerrier, Pelletier, and Mongeau (1992) used hypothetical situations or

scenarios to measure stated intent rather than actual behavior in their studies. As stated previously, the TRA and TPB models assume that behavioral intention, when appropriately measured, is highly predictive of actual behavior. Therefore it is proposed that by studying metal finishing managers' decision intentions regarding the discharge of hazardous wastewater, we can reasonably understand and predict their subsequent behavior .

CHAPTER 2

THEORETICAL MODEL DEVELOPMENT

Existing Frameworks and Research

While it might be somewhat tempting to create a model that could adequately include both individual and contextual factors in a study of ethical environmental decision making, such an endeavor would perhaps duplicate extant models already possessing strong theoretical underpinnings, a recognized stream of literature, and empirical substantiation. Consequently, the first research task was to locate a theoretical framework that could adequately encompass the variables dictated by this study's primary research questions.

A handful of organizational theorists have performed significant theoretical, albeit less empirical, work in the area of ethical decision making. Jones (1991) reviewed extant ethical decision making models-- including Ferrell and Gresham, 1985; Rest, 1986; and Trevino, 1986-- and drew from them to develop his own issue-contingent model of ethical decision making. While each of these models held promise, the Fishbein and Ajzen (1975) theory of reasoned action (TRA) used by Dubinsky and Loken (1989) to analyze marketers' ethical decision making appeared especially strong to this researcher. More recently, Vallerand et. al. (1992) claimed that "a modified version of the TRA represents a viable theoretical framework to study moral behavior" (p. 108).

Randall (1989) proposed that the theoretical and empirical knowledge set forth by social psychologists Fishbein and Ajzen to understand the antecedents of behavior are indeed robust and should be employed to study ethical decision making in organizations. Some of the behaviors and/or behavioral intentions the theory of reasoned action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Randall, 1989) and the more recent and extended theory of planned behavior (TPB; Ajzen, 1985, 1987, 1988, 1991; Ajzen & Madden, 1986) have studied over the last twenty years include weight reduction

(Sejwacz, Ajzen, & Fishbein, 1980), choice of leisure activities (Ajzen & Driver, 1992), blood donation (Pomazal & Jaccard, 1976), and college course selection (Randall, 1994). In essence, both theories posit that the key to predicting behavior lies with intentions; intentions are shaped by attitudes toward the specific behavior and subjective norms (and with the TPB, perceived behavioral control); and, beliefs are the ultimate source of those attitudes, norms, and perceptions.

To this researcher's knowledge, only three studies have used the either the TRA or the TPB to study organizational ethical decision making. Dubinsky and Loken (1989) were the first to do so. They highlighted the advantages of using the TRA over other ethical decision making models and included reasons such as its proven validity, parsimony, testability, and specificity. Their empirical study of the ethical decision making of salespeople found that attitudes and subjective norms accounted for an average of 55 percent of the variance in behavioral intentions. They noted that other variables may need to be included in the model in order to explain more variance.

Randall and Gibson (1991) did include two more variables in their study of the ethical decision making of nurses. Specifically, they used an extended version of Ajzen's TPB; essentially adding the perceived behavioral control and moral obligation variables to Dubinsky and Loken's (1989) model of ethical decision making. Randall and Gibson (1991) employed a scenario methodology most similar to this study's scenario research design to assess nurses' intention to report health professionals for inadequate patient care. The model explained a substantial amount of variance in behavioral intention ranging from 46 to 79 percent depending upon the scenario. In all four scenarios, the attitude toward performing the behavior was the most significant predictor of intent. In summary, Randall and Gibson (1991) found the TPB to be powerful in its prediction of the ethical decision making of nurses, yet noted that "subsequent research will need to

examine the generalizability of the model across different ethical behaviors and ethical dilemmas occurring in different professions" (p. 120).

Most recently, Kurland (1995) used theories of reasoned action and planned behavior to predict insurance agents' ethical intentions toward clients. A modified TPB that included many variables found in this study (i.e., attitudes, subjective norms, perceived behavioral control, and personal moral obligation) explained approximately 58 percent of the variance in intention. Moral obligation was the most powerful contributor, followed by behavioral control, attitude and subjective norm. In summary, all three studies concluded that the TRA (i.e., Dubinsky & Loken, 1989) and a modified TPB (i.e., Kurland, 1995; Randall & Gibson, 1991) were powerful in explaining the ethical intentions of three different groups of professionals.

This research study used and incorporated the findings of these three studies, along with other research streams (e.g., moral obligation and ethics literature) to continue to expand the theoretical underpinnings of the TPB. Specifically, this dissertation study applied the TPB to understand the intentions of top managers in the metal finishing industry regarding the treatment of hazardous wastewater. It is hoped that this research study will add to our understanding of ethical decision making in organizations.

Development of Conceptual Model and Hypotheses

As noted earlier, Figure 1 depicts the basic structural framework used for this research study. Figure 4 is a more detailed look at the belief determinants of the four antecedent variables (i.e., attitudes, subjective norms, perceived behavioral control, and personal moral obligation). The following paragraphs outline the conceptual development of the four antecedents and the belief determinants that underlie those antecedents. After the conceptual development of the study's variables, the specific hypotheses to be tested are offered.

Attitude Toward the Behavior

According to the original TRA (Fishbein & Ajzen, 1975), a person's attitude toward the behavior is personal in nature and captures the individual's positive or negative evaluation of performing the particular behavior. As with intention-behavior specificity, Fishbein and Ajzen (1975) stressed using compatible measures to increase attitude-behavior correlations (Eagly & Chaiken, 1993). Thus, when attitudes are reduced to the level of a specific behavior, behavioral prediction improves. Fishbein and Ajzen (1975) did not stop at this predictive improvement. Rather, they sought to understand how these attitudes were formed.

According to Eagly and Chaiken (1993), "the most popular framework for understanding the relation between attitudes and the evaluative meaning of beliefs is provided by the Expectancy-Value model" (p. 106). The expectancy component is the subjective probability that the behavior will be associated with a particular consequence and the value component captures the subjective evaluation of that consequence. Following this tradition, Fishbein and Ajzen (1975) proposed in the TRA that attitudes can be quantified by multiplying the likelihood (or expectancy) that the consequence will result from the behavior (i.e., behavioral belief) times the individual's preference (value) for the behavioral outcome or consequence (i.e., outcome evaluation) (see Figure 4). These expectancy x value products are then summed over the *n* salient beliefs. This can be expressed algebraically as follows (Ajzen, 1991): (1)

$$A = \sum_{i=1}^{n} b_i \, e_i$$

where bi is the behavioral belief that performing the behavior leads to consequence i; ei is the evaluation of consequence i; and n is the number of salient consequences. For example, a salient behavioral belief regarding environmental decision making by a top

manager might be examined by asking him/her how likely or unlikely a particular outcome/consequence (e.g., reducing air emissions) might occur if the organization implemented a pollution prevention program (i.e., behavior). The manager would also be asked to evaluate the desirability of the consequence. Combined, the behavioral belief and outcome evaluation components would constitute a manager's attitude toward the specific behavioral intention.

Belief salience is necessary in order to gain relatively high correlations between beliefs and attitudes. According to Ajzen (1991) these salient beliefs must be elicited from the respondents themselves, or in pilot work using a sample of respondents representative of the research population. Likewise, based on empirical evidence Fishbein and Ajzen (1975) proposed that when attitudes are based on respondents' salient beliefs, correlations tend to be higher than when beliefs are proposed by the researcher. This assertion presents methodological issues that were incorporated into this research study by employing Fredrickson's (1986) scenario methodology.

For this study, top managers' attitudes concerning the treatment of hazardous wastewater was the primary concern of this study. Studies using a version of the TPB similar to that employed in this study have found attitudes to be a strong predictor of intentions. For example, Randall and Gibson (1990) found attitudes to be the strongest predictor of ethical intentions while Kurland (1995) found attitudes to be an important predictor of behavioral intentions, but not as powerful as moral obligation and perceived behavioral control. Thus, the following hypothesis is offered:

> Hypothesis 1: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their attitudes toward wastewater treatment.

Subjective Norms

In both the TRA (Fishbein & Ajzen, 1975) and TPB (Ajzen, 1988), the antecedent primarily concerned with social pressure is labeled "subjective norms." Subjective norms are often measured directly by asking respondents to indicate whether "important others" (i.e., selected referents) would approve or disapprove of their performing a particular behavior (Ajzen, 1991). Ajzen (1988) noted these referents often include a person's parents, spouse, close friends, co-workers, and depending on the behavior, those considered to be experts.

As with attitudes, these subjective norms also are assumed to be a function of beliefs; more precisely the person's beliefs that specific individuals or groups would approve or disapprove of performing the behavior (i.e., normative belief). Analogous to the expectancy x value products computed for behavioral beliefs, these normative beliefs would be the expectancy (i.e., expectancy of the other person's approval or disapproval) component (Eagly & Chaiken, 1993). The value or evaluative component is what Fishbein and Ajzen (1975) termed motivation to comply. Thus, a person would be more likely to comply with the referent's opinion if the individual highly valued that referent's opinion. Once again, these expectancy x value products are then summed for the various salient referent persons. This can be expressed algebraically as follows (Ajzen, 1991):

(2)

$$SN = \sum_{i=1}^{r} n_i m_i$$

where n_i is the normative belief (i.e., expectancy or subjective probability) that some referent i thinks one should perform the behavior; m_i is the motivation to comply with referent i; and r is the number of relevant others.

On a side note, Vallerand et. al (1992) conducted a confirmatory analysis of the TRA whereby they tested each of the causal paths among all the elements of the model (i.e., attitudes, behavioral beliefs, outcome evaluation, subjective norms, normative beliefs, and motivation to comply, and intention). They found, as others had previously suggested (e.g., Miniard & Cohen, 1981), that motivation to comply was not a necessary determinant of subjective norms. Rather than deleting the motivation to comply determinant from the model, they suggested including more specificity so that it pertains directly to the behavior at hand rather than just asking respondents if they tend to do what the important other thinks they should do.

Fishbein and Ajzen (1975) noted that both individuals and groups can be included as referent others in the TRA. Along with family and friends, managers often consider a variety of "important" others, referred to as stakeholders, when they make strategic decisions (Digman, 1990). Mitroff (1983) defined stakeholders as "all those interest groups, parties, actors, claimants, and institutions--both internal and external to the corporation--who either affect or who are affected by a corporation's actions, behavior, and policies" (p. 4). Freeman (1984) perceived the stakeholder concept as integral to the domain of strategic management, focusing on how it can "enrich our understanding of how organizations do, and should, set and implement direction" (p. 47).

The traditional stakeholder classification includes investors, board of directors, managers, employees, customers, suppliers, competitors, the community, society-at-large, unions, governments, and perhaps others. Harrison (1993) identified an expanded set of stakeholders specifically for organizations when considering environmental issues. He referred to the salient stakeholders as "vital customer-publics" and included in this list employees, suppliers, politicians, regulators, media, neighbors (i.e., communities), transporters, distributors, retailers, and activists.

For this study, salient stakeholders included individuals and groups found both within and outside the organization. Using Fredrickson's (1986) scenario methodology, a list of important others was elicited from the Nebraska sample of metal finishing managers using a free-response format. Using the questioning approach proposed by Ajzen and Fishbein (1980), the Nebraska managers were asked to list those individuals or groups who come to mind when they have to make a decision concerning the handling of their hazardous waste. Stated a bit differently, are there individuals or groups who would think they should or should not handle the hazardous waste in a particular manner?

Studies using either the TRA or the TPB often have found that subjective norms have had a smaller impact on predicting behavioral intentions than the other factors of the models (e.g., Beck & Ajzen, 1991; Kurland, 1995; Randall & Gibson, 1991; Schwartz & Tessler, 1972). Albeit, Ajzen and Fishbein (1980) proposed that the factors would vary in importance depending upon the particular behavioral intention tested or the particular subgroup or population investigated. Because the treatment of hazardous wastewater can affect the health and safety of others, it seems that top managers would be cognizant of the potential evaluations of important referents. Therefore, the following is proposed:

> Hypothesis 2: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their assessment of support by important others.

Perceived Behavioral Control

Individuals do not always execute their behavioral intentions. Indeed, numerous dispositional and situational factors may squelch the most ardent intentions. Ajzen (1985) perceived this boundary condition crucial to the predictive powers of the TRA because it assumes that the behavior is under volitional control. He also believed this condition leveled strict limitations on the TRA's range of application because, as he stated, "every intended behavior is a goal whose attainment is subject to some degree of

uncertainty" (Ajzen, 1985). Thus, he proposed the inclusion of nonvolitional behaviors via the addition of the antecedent perceived behavioral control and named this broadened theory, the theory of planned behavior (TPB). The control people have over executing behaviors is treated as a continuum with easily executed behaviors on one end of the continuum and behavioral goals demanding information, skills, abilities, and resources at the other end. Interestingly, rather than the TPB being a derivative of the TRA, Ajzen (1985) purported that the TRA was a "special case" of the TPB and was valid only when perceived and actual control coincided.

Consistent with the TRA, Ajzen (1991) demonstrated how beliefs ultimately determine a person's level of perceived behavioral control. These control belief*s* are beliefs about the likelihood that one possesses the resources and opportunities deemed necessary to perform the behavior. In a 1991 review of the TPB, Ajzen further explains "these control beliefs may be based on in part on past experience with the behavior, but they will usually also be influenced by second-hand information about the behavior, by the experiences of acquaintances and friends, and by other factors that increase or reduce the perceived difficulty of performing the behavior in question" (p. 196). As Equation 3 shows algebraically: (3)

$$PBC = \sum_{i=1}^{n} c_i p_i$$

perceived behavioral control is where c_i is the control belief about resource or obstacles i; p_i is the perceived power of the facilitating or inhibiting control factor i; and n is the number of salient control beliefs (Ajzen, 1991). In essence, the fewer obstacles individuals have historically experienced and currently anticipate to perform the behavior, the greater should be their perceived control over executing the behavior.

While Ajzen (1985, 1988, 1991) doesn't discuss the development of this antecedent in an expectancy-value framework, it seems that one's expectancy concerning potential resources and obstacles (i.e., control beliefs) multiplied by the value or strength attached to each resource and/or obstacle (i.e., perceived power) is a reasonable proposition.

In the two organizational ethical decision making studies that used an extended version of the TPB, neither found PBC to be very helpful in explaining ethical intentions (Kurland, 1995; Randall & Gibson, 1991). Specifically, Randall and Gibson (1991) found that PBC added little unique variance after the attitude and subjective norms factors were taken into consideration (they did not include personal moral obligation in their regression equation). They attributed this lack of significance to possibly an instability of the variable (alpha= 0.64) or that the nurses felt the particular behavior of interest was under their volitional control. Kurland (1995) also found that PBC contributed the least to the explanation of the behavioral intention and she attributed this result to the unreliability of the construct's measures (alpha=.70). Kurland concluded that many studies employing the PBC construct have been disappointing "in part, from the lack of consensus regarding what constitutes perceived behavioral control" (p. 307). It is proposed that the PBC factor should have a better showing in this study because (a) it was explicitly defined considering both Ajzen's (1988) internal and external orientation and (b) it reflected important situational constraints (as determined from preliminary interviews with metal finishing managers and from the organizational science literature) that need to be included in studies of organizational ethical decision making. Kurland (1995) recommended that the perceived behavioral control construct needs to be more consistently defined and measured. Specifically, using Fishbein and Stasson's (1990) lead she questioned whether behavioral control is:

> (a) perception that performance of a behavior is influenced by other people or events, (b) Bandura's (1977, 1982) notions of self-efficacy (i.e., I can do it if I

want to) or (c) Triandis' (1977) concept of facilitating factors (i.e., performing the behavior is difficult, complex, time consuming) (p. 299)

Ajzen (1988) did discuss different control factors in one of his earliest writings on the TPB. Specifically, he differentiated between internal and external control factors. Internal control factors are individual dispositional factors and, according to Ajzen (1988), include the amount of information a person has along with the person's skills, abilities, emotions, and compulsions concerning the specific behavior (see pp. 128-129). The external control factors are situational or environmental issues external to the individual. Ajzen (1988) established that "these factors determine the extent to which circumstances facilitate or interfere with the performance of the behavior" (p. 129). This environmental ethical decision making study will distinguish between the internal control factor of self-efficacy and two particular external control factors, instrumental organizational climate and financial cost concerns.

Internal Control Factor: Self-efficacy

As Ajzen clarified in 1991, the internal perceived behavioral control factor is most similar to Bandura's (1977, 1982) perceived self-efficacy construct. Bandura's (1977) self-efficacy is an expectancy about whether or not a person can successfully perform the behavior in question. This study focused on whether the respondent believes he/she has the required qualifications, skills, and abilities, experience, and knowledge to make a decision concerning the treatment and discharge of hazardous wastewater. After reading a decision scenario, respondents were asked to answer a series of questions assessing their self-efficacy about the specific wastewater treatment situation. It was proposed that managers who felt self-efficacious would harbor the belief they could successfully evaluate the wastewater treatment situation. That is, they would be inclined to believe that they could make such a decision concerning the treatment of hazardous wastewater. Stated as a hypothesis:

Hypothesis 3: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their level of self-efficacy.

Finally, Ajzen (1988) proposed that some internal control factors, in this case self-efficacy, could be modified by training. Thus, a practical issue is that if metal finishing managers have a low sense of self-efficacy concerning the handling of hazardous waste, additional training may be warranted. Thus, the parallelism between Ajzen's internal perceived behavioral control factor and Bandura's self-efficacy concept answers one of Kurland's questions (i.e., that perceived behavioral control includes Bandura's self-efficacy construct), and while not of focal interest, this research study will include an internal dimension of perceived behavioral control.

External Control Factor: Instrumental Climate

According to Kurtines' (1984), "one significant limitation of the current emphasis on person variables [which are the primary focus of most theoretical frameworks of morality] is that it oversimplifies the complex interaction that occurs between the personal as moral agent, actor, and decision maker and the extensive network of socially defined rules and roles that make up social systems" (p. 304). Likewise, Tetlock (1985) says we must study organizational decision makers and their contexts because "both individuals and small groups of individuals are constrained by the norms, procedures, and resources of the institutions in which they live and work" (p. 298). A mechanism for studying the ethical contexts of organizations has been developed by Victor and Cullen (1987, 1988). They propose that organizations have ethical climates which affect how individuals make decisions concerning ethical issues and that their ethical climate construct allows researchers to "identify the normative systems that guide organizational decision making and the systemic responses to ethical dilemmas" (Victor & Cullen, 1988, p. 123).

It is proposed that when the metal finishing managers are asked to make a decision concerning the treatment of hazardous wasteater-- as if it occurred at their company-- managers' perceptions of their respective organization's ethical climate would affect their decision intentions. Recently, Wimbush and Shepard (1994) used the ethical climate literature primarily developed by Victor and Cullen (1988) and theorized a direct relationship between a company's ethical climate and the employees' ethical or unethical behavior.

Victor and Cullen (1987, 1988) developed an instrument to tap the perceptions of organizational participants concerning the ethical climate of their organizations. The Ethical Climate Questionnaire (ECQ), categorizes ethical climates into five types: (a) caring, (b) law and code, (c) rules, (d) instrumental, and (e) independence. Wimbush and Shepard (1994) defined a caring climate as one where "employees would have a sincere interest for the well-being of others within and outside the organization, who might be affected by their ethical decisions" (p. 638). A law and code climate would require that employees adhere to the codes and regulations of the government or professional associations; whereas employees would be required to adhere strictly to the organization's rules and policies in an organization characterized by the rules climate. Self-interest would guide how employees act in an organization with an instrumental climate. Another individually-oriented ethical climate, independence, would allow employees "to act according to their own personal moral beliefs" and whereby "other individuals found both inside and outside the organization would have little or no influence on their decision making" (Wimbush & Shepard, 1994, p. 639). Using these categories, Wimbush and Shepard (1994) proposed that organizational climates characterized by caring, law and code, rules or independence dimensions were more likely to promote ethical behavior than climates characterized by the instrumental dimension. For this study, top managers were asked to assess the instrumentality of their respective organizational climates.

