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HAPPY CUSTOMERS BUY MORE: AN INVESTIGATION  
OF CONSUMER SATISFACTION AND REGRET OF THREE  
HORTICULTURAL PRODUCTS

presented by

JENNIFER LYNN DENNIS

has been accepted towards fulfillment  
of the requirements for the

Ph.D. degree in HORTICULTURE

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**HAPPY CUSTOMERS BUY MORE: AN INVESTIGATION OF CONSUMER  
SATISFACTION AND REGRET OF THREE HORTICULTURAL PRODUCTS**

**BY**

**JENNIFER LYNN DENNIS**

**A DISSERTATION**

**Submitted to  
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## **ABSTRACT**

### **HAPPY CUSTOMERS BUY MORE: AN INVESTIGATION OF CONSUMER SATISFACTION AND REGRET OF THREE HORTICULTURAL PRODUCTS**

**BY**

**JENNIFER LYNN DENNIS**

An Internet survey was conducted to examine the relationships of consumer satisfaction and regret with regard to the purchase and performance of hanging baskets, potted roses, and one-gallon perennial plants. Consumers rated their experiences with three horticultural products that were purchased during the spring and summer season of 2003. Evidence showed the level of unexpectedness associated with product failure or bad experience had direct impacts on regret. Plant guarantees moderated the effect of regret and satisfaction consumers experienced only for hanging baskets. Guarantees increased consumer satisfaction and decreased regret only for hanging baskets. Lastly, this study examined the consequences of satisfaction and regret. Regret was the driver of switching behavior and created an indirect effect from satisfaction to switching.

## **ACKNOWLEDGMENTS**

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I would like to thank Drs. Thomas J. Page Jr. and Richard A. Spreng for their willingness to work with someone outside of their immediate discipline. I have gained a wonderful skill set including SEM and owe it to you two. I have always been interested in consumer behavior and consumer satisfaction and consider it a privilege to get to know and work with both of you. Drs. Robert Schutzki and R. Thomas Fernandez have also been a fundamental part of my doctoral program and dissertation. I thank them for their encouragement and insight. Lastly, I thank them for opening their horizons to the wonderful world of Horticulture Marketing.

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## **DISSERTATION PREFACE**



## **DISSERTATION PREFACE**

This research project, conducted during the years of 2001-2004, began with a goal to assist independent retail nurseries and garden centers within Michigan and the Midwestern part of the United States. Traditional horticultural retailers have lost market share as competition intensified from non-traditional outlets, such as mass-merchandisers and do-it-yourself stores (National Gardening Association, 2002). In 2002, 37 million households bought lawn and gardening products from garden centers, down from 39 million in 2001, representing a decrease of 5% (National Gardening Survey, 2002). From 1995-1999, garden centers led other retailers as the top location from which consumers purchased lawn and gardening products. As of 2000, home centers surpassed garden centers for the top spot. Garden centers remain second with mass merchandisers a close third (National Gardening Association, 2001). These data show garden centers are declining in market share as more non-traditional outlets market highly profitable garden plants. Intensified competition has challenged many traditional retail garden centers to seek creative ways to remain profitable, and differentiate themselves.

The interests of consumer behavior and improving consumer satisfaction of gardening products were transferred from previous inquiries associated with a master's thesis conducted by Jennifer L. Hall from the University of Illinois at Urbana-Champaign. Upon arrival at Michigan State University, Jennifer Hall-Dennis consulted with potential committee members on exploring marketing constructs such as consumer satisfaction. Her vision was to adapt this information to increase profitability and strengthen traditional retail outlets. Dr. Richard A. Spreng suggested a number of readings to become familiar with the consumer satisfaction literature. Amongst those

readings was Richard Oliver's (1997) book on satisfaction. Oliver's main goal was to describe the satisfaction framework. However, he also examined other phenomenon related to satisfaction; one of them being regret.