More specific than Wimbush and Shepard's (1994) proposition, in this study it was hypothesized that an unethical decision intention would be endorsed by an organization with an instrumental climate. Reversely stated--and based on Wimbush and Shepard's (1994) lead-- an instrumental climate would likely constrain a manager from making an ethical decision. This outcome was proposed because organizational members would feel that they should act primarily on behalf of their own or the company's self interest while disregarding the interest of others who may be affected by their decisions. In the case of this study, others included both person and nonperson members of the biotic community. Based on Wimbush and Shepard's (1994) propositions, the following hypothesis was tested.

> Hypothesis 4: Top managers' decision intention concerning the treatment of hazardous wastewater will be inversely related to the instrumentality of their own organizational climates.

External Control Factor: Financial Cost

It was also proposed that financial cost may play a significant role in determining a manager's treatment of hazardous wastewater. For example, in 1980 the Chemical Manufacturers Association estimated that initially complying with federal regulations for the safe disposal of hazardous wastes would cost one hundred billion dollars (Chemical and Engineering News, 1980). Also, early discussions with Nebraska metal finishing managers indicated that the cost of all hazardous waste treatment and disposal was a significant industry issue (C. Christensen, personal communication, October 6, 1995).

This concern is not limited to the metal finishing industry. Some assert that many industries are faced with much "regulatory unreasonableness" (i.e., economic inefficiency due to government regulations) when it comes to doing business (Bardach & Kagan, 1982). For example, it was plausible that some metal finishing managers might agree that "mandatory installation of a 'second generation' water pollution treatment system

might be unreasonable, even if it were to improve water quality incrementally over the level provided by existing equipment, if that improvement were to be achieved only at extraordinary expense" (Bardach & Kagan, 1982, p. 6). This type of cost-benefit analysis underlies much environmental decision making. While it was beyond the scope of this study to discuss issues of valuation, others have taken a discriminating look at this issue (e.g., see Hayden, 1993). Nonetheless, it was posited that concerns of financial cost may prohibit metal finishing managers from making ethical decisions when it comes to the treatment of hazardous wasteater. Following this assertion, the following hypothesis was offered:

> Hypothesis 5: Top managers' decision intention concerning the treatment of hazardous wastewater will be inversely related to their perceptions of financial cost considerations.

In summary, it was proposed that delineating and measuring both internal and external perceived behavioral control (PBC) factors would improve the construct's reliability and validity in predicting and explaining ethical intentions. Stated a bit more boldly, it was proposed that explaining and predicting metal finishing managers' environmental ethical intentions concerning the treatment of hazardous wastewater would be significantly improved through the inclusion of these different control factors.

Personal Moral Obligation

Personal moral obligation, or personal moral norms, has been discussed as a potential antecedent for inclusion in both the TRA (Ajzen & Fishbein, 1970) and TPB (Ajzen, 1991). For example, Ajzen and Fishbein (1970) originally considered including personal normative beliefs (i.e., moral obligation) in the TRA but dropped it shortly thereafter proposing it "may serve mainly as an alternative measure of behavioral intentions" (p. 467). While they did not provide further clarification for this proposition, it is reasoned by this author that according to how they defined intentions, they

considered personal moral obligation to be another indication of how much effort a person would be willing to exert in order to perform the behavior.

Schwartz and Tessler (1972) differed with Ajzen and Fishbein's (1970) conclusion finding personal normative beliefs to be the strongest contributor in explaining the study's respondents intention to be a medical transplant donor. Since then, attitude researchers have sporadically included personal moral norms or personal moral obligation in both TRA and TPB studies (specifically: Beck & Ajzen, 1991; Gorsuch & Ortberg, 1983; Kurland, 1995; Pomazal & Jaccard, 1976; Raats, Shepherd, & Sparks, 1993; Randall & Gibson, 1991; Schwartz & Tessler, 1972; Vallerand et. al., 1992). It seems in the last five years more researchers have been questioning the omission of perceived moral obligation from the TPB (e.g., Eagly & Chaiken, 1993). This may be based partly on the antecedent's consistent success at explaining a significant amount of variance. Ajzen (1991) supported more theoretical and empirical investigations of this antecedent purporting "it seemed reasonable to suggest that moral issues may take on added salience with respect to behaviors of this kind [i.e., cheating, shoplifting, and lying] and that a measure of perceived moral obligation could add predictive power to the model" (p. 199).

However, the mentioned studies have failed to investigate and delineate the deeper belief systems underlying the personal moral obligation variable in both the TRA and TPB (see Figure 4). For example, the construct has not been adequately formulated or tested with studies often employing a single question to measure perceived moral obligation (e.g., Randall & Gibson, 1991). In terms of theoretical development, these researchers have not attempted to follow Fishbein and Ajzen's belief foundation in explaining human behavior. Vallerand et al. (1992) concurred noting that most TRA studies have not investigated the long-established belief antecedents of the attitudinal and normative constructs. Not considering the belief antecedents of the TPB factors is

troublesome because, as noted by Ajzen (1991), "it is these salient beliefs that are considered to be the prevailing determinants of a person's intentions and actions" (p. 189). The importance of these beliefs will continue to be discussed throughout the conceptualization of the extended TPB.

In developing the personal moral obligation factor, delineating what constitutes an ethical or moral issue was an important first step. Schwartz (1970b) suggested three distinctive attributes of moral decisions: (a) the interpersonal action has consequences for the welfare of others; (b) the decision maker is considered a responsible agent (i.e., "a person who has chosen an action knowingly and willingly when he could have done otherwise" [p. 128]); and (c) the action can be evaluated as good or bad according to the consequences it holds for the welfare of others.

When evaluated against these three criteria, environmental decision making of managers falls consistently under the domain of moral decision making, as affirmed by many literature streams and earlier discussions. For example, Bowman and Davis (1989) found that mining and manufacturing CEOs held stronger ecological values in 1986 than in 1976. Likewise, Stern, Dietz, and Black (1985) found a moral dimension in their research of environmental protection whereby "people hold industry to a set of moral norms of the same kind they apply to individuals" (p. 218). This conclusion seems to indicate that some realized that industrial activities are the culmination of decisions made by people. Finally, the popular press is replete with stories documenting the negative impacts industry often has on the health of people, animals, and the environment (e.g., Vollers, 1995).

Thus far it has been established that including personal moral obligation as an antecedent in the TPB is a significant endeavor and that the environmental decision making of top managers meets the criteria of a moral issue. However, perhaps the most important conceptual issue for personal moral obligation is the development of its belief

foundation as established for the other three antecedents (i.e., attitudes, subjective norms, and perceived behavioral control) (see Figure 4). No other study using the TRA or the TPB has proposed a belief determinant for personal moral obligation. Rather personal obligation is usually measured directly using a few items that seek to capture a person's global assessment about right and wrong for the target behavior (Eagly & Chaiken, 1993) or what an individual feels he or she "ought" to do (Kurland, 1995; Randall & Gibson, 1991). While this direct or global measurement has proved to be a strong predictor of behavioral intention, it has not aided in the understanding or explanation of such an occurrence. This is a notable shortcoming because, as Ajzen (1991) professed, the TPB seeks to both explain and predict human behavior.

Schwartz's (1970a, 1970b) norm-activation model has been used previously to explain the relationship between moral norms and overt behavior. Specifically, he has proposed that "awareness that one's potential acts have consequences for the welfare of others and ascription of responsibility for these acts and their consequences to the self are necessary conditions for the activation of moral norms" (Schwartz, 1970b, p. 133). The activation of moral decision making begins when a person realizes that his/her particular actions have consequences for the welfare of another person. This realization is referred to as awareness of consequences (AC). According to Schwartz (1970), without this awareness, one would not perceive the existence of a moral choice at all. However, this awareness is not enough to ensure moral behavior. The person must also judge himself or herself personally responsible for the action and its consequence. The judgment is referred to as the ascription of responsibility (AR). According to Schwartz (1970b) both dispositional and situational factors can influence the individual's degree of awareness and the ascription of responsibility. In summary, "the norm-activation model predicts that behavior which is not in accordance with [culturally] established moral norms is likely to occur when individuals either deny the consequences of such behavior or fail to

accept responsibility for such consequences (either by pleading no alternatives or shifting the blame to some other source)" (Van Liere & Dunlap, 1978, p. 176).

While Schwartz's model has been used mainly to study altruistic behaviors such as helping and volunteering, Van Liere and Dunlap (1978), Stern, Dietz, and Black (1985/1986), and Vining and Ebreo (1992) used it to study environmental behaviors and beliefs. For example, Van Liere and Dunlap (1978) examined whether or not the yard-burning behaviors of respondents living in Spokane, Washington were affected by an awareness of the negative consequences of burning yard waste (AC) and/or an acceptance of responsibility for these consequences (AR). As Schwartz's model postulates, they found that only when AC was high did AR have strong association with the behavior of burning yard waste. Stated a bit differently, the interaction between AC and AR best predicted the burning behavior. Consequently, for a norm of personal moral obligation to take effect, the individual needs to recognize the negative consequences of their behavior as well as have an awareness of personal responsibility for that behavior.

Stern et al., (1985/1986) extended the Schwartz model to an environmental protection context and predicted that when a person was aware of the negative consequences of chemical waste (AC) and ascribed responsibility to a particular actor (AR), that the person would feel that the responsible party (i.e., industry or the government) had a moral obligation to remedy the environmental hazard. The results of the exploratory study supported Stern et. al's (1985/1986) proposition that environmental protection has a moral dimension and that people especially hold industry to the same set of moral norms applied to individuals.

Vining and Ebreo (1992) used Schwartz's norm-activation to understand what distinguishes recyclers from nonrecyclers in predicting their recycling behaviors. They found that general attitudes about environmental concern did not adequately differentiate the two groups. Rather, they found that a person's "conscience played a strong role in

recycling behavior" (p. 1597). They also found that recyclers as well as nonrecyclers recognized the benefits of recycling for the environment (i.e., awareness of consequences). However, the recyclers were more likely to agree that recycling had more positive impacts than nonrecyclers. No significant difference was found between recyclers and nonrecyclers in their ascription of responsibility for the waste problem. It is possible that no significant difference was found for the AR factor because the items (alpha=.68) measured perceived responsibility for the waste problem rather than for the specific behavior of study (i.e., recycling).

As shown in Figure 4, it is proposed that Schwartz's two factors of awareness of consequences and ascription of responsibility can be used as determinants of personal moral obligation. Following the behavioral belief definition (i.e., that performing the behavior leads to a particular consequence) underlying attitudes, an individual's consequence belief captures the belief that performing, or not performing, the behavior will have consequences for the welfare of another person, and in the case of this study, also for nonpersons (the distinction between persons and nonpersons is discussed more in the moral intensity section of this proposal). Attempting to remain consistent with the expectancy x value basis employed in the TRA and TPB, the consequence belief is the subjective probability that one's particular behavior will hold a particular consequence for the welfare of another person or nonperson. This expectancy is based on salient information, or beliefs, that is a function of both situation and individual factors (Schwartz, 1970b). Ascription of responsibility is the value component and it represents the individual's evaluation concerning whether or not to accept some personal responsibility for the action and its consequences. As such, it was proposed that this multiplicative function of personal moral obligation (PMO) can be expressed

algebraically as follows: (4)

$$PMO=\sum_{i=1}^{o} c_i r_i$$

where c_i is the consequence belief that performing the behavior leads to the welfare consequence i for some other person or nonperson; r_i is the evaluation of the ascription of responsibility for consequence i; and o is the "other" person and nonpersons whose welfare is being considered. Thus, just as behavioral, normative, and control beliefs are viewed as underlying attitudes, subjective norms, and perceived behavioral control, respectively; so beliefs about the consequences of one's behavior on the welfare of others are viewed as determining personal moral obligation. This is the first known attempt to link beliefs with personal moral obligation within the TRA and TPB tradition.

It was proposed that the addition of the personal moral obligation (PMO) factor would be a stronger predictor of an ethical behavioral intention than the other antecedents of the extended TPB. Schwartz and Tessler (1972) were the first to offer evidence for this proposition; whereby when using the TRA they found that a person's moral obligation (i.e., their personal normative beliefs) to be an organ donor consistently explained more than twice the variance in intentions than attitudes and approximately three times as much as social normative beliefs. Gorsuch and Ortberg (1983) also found that in moral situations (i.e., erroneous tax refund and not going to church), moral obligation was more highly correlated with intention than attitude or social norms. Based on the results of their study, Gorsuch and Ortberg (1983) provided a rationale for keeping the personal moral obligation factor separate from the attitude factor. In summary, "the results suggest that in moral situations it is worthwhile to distinguish between people's personal preferences [attitudes] and their sense of moral responsibility. In the moral

situations, at least some people apparently intended to do what they thought was morally responsible even though it might be personally unpleasant" (p. 1027).

It appears there is reason to continue to assess the attitude and personal moral obligation as distinct constructs at this time. Most recently, Kurland (1995) found moral obligation to be the most significant contributor to explaining insurance agents' ethical intentions, followed by behavioral control, attitude, and subjective norms. Randall and Gibson (1991) also found that the addition of PMO significantly explained variation in intention. Based on these findings, both a general and specific hypothesis were tested concerning the relationship between PMO and the decision intention.

Hypothesis 6a: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their level of personal moral obligation.

Hypothesis 6b: Top managers' decision intention concerning the treatment of hazardous wastewater will be more strongly related to their level of personal moral obligation than their attitudes or subjective norms.

In summary, it was proposed that Ajzen's model provides the framework by which both important individual and situational factors can be included in studying environmental ethical decision making. Like Trevino's (1986) person-situation interactionist model; and like Jones' (1991) issue-contingent model, the extended TPB can encompass a specific ethical behavioral issue. However, adding the personal moral obligation factor, incorporating perceived behavioral control as more than a moderating variable, and developing the belief foundation for the personal moral obligation factor paved the way for this dissertation study to make some unique contributions to the literature.

Moral Intensity

The second research question directing this study was concerned with the moderating effect that moral intensity would have on each of the antecedent factors of the extended TPB (i.e., attitudes, subjective norms, PBC, and PMO) with the ethical decision intention of hazardous wastewater treatment (see Figure 1). This section will define the moral intensity construct and establish the scenario manipulations.

Jones (1991) proposed that ethical or moral issues vary depending upon their moral intensity. Jones (1991) emphasized that the moral intensity construct neither includes characteristics of the decision maker nor influences exerted by the organization upon the decision maker. Rather the construct focuses specifically on the moral issue. He believed ethical decision makers would respond differently to moral issues based on the characteristic(s) of the issues. Thus, he believed it was essential to include this issue-specific variable in the study of ethical decision making. Likewise, researchers such as Weber (1994) cautioned that "the conclusions and implications presented in prior research which ignored the ethical issue when assessing decision making may be limited or misdirected" (p. 329).

Magnitude of Consequences and Harm

Jones (1991) operationalized moral intensity by characterizing it as having six core components or dimensions: magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity; and concentration of effect. Morris and McDonald (1995) explicitly tested the multi-dimensional moral intensity construct and found that the magnitude of consequences component was one of the most significant contributors in explaining a person's moral judgment (the other significant component or dimension was social consensus). Jones (1991) defines the magnitude of consequence of the moral issue as "the sum of the harms (or benefits) done to victims (or beneficiaries) of the moral act in question" (p. 374).

Even though the moral intensity construct was proposed over six years ago in the organizational science field, Morris and McDonald (1995) found that prior to their study there were only a few explicit tests of the moral intensity construct reported. More specifically, Jones and Huber (1992) found that only social consensus had a separate effect on a person's moral judgment while Weber (1990, 1993, 1994) found that the magnitude of consequence dimension greatly influenced managers' ethical decisions. A handful of other related studies (e.g. Fritzsche, 1988; Fritzsche & Becker, 1982) also have indicated that varying the magnitude of consequences surrounding an issue does influence decision makers' judgments. Based on the relative paucity of empirical research investigating the moral intensity construct, Morris and McDonald (1995) called for more empirical investigations. By including moral intensity as a moderator variable, this study responded to that request.

Collins (1989) also specified numerous dimensions or characteristics of moral issues that would influence the decision maker's value judgments concerning specific issues. Especially relevant to this study is his discussion of the nature of harm and the nature of the harmed associated with the "harmful transaction." Specific concerns included: (a) whether the harm was physical, economic, or psychological; (b) the social class of the harmed (rich, middle class, poor); how many people were harmed; and other dimensions indicating the scope of the harm. Particularly interesting for this study was Collins (1989) distinction between harms delivered to person and nonperson entities. As Collins stated, "harm inflicted on persons are more highly condemned than harms inflicted on nonpersons (i.e., animals or vegetation). Companies whose pollutants cause harms to human beings are held more highly condemned for their actions than companies whose pollutants harm the ozone layer, even though this may, in the long run, result in harms to humans" (1989, p. 5).

Merging Jones' (1991) magnitude of consequences moral intensity dimension with Collins' (1989) distinction between those harmed as being persons and nonpersons works well for issues with an environmental orientation. Conceptually similar to what occurred in this study, Weber (1994) varied magnitude of consequences and the type of harm (i.e., physical, economic, or psychological) across ethical dilemmas to assess their influence on managers' moral reasoning or decision making. He found that both issue-specific dimensions (i.e., magnitude of consequences and type of harm) significantly influenced an individual's level of moral reasoning and decisions.

Harm to Persons and Nonpersons

As stated earlier in the proposal, when defining an environmental ethical decision, harm to both people and the environment (i.e., to both persons and nonpersons) needs to be considered. Assessing human and ecological risks, as well as economics risks, makes up the "unified approach" to environmental risk assessments (Kolluru, 1994, p. 335). In characterizing the risk, the question "What effects are likely on human health and ecosystems" is posed. For example, human exposure to hazardous agents occurs via environmental carriers or media, generally through air or water (Kolluru, 1994). Thus, a person can be exposed to hazardous agents by inhaling, ingesting, or having dermal contact with them. Ecological risk assessments evaluate risk to individual members of a species, a population of species, and to all species inhabiting a particular ecosystem. In sum, and specific to this study, the treatment of hazardous wastewater greatly influences (1) the magnitude of harmful consequences and (2) the extent to which persons and nonpersons are exposed to the hazardous agent.

Figure 5 presents the treatment matrix used in manipulating the magnitudes of consequences to both persons and nonpersons as a result of NOT treating the hazardous wastewater prior to discharge. These manipulations were part of the scenario information

presented to the metal finishing managers, and the national sample of managers were randomly assigned to one of the four scenario treatments.

The magnitude of consequence dimension reflected harmful consequences for either person or nonperson victims, and it was presented at high and low levels for both types of victims. As shown in Figure 5, Quadrant 1 was the decision scenario of the highest moral intensity, and Quadrant 4 was the decision scenario of the lowest moral intensity. That is, when the magnitude of consequences were low for both person and nonperson victims, the moral intensity of the hazardous wastewater treatment issue was at its lowest level (i.e., Quadrant 4). When the magnitude of consequences were high for both person and nonperson victims, the moral intensity of the hazardous wastewater issue was greatest (i.e., Quadrant 1). Because Quadrants 2 and 3 presented a high amount of harm to either persons or nonpersons, they also represented a condition of high intensity. As Collins (1989) noted in his discussion of the nature of the harm, physical harms are considered more serious than economic or psychological. Because Quadrants, 1, 2, and 3 contained at least one treatment of physical harm to a person or nonperson all three scenarios were treated as high moral intensity conditions for this study. Quadrant 4 portrayed the study's low moral intensity treatment.