Regret was an exciting topic to explore. Regret, known to be a cognitive emotion based on valenced outcomes, had barely been studied in the marketing literature. A review of the literature suggested regret could be a promising construct to study. Dr. Spreng also suggested an examination of the emotion literature, which had uncovered antecedents of regret. Ortony, Clore, and Collins' (1988) cognitive appraisal theory served as the developmental framework for this body of research. After studying the satisfaction and regret literature, a model was constructed comprising several research goals that included the following:

1. To test the framework of regret and its global variables (unexpectedness, proximity, and arousal);
2. To examine the moderating relationship of guarantees (irreversibility of the outcome) on regret, satisfaction, and repurchase intentions for three distinct horticultural products; and
3. To examine switching behavior associated with a negative outcome such as regret based on consumption with three gardening plants.

These goals were achieved through one Internet study conducted in September 2003.

Much of the previous research with horticultural products and retail outlets focused on ways that retailers could increase consumers motivation to buy at traditional stores. Previous information based on SERVQUAL and other customer satisfaction components evaluated the ability of the store environment and personnel to provide an atmosphere

that would engage customers such as intelligent and knowledgeable employees, wide aisles and clean stores. To my knowledge, this was the first set of research studies to take traditional consumer behavior constructs such as satisfaction, repurchase intentions, irreversibility of the outcome, and regret and directly apply it in a horticultural context. Of course, the marketing studies that comprise this dissertation are only the beginning in understanding the choices consumers make and the consequences associated with these states such as satisfaction and emotions as shown through regret.

Three manuscripts, prepared for publication in refereed journals, were written for this dissertation. The results from the Internet study are presented in the following sections of this dissertation. Section one contains the literature review of regret as it is the major focus of the dissertation. Section two comprises the first manuscript and is entitled “The Determinants of Regret in Consumer Purchase Situations.” This paper was formatted and submitted to the American Marketing Association’s Summer Educators Conference as an abstract, and will be reformatted to meet the guidelines for the Journal of Consumer Research upon acceptance. Section three contains a paper entitled “What Happens After Product Failure: An Examination of Switching?” This manuscript will be submitted to the Association for Consumer Research Conference as a working paper, and after acceptance, it will be reformatted to meet the guidelines of the Journal of Consumer Research. Manuscripts from sections two and three are coauthored with Drs. Thomas J. Page Jr. and Richard A. Spreng from the Marketing & Supply Chain Management Department at Michigan State University as well as Dr. Bridget K. Behe from the Department of Horticulture. Section four has a paper entitled “Do Plant Guarantees Matter: Understanding the Role of Satisfaction and Regret When Guarantees are

Present?" coauthored with Drs. Bridget K. Behe, R., Thomas Fernandez, Robert Schutzki, Richard A. Spreng, and Thomas J. Page Jr. Drs. R. Thomas Fernandez and Robert Schutzki are from the Department of Horticulture at Michigan State University. This manuscript presents the results based on plant guarantees provided with purchase as a moderator between regret and satisfaction and their impacts on repurchase intentions. This paper will be submitted to HortScience.

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**SECTION I**  
**LITERATURE REVIEW OF REGRET**

## **Literature Review of Regret**

Regret is a powerful emotion that can influence consumers to think more carefully, gather more information before buying, and add precautions against the next purchase. Not only can regret influence behavior, but it may have ties to the psychological well-being of individuals. Regret occurs after the appraisal of an event such as purchase consumption. Customers may experience negative emotions such as regret and ask themselves “should I have spent money on this orchid” or “should I have spent money on something else such as dinner and a movie?” Anticipating the regret emotion starts well before the buying process begins. The event of purchasing a product and watching it fail may invoke a range of negative emotions within that consumer. If the outcome is negative, the consumer may generate counterfactuals or thoughts of what might have occurred given a different sequence of processes or events. Should the consumer have bought another type of indoor plant or should the consumer have gone to the movies? Researchers have been exploring topics such as these with the goal of understanding the effect of regret on decision making and its behavioral consequences.