The Influence of Moral Intensity

Jones (1991) used a social cognitive framework to develop his propositions concerning the effects of moral intensity on moral decision making and behavior. He provided the following as a reduced explanation concerning how moral intensity affects ethical or moral decision making:

> In the simplified model assumed here, stimuli from the environment vie for attention through an encoding process. Attention influences attributions, inferences, memory affect, judgments, intentions, and behavior. Attributions underlie inferences, judgments, intentions, and behaviors. Elements of social

cognition that are assumed to remain constant over the course of single-event moral decision making include schemata and attitudes. (Jones, 1991, p. 380).

Jones (1991) also outlined reasons as to why moral issues of high intensity would garner attention from decision makers. For example, he claimed that "moral intensity will affect the recognition of moral issues through its impact on the individual's recognition of the consequences of the decision" (Jones, 1991, p. 380). This heightened recognition of consequences-- the "awareness of consequences" antecedent to personal moral obligation-- would occur because moral issues of high intensity would be more salient to decision makers than those of low intensity due to the effects being more extreme, more obvious, or more involving of significant others. He also indicated that high-intensity moral issues would be more vivid to decision makers than low-intensity because their effects are "emotionally interesting," concrete, or more proximate (Jones, 1991, p. 381). Thus, it is proposed that high intensity moral issues would increase the likelihood of a decision maker being cognizant of the consequences of a decision.

Decision makers also may make more ethical decisions under conditions of high moral intensity due to the defensive attribution hypothesis whereby "greater personal responsibility is attributed to perpetrators of accidents that hold severe, rather than mild consequences" (Jones, 1991, p. 382). For example, a metal finishing manager might be inclined to attribute more responsibility for the handling of hazardous waste to himself/herself and/or to the organization if the moral intensity of the decision is at a high level. In essence, Jones (1991) professed that the moral intensity of the issue would affect; (a) the recognition of moral issues, (b) moral judgments (c) moral intentions; and (d) actual moral behavior. This study only proposed that the moral intensity of the issue of handling hazardous waste would influence or moderate the relationship between the managers' attitudes, subjective norms, perceived behavioral control, and personal moral

obligation and their behavioral intention concerning wastewater treatment Therefore, for this study the following hypothesis was tested:

Hypothesis 7: The intensity of the harmful environmental consequences will moderate the relationship between the antecedents of the extended TPB and the top managers' decision intention concerning the treatment of hazardous wastewater. Specifically, it is expected that the managers' decision intention will be influenced by the antecedents more under the low intensity condition than under the high intensity condition.

CHAPTER 3

METHODS

Scenario Methodology Development

In their critical review of the methodological state of business ethics research, Randall and Gibson (1990) proposed that the key problem with survey research was its vagueness and generality. Even though survey research was employed in 81 percent of the empirical studies of business ethics from 1961-1989, it was remiss in conveying the contextual information vital to realistic decision making. They recommended Fredrickson's (1986) scenario methodology, previously used in strategy research, as a way to infuse "realism" into business ethics research.

A number of ethical decision making studies have employed some derivation of the scenario methodology. For example, Fritzsche and Becker (1984) reasoned that "vignettes" (i.e., scenarios) would "inject a greater amount of background information and detail into an ethically questionable issue" (p. 167-168). They used five different scenarios based upon the ethical problems of coercion and control, conflict of interest, the physical environment, paternalism, and personal integrity. After each vignette, the respondent was asked to indicate the likelihood of deciding in accordance with the behavior of questionable morality. For example, the physical environment vignette proposed the likelihood of approving a general manager's plan to intentionally exceed emission limits by releasing dust pollution during the second shift while it was dark. After making the decision, Fritzsche and Becker used open-ended questions to query the respondent about why the particular decision was made. Finally, this rationale was used to analyze the respondents', a sample of over 500 practicing marketing managers, ethical philosophy (i.e., utilitarian, rights, and/or justice). Fritzsche and Becker (1984) believed the vignettes outperformed simple questions in capturing a higher quality of data from the respondents.

Recently, Morris and McDonald (1995) used scenarios, one adapted from the Fritzsche and Becker (1984) study, in their study of ethical decision making to assess the relationship between the moral intensity of an issue and an individual's moral judgment. For each of the three scenarios, two moral intensity variables (e.g., magnitude of consequence and social consensus - see Jones [1991] for all six variables), were manipulated such that there was a low and high intensity condition for each variable. Contrary to Fredrickson's (1986) development of one specific and lengthy scenario, they used multiple scenarios varying the moral intensity construct substantially from issue to issue.

Like this study, Randall and Gibson (1991) used an extended version of the theory of planned behavior (TPB) and the scenario methodology in their ethical decision making study. The other two organizational ethical decision making studies theoretically similar to this study-- i.e., the Dubinsky and Loken (1989) and the Kurland (1995) studies-- relied primarily upon questionnaire designs. While the Kurland (1995) study did use a scenario, the development of the scenario was not referred to in the published article. Therefore, the Randall and Gibson (1991) study is the best available model for this research study.

Ajzen's (1991) TPB and Fredrickson's (1986) scenario methodology are complementary because they both approach the development of instruments through inductive means. As in the Randall and Gibson (1991) study, using a scenario methodology naturally involves sample respondents at an early stage in the research. Specifically, Ajzen (1991) proposes that salient beliefs-- the foundation of the TPB and in this study the behavioral, normative, control, and consequence beliefs-- "must be elicited from the respondents themselves, or in pilot work from a sample of respondents that is representative of the research population" (p. 192). Ajzen believes that the instrument used to understand individuals' intentions and behavior must emanate from factors salient

to that sample of individuals. He, along with Fishbein (e.g., see Ajzen, 1987, pp. 43-44; Fishbein & Ajzen, 1975) based this hypothesis on their premise that specificity is important to accurately understanding and predicting a particular behavior. In measuring the behavior of interest, this specificity encompassed the specific action, the target at which the behavior was directed, and the elements of context and time surrounding the behavior (Ajzen & Fishbein, 1980). The context in which the decision of hazardous wastewater treatment is embedded is the most important aspect of specificity for this study.

Fredrickson's (1986) scenario methodology also places great import on specificity. To capture and convey specificity in the scenarios, he recommends a two-phase research method (see Figure 6). The first phase, information gathering, requires that the researcher build a level of understanding and competence with the construct and context of study. This includes choosing an organizing structure (i.e., theoretical framework), performing a literature review, reading industry literature, and conducting structured interviews with sample respondents. The second phase uses the information generated in phase one to develop both the scenario(s) and the construct-related questionnaire.

As stated previously, in an earlier Randall and Gibson (1990) article they recommended Fredrickson's rigor and depth in developing scenarios. Nonetheless, they loosely followed his scenario approach in their study of the ethical decision making of nurses. For example, they did select Ajzen's (1988) TPB as their organizing structure (Task 1.2), use medical industry literature (Task 1.4), and conduct a pre-test of the scenario/questionnaire with administrators and nurses (Task 2.8). From their 1991 article, it appears Randall and Gibson did not conduct interviews with a sample of nurses prior to developing the scenario and questionnaire items (Task 1.5). This oversight may have significantly diminished the relevance and meaningfulness of the scenarios and

questionnaire, a goal of theirs for the design phase of the study (p. 114). Some minor changes were made to the instrument following the pre-test (Task 2.8); albeit, the fact that the scenarios and questionnaire items were developed primarily by the researchers diminishes the inductive spirit of both Ajzen's (1988, 1991) and Fredrickson's (1986) methodologies.

This dissertation study sought to follow both Ajzen's and especially Fredrickson's methodological recommendations. In fact, Figure 6 was the road map for the development of the research study. Task numbers were assigned to the steps in Fredrickson's scenario methodology. Tasks 1.1 through 1.5 occurred during the information gathering phase of the research, and tasks 2.1 through 2.8 were performed during the instrument development phase. The following paragraphs outline the research strategy employed.

Phase 1: Information Gathering

Task 1.1: Construct Identification

Stone (1978) defines constructs as "the basic elements used in the construction of scientific theories" (p. 23). Stone emphasizes that constructs cannot be directly observed; instead, they are invented by the researcher and must be studied indirectly by asking questions, observing behavior, and so on. Fredrickson (1986) begins his scenario methodology approach by identifying the construct to be measured (see Figure 6, Task 1.1). For example, Fredrickson and Mitchell (1984) chose the construct comprehensiveness in their study of the strategic decision making process and defined it as "the extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decision" (p. 402).

The central construct in this study was the environmental ethic associated with the decision concerning how hazardous waste is handled. Jones (1991) acknowledges that numerous authors have omitted defining the ethics construct in their writings about

ethical decision making (e.g., Dubinsky & Loken, 1989; Trevino, 1986; likewise Randall & Gibson, 1991 and Kurland, 1995 did not define ethical decision). The environmental ethic construct was investigated and defined earlier in the proposal (see the section titled "Hazardous Wastewater Treatment as an Ethical Decision") with the most ethical decisions being defined as those that would present the least amount of harm to people and to fish and waterfowl (i.e., to persons and nonpersons).

Task 1.2: Organizing Structure

Fredrickson (1986) notes this step also needs to take place early in the research process so that the structure can direct the interviews and instrument development. The extended theory of planned behavior (TPB) was chosen early as the study's theoretical base and organizing structure. Ajzen's (1988, 1991) theory was chosen because it (a) had strong theoretical underpinnings, (b) had been previously used by two researchers to study organizational ethical decision making, (c) had a relatively extensive stream of empirical work to substantiate the theory, and (d) most importantly, it could capture the individual and situational factors impacting ethical decision making.

Tasks 1.3 and 1.4: Literature Review and Reading

These two tasks required intensive information gathering. The literature reviewed for this study came from the fields of organizational science (especially organizational behavior and strategic management), social psychology, environmental sciences, and industrial engineering. Some of the metal finishing industry publications reviewed included Finishers Management, Metal Finishing, Journal of Air Pollution Control Association, Hazardous Waste and Hazardous Materials, and Plating and Surface Finishing. Publications from the Center for Environmental Research Information, an EPA Pollution Prevention Research Branch located in Cincinnati, Ohio, were also helpful.

Task 1.5: Structured Interviews

Unstructured interviews were first conducted with managers employed by six different Nebraska metal finishing organizations. The interviews were invaluable and greatly determined the direction of the research study. Along with the interviews, tours of the firms' operations were helpful in understanding the activities performed by metal finishing firms and the type of environmental issues impacting their operations. Four months later, structured interviews with these same metal finishing managers were conducted. According to interviews with environmental engineers, wastewater treatment, material handling and storage, hazardous waste disposal, and inventory and record keeping were some of the environmental issues of concern for metal finishers.

Phase 2: Instrument Development

Tasks 2.1, 2.2 and 2.3: Scenario Development Using Industry Information

Following the structured interviews and review of industry literature, a critical decision was made concerning the dependent variable; that hazardous wastewater treatment would be central to the decision scenario. Hazardous wastewater treatment is a major operational issue for many metal finishing companies. It is not uncommon for a plant to exceed its discharge requirements (USEPA, 1992) and metal finishing suppliers reported a significant increase of wastewater equipment sales from 1993 to 1994 (SFMRB, 1995). Likewise, wastewater treatment is an operational issue that requires constant monitoring and evaluation. Based on these reasons, it was decided the scenario problem would require the metal finishing managers to make a decision concerning the full-time operation of a wastewater treatment system. To manipulate the moral intensity of the scenario, four different scenarios were written. Again the moral intensity of the issue varied relative to the magnitude of consequences for persons and nonpersons due to the discharge of non-treated hazardous wastewater.

Interview information concerning the different types of heavy metals found in hazardous wastewater also was incorporated into the final decision scenario. Specifically, it was discovered that two of the most widely known and dangerous metals for people and nonpersons are nickel and cadmium. Based on this discovery, the scenario focused on a metal finishing company specializing in nickel and cadmium plating.

Tasks 2.4, 2.7, and 2.8: Write, Pre-test, and Refine Scenarios

It was decided that this study's decision scenarios would not be as extensive as Fredrickson's five-page (single spaced) decision scenario. Rather, they would be similar to the 2 to 4 paragraph long scenarios used by Randall and Gibson (1991) and Fritzsche and Becker (1984). The scenarios needed to contain two key pieces of information: (a) believable, salient, and accurate industry-specific information and (b) the environmental consequences for persons and nonpersons due to the release of untreated hazardous wastewater.

During the unstructured interviews, a metal finishing executive--who had visited many metal finishing facilities-- confirmed that it was very possible that some metal finishing plants did NOT operate their wastewater treatment systems at all times. Reasons for this behavior varied with one of strongest reasons due to the cost of operating the treatment system (e.g., energy and chemical requirements). This dilemma became the organizing structure for the scenario.

After the industry information was presented, the scenario needed to be developed to encompass the moral intensity information (i.e., magnitude of consequences for both persons and nonpersons). This was done by tracking the untreated hazardous wastewater as it was discharged to the publicly owned treatment works (POTW). As most often occurs, after the POTW treats what it assumes to be nonhazardous water, it then releases it into a local water supply (e.g., lake, river, stream, ocean, etc.). As this point in the scenario, it was possible to interject and manipulate the moral intensity information.

Pre-test Manipulation Checks

The first drafts of the four scenarios-- accompanied by two questions evaluating whether the situation was presenting great, some, minor, or no harm to persons and nonpersons (i.e., the questions asked "To what extent does the current wastewater treatment system present harm to people?" and "To what extent does the current wastewater treatment system present harm to fish and waterfowl?")-- were pre-tested. Fifteen undergraduate business students read just one of the four scenarios with a total of 60 students evaluating the intensity of harmful consequences for persons and nonpersons.

By comparing mean values for each of the scenario's two questions, the manipulation check revealed that all the scenarios were perceived to be presenting a great amount of harm to persons and nonpersons, no matter the scenario. Students' comments included: "It might seem like no-to-minor harm to begin with, but when it continues on and on, the danger increases; Even if nothing is happening to humans yet, if it is killing fish and waterfowl it probably has an effect on humans; and Local people's water may not be hurt but individuals down the river may be." These type of responses indicated that the elements of time and place needed to be controlled in the scenarios.

After making some changes to the scenarios and two accompanying questions, the second manipulation check was administered to a new sample of 63-- primarily undergraduate-- business students. Each participant read and evaluated one of the four scenarios. The questions now asked "To what degree is the untreated wastewater currently presenting harm to people in your community? and To what degree is the untreated wastewater currently presenting harm to fish and waterfowl inhabiting River M?" The questions were measured using a 7 point scale with anchors of 1=no harm and 7=extreme harm.

An unpaired t-test was used to evaluate between scenario differences first for the person treatment and then for the nonperson treatement (see Figure 5 for scenario

compositions). For example, for the harm to person treatment, scenario 1 was compared to scenarios 2, 3, and 4. The same comparison was done for the harm to nonperson treatment. More specifically, both scenario 1 and scenario 2 received the high amount of person harm treatment, but only scenario 2 contained a high amount of nonperson harm. For the manipulations to be successful, scenario 1 and scenario 2 needed to differ only on the nonperson treatment.

Because all between scenario differences were significant ($p<.05$), a Fisher's Protected Least Significant Difference post hoc analysis was used to evaluate the significant comparisons (see Cohen & Cohen, 1983). For the person treatment, significant differences were found between scenario 1 and scenario 3 (mean difference=1.39, $p=.02$), scenario 1 and scenario 4 (mean difference= 2.57, $p=.0001$), scenario 2 and scenario 3 (mean difference= 1.36, $p=.04$) and for scenario 2 and scenario 4 (mean difference = 2.53, $p=.0001$). As posited, no differences were found between scenarios 1 and 2 (both contained high harm to persons) and between scenarios 3 and 4 (both presented low harm to persons). In summary, the harm to person manipulation was deemed successful based on Fisher's post hoc analysis.

Fisher's post hoc analysis was used also to analyze the nonperson treatment effects. The results supported significant differences between scenarios 1 and 2 (mean difference= 2.15, $p=.0012$), scenarios 1 and 3 (mean difference=2.72, $p<.0001$), scenarios 2 and 4 (mean difference=3.11, $p<.0001$), and scenarios 3 and 4 (mean difference=3.68, $p<.0001$). Again as posited, no significant differences were found between scenarios 1 and 4 (both presented low harm to nonpersons) or between scenarios 2 and 3 (both presented high harm to nonpersons). In summary, the analysis again indicated successful manipulations of the nonperson condition.

Based on the results of this manipulation check, the scenarios were ready for inclusion in final instrument. The high-high intensity scenario 2 (i.e., high magnitude of

consequences for both person and nonperson victims) used in the final instrument read as follows:

> Company F has been in the metal finishing industry for 30 years and specializes in nickel and cadmium plating for clients in a five-state area. You have been employed with the company for some time and recently were named its first Environmental Engineer. One of your primary duties is to oversee the plant's wastewater treatment system. The company's wastewater system was previously under the supervision and direction of the General Manager. Upon inspection of the system, you discover that a large volume of wastewater is not being treated before it is discharged. You bring this concern to the General Manager and he responds by saying that because it costs a lot to operate the wastewater treatment system, it is turned off unless visits by "outsiders" are expected. Therefore, the untreated wastewater is discharged directly to the publicly owned treatment works (POTW).
>
> After the POTW processes the water it is released into River M. You recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found a significant number of fish and waterfowl inhabiting River M as having abnormally high nickel and cadmium levels and were dying of unknown causes. River M is the source for your community's drinking water. Interestingly, last week's newspaper reported a study conducted jointly by the Environmental Protection Agency and the National Cancer Institute indicating that your area's drinking water contained high concentrations of heavy metals, especially nickel and cadmium, and overall cancer rates were substantially higher in the area than in the rest of the country.

All four scenarios are included in the Appendix.

Tasks 2.5 and 2.6: Write and Select Questionnaire Items

Ajzen and Fishbein (1980) methodically outlined the steps in constructing a questionnaire to assess the theory of reasoned action for different behaviors and behavioral intentions. Ajzen (1988, 1991) along with Randall and Gibson (1991) and Kurland (1995) also were consulted concerning questionnaire structure and item development and construction. As urged by Ajzen and Fishbein (1980), the Nebraska metal finishing managers greatly influenced the inclusion of particular elements in the questionnaire. The particular items and their measurement are found in the Measurement of Variables section.

Tasks 2.7 and 2.8: Pre-test and Refine Questions

The instrument (i.e., scenario and questionnaire items) was pre-tested with a sample of five Nebraska metal finishing managers. As stated in a cover letter accompanying the instrument, the managers were asked to "(1) time how long it takes you to complete the survey, and (2) record some of the thoughts you had while you were completing the survey." According to the Nebraska managers, the survey took between 20-25 minutes to complete. Three of the five managers commented that the survey was very interesting and that they would like to see a copy of the study's final results. One manager thought "some questions seemed as if there were too many choices in the scale." This study used a seven-point Likert scale found in many behavioral science research studies; therefore, the seven-point scale was retained. A few other minor changes (e.g., typographical oversights) were made based on the managers' comments.

The preceeding paragraphs detailed the methodology and procedures followed prior to mailing the survey to the national sample of metal finishing managers. In brief, this study employed a field research design utilizing multiple sampling sources. During the information gathering stage of the research, informal and formal interviews were conducted with Nebraska metal finishing companies. These interviews helped to provide information that was used to understand the industry (i.e., terminology, hazardous wastewater treatment issues, etc.), write the decision scenarios contained in the final instrument, and develop and refine questionnaire items. Two manipulation checks verifying the varying degrees of moral intensity for the four scenarios were administered to over 120 undergraduate business students. After writing the scenarios and questionnaire items, the instrument was piloted with five Nebraska metal finishing managers. Based on these managers' comments, a few corrections and changes were made to the instrument. The next paragraphs outline the procedures taken in selecting the sample and administering the instrument to the sample respondents.