Research on regret encompasses the comparison of one’s outcome with a better outcome that could have occurred had a different alternative been selected (Tsiros and Mittal, 2000). Past studies on regret have been published mostly in the social psychology literature with few articles in the consumer behavior literature (Tsiros and Mittal 2000; Zeelenberg et al., 1996b; Zeelenberg et al., 1998a; Zeelenberg et al., 1988b). Regret has been studied in conjunction with topics such as consumer satisfaction, post-choice valuation, norm theory, and disappointment. To date, there have been more studies focusing on antecedents of regret rather than its consequences. This paper reviews the

regret literature by covering 22 articles written from 1982 to 2003. It begins with cognitive appraisal theory followed by definitions of regret. Two types of regret (anticipated and experienced) will be discussed along with proposed models of regret. Last, the author will review literature on regret and provide recommendations for future studies.

### *Structure of Emotions (Emotion Theory)*

Ortony et al. (1998) show that emotions arise as a result of certain kinds of cognitions. A particular emotion is the name of the mental state that a person possesses. Regret can be either a well-being or a prospect-based emotion or a combination of the two. Well-being emotions are psychological states that result from appraising whether events are desirable or undesirable based on internal goals. When events are thought of as undesirable and interfering with a person's goals, individuals consider the implications that may occur for themselves. After appraisal of the event, several emotions including regret can occur if the outcome was undesirable. In prospect-based emotions, a confirmation or disconfirmation of the prospect-based event is evaluated. Individuals may also counterfactually think of a prospect. When regret is categorized as a well-being emotion, individuals determine whether the *event* is desirable or undesirable, resulting in a particular type of emotion. For example, a man driving to work is involved in a car accident. The man thinks about the event (the accident) and decides whether the event corresponds with his goals. If the event is considered desirable and contributing to his overall goals, a positive emotion such as joy will arise. If the event is undesirable with his goals, a negative emotion, depression may occur.



With prospect-based events, emotions depend on reactions to the *possibility* of something happening (a prospect), not on the actual state of affairs in the real world. In other words, the emotion is not based on an actual occurrence but on the experiencing person's beliefs about such occurrences (Ortony et al., 1998). Prospect-based emotions fall into three categories (1) event may not have yet transpired (2) person may believe the event has occurred, and (3) person may believe the event failed to occur (Ortony et al., 1998). For example, a woman waiting to hear about acceptance into graduate school could generate a prospect-based emotion. The event has not yet happened; however, she is basing her emotions on the possibility of the occurrence. The woman may act with anticipation of receiving acceptance or fear that she may not get into graduate school.

### *Counterfactual Thinking*

Counterfactual thinking refers to imaginings of alternatives to past outcomes (Roese, 2000). These imaginings can focus on outcomes that are worse or better than the actual outcome. These references are known as downward (worse than) and upward (better than) comparisons. Roese (1997) showed that counterfactual thinking is linked to emotions. Counterfactuals can also lead to feeling a particular emotion such as regret. Counterfactuals are known to be generated when a response is negative. Counterfactual research has been primarily done in the social psychology discipline.

### **Definitions of Regret**

There have been several attempts to define regret. Economic theorists' defined regret as a negative emotion stemming from the comparison between what is, and what might have been, had the person made another choice (Bell, 1982; Loomes & Sudgen, 1982). Landman (1993) described regret as a reasoned emotion – a more or less painful

judgment and state of feeling sorry for misfortunes, limitations, shortcomings, or mistakes that involves some degree of cognitive appraisal. Simonson (1992) defined regret as a negative emotion predicated on a self-relevant counterfactual inference. Despite numerous definitions of regret, most consider regret as an important emotion.

### **Types of regret**

There are two types of regret: anticipated and experienced. Most research has focused on anticipated regret. Anticipated regret begins with an apprehension before the consumption experience begins. Oliver (1997) described this process in the pre-decision and pre-purchase phases of consumption. Past studies showed anticipation of regret influenced decision attitude (Beattie et al. 1994), choice under uncertainty (Ritov, 1996), consumer buying decisions (Simonson, 1992), and salary negotiations (Larrick & Boles, 1995). In contrast to anticipated regret, experienced regret is the emotion felt when a negative outcome has occurred. The negative outcome triggers counterfactual thinking that eventually becomes an emotion. Experienced regret has not been studied as much as anticipated regret: (Inman and Zeelenberg, 2002; Cooke et al., 2001). Inman and Zeelenberg (2002) examined consumer consequences of repeat purchasing and switching behavior after a negative experience (regret) has occurred. The authors argued that repeat purchasing may give rise to more regret than switching from one product to another. Their hypotheses are supported showing failure to switch (or continued repeat purchasing) after a negative experience would cause greater amounts of regret for the consumer than the person who decided to switch products or services. Cooke et al. (2001) studied the relationship between pre-and post-purchase comparisons and their affect on regret and satisfaction. Their study also examined if consumers avoided

decisions that resulted in regret. Regret was found to mediate the relationship between counterfactual thinking based on prices offered and the level of satisfaction experienced. Regret was also found to be a powerful mechanism that contributed to understanding and controlling satisfaction. Other results included consumers that altered behaviors in the attempt to avoid regret.

### **Models of regret**

While many researchers have investigated dimensions of regret, three articles proposed models: Zeelenberg 1996a; Zeelenberg and Pieters 1999; Tsiros and Mittal 2000. Zeelenberg (1996a) described the life cycle for regret, with two decisional stages causing three segments of regret: anticipated regret (pre-decisional phase), causes of regret (post-decisional phase), and consequences of regret (post-decisional phase). Zeelenberg's theory states the pre-decisional phase of consumption drives anticipated regret through the evaluation of choices. In the post-decisional phases of decision making, evaluations of outcomes are linked with causes of regret. Consequences of regret are linked to motivations for future behavior, which are marked by actions of undoing, influence on future behavior, and producing a tendency to delay decision making.

Zeelenberg and Pieters (1999) proposed a model for disappointment and regret effects in the purchase of services. In their conceptual model, they predicted and tested that after a failed service encounter occurred, consumers who experienced regret engaged in switching behavior. In contrast, consumers who experienced disappointment through a failed service encounter/service provider complained and told others. Their study confirmed that regret directly promoted switching behavior, independent of the level of

dissatisfaction with the service encounter and provider (Zeelenberg and Pieters, 1999). This study also confirmed that disappointment had a direct impact on word-of-mouth communication and promoted complaining.

Tsiros and Mittal (2000) proposed a more complete model of regret including antecedents, moderators, and consequences. They explained information about the known or unknown foregone outcome as an antecedent of regret. The authors proposed that the forgone alternative need not always be present for regret to occur. If the foregone alternative was unknown, the individual could construct scenarios based on counterfactual thinking. Tsiros and Mittal continued by identifying moderator variables of regret: status quo (decision to consume the same product), irreversibility of the outcome (the option to return the purchase), and valence of chosen outcome (positive or negative). Tsiros and Mittal (2000) showed regret had a negative influence on repurchase intentions, which was modeled as a consequence of regret.

#### *Regret/Satisfaction/Disappointment*

A few studies examined the relationship between consumer satisfaction and regret, distinguishing the two constructs. Oliver (1997) used references from other studies to distinguish regret from satisfaction by viewing regret as an antecedent to satisfaction. Tsiros (1998) questioned whether satisfaction was different from regret. Taking information from two separate studies, Tsiros determined they were indeed different constructs by stating satisfaction was specific to outcomes and regret was specific to choice. Tsiros and Mittal (2000) later distinguished regret from satisfaction by stating they were both responses to comparisons. Regret was viewed as a comparison between the performance of the chosen and foregone alternative where satisfaction is the

comparison between expected and actual performance. Taylor (1997) applied regret theory to consumer satisfaction. Her premise was that when disappointment (dissatisfaction) occurred, the alternative became more salient and regret and satisfaction were more severe. Taylor (1997) used “expectations for the foregone alternative” to operationalize regret. Although this study did not directly measure regret, it showed the salienency and impact of regret when dissatisfaction occurs. Inman et al. (1997) directly compared regret and satisfaction. Their findings showed the level of regret had an effect on the amount of satisfaction, thus, distinguishing the two constructs.