Sample and Mail Survey Procedures

Using the scenario research design requires a level of industry specificity to make the scenarios salient for the respondents. This mandated that the organizations sampled be from the same industry. The metal finishing industry--which focuses on the coating of metals and includes processes such as electroplating, dip galvanizing, and painting-- was selected as the focal industry.

This industry (SIC codes 3471 and 3479) was chosen for a number of reasons. First, as mentioned earlier, it is the third largest producer of hazardous waste. The coating processes yield a large volume of hazardous wastewater containing significant concentrations of heavy metals and often result in the production of a large volume and variety of gaseous, solid, and liquid pollutants (Dahab, Montag, & Parr, 1994). Many of these pollutants are very hazardous and can be extremely harmful to both people and the environment. For example, cyanide solutions are used for hardening and metal cleaning (USEPA, 1990b), and cyanide in a gaseous state is extremely lethal. Second, environmental issues hold great strategic importance for this industry. A 1995 Surface Finishing Market Research Board survey reported that metal finishing companies spent more on environmental systems (i.e., wastewater treatment and air handling) than on other equipment systems (e.g., manual plating and automatic processing equipment) in 1993 and in 1994, and that total environmental costs were 9-10 percent of annual sales. For example, albeit less than the estimate of 9 percent of sales, one of the nation's largest job shops with 1994 sales of $12 million spent $500,000 on environmental operations that same year (Kelly, 1995).

Randall and Gibson (1990) suggested using membership lists of professional associations as one way to improve sample selection. Based on this recommendation, the final instrument was mailed to members of the National Association of Metal Finishers (NAMF). <u>According to the Encyclopedia of Associations: Volume 1</u>,

individual members of NAMF are management executives of firms engaged in plating, hard chroming, galvanizing, and other forms of metal finishing, and the association is "primarily concerned with management education and legislative issues" (Schwartz & Turner, 1995, p. 161). In an attempt to improve the response rate, a letter written by a former president of NAMF was attached to the questionnaire. In essence, the letter indicated support for the research and proposed that this research would be "extremely valuable in helping metal finishing managers understand how decisions, such as the treatment of hazardous wastewater, are made in our industry." The package mailed included a cover letter written by the former NAMF president, a brief description of the purpose of the research, instructions that emphasized the confidentiality of the information, a postage-paid return envelope, and the final instrument.

The instrument was mailed to 696 metal finishing managers; a reminder card was mailed with eight individuals requesting another survey. A total of 140 usable questionnaires were returned for a response rate of 20 percent. According to the Surface Finishing Market Research Board, market surveys mailed to over 14,250 U.S. and Canadian companies assumed to be operating in the metal finishing industry typically garner responses rates in the 1.5 to 6 percent range (1995). It is believed that the cover letter written by a former NAMF president and the sample's respondent classification (i.e., management executive) significantly improved this study's response rate as compared to industry averages. Of those management executives responding, 48 percent were a president and/or CEO, 29 percent were a general or plant manager, 13 percent were at a vice-president level, and 10 percent classified themselves as some type of environmental manager.

Coding of Moral Intensity

Each instrument began with brief instructions concerning the decision scenario and read as follows: "Treatment of wastewater is an issue many metal finishing

managers encounter. Please read the scenario below, and put yourself in the shoes of the Environmental Engineer. Then answer the series of questions that follow the scenario." The four scenarios were randomly administered and the numbers 1, 2, 3, or 4 followed the scenario title. For example, Wastewater Treatment at Company F (2) indicated that the manager was administered scenario 2. In the final analyses, the scenarios were coded either 0 or 1 with a 0 indicating low moral intensity (i.e., scenario 4) and a 1 indicating high moral intensity (i.e., scenarios 1, 2, and 3). Thirty eight scenarios were coded a 0 and 102 scenarios were coded a 1 with a sample mean of .73 and standard deviation of .44.

Measurement of Variables

Behavioral Intention

Based on insights from Randall and Gibson (1991) and Kurland (1995), four items were developed for the study to measure the respondent's behavioral intention immediately following the scenario. Only one item was used to measure the dependent variable due to the unreliability of the four items based on Cronbach alpha values. Nonetheless, Ajzen and Fishbein (1980) provided examples whereby behavioral intention was measured using a single item. The straightforward item was measured using a 7-point Likert scale ranging from 1=extremely unlikely to 7=extremely likely: "Putting yourself in the shoes of the new Environmental Engineer, what is the likelihood that you would continue to operate the treatment system as it has been for the last 30 years?" As stated, this item endorsed an unethical behavioral intention. In fact, all the questionnaire items based on the Company F scenario were contingent upon continuing to operate the wastewater treatment system as it had been for the last 30 years (i.e., releasing untreated hazardous wastewater into the POTW).

Attitudes Toward Operating the Wastewater Treatment System

A three-item scale was used to assess the top managers' attitudes toward "Continuing to operate the wastewater treatment system as it has been for the last 30 years." The design of this scale conformed with past research testing the theory of reasoned action (Ajzen & Fishbein, 1980) and the theory of planned behavior (Kurland, 1995 and Randall & Gibson, 1991). Using 7-point scales, respondents were asked whether continuing the behavior was (1) negative... positive, (2) bad... foolish, and (3) harmful... beneficial (alpha= .73). Previous research using a similar scale, for example Randall and Gibson (1991) and Kurland(1995) reported strong reliabilities ranging from .78 to .93, respectively

Subjective Norm

Ajzen and Fishbein's (1980) measure was used as a guide for the two subjective norm items assessing the influence of important others on the top managers' decision intention: "Most people who are important to me would think that I should continue to operate the wastewater treatment system as it has been for the last 30 years; Most people who are important to me would think that I should agree with the General Manager's directions to continue to operate the wastewater treatment system as it has been for the last 30 years" (alpha= .60). Again, 7-point fully anchored scales with 1=extremely unlikely and 7=extremely likely were used to measure the two items. Neither Randall and Gibson (1991) nor Kurland (1995) reported the reliabilities of their subjective norm scales-- e.g., Kurland (1995) said that it was "not applicable" (na). Ajzen and Driver (1991) reported alphas of .47 to .61 for their subjective norm scales for five different recreational activities. Thus, it appears that this study's subjective norm scale is reasonably reliable compared to scales used in previous studies.

Perceived Behavioral Control

As discussed earlier, in order to better understand perceived behavioral control (PBC), three variables were used to capture both the internal and external dimensions of the factor (i.e., self-efficacy, instrumental climate, and financial cost). Each of the three dimensions could either facilitate or inhibit the managers from making an ethical decision intention concerning hazardous wastewater disposal. The three factors were measured individually because it did not make theoretical sense to group them.

Self-efficacy

Following Bandura's (1977) specificity orientation in measuring self-efficacy, the measures of self-efficacy for this study were task specific. Items used by Jones (1986) to measure newcomers' self-efficacy concerning role orientations were used as a guide in writing the self-efficacy items for this study. The two items (alpha=.89) measuring self-efficacy were: "I feel confident that my skills, abilities, and knowledge qualify me to make a decision concerning the treatment of hazardous wastewater; My past experience increases my confidence that I am qualified to make a decision concerning the treatment of hazardous wastewater." The items were scored on 7-point Likert-type scale with 1=completely disagree and 7=completely agree.

Instrumental Climate

Seven items developed by Victor and Cullen (1988) to measure an organization's instrumental ethical climate were averaged to yield the respondents' perceptions of the ethical dimension of their respective organizational cultures. Each item measured an organization's instrumentality orientation (i.e., self-interest is the dominant criterion): "In this company, people protect their own interests above all else; In this company, people are mostly out for themselves; There is no room for one's own personal morals or ethics in this company; People are expected to do anything to further the company's interests, regardless of the consequences; People here are concerned with the company's interest--

to the exclusion of all else; Work is considered substandard only when it hurts the company's interests; and The major of responsibility of people in this company is to control costs." The items were measured using the 6-point Likert scale used by Victor and Cullen (1988) with end anchors of completely false and completely true. A reliability of .81 for this scale fared better than Victor and Cullen's reports of .71 to .73 (1988, 1989) for the same scale.

Financial Cost

Two items developed for this study were used to measure the respondents' perceptions of the influence of cost on their decision intentions concerning the full-time operation of a wastewater treatment system. The two questions were not presented together and two different 7-point scales were used to measure the items. The first appearing question, using a scale ranging from 1=very little influence to 7=great influence, asked: "How much influence do you believe the cost of operating a wastewater treatment system would have on an environmental engineer's decision concerning wastewater treatment?" The second appearing question, using a scale whereby 1=completely disagree and 7=completely agree, asked the respondents to indicate their level of agreement with this statement: "As the environmental engineer of Company F, the cost of operating a wastewater treatment system would influence my decision." The two items were averaged yielding the final cost measure.

The Cronbach alpha for this variable was .64, a small improvement over a few other studies that have measured global and specific perceived behavioral control factors. For example, Kurland's (1995) global scale produced an alpha of .59 and Ajzen and Driver (1991) reported alphas of .36, .51, .63, .67, and .76 for more specific control factors in their study of leisure participation.

Personal Moral Obligation

Three items developed for this study to measure the respondents' feelings of personal moral obligation were reliable evidenced by an alpha of .85. The items sought to measure the respondents' feelings of obligation toward three different entities: "As an environmental engineer, I have a moral obligation to make sure hazardous wastewater from metal finishing operations does not harm people; It would be morally wrong for me to allow the discharge of untreated hazardous wastewater from metal finishing operations into a POTW; and As an environmental engineer, I have a moral obligation to make sure hazardous wastewater from metal finishing operations does not harm fish and waterfowl" (1=completely disagree and 7=completely agree). Randall and Gibson (1991) only used one item to assess personal moral obligation; however, Kurland (1995) reported an alpha of .71 for her three personal moral obligation items. Therefore as a neophyte scale it appears to be quite reliable.

Social Desirability Control Variable

Social desirability has been found to be an important variable for organizational ethics research studies due to their sensitive nature and heavy reliance on self-report instruments (Randall & Fernandes, 1991). Likewise, some believe that social desirability is of interest as a variable in its own right (e.g., Ganster, Hennessey & Luthans, 1983; Zerbe & Paulhus, 1987). Of the few organizational science studies that have assessed the social desirability effect, most have used the Marlowe-Crowne scale. Because other social desirability scales do exist (for a summary of them see Paulhus, 1991), Randall and Fernandes (1991) did not recommend using the Marlowe-Crowne scale because it may underestimate the relationship between the social desirability effect and the constructs of study.

Paulhus (1984, 1988, 1991) offered a measure (i.e., the Balanced Inventory of Desirable Responding - BIDR) that decoupled the social desirability bias into two

constructs: self-deceptive positivity and impression management. This self versus other deception provides additional information about the individual; thus, helping us to better understand and detect the social desirability factor. The self-deception component reflects a more hidden or naive bias because the individual gives a honest, but positively skewed response. The impression management component is more deliberate and purposeful because the individual wants to present the most positive social image (Paulhus, 1991; Zerbe & Paulhus, 1987).

Ten items for each of the two BIDR scales (i.e., self deception and impression management) were used for a total of 20 social desirability items. A 7-point Likert scale (1=not true and 7=very true) was employed to test the items stated as propositions. Based on Paulhas' directions, after reversing the negatively keyed items (5 items for each of the two scales), one point was added for each extreme responses (6 or 7). According to Paulhas (1991), "This scoring ensures that high scores are attained only by subjects who give exaggeratedly desirable responses" (p. 37). The two scales were evaluated separately with a final index and results for each scale.

In the studies that have used the BIDR, values of coefficient alpha ranged from .68 to .80 for the self deception scale and .75 to .86 for the impression management scale (Paulhas, 1991). For this study neither scale produced strong Cronbach alphas falling outside the ranges previously found. The self-deception scale produced an alpha of .53 while the impression management scale yielded an alpha of .60. Paulhus (1991) did note that "The IM is particularly responsive to demands for impression management." (p. 39) and that it was more sensitive than the self deception scale for some behaviors (e.g., test administration conditions). In the end, only the impression management scale was used to measure the social desirability response bias for this study.

The impression management items included statements such as: "I sometimes tell lies if I have to (reverse scored); "I never cover up my mistakes; I have done things that I

don't tell other people about (reverse scored); and I never take things that don't belong to me." An average of the ten items provided an overall social desirability index with higher scores indicating a greater level of social desirability bias (the scores could range from 0 to 10).

Due to the social sensitivity of this study, measures were take to reduce its social desirability response bias. Nonetheless, Nederhof (1985) claimed that "all methods of reducing or preventing social desirability bias are only partially effective" (p. 275). There tends to be less social desirability in mail surveys (Nederhof, 1985); therefore, using mail surveys with the national sample of metal finishing managers may have reduced some of the social desirability bias. Also, the scenario was written such that the respondents were asked to place themselves in the "shoes of the new Environmental Engineer" rather than responding in "the first person." The items were written to be as non-threatening or neutral as possible with regard to social desirability. Nonetheless, because these methods may have proved to be futile, the BIDR's impression management scale may be the best measure taken to control the impact of social desirability bias on the results of the study (Nederhof, 1985).

Industry Tenure Control Variable:

It was proposed that industry tenure could alter the managers' perceptions of many of the independent variables (e.g., attitudes, self-efficacy, etc.), and thus tenure was statistically controlled for in the analyses described below. Industry tenure was measured in years as reported by the respondent (i.e., How long have you worked in the metal finishing industry?).

CHAPTER 4

RESULTS

This chapter reports the results of the hypotheses tested in this empirical study. Significant correlations and relationships among the study variables are discussed first. Then the tests of each hypothesis are delineated and reviewed via correlation coefficients and hierarchical regression analyses. Graphical representations of the moderated relationships are used to enhance interpretation and understanding.

Relations Among Variables

The means, standard deviations, and correlations among the study's variables are shown in Table 1. As discussed in the previous chapter, all the reliabilities of the measures used were acceptable-- using Nunnally's (1978) criterion of .70-- except the subjective norm (alpha=.60) and social desirability (alpha= .60) scales. Results based on these scales should be interpreted with caution.

Items for all of the six independent variables were factor analyzed using a principal components solution with varimax rotation. The items clearly loaded on the appropriate factors with one exception: an attitude item and two instrumental climate items shared a low loading on an additional (i.e., seventh) factor. In summary, the independent variables proved to be discriminantly different from one another.

Beyond the subjective norm variable, the correlational analyses also revealed few significant relationships among the independent variables. At the $p < .01$ level-- encompassing all independent variables-- only the correlation between subjective norm and cost was significant ($r = .26$). This result indicates that managers who were influenced by important others to <u>not</u> discharge the hazardous wastewater were also less influenced by financial cost considerations. At the $p < .05$ level, top managers who believed that important others would not support discharging untreated hazardous waste also tended to

(a) report that their respective organizations had less instrumental climates (r=.18) and (b) they felt a stronger personal moral obligation (r=-.18).

The only other variable significantly correlated with other independent variables was cost. Specifically, correlational analyses indicated that managers who were less influenced by cost (a) held more negative attitudes about continuing to operate the wastewater treatment system as it had been for the last 30 years (r=.20, p<.05) and (b) reported working in climates that were not instrumental and oriented to extreme self-interest (r=.19, p<.05).

According to the correlational analyses, there were no significant relationships between the social desirability measure and any of the other variables. The mean social desirability score was 5 (SD=2.3) using a scale of 0-10. These scores are a bit higher than those reported by Paulhus (1991) based on a sample of 433 college students. Beyond this comparison, it appears that a moderate level of impression management influenced these managers' responses. Perhaps more importantly, a lack of significant correlational relationships between the social desirability variable and the other study variables increases the likelihood that the managers' responses are reliable.

The other control variable, industry tenure, produced one of only two highly significant relationships among the study's variables. This correlation (i.e., r=.28, p< .01). demonstrates that top managers' who have worked in the industry longer tend to have more positive attitudes toward operating the wastewater treatment system as it had been for the last 30 years (i.e., less ethical attitudes).

Metal finishing managers in the sample tended to report that it was unlikely (extremely to quite) that they would endorse discharging untreated hazardous wastewater to the POTW (M=1.35). While there was some variance in the sample's decision intention, it was small and skewed (SD=1.01). On average these top managers had worked in the metal finishing industry for over 22 years (SD=11.38).

According to the mean values shown in Table 1, these top managers held negative attitudes about continuing to operate the wastewater treatment system as it had been for the last 30 years (i.e., a more ethical attitude with M=1.34 and SD=.64), and they believed it was unlikely that important others would think they should continue discharging untreated hazardous wastewater into the POTW (M=1.94, SD=1.22). The high self-efficacy score (M=6.33, SD=.97) indicates that these top managers felt confident about their ability to make a decision concerning the treatment of hazardous wastewater. Most of the managers scored their respective organizations low on the instrumental climate dimension (M=1.34, SD=.76). The managers differed the most on their evaluations of the influence of cost on their wastewater treatment system decision intentions with moderate influence being the average response (M= 3.68, SD=1.78).

Tests of Hypotheses

Tests of main effect hypotheses (Hypothesis 1 through Hypothesis 6b) were directed toward answering the research question: What factors most affect a manager's environmental ethical decision intention concerning how hazardous wastewater should be treated and/or disposed? To test these main effect hypotheses, correlational analyses and hierarchical analyses were employed. For the hierarchical regression analysis, the control variables social desirability and industry tenure were entered into the equation first, followed by the specific independent variables. Change in R^2 was evaluated to determine the significance of the factors' influence on the mangers' decision intention.

The interaction hypothesis (i.e., Hypothesis 7) was tested to answer the other primary research question: Does the influence of each factor in predicting the ethical decision intention change as the moral intensity of the environmental consequence increases? To test this hypothesis, hierarchical regression analysis was employed. The tables showing the regression results contain both the main effect and interaction results.

Attitudes Hypothesis

Past research using the theory of reasoned action and the theory of planned behavior have found the attitude factor to be a very good predictor of specific behaviors and behavioral intentions. For this study, the specific attitude hypothesis proposed was:

> Hypothesis 1: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their attitudes toward wastewater treatment.

According to correlational analysis, there is a significant, albeit moderate, correlation between the managers' attitudes toward wastewater treatment and their ethical decision intentions ($r=.15$, $p<.10$). This positive correlation indicates that managers' who harbor more negative attitudes toward discharging hazardous wastewater into the POTW tend to make more ethical decision intentions (i.e., indicated it was extremely or quite unlikely that they continue to allow the disposal of untreated hazardous wastewater).

As shown in Table 2, the hierarchical regression analysis provided even stronger support for the role of the attitude variable in explaining a significant amount of variance in the managers' decision intention (R^2 change=.03; $F=2.61$, $p=.05$). These results are consistent with those reported in previous organizational studies using the theory of planned behavior (e.g., Kurland, 1995).

Subjective Norm Hypothesis

Organizational ethical decision making studies employing the theory of planned behavior have not found significant support for the subjective norm variable (e.g., Kurland, 1995; Randall & Gibson, 1991). Nonetheless, this study set forth to test the following subjective norm hypothesis:

> Hypothesis 2: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their assessment of support by important others.

For this study the correlational analysis did indicate a significant relationship between subjective norm assessment and top managers' decision intention ($r=.17$, $p<.05$). The positive correlation demonstrates that managers who made more ethical decision intentions believed that important others would strongly endorse operating the wastewater treatment system. Likewise, the regression analyses (see Table 3) found the subjective norm variable to be a significant predictor of the managers' decision intention (R^2 change=.03; $F=2.51$, $p=.06$). In summary, both analyses provided support for Hypothesis 2 indicating that managers who had more ethical decision intentions were influenced by the assessment that important others would have about their behavioral intentions.