Related to satisfaction, disappointment is an emotion that has been compared to regret. Zeelenberg (1996a) explained that disappointment was a negative based emotion similar to regret. Oliver (1997) acknowledged studies using the emotional construct disappointment to be analogous to dissatisfaction. Zeelenberg et al. (1998b) conducted several studies to differentiate regret from disappointment. Their findings showed regret and disappointment were distinguished by regretful outcomes focusing on the individual’s role in the occurrence of the outcome. This involved thoughts such as having feelings of knowing better, thinking about the mistake, tendencies to kick oneself, wanting to correct the mistake, and wanting to undo the event. In contrast, Zeelenberg showed that feelings of disappointment involved feeling powerless, tendencies to do nothing, dismissing the event, and wanting to do nothing. In summary, disappointment turned attention away from the event. Zeelenberg and Pieters (1999) compared the effects of regret and disappointment to customer’s behavioral responses to failed service encounters. They argued that regret and disappointment were two important emotions with different outcomes. The hypothesis stated that switching, complaining, and word-

of-mouth were behavioral responses of regret and disappointment. Results from the research showed that regret promoted switching behavior whereas disappointment promoted word-of-mouth and complaining behavior.

### *Regret and Counterfactuals*

A few studies have examined counterfactual thinking and regret. Zeelenberg et al. (1998c) tested counterfactuals that were formed as a result of experiencing regret and disappointment. Their study found that regret-based counterfactuals were the generation of behavior-focused counterfactuals in which the consumer or decision maker changed their actions or behavioral response, with respect to decisions or choices, as a result of experiencing regret. Likewise, their hypothesis was supported in that satisfaction-based counterfactuals appeared to be situation-focused where parts of the situation would be changed as a result. In other words, regret and satisfaction have different types of counterfactual thoughts. Zeelenberg et al. (1996c) also found regret was related to internal attributions and changes in behavior; consistent with other studies showing regret is attributed to self-agency. Tsiros and Mittal (2000) investigated the context of counterfactual thinking and showed they were more likely to be generated by people who had experienced regret. Their results showed counterfactuals were more likely to be generated when the chosen outcome was negative or the status quo was changed or the condition was irreversible. Information on the foregone alternative was not needed for consumers to experience regret. More regret was felt when counterfactuals were increased. Counterfactuals were more likely to be produced when the result of an outcome was due to switching the status quo and resulted in a negative outcome.

### *Action versus Inaction*

Several studies explored action and inaction related to regret. Most studies were searching for a process that caused greater regret. Kahneman and Tversky (1982) began by hypothesizing actions that caused greater regret than inactions. Four of the six studies asked respondents to recall or describe one of their biggest regrets and separated them into actions or inactions. To our knowledge, no studies have settled whether individuals regret actions more than inactions. The majority of researchers feel regret stemming from actions is often a short-term response. In contrast, inactions are more persistent and continue to bother the individual.

### *Regret and Responsibility*

Researchers have studied the relationship between perceived responsibility of the outcome and regret. Simonson (1992) showed that regret and responsibility were not always positively correlated. Simonson suggested that regret and responsibility may have different consequences depending on brand name awareness. The degree of regret consumers experienced was dependent on whether they chose a well-known brand verses a cheaper brand. Simonson (1992) argued well-known brands were considered the safer choice and conformed to the status quo. If choosing the well known brand resulted in failure, responsibility was attributed to the manufacturer. On the other hand, if the consumer chose the cheaper option and it failed, responsibility was attributed to the person followed by the “I should have known better” type of attitude. Simonson’s results showed anticipated regret and responsibility did not always converge. Gilovich and Medvec (1994) found the level and intensity of regret experienced is related to the amount of responsibility perceived by the individual. The more the decision maker perceived responsibility for the negative outcome that occurred, the more regret likely to

be experienced. Other researchers have also shown the strong association between regret and responsibility (Gilovich and Medvec, 1994; Simonson, 1992; and Zeelenberg et al., 1998b).

### **Future Research**

This review focused on 22 articles that were published in the consumer behavior and social psychology literature. The concept of regret has been around and imminent in many aspects of consumer behavior, including cognitive dissonance. However, it was not until the 1980's that economists empirically addressed anticipation of regret. This lead to ample evidence noting that anticipated regret can influence decision making (Simonson, 1992; Larrick and Boles, 1995). Research showed consumers delayed their decisions to avoid regret (Cooke, Meyvis, and Schwartz, 2001). One possible topic for future research would be to examine the time-delay in decision-making that occurs as a result of anticipating regret. Currently, anticipated regret has been studied more in the literature. More empirical articles addressing experienced regret would also be of interest.

When comparing regret to other constructs in consumer behavior, there is little research published in this area. There have been a total of nine articles written on regret in the consumer behavior context. Regret can be linked to many theories such as norm theory, cognitive dissonance, attribution theory, etc. Consumer behavior researchers may want to expand the field by studying regret and how other theories are empirically linked. For example, behavioral norms may be an area of future direction in the role of regret and decision making. One question worth asking is identifying the norms that contribute to regret and the norms that minimize it.



Oliver (1997) suggested that more work is needed in determining the consequences of regret. Work on behavioral responses (Zeelenberg and Pieters, 1999) and behavioral intentions (Tsiros and Mittal, 2000) have started this endeavor. However, more studies need to be accomplished to obtain a better understanding of the consequences of regret. Work has also just begun for regret and the use of services. Understanding mediating and moderating effects for service encounter emotions would be of interest and could include regret, disappointment and other emotions. In a response to examine more consequences, Tsiros and Mittal (2000) examined the generation of counterfactual thinking with products. Another area for future research could address services. Relationships between the cognitive device between regret and satisfaction may also be of interest. There is still a plethora of work awaiting researchers in the area of regret.

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**SECTION II**

**THE DETERMINANTS OF CONSUMER REGRET IN PURCHASE  
SITUATIONS**

**AMERICAN MARKETING ASSOCIATION SUMMER EDUCATORS  
CONFERENCE**

**Submitted for Publication: January 12, 2004**

**Jennifer H. Dennis, Thomas J. Page Jr., Richard A. Spreng & Bridget K. Behe<sup>1</sup>**

**The Determinants of Consumer Regret in Purchase Situations**

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## **The Determinants of Consumer Regret in Purchase Situations**

Consumers take risks each time they enter a consumption situation. In these situations, consumers often attempt to maximize gains and decrease losses by choosing each product or service carefully. Even after careful consideration, failure may occur which may lead to negative emotions, one of them being regret. Our research examines the onset of the regret emotion looking at three global variables as postulated in theories of the cognitive appraisal emotions literature. We document factors that contribute to the cognitive appraisal of regret. We examine an actual purchase experience, the buying and enjoyment of ornamental gardening plants, through an Internet survey. Our results show the global variable unexpectedness has a positive effect on regret in our first model. Our second model shows unexpectedness as the only global variable that has a positive effect on regret and arousal having a negative direct relationship with regret. None of the variables appeared to have a stronger effect on regret based on proximity in the second model.

## **Introduction**

Research on consumption emotions has been ongoing and acknowledges that consumers experience both ends of the emotional spectrum including satisfaction and elation as well as dissatisfaction and regret when making a purchase (Richins 1997; Westbrook and Oliver 1991). With the process of consumption there is always a chance that a product or service does not meet a consumer's desires. A consumption experience can bring about several outcomes, one being product failure. Knowing this possibility exists, consumers may ponder and increase their search process for goods or services that pose less risk. If product failure occurs, how do consumers retroactively view the consumption process? For example, if a consumer buys a potted outdoor rose and it dies, how does the consumer feel about the purchase? Although researchers focus on how to increase satisfaction and other positive outcomes, the fact remains that negative outcomes do occur. When these occur what emotions do people feel and how do they respond?

One such emotional response is regret. Regret is a powerful emotion that can influence consumers to think more carefully, gather more information before subsequent purchases, and add precautions against the next purchase. Not only can regret influence behavior, but it may have ties to the psychological well-being of individuals. Thus, regret is especially important to the decision-making process. People evaluate outcomes and compare what they have received with what they would have received had they made a different choice (Boles and Messick 1995; Landman 1987). When considering a purchase, consumers may ask questions about their potential buying decisions or actual purchasing decisions such as "should I buy a potted rose for added beauty and enjoyment for my garden or should I have spent the money on dinner and a movie?" The process of

decision making leading to consumption, where choices are made and other possibilities or foregone alternatives exists, leaves an opportunity to doubt the current choice invoking a range of emotions that the consumer may experience.