Self-efficacy Hypothesis

As the first organizational ethical decision making study to look at self-efficacy as a specific perceived behavioral control factor, the following exploratory hypothesis was proposed:

> Hypothesis 3: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their level of self efficacy.

Neither the correlational analyses nor the regression analysis found support for Hypothesis 3 (Table 4 shows the regression analysis for self-efficacy). Based on the scoring of the items, the direction of the correlational coefficient was in the anticipated direction indicating that managers who were more self efficacious had more ethical decision intentions (see Table 1). Nevertheless, both analyses failed to support Hypotheses 3.

Instrumental Climate Hypothesis

As previous organizational research has shown (e.g., Victor & Cullen, 1989), organizational ethical climates-- and the perception of those climates by organizational

participants-- can influence the behaviors and decision intentions of top mangers. Therefore, this study offered the following hypothesis as a way to test the influence of this perceived behavioral control factor on the decision intention of metal finishing managers:

> Hypothesis 4: Top managers' decision intention concerning the treatment of hazardous wastewater will be inversely related to the instrumentality of their own organizational climates.

Correlational results did not support Hypothesis 4 (see Table 1). As demonstrated in Table 5, regression analysis did lend moderate support for the hypothesis (R^2 change= .02; F=2.06, p=.10). The positive correlational coefficient indicates that managers proclaimed more ethical decision intentions if they did not perceive their organizations as exuding an instrumental or self-interested climate. Thus, as perceptions concerning the instrumentality of the organization decreases, decision intentions "increase" by becoming more ethical (i.e., an inverse relationship).

Financial Cost Hypothesis

Because metal finishing companies are economic entities, metal finishing managers are influenced to some extent by the realities of financial cost. For this study the following hypothesis was offered to encompass this perceived behavioral control factor:

> Hypothesis 5: Top managers' decision intention concerning the treatment of hazardous wastewater will be inversely related to their perceptions of financial cost considerations.

According to the correlational coefficient of .18 presented in Table 1, there is a significant relationship between the managers' perception of financial cost and their decision intentions ($p < .05$). Due to item measurement, the positive correlational

coefficient represents that as managers' perceptions of the influence of cost increased the unethicalness of their decision intention also increased. Stated to correspond with Hypothesis 5, as managers' perceptions of the influence of cost increased, they made less ethical decisions (i.e., an inverse relationship). The regression analysis shown in Table 6 provided additional support for Hypothesis 5 with financial cost contributing significantly to the variance explained in behavioral intention (R^2 change=.04; F=2.90, p=.04).

Personal Moral Obligation Hypothesis

In using the theory of planned behavior to predict ethical intentions, Kurland (1995) reported a beta of .4786 for personal moral obligation proclaiming it to be the most powerful contributor in the regression equation. Based on these, and other studies' (e.g., Randall & Gibson, 1991) results, the following hypotheses were tested:

> Hypothesis 6a: Top managers' decision intention concerning the treatment of hazardous wastewater will be influenced positively by their level of personal moral obligation.
>
> Hypothesis 6b: Top managers' decision intention concerning the treatment of hazardous wastewater will be more strongly related to their level of personal moral obligation than their attitudes or subjective norms.

Surprisingly, no support was found for either hypothesis. As the correlational tests presented in Table 1 quickly proved, the correlational coefficient measuring the relationship between personal moral obligation and decision intention was quite low (r= -.05, p>.10); in fact, much lower than the correlations between attitude and decision intention (r= .15, p<.10) and subjective norm and decision intention (r= .17, p<.05). Based on past research and how the variables were measured, the negative relationship did show that managers who felt more personal moral obligation had more ethical decision intentions.

More incriminating, the regression results in Table 7 show there was no detectable change in $\underline{R}^2$ due to the inclusion of personal moral obligation in the regression equation. Both the attitude and subjective norm variables were significant in their ability to individually contribute to explained variance for managers' decision intention (see Tables 2 and 3, respectively). Thus, these test results quickly precluded any support for either Hypothesis 6a or Hypothesis 6b.

In sum, in testing the first research question it was found that the attitude, subjective norm, instrumental climate, and cost factors significantly contributed to explained variance for the managers' decision intention (i.e., Hypotheses 1, 2, 4, and 5 were supported). However, no support was found for the self-efficacy and personal obligation factors in explaining the managers' decision intention (i.e., Hypotheses 3, 6a, and 6b were not supported). Top managers' assessment of cost explained the most variance (beta=.20, p=.04) with their (a) wastewater treatment system attitudes (beta=.19, p=.05), (b) assessment of important others via subjective norm (beta=.18, p=.06), and (c) perception of the instrumentality of their respective organizational climates (beta=.15, p=.10) also helping to explain their decision intention concerning the disposal of non-treated hazardous wastewater.

Results for the Moderating Effects of Moral Intensity.

This study sought to empirically test the moderating effects of Jones' (1991) moral intensity variable. A paucity of empirical research exists on this issue-specific factor especially critical to ethical decision making research. The hypothesis proposed to evaluate moral intensity was:

Hypothesis 7: The intensity of the harmful environmental consequences will moderate the relationship between the antecedents of the extended TPB and the top managers' decision intention concerning the treatment of hazardous wastewater. Specifically, it is expected that the managers' decision intention will be influenced by the antecedents more under the low intensity condition than under the high intensity condition.

To test this hypothesis, separate hierarchical regression analyses were conducted for each of the six independent variables. The control variables were entered during the first step, the independent variable and moral intensity moderator variable were entered separately during the second step, and finally the interaction term was entered on the third step in order to assess if the term accounted for any additional variance in explaining the managers' decision intention (i.e., change in R^2).

Using procedures suggested by Peters, O'Connor, and Wise (1984), each regression equation was graphed using representative low and high values for each independent variable (i.e., the mean plus or minus one standard deviation) to interpret the significant interactions between moral intensity and the independent variables for the environmental decision intention variable. The decision intention variable was labeled and scaled from less ethical to more ethical due to the item's measurement (i.e., Putting yourself in the shoes of the new Environmental Engineer, what is the likelihood that you would continue to operate the treatment system as it has been for the last 30 years? 1=extremely unlikely and 7=extremely likely) with a score of 1 indicating the most ethical decision intention.

Managers were randomly administered either a high or low intensity (i.e., harmful consequences for persons and nonpersons) scenario prior to answering the survey items. Coded as a 1, scenarios 1, 2, and 3 were collapsed to represent the high intensity

condition while scenario 4 was coded 0 and contained the low moral intensity condition (M=.73 and SD=.44)

Attitudes x Moral Intensity Interaction

As shown in Table 2, the regression analyses revealed that the interaction between managers' attitudes toward hazardous wastewater treatment and the intensity of the harmful consequences explained a significant amount of variance in managers' decision intentions (R^2 change=.03; F=3.37, p=.01).

Consistent with the hypothesized pattern, Figure 7 shows the moderating effects of moral intensity between the managers' attitude and their environmental decision intention. For clarification, a "low" attitude indicates low attitudinal support for the unethical behavior of not operating a wastewater treatment system, and a "high" attitude indicates high attitudinal support for the unethical behavior. Under the low moral intensity treatment managers who were more supportive of not operating the wastewater treatment system (i.e., high attitude) had less ethical decision intentions than those managers who were less supportive (i.e., low attitude). As hypothesized, the managers' attitudes were more influential in explaining their decision intentions under the low moral intensity treatment. Stated differently, for the high moral intensity treatment, managers claimed the same decision intention no matter their attitudes toward hazardous wastewater treatment.

Subjective Norms x Moral Intensity Interaction

As indicated in Table 3, managers' assessment of important others (i.e., subjective norm variable) significantly interacted with the scenario's moral intensity on the manager's environmental decision intention (R^2 change=.04; F=3.71, p=.004). This outcome provided further support for Hypothesis 7 and is represented graphically in Figure 8. A "low" subjective norm represents a lower support from important others for the unethical behavior (i.e., continuing to discharge untreated hazardous wastewater)

while a "high" subjective norm indicates higher support from important others for the unethical behavior. Interpreting the graph, under the treatment of high moral intensity, the managers held very similar behavioral intentions. However, under the condition of low moral intensity, those managers' who felt that important others would be more supportive of continuing to discharge untreated hazardous wastewater (i.e., high subjective norm) professed less ethical decision intentions than those managers who thought important others would not support the unethical behavior. Therefore, similar to the results for the attitude x moral intensity interaction, the subjective norm x moral intensity interaction supported the expected relationship.

Self-efficacy x Moral Intensity Interaction

While regression analyses did not find self-efficacy to be a significant main effect variable, it did show that the self-efficacy x moral intensity term contributed significantly to the explained variance in managers' environmental decision intentions (R^2 change=.03; F=3.31, p=.007). Consistent with the attitude and subjective norm interaction patterns with moral intensity, Figure 9 graphical shows that low and high self-efficacy managers' responded similarly to the high intensity treatment. However, the low and high self-efficacy managers did differ in their decision intention under the condition of low moral intensity. In labeling the self-efficacy axis, a "low" self-efficacy manager indicated having a low efficacy for his/her decision intention concerning the treatment of hazardous wastewater, and a "high" self-efficacy manager would have indicated a higher self-efficacy for the same decision intention. Again, support was found for Hypothesis 7 based on the significant self-efficacy x moral intensity interaction on the top managers' environmental decision intention. Thus, under the low moral intensity treatment managers' feelings of self-efficacy played a stronger role in explaining their ethical judgments than under the high intensity treatment.

Instrumental Climate x Moral Intensity Interaction

Table 5 demonstrates that regression analyses revealed an interaction between instrumental climate and moral intensity explaining a significant amount of variance in managers' environmental decision intentions (R^2 change=.07; F=4.87, p=.0004). As exemplified in Figure 10, this interaction was one of the most pronounced of all those tested for the study.

A "low" instrumental climate represents top managers' assessment of low support by their respective organizations for primarily self-interested behaviors while a "high" instrumental climate indicates top managers' evaluation of high support by their respective organizations for behavior that overwhelmingly promotes the company's interest. Referring to Figure 10, under the condition of low moral intensity, managers had significantly different behavioral intentions contingent upon the instrumentality of their respective organizational climates. Specifically, under the low intensity condition managers who characterized their organizational climates as more instrumental (i.e., high instrumental climate) had less ethical decision intentions than those managers who characterized their organizational as less instrumental. While all the managers had similar decision intentions under the high moral intensity treatment, it was interesting that the managers characterizing their climates as high instrumentality had more ethical decision intentions than the managers who characterized their organizational climates as low. In summary, these results again supported Hypothesis 7 with managers' assessment of their organizational climates being more influential under the low moral intensity condition.

Financial Cost x Moral Intensity Interaction

Again, support was found for Hypothesis 7 because the financial cost x moral intensity interaction explained a significant amount of variance for managers' decision

intention. As reproduced in Table 6, the regression analysis found at step 3 that the inclusion of the product term contributed to a R^2 change of .04 (F=4.28, p=.001).

Figure 11 provides additional insight about this interaction. For the financial cost variable, a "low" value indicates that managers' felt the financial costs associated with operating a wastewater treatment system had a low influence on their decision intention concerning that specific issue. Alternatively, a "high" value presents cost considerations as having a high influence on the managers' decision intention concerning the treatment of hazardous wastewater. Under the high intensity treatment, both "high" and "low" managers proclaimed the same decision intention (a score of 1.1 indicates a very ethical decision intention). However, under the "low" moral intensity condition, the "high" and "low" value managers had significantly different decision intentions with those managers' being more influenced by cost consideration (i.e., "high" value) having less ethical decision intentions.

Personal Moral Obligation x Moral Intensity Interaction

Contrary to the regression analysis results for the other independent variables, no support was found for a significant change in R^2 for this interaction term (see Table 7). While the moral intensity term did significantly contribute to explaining the managers' decision intention (R^2 change=.04; F=2.14, p=.08), it could not compensate for the inadequacies of the personal moral obligation term. While not a significant interaction, the results in Figure 12 demonstrate that the metal finishing manager's continued to have more ethical decision intentions under the high moral intensity condition. For clarification, a "low" value indicates low feelings of personal moral obligation while a "high" value indicates high feelings of personal moral obligation by the managers' for the consequences of discharging untreated hazardous wastewater into the POTW. Interesting yet perplexing, the managers who proclaimed feelings of high personal moral obligation

had less ethical decision intentions than those "low" personal moral obligation managers under the high moral intensity condition.

In summary, the moral intensity variable proved to significantly moderate the relationship between the independent variables and the dependent variable of behavioral intention. Only the personal moral obligation x moral intensity interaction failed to contribute significantly to a change in $\underline{R}^2$. In the final chapter, all the results and their integration with previous literature will be discussed. Likewise opportunities for future research and the strengths and limitations of this study will be reviewed. Finally, the implications of this research for those involved in organizations and industries requiring such ethically and environmentally important decision making behaviors will be examined.

CHAPTER 5

DISCUSSION

Foremost, this research project sought to employ and test a comprehensive theoretical framework reflecting the individual, situational, and issue-specific (i.e., moral intensity) aspects of environmental ethical decision making. The results of this study provide strong evidence that all three influenced the ethical decision making behavior of individuals in metal finishing organizations. The results demonstrate that with such a complex decision intention as the disposal of hazardous wastewater, a diversity of factors and relationships proved necessary. The findings provide encouraging evidence that the theory of planned behavior can help explain environmental ethical decision making, and that Jones' moral intensity construct may be critical to ethics research.

Implications for Previous and Future Research

Ajzen's Theory of Planned Behavior

Support for Ajzen's (1989) Theory of Planned Behavior (TPB) in explaining ethical behavioral intentions was found in this study. With their original theory of reasoned action, Ajzen and Fishbein (1980) proposed "for many purposes it may be quite sufficient to explain intentions and behavior by reference to attitudes and subjective norms" (p. 62). For this study both attitudes and subjective norms proved to be significant predictors of metal finishing managers' behavioral intention. While attitudes has been consistent in its ability to significantly contribute to explained variance for behavioral intentions and/or behaviors, the subjective norm variable has varied in its contributions. For example in using an extended version of the TPB, Beck and Ajzen (1991) and Kurland (1995) found attitudes to be a significant predictor of ethical decision intentions; however, subjective norms rarely made a significant contribution to explained variance. Nonetheless, this study-- as well as the ethical decision making study

conducted by Randall and Gibson (1991)-- reaffirmed the strength of the attitudes and subjective norms components as foundational to the TPB. Albeit, Ajzen and Fishbein (1975) did advise that the relative weights of the components in the model could vary from behavior to behavior.

In addition, there was a significant relationship between subjective norm and financial cost which could be interpreted as another indicator of the social impact that organizations have on decision makers. In a future study it would be informative to test this relationship by assessing whether the most important others included organizational members who are especially concerned with cost issues (e.g., company accountants).

For some time there has been a call for organizational ethics studies to include situational factors (e.g., Fritzsche, 1991; Jones, 1991; Randall & Gibson, 1991; Morris & McDonald, 1995; Trevino, 1986). While Randall and Gibson (1991) did not find support for the perceived behavioral control factor in their study, they proposed that "perceived behavioral control may assume greater importance in situations in which a strong unethical work climate exists" (p. 120). Indeed, the perceived behavioral control factor added to Ajzen's (1988) TPB proved valuable to this study. This conclusion counters both Kurland's (1995) and Randall and Gibson's (1991) insignificant findings for the factor with both attributing the factor's failure primarily to its' instability and lack of definition. In Ajzen's (1988) discussion of various control factors, he provided examples of both internal and external control factors (see pages 128-131). This study partitioned the perceived behavioral control factor into one internal factor (i.e., self-efficacy) and two external factors (i.e., instrumental climate and financial cost). It is believed this type of specificity for the perceived behavioral control factor improved its stability and understandability.

While Randall and Gibson (1991) limited the factor's usefulness to particular situations (i.e., unethical work climates), some organizational climate researchers would

contend organizations inherently possess climates that impact organizational participants and their decisions (e.g., Liedtka, 1989; Victor, & Cullen, 1987). In a comprehensive discussion of ethical decision making by individuals in organizations, Jones (1991) stated that "organizational factors are likely to play a role in moral decision making and behavior at two points: establishing moral intent and engaging in moral behavior" (p. 391). In sum, this study responded to these calls for contextual study by expanding the perceived behavioral control variable to reflect organizational issues influencing decision makers.

This study was the first to extend Ajzen's TPB to include two elements of organizational influence upon individual ethical decision making. First, top managers' perceptions of the instrumentality of their respective organizational climates proved to be a good predictor of top managers' decision intentions concerning the treatment and discharge of hazardous wastewater. This study's results indicate, as researchers in other venues have discussed conceptually and theoretically (e.g., Fritzche, 1991; Kurtines, 1986; Liedtka, 1989; and Tetlock, 1985), that decision makers are influenced by the social contexts in which their decision making occurs. Somewhat similar to this study, Wimbush and Shepard (1994) posited that Victor and Cullen's (1987, 1988) instrumental ethical climate dimension would foster unethical behavior. This research empirically verifies their proposition, and it provides initial support for a relationship existing between ethical climate and ethical (or unethical) behavior in organizations. In sum, this study provides strong empirical evidence that organizational climates can constrain and/or facilitate the ethical judgments of organizational decision makers. Future research should continue to examine the direct effects of organizational climate upon individual ethical decision making.

Secondly, the other external perceived behavioral control factor, financial cost, also contributed significantly to explained variance for the behavioral intention. As a

main effect variable, it surpassed the other variables in its ability to contribute to explained variance for the decision intention. Like the instrumental climate factor, this was the first TPB ethical decision making study to include cost as an external perceived behavioral control factor. The factor's significance as a predictor confirms that companies are foremost economic institutions, and as Kohut (1994) reminded us, "ethical issues create dilemmas for business managers who must weigh their obligation to the economic performance of their organizations against moral obligations to persons internal and external to their companies" (p. 32). Future organizational research needs to continue to examine the role that cost plays in ethical decision making.

Neither the self-efficacy nor the personal moral obligation factors contributed to improved explanation in managers' decision intention. As an organizational ethical decision making study using an extended version of the TPB, this one was the first to include self-efficacy as a control factor. Because Ajzen (1988, 1991) claimed that (a) the perceived behavioral control was most compatible with Bandura's (1982) concept of self-efficacy and (b) an individuals' lack of information, skills, and abilities could influence their perceived control over intended behaviors, similar and further research is needed and recommended.

The personal moral obligation factor has been long discussed as a candidate for inclusion in both the theory of reasoned action (TRA; Ajzen & Fisbein, 1970) and TPB (Ajzen, 1991). Even Ajzen (1991) stated the TPB model possibly could provide more predictive capabilities with the addition of a measure of perceived moral obligation (i.e., personal moral obligation). Two previous organizational ethical decision making studies supported extending the TPB to include a personal moral obligation factor (i.e., Randall & Gibson, 1991; Kurland, 1995). Because this study's context and decision intention rested upon a moral issue, it was very surprising that the personal moral obligation factor yielded such dismal results. This counters Kurland's (1995) finding that "the modified

version of the theory of planned behavior best explained agents' ethical intentions to disclose all the available information to their clients" (p. 307). In fact, Kurland found the personal moral obligation factor to be the strongest predictor of ethical intentions. Randall and Gibson (1991) also proposed that applying the model to topics such as ethical decision making may benefit from including the personal moral obligation factor as a separate variable or by incorporating it as a behavioral belief determinant.

In trying to understand this result, the data and instruments again were consulted. As found in Table 1, the mean for the personal moral obligation variable was 6.60 with a score of 7 indicating the strongest feelings of personal moral obligation (SD=.86). As a group, the managers consistently indicated possessing a high sense of personal moral obligation. Thus, the variable's restriction of range may have precluded it from contributing to explained variance for the dependent variable. Written comments found on the questionnaire were informative; for example: "We are required legally, not ethically or morally; There are too many factors that are involved in these decisions- if they were this 'cut and dry' anyone could be a metal finisher; and "The new E.E. [environmental engineer] should be aware of the personal liability associated with the position as well as criminal liability. In my mind the decision making is simple at that point." Also telling, next to an owner's unanswered personal moral obligation questions, the comment "get real" was written, and a chief operating officer-- also choosing not to answer those questions-- wrote the word "legal" above the words moral and responsibility.

It appears for this study that because disposing untreated hazardous wastewater is illegal, feelings of personal moral obligation were secondary. Likewise, because so many factors influence this complex decision, cognitively framing it in a legal framework rather than a moral framework may help to reduce the difficulty of the decision making process. This assertion parallels and emanates from the decision making research of Simon (e.g.,

Simon and March, 1958), Hogarth (1987), and Schwenk (1988). Future ethical decision making studies may consider including legal requirements and constraints as a perceived behavioral control factor. Nonetheless, it is apparent the quandary concerning the inclusion of the personal moral obligation factor in the TPB warrants further theoretical and empirical study.

In summary, this study reaffirmed the power of the attitudes and subjective norm components as foundational to the TPB. Likewise, the study's results also demonstrated the utility and ability of the TPB to encompass external behavioral control factors. Contrary to recent studies (e.g., Kurland, 1995) proclaiming the significance of the personal moral obligation factor in the TPB, this study failed to validate adding it to the TPB to explain ethical decision making.

The Moderating Effects of Jones' Moral Intensity Construct

Few empirical studies -- Morris and McDonald (1995) and Weber (1994) are the two known exceptions-- have responded to Jones' concern that "none of the previous models of ethical decision making explicitly includes characteristics of the moral issue itself as either an independent variable or a moderating variable" (p. 371). The theoretical model for this study included Jones' moral intensity variable as a moderator. As discussed earlier, the moral intensity variable-- measured as the harmful consequences for persons and nonpersons-- was manipulated differently in the four decision scenarios. In sum, the moral intensity variable-- representing only one of Jones' six dimensions-- interacted with the independent variables and significantly contributed to explained variance for the managers' decision intention. Except for the personal moral obligation x moral intensity interaction, all the interactions were significant at the .05 level.

This study's findings support previous conceptual and empirical suggestions that ethical decision making is issue dependent (i.e., see Jones, 1991; Morris & McDonald, 1995; and Weber, 1994). This study substantiated Morris and McDonald (1995) and

Weber's (1994) studies by testing the construct with top managers rather than with student populations. The two previous studies adapted their decision scenarios from the literature while the scenario for this study was developed to reflect an issue of significance for a particular industry. The combination of these three empirical studies provides strong support for the significance and applicability of moral intensity to the ethical decision making literature

Specifically, this study tested and supported Jones (1991) proposition that "moral intent will be established more frequently where issues of high moral intensity are involved than where issues of low moral intensity are involved" (p. 387). As Figures 7 through 12 graphically show, the interaction results yielded a reoccurring pattern: metal finishing managers made more ethical decisions under conditions of high moral intensity than under conditions of low moral intensity. Furthermore, under the low moral intensity condition the managers' attitudes, subjective norms, self-efficacy, organizational climates, and considerations of financial costs influenced their decision intention more than in high intensity conditions. For example and demonstrated in Figure 11, under the low intensity condition, managers who said they were more influenced by financial cost considerations made less ethical decisions than the managers who were minimally influenced by such factors. However, under the high moral intensity condition, these financial considerations had less influence, with the strength of the issue driving their decision intentions to be more ethical.

The instrumental climate x moral intensity interaction was the most pronounced effect. It was clear that managers who perceived their organizational climates as instrumental had very different decision intentions under low and high moral intensity conditions. While this study examined the role of organizational self-interest in terms of the instrumental climate, future research might examine the relationship between individual self interest and organizational self interest values. A short stream of previous

organizational research by Liedtka (1989, 1991) suggest that value incongruences between individuals and organizations have a significant impact on decision making. Specifically, she posits that to understand how managers make difficult decisions it is useful to "examine the nature of the value conflict both within and between the manager making the decision and the organization which provides the context for it" (p. 812). This stream of research is at the exploratory stage (as noted by Liedtka, 1989), but has much potential in its contribution to understanding and predicting the ethical judgments of managers.

This study employed the moral intensity variable as moderating the relationship between individual/situational variables and an ethical decision intention. Morris and McDonald (1995) tested moral intensity as an independent variable affecting an individual's moral judgment. As a dependent variable, this study's decision intention and Morris and McDonald's moral judgment were similar in their structure. What has yet to be determined is whether the moral intensity variable is a predictor or a moderator of ethical decision intentions and/or ethical behavior. Notwithstanding, this study did perpetuate further understanding of the moral intensity construct by doing what Morris and McDonald (1995) requested (i.e., "future studies should apply a more rigorous test which includes more individual, organizational/situational, and/or environmental contingencies in the regression models" [p. 725]). Concurring with Jones (1991) and others (e.g., Morris & McDonald; Weber, 1994), the moral intensity construct appears to be an essential component of ethical decision making models and studies. Future research should study Jones' other dimensions of moral intensity.

The study revealed opportunities for further investigation in multiple arenas. Relative to Ajzen's TPB, more research is needed concerning the personal moral obligation and perceived behavioral control factors (specific agendas were discussed earlier). Only one dimension of Jones' moral intensity variable (i.e., consequence of

harm) was employed; therefore, additional tests of the other dimensions are needed. Additionally, and discussed previously, does the moral intensity variable frame the entire decision making process or does it act as moderator? Also, the findings that managers had more ethical decision intentions under the high moral intensity condition should be considered by researchers as they develop, conduct, and evaluate environmental decision making investigations.

Strengths and Limitations

As with all research studies, this one has both strengths and limitations. The strengths of the study will be discussed first followed an elaboration of the study's weaknesses. The core strengths of this study were its conceptual and methodological development. First, few empirical studies with strong theoretical underpinnings have been conducted in the organizational ethical decision making arena (Randall & Gibson, 1990). This study empirically demonstrated the need to include individual and contextual variables in studies of organizational ethical decision making. Second, while most ethical decision making studies have employed student samples, this study utilized a national sample of top managers in the metal finishing industry, a majority of them owners and top managers. Third, following Ajzen (1991) and Fredrickson's (1986) methodological guidelines, this study used qualitative and quantitative methods to collect and analyze the data. The Nebraska sample of metal finishing managers acted as a pilot sample providing information that greatly determined the content of the scenarios and questionnaire items. The decision scenarios brought an element of laboratory control to the field study and underwent two rounds of manipulation analysis prior to being used with the final sample. Likewise, the design and analysis of the study controlled for the social desirability bias, a concern for great import for ethics studies (Randall & Gibson, 1990). Fourth, the hierarchical regression analyses conducted were rigorous with the main effects of the control and independent variable on the decision intention variable partialled out before

examining the contribution of the interaction term. The moderating effect of the moral intensity variable sustained a definite pattern for all the independent variables verifying that under high moral intensity conditions managers had more ethical decision intentions.

However, the study has its limitations. One major limitation is the low response rate (20%). This study's low response rate could have skewed the overall results with those managers responding not being a true representative of the sample of metal finishing managers. For example, the respondents tended to report high feelings of moral obligation and in aggregate they had ethical decision intentions. Thus, future research should attempt to secure a broad range of managers. While the sample may be biased, the study found significant results with limited variance in the decision intentions. Likewise, the social desirability bias was controlled for in this study.

The low response poses a threat to the validity of the results, yet as Randall and Gibson (1991), "low response rate is a problem that plagues ethics research" (p. 120). According to their article reviewing empirical business ethics research, response rates range from 10% to 96% with an average rate of 43%. Likewise, the response rate in this study is much lower than the mail survey return rate of 59% attained by Kurland's (1995) application of different theories of reasoned action to the study of insurance agents' ethical intentions toward their clients. Steps were taken to improve the response rate (e.g., cover letter written by a former president of the association), and the response rate is better than that garnered for marketing research performed with the metal finishing industry [i.e., 1.5 to 6 percent range [SFMRB, 1995]). Nonetheless, researchers may need to explore a variety of options for maximizing return rate (e.g., see Dillman, 1978).

Another limitation of the study is that the data used for analyses was self reported and collected as part of a field study using mail surveys. Thus, causal inferences regarding the relations among the variables cannot be discerned. Because the data were collected on all the variables at the same time some results and explanations could be

inflated due to common method variance. However, common method bias does not appear to be a plausible alternative explanation because the metal finishing managers would have had to form implicit theories of the proposed relationships.

The dependent variable (e.g., decision intention) was measured using only one item raising potential construct validity concerns. However, the question was modeled after a single item measure of decision intention developed by Ajzen and Fishbein (1980; for an example see their Appendix B, page 268). Furthermore, the item appeared to have good face validity in that it was a direct question based upon the manager making a specific decision using scenario information.

Because this study used a controlled decision stimulus (i.e., scenarios), the behavioral intention - behavior linkage was not investigated. This linkage is a key component of the theory of planned behavior. Future research should investigate this linkage.

This research examined only one ethical behavioral intention for one industry (i.e., the metal finishing industry). As discussed in the methods section, the research necessitated a level of specificity that could only be achieved by limiting the research to one industry. Nonetheless, future research will need to examine the generalizability of the extended TPB (including the personal moral obligation and moral intensity variables) across different ethical dilemmas in a diversity of industries. One of many questions emanating from this study concerns how judgments are framed relative to moral and legal influences, and it may informative to compare the extended TPB's performance both in highly regulated and lightly regulated industries. Nonetheless, an array of behaviors and behavioral intentions have been investigated using the TPB-- as well as the theory of reasoned action-- and the models' cognitive components have been found to be independent of the specific behavioral intentions/behaviors.

Practical Implications

Of more practical interest, the findings could impact how current and future managers are trained relative to environmental issues in business. For example, the positive significant correlation between industry tenure and attitudes about hazardous wastewater treatment indicates that managers who have worked in the industry longer tend to believe that it is okay to discharge untreated hazardous wastewater. Likewise, top managers who were less self efficacious had more unethical decision intentions. These two findings indicate that managers at all levels in organizations need training on the most environmentally-sound treatment and disposal methods. Likewise, all managers need to be updated on the real impacts their organizations' waste by-products have on the health and welfare of both persons and nonpersons.

Significant findings for the instrumental climate and subjective norm factors signify as Trevino (1986) postulated: "most managers will look outside themselves for cues about what is right (appropriate) behavior and what is wrong (inappropriate) behavior" (p. 608). These two factors significantly impacted this study's sample of top managers. These managers, including many owners and presidents of companies, considered the influences of their surroundings; thus, it is probable that a majority of top, middle, and first-line managers would be equally influenced by important others and organizational forces. This information should interest managers as they seek to promote ethically-sound decision making. Top managers would do well to establish the kind of organizational climate that fosters ethical decision making. Top managers should select and promote ethical individuals to serve as role models for other managers. It also demonstrates the powerful force of organizations on the judgments and behaviors of their members.

It appears individuals make more ethical decisions under high moral intensity conditions. Similar to what Weber (1994) found with his sample of 259 managers

enrolled in a part-time MBA program, the study's findings indicate that the metal finishing managers proclaimed more ethical decision intentions under more intense conditions. Concurring with Weber (1994), "practitioners and academics engaged in ethics education may also detect that the moral issues used in business ethics training and instruction bias the ethical decision-making process" (p. 329). Thus, ethics training should vary the intensity of the decision scenarios to truly represent the continuum of ethical dilemmas and to adequately prepare managers. Because managers tend to make more ethical judgments under high intensity conditions, the most important and significant training may involve situations that appear to present less harm to others (i.e., low moral intensity situations). Thus, it behooves managers to sensitize their people to ethical issues of all degrees.

As Collins (1989) claimed, ethical issues are often complex because "in many instances, the trade-off is not between generating a harm or benefit, but between degrees of harms or benefits to company and/or a stakeholder (p. 8). As such, a combination of ethics training and explicit behavioral guidelines (e.g., standard operating procedures) may be necessary to assist and better prepare managers for such difficult decision making episodes. While it is hoped that individuals in organizations make good, just, and moral judgments, it might be unrealistic to expect them to make decisions using implicit guidelines (i.e., ethical or moral) only. Explicit parameters supporting ethical judgments (e.g., standard operating procedures, company policies, and legal imperatives) also play an important role in ensuring ethical judgments.

The story told by this research is that by enfolding the influences of the individual, context, and issue into our research models, we may begin to understand the ethical decision making processes and judgments of some of our society's most critical decision makers-- managers.

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APPENDIX

DECISION SCENARIOS

The four decision scenarios all began with a common paragraph of information. The second paragraph of information contained the manipulation of harmful consequences for persons and nonpersons.

First Paragraph of Information

Company F has been in the metal finishing industry for 30 years and specializes in nickel and cadmium plating for clients in a five-state area. You have been employed with the company for some time and recently were named its first Environmental Engineer. One of your primary duties is to oversee the plant's wastewater treatment system. The company's wastewater system was previously under the supervision and direction of the General Manager. Upon inspection of the system, you discover that a large volume of wastewater is not being treated before it is discharged. You bring this concern to the General Manager and he responds by saying that because it costs a lot to operate the wastewater treatment system, it is turned off unless visits by "outsiders" are expected. Therefore, the untreated wastewater is discharged directly to the publicly owned treatment works (POTW).

Manipulation Paragraphs

Scenario 1: High Harm to Persons, Low Harm to Nonpersons

After the POTW processes the water it is released into River M. You recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found the fish and waterfowl inhabiting River M to be doing very well and thriving. River M is the source for your community's drinking water. Interestingly, last week's newspaper reported a study conducted jointly by the Environmental Protection Agency and the National Cancer Institute indicating that your area's drinking water contained high concentrations of heavy metals, especially nickel and cadmium, and overall cancer rates were substantially higher in the area than in the rest of the country.

Scenario 2: High Harm to Persons, High Harm to Nonpersons

After the POTW processes the water it is released into River M. You recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found a significant number of fish and waterfowl inhabiting River M as having abnormally high nickel and cadmium levels and were dying of unknown causes. River M is the source for your community's drinking water. Interestingly, last week's newspaper reported a study conducted jointly by the Environmental Protection Agency and the National Cancer Institute indicating that your area's drinking water contained high concentrations of heavy metals, especially nickel and cadmium, and overall cancer rates were substantially higher in the area than in the rest of the country.

Scenario 3: Low Harm to Persons, High Harm to Nonpersons

After the POTW processes the water it is released into River M. You recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found a significant number of fish and waterfowl inhabiting River M as having abnormally high nickel and cadmium levels and were dying of unknown causes. Drinking water for your community comes from an underground aquifer rather than from River M. Interestingly, last week's newspaper reported a study conducted jointly by the Environmental Protection Agency and the National Cancer Institute indicating that your area's drinking water was among the safest in the country and overall cancer rates were substantially lower in the area than in the rest of the country.

Scenario 4: Low Harm to Persons, Low Harm to Nonpersons

After the POTW processes the water it is released into River M. You recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found the fish and waterfowl inhabiting River M to be doing very well and thriving. Drinking water for your community comes from an underground aquifer rather than from River M. Interestingly, last week's newspaper reported a study conducted jointly by the Environmental Protection Agency and the National Cancer Institute indicating that your area's drinking water was among the safest in the country and overall cancer rates were substantially lower in the area than in the rest of the country.

Table 1

Means, Standard Deviations, and Intercorrelations Among All Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Social Desirability	5.10	2.30	-									
2. Industry Tenure	22.62	11.38	-.10	-								
3. Attitude	1.34	.64	.05	.28***	-							
4. Subjective Norm	1.94	1.22	-.03	.12	.14	-						
5. Self Efficacy	6.33	.97	.00	.01	-.10	-.14	-					
6. Instrumental Climate	1.34	.76	-.12	.12	.05	.18**	.00	-				
7. Financial Cost	3.68	1.78	-.09	.06	.20**	.26***	-.06	.19**	-			
8. Personal Moral Obligation	6.60	.86	-.01	.13	-.03	-.18**	.10	.08	-.05	-		
9. Moral Intensity	.73	.44	-.13	.17**	-.06	-.01	-.01	.04	.05	.03	-	
10. Decision Intention	1.35	1.01	.12	-.10	.15*	.17**	-.14	.12	.18**	-.05	-.19**	-

Notes 1. Ns=130-139 due to missing data.
2. *p<.10; **p<.05; ***p<.01

Table 2

Regression Results for Attitude: Main Effects and Interaction with Moral Intensity

Variable Entered		Beta	R^2	R^2 Change	df
Dependent Variable: Unethical Decision Intention					
Step 1:	Social Desirability	.12			
	Tenure	-.09	.03	.03	(2,128)
Step 2:	Attitude	.19**	.06**	.03**	(1,127)
	Moral Intensity	-.19**	.09***	.03**	(1,126)
Step 3:	Attitude x Moral Intensity	-.43**	.12***	.03**	(1,125)

Notes. 1. Standardized beta coefficients listed are the regression coefficients at each step of the equation.

2. *p<.10; **p<.05; ***p<.01

Table 3

Regression Results for Subjective Norm: Main Effects and Interaction with Moral Intensity

Variable Entered		Beta	R^2	R^2 Change	df
Dependent Variable: Unethical Decision Intention					
Step 1:	Social Desirability	.12			
	Tenure	-.09	.03	.03	(2,127)
Step 2:	Subjective Norm	.18**	.06*	.03**	(1,126)
	Moral Intensity	-.19**	.09**	.04**	(1,125)
Step 3:	Subjective Norm x Moral Intensity	-.45**	.13***	.04**	(1,124)

Notes. 1. Standardized beta coefficients listed are the regression coefficients at each step of the equation.

2. *p<.10; **p<.05; ***p<.01

Table 4

Regression Results for Self Efficacy: Main Effects and Interaction with Moral Intensity

Variable Entered		Beta	R^2	R^2Change	df
Dependent Variable: Unethical Decision Intention					
Step 1:	Social Desirability	.12			
	Tenure	-.09	.03	.03	(2,127)
Step 2:	Self Efficacy	-.14	.04	.02	(1,126)
	Moral Intensity	-.21**	.09**	.04**	(1,125)
Step 3:	Self Efficacy x Moral Intensity	1.20**	.12***	.03**	(1,124)

Notes. 1. Standardized beta coefficients listed are the regression coefficients at each step of the equation.

2. *p<.10; **p<.05; ***p<.01

Table 5

Regression Results for Instrumental Climate: Main Effects and Interaction with Moral Intensity

Variable Entered		Beta	R^2	R^2 Change	df
Dependent Variable: Unethical Decision Intention					
Step 1:	Social Desirability	.13			
	Tenure	-.08	.03	.03	(2,126)
Step 2:	Instrumental Climate	.15*	.05	.02*	(1,125)
	Moral Intensity	-.22**	.09**	.05**	(1,124)
Step 3:	Instrumental Climate x Moral Intensity	-.77***	.17***	.07***	(1,123)

Notes. 1. Standardized beta coefficients listed are the regression coefficients at each step of the equation.

2. *p<.10; **p<.05; ***p<.01

Table 6

Regression Results for Financial Cost: Main Effects and Interaction with Moral Intensity

Variable Entered		Beta	R^2	R^2 Change	df
Dependent Variable: Unethical Decision Intention					
Step 1:	Social Desirability	.12			
	Tenure	-.09	.03	.03	(2,126)
Step 2:	Financial Cost	.20**	.07**	.04**	(1,125)
	Moral Intensity	-.22***	.11***	.05***	(1,124)
Step 3:	Cost x Moral Intensity	-.57**	.15***	.04**	(1,123)

Notes. 1. Standardized beta coefficients listed are the regression coefficients at each step of the equation.

2. *p<.10; **p<.05; ***p<.01

Table 7

Regression Results for Personal Moral Obligation: Main Effects and Interaction with Moral Intensity

Variable Entered		Beta	R^2	R^2 Change	df
Dependent Variable: Unethical Decision Intention					
Step 1:	Social Desirability	.12			
	Tenure	-.10	.03	.03	(2,126)
Step 2:	Personal Moral Obligation	-.02	.03	.00	(1,125)
	Moral Intensity	-.21**	.06*	.04**	(1,124)
Step 3:	Personal Moral Obligation x Moral Intensity	.44	.07	.00	(1,123)

Notes. 1. Standardized beta coefficients listed are the regression coefficients at each step of the equation.

2. *p<.10; **p<.05; ***p<.01

Figure 1

Extended Theory of Planned Behavior with Moral Intensity as a Moderator

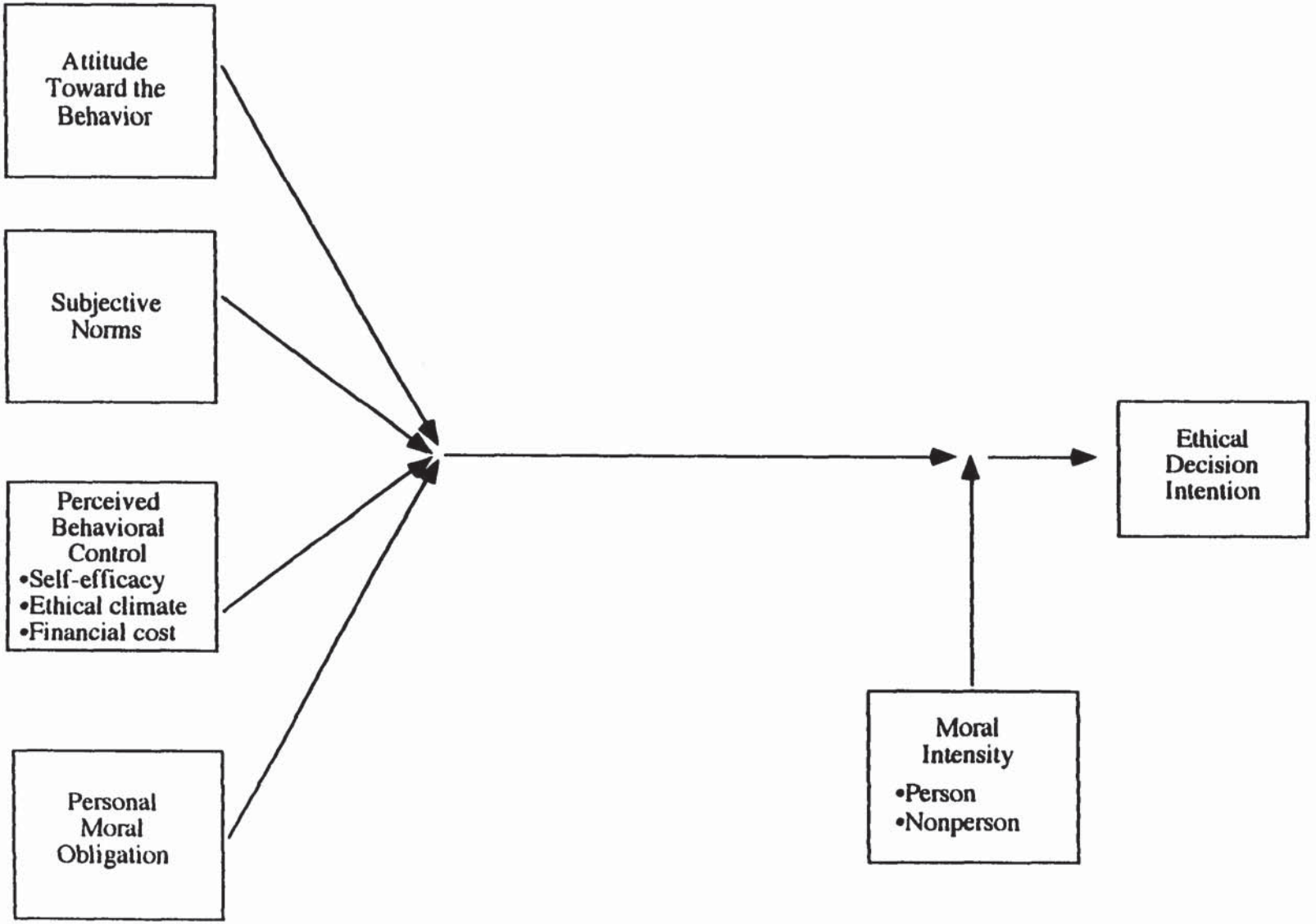
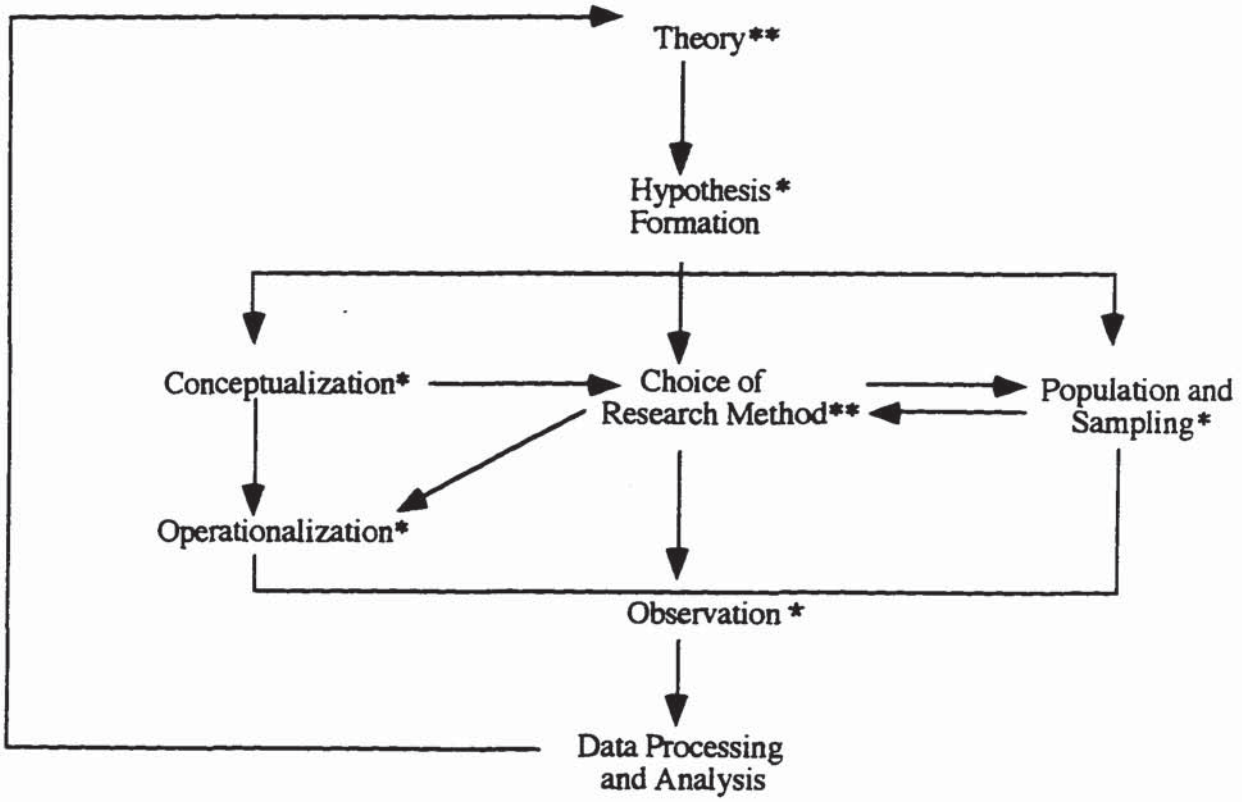


Figure 2

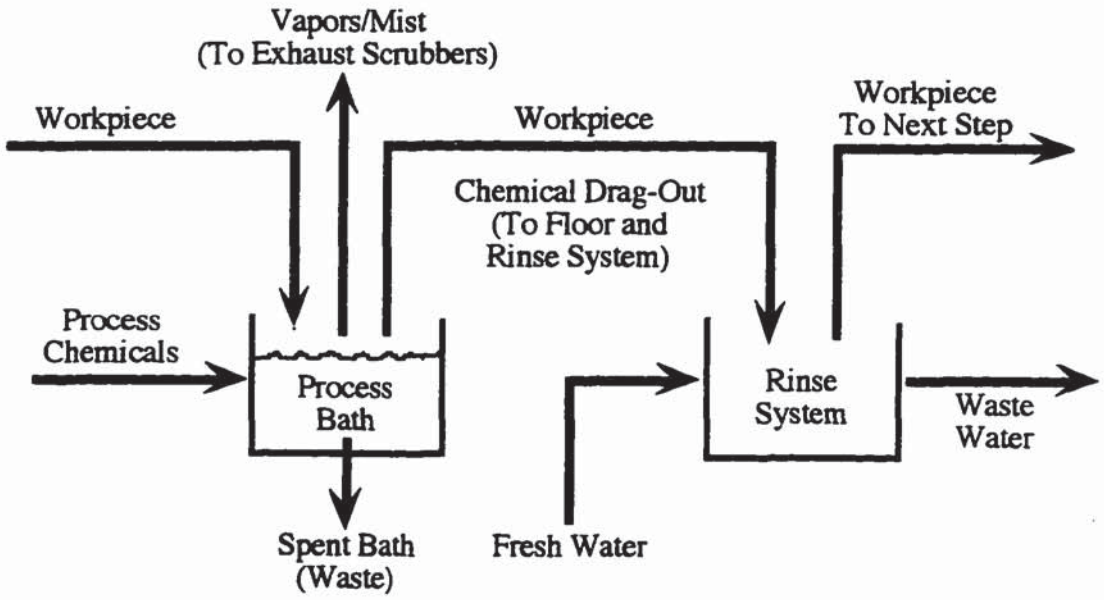
Research Process Overview



Taken from Randall & Gibson (1990).

Figure 3

Typical Metal Finishing Process Steps*



Taken from USEPA (1992).

Figure 4

Belief Determinants for the Antecedents of the Extended Theory of Planned Behavior

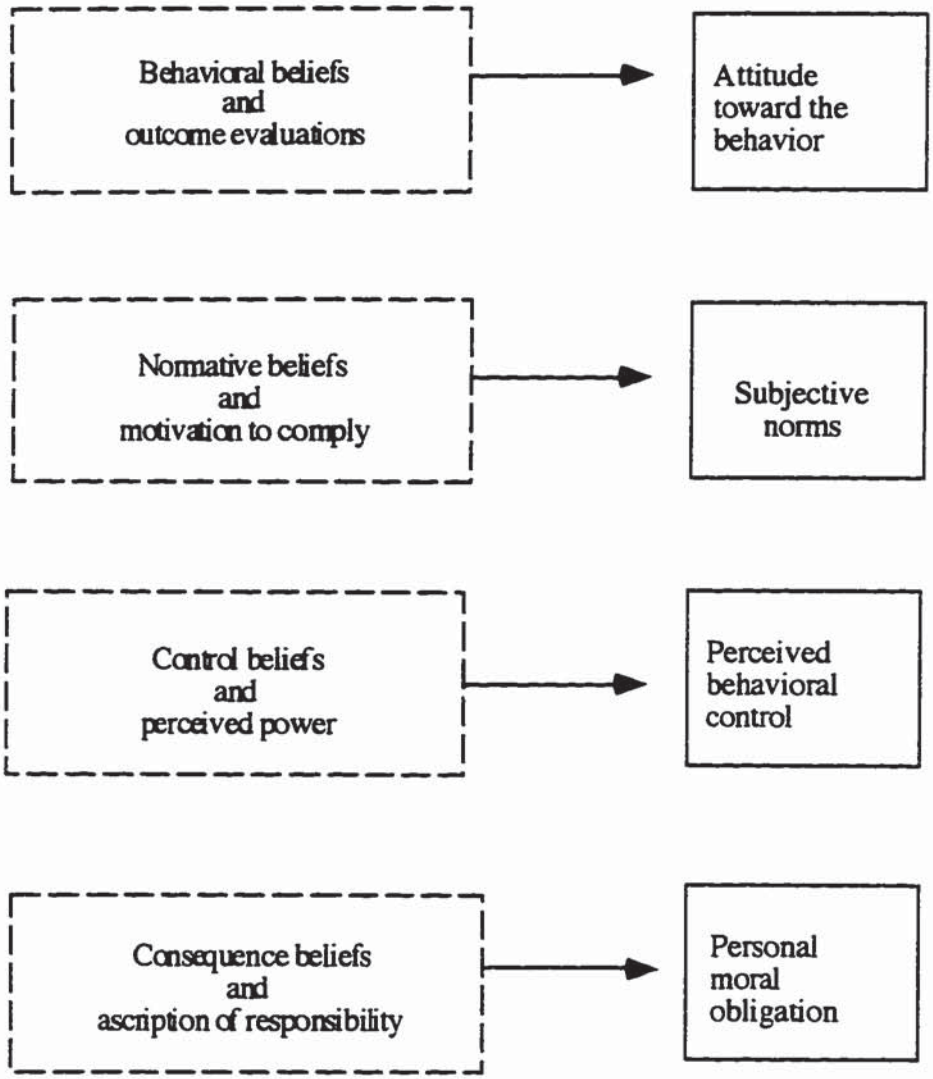


Figure 5

2 x 2 Matrix for the Moral Intensity Dimension of Magnitude of Consequences

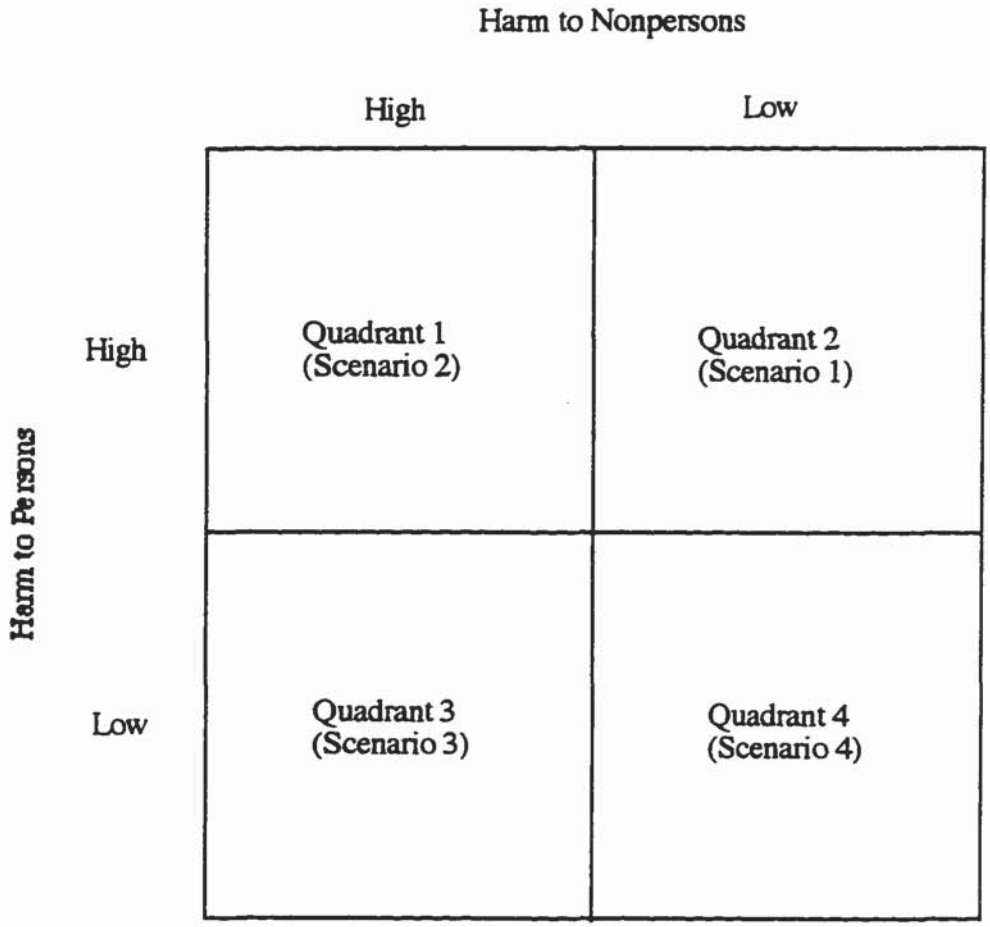
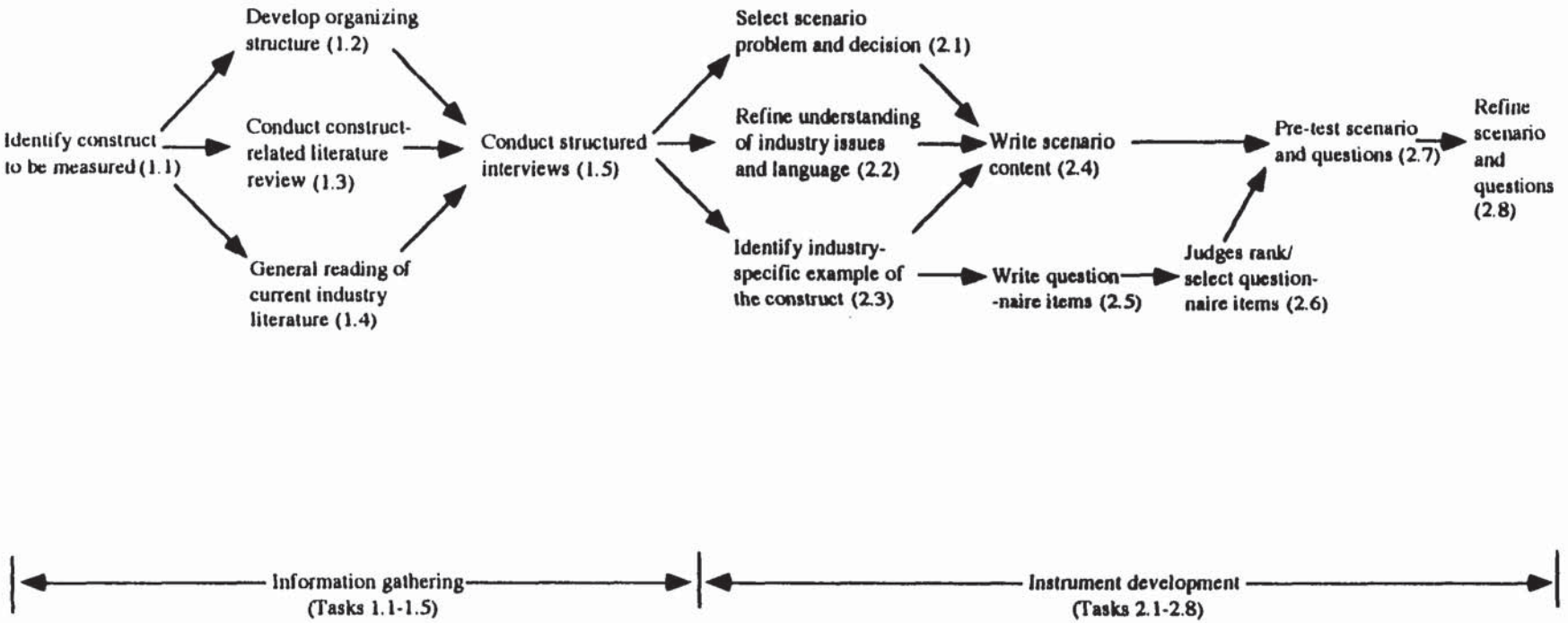


Figure 6

Two-phase Decision Scenario Methodology*



*Adapted from Fredrickson, J.W. (1986).

Figure 7

Attitude x Moral Intensity Interaction for the Environmental Decision Intention

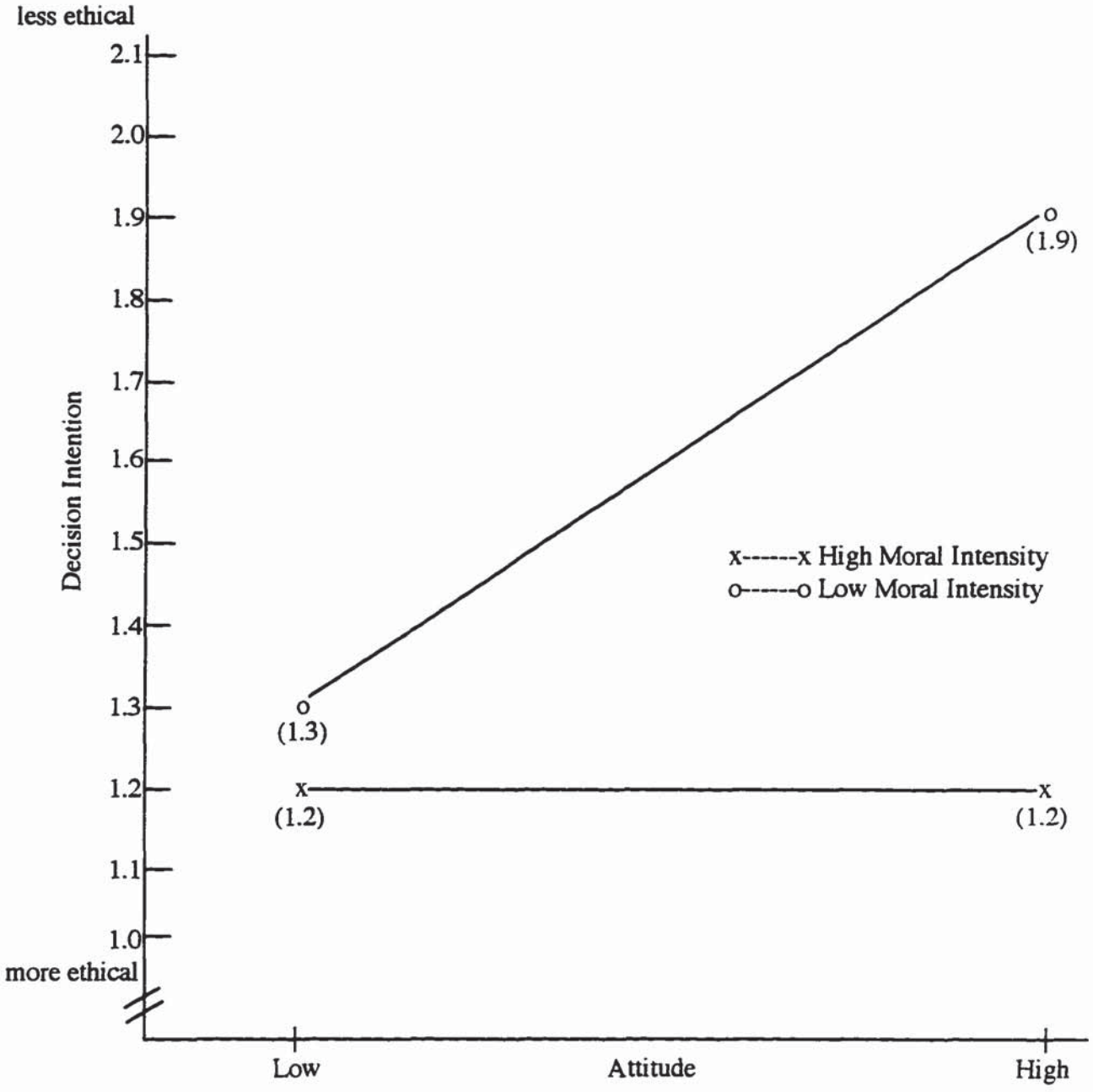


Figure 8

Subjective Norm x Moral Intensity Interaction for the Environmental Decision Intention

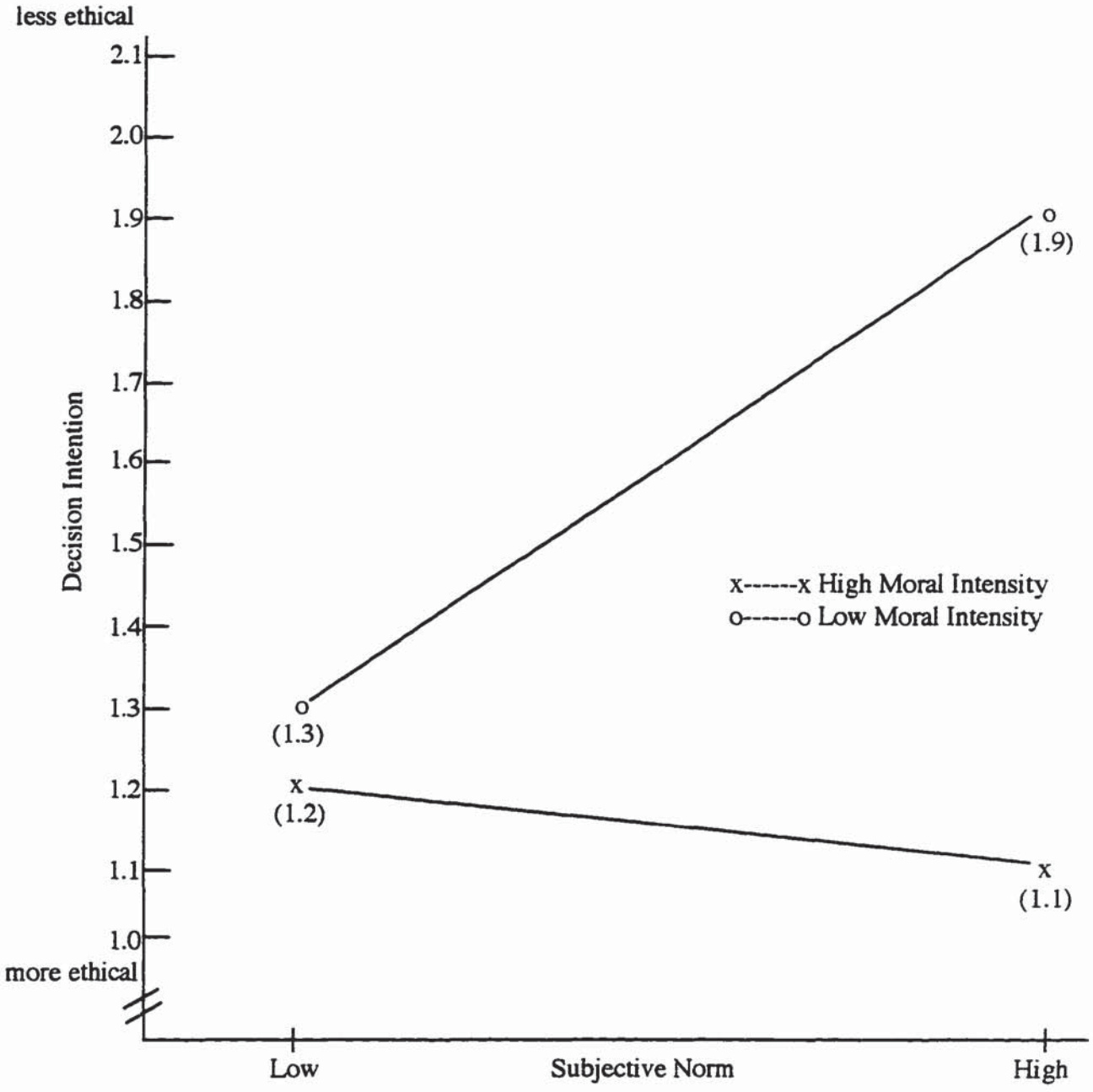


Figure 9

Self Efficacy x Moral Intensity Interaction for the Environmental Decision Intention

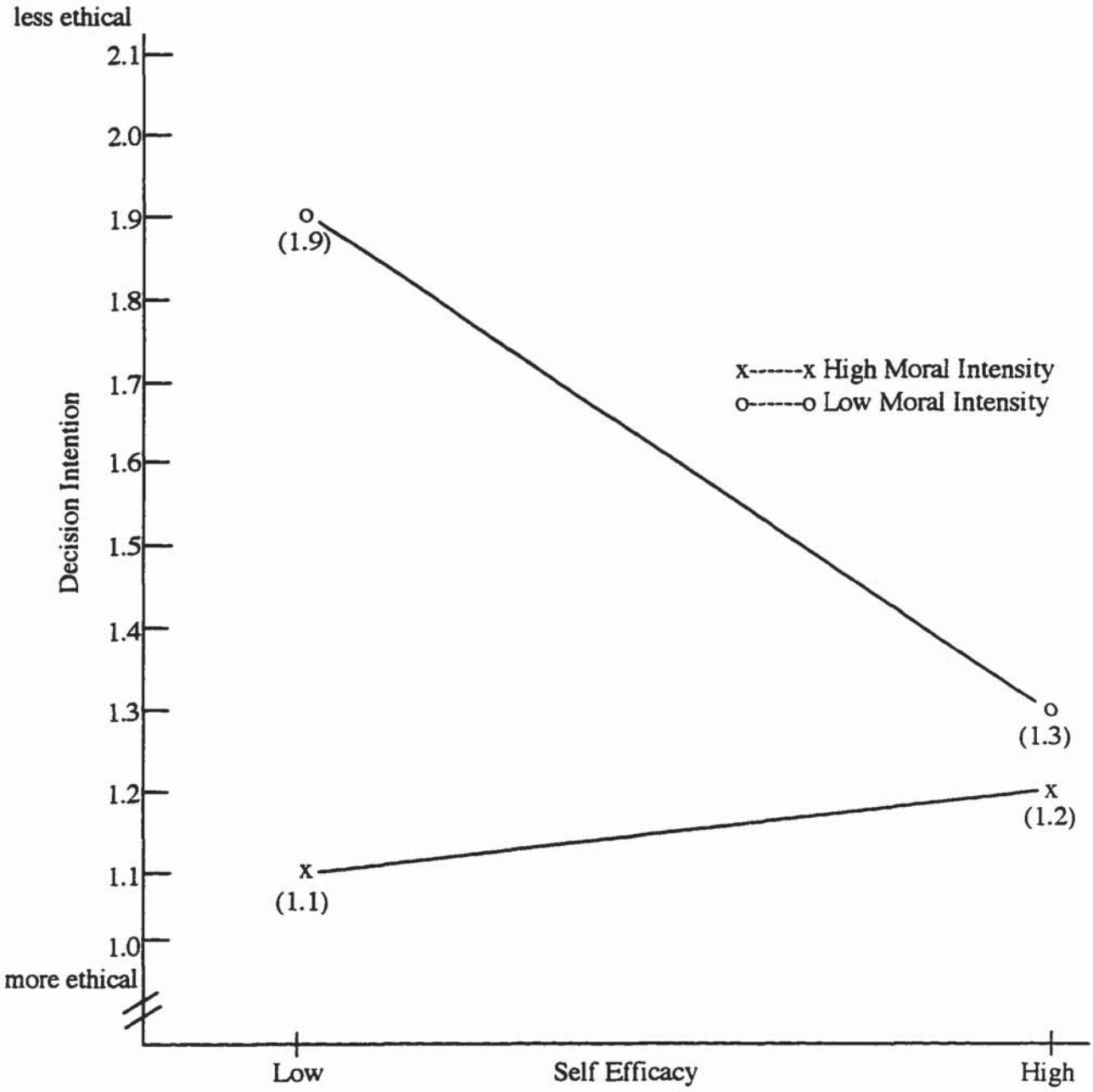


Figure 10

Instrumental Climate x Moral Intensity Interaction for the Environmental Decision Intention

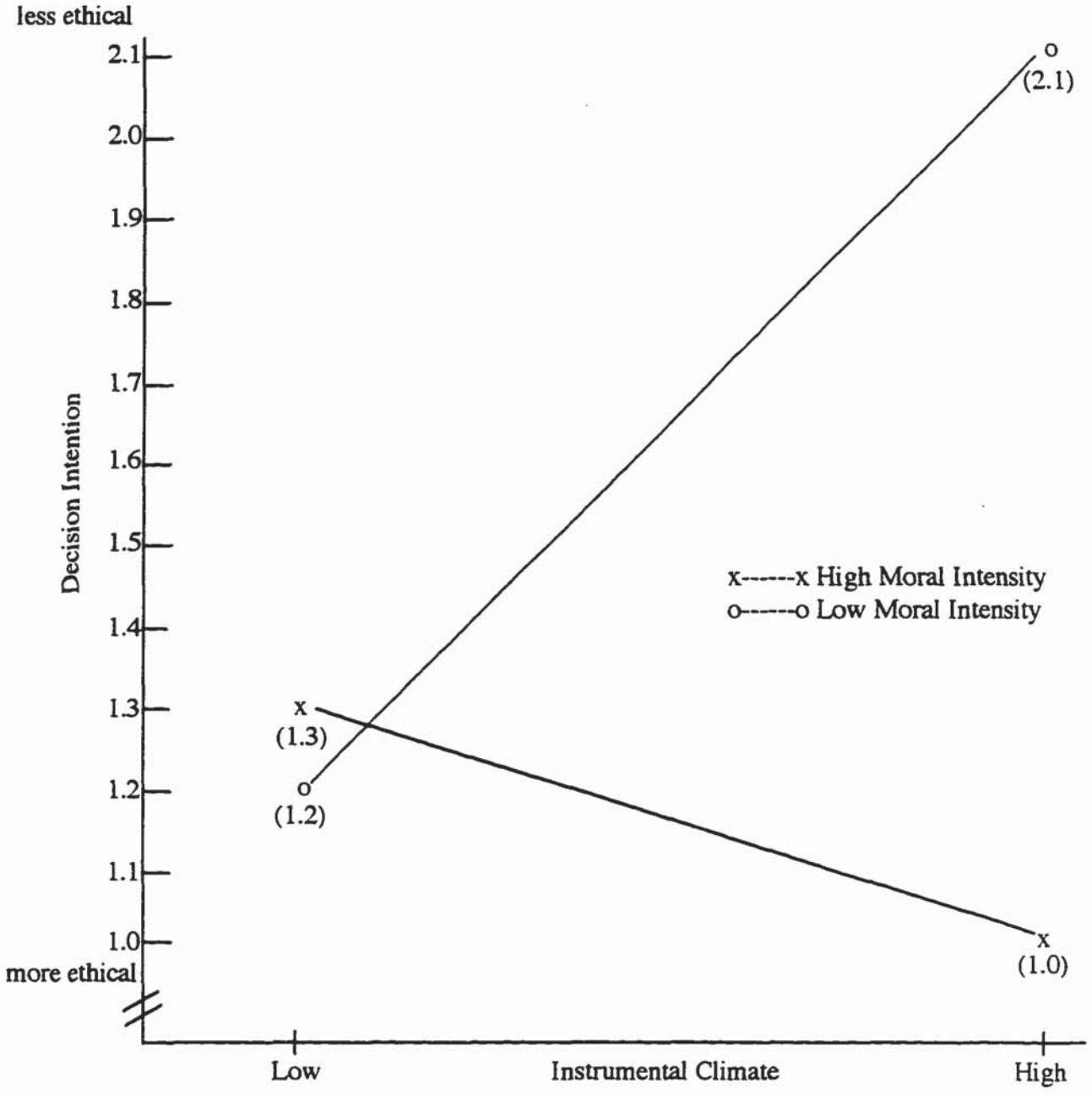


Figure 11

Financial Cost x Moral Intensity Interaction for the Environmental Decision Intention

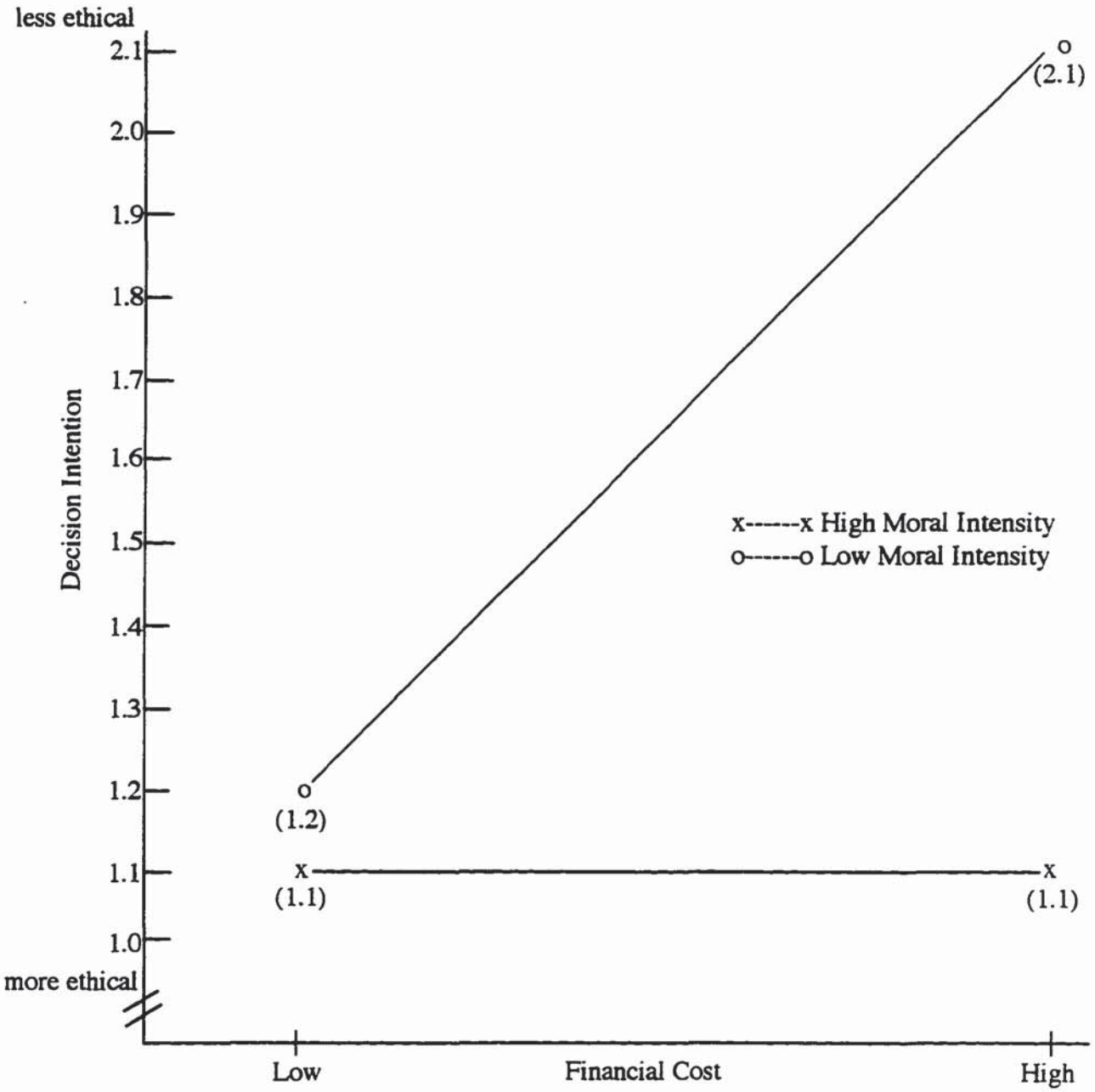


Figure 12

Personal Moral Obligation x Moral Intensity Interaction for the Environmental Decision Intention