An emotion, such as regret, is a valenced feeling state that arises from cognitive appraisals of events (Bagozzi, Gopinath, Nyer 1999). Research has shown that only appraisals result in the formation of emotions (Smith et al. 1993). When the outcome is negative, the consumer may begin to generate counterfactuals or thoughts about what might have occurred given a different sequence of processes or events (Zeelenberg et al. 1998). The question becomes should the consumer have purchased another type of outdoor plant or should the consumer have gone to the movies? Researchers have been exploring topics such as these with the goal of understanding the effects of regret on decision making and the behavioral consequences associated with this emotion (Inman, Dyer, and Jia 1997; Taylor 1997; Tsiros and Mittal 2000). However, few have looked at how regret as an emotion is formed. The purpose of this study is to investigate and explore regret based on relationships with three global variables from the cognitive appraisal framework suggested by Ortony, Clore, and Collins (1988). The paper begins with a brief review of the literature on regret followed by emotion theory and cognitive appraisal theory. Hypotheses are then presented followed by the survey methods used to test the hypotheses along with the results. The paper concludes with a discussion and suggestions for future research.

### **Regret**

Regret theory was posed by economists Bell (1982) and Loomes & Sudgen (1982) to explain why people violate theories of economics when choice under



uncertainty is involved. Regret theory proposes that people want to avoid negative consequences that can be a result of making the wrong decision. The process of choosing a product is somewhat dependent on other items rejected in that choice set (Loomes and Sudgen 1982). Regret theory is a modification of expected utility theory. Regret theory and expected utility theory both assume the utility of an option depends on the calculated pain and pleasure associated with the outcome.

There have been several attempts to define regret. Economic theorists defined regret as a negative emotion stemming from the comparison between what is, and what might have been, had the person chosen differently (Bell 1982; Loomes and Sudgen 1982). Landman (1993) described regret as a “reasoned emotion” stating regret is seen as a combination of reason and emotion acting in concert. Landman (1993) further states that regret is a matter of thought and feeling involving processes such as thinking, imagining, feeling, comparing, evaluating, doubting, denying, refusing, or affirming – all involving some form of judgment and evaluation. Simonson (1992) defined regret as a negative emotion predicated on a self-relevant counterfactual inference, a realization or judgment made after a decision to doubt or confirm whether the right decision was made. Counterfactual thoughts are mental simulations inventing alternatives to actual event outcomes to help compensate for future failed or actual failed events (Landman 1993). Despite various definitions of regret, most consider regret a key emotion. Zeelenberg defines it as a “negative, cognitively determined emotion that we experience when realizing or imagining that our present situation would have been better had we acted differently” (Zeelenberg 1996, p. 6). This has been the most consistent definition.

Researchers have studied two types of regret: anticipated and experienced.

Anticipated regret is the notion of considering emotional reactions to outcomes before a decision is made (Zeelenberg 1996). A consumer who anticipates they will have bad luck with growing an outdoor gardening plant may defer the decision to buy that plant, search for one they feel they can take care of properly, or buy a substitute such as a low-maintenance silk plant in an effort to minimize the anticipated regret experienced.

Experienced regret refers to the emotion that is experienced after a decision to buy is made or after an event has occurred. The same consumer buys a gardening plant and has a bad experience, the plant dies, leading to regret after the event. For the purpose of this study, we will focus on experienced regret, which has not been studied as much as anticipated regret: (Cooke, Meyvis, and Schwartz 2001; Inman and Zeelenberg 2002).

The current article extends our understanding of regret as an emotion in two ways. First, to our knowledge, this is the first study that examines the Ortony, Clore, and Collins (1988) framework for cognitive appraisal. Second, regret is examined in the context of an actual consumption experience.

### **Cognitive Models of Emotions**

Emotions have not been an easy concept to differentiate from other states, and researchers in consumer behavior have based much of their work on frameworks of emotion developed in psychology (Richins 1997). Plutchik (1980) suggests there have been over 28 different definitions of emotion showing the variability in defining this concept. Emotion theorists have found emotional states are based on people's assessments of situations and are determinants of various consumer behaviors (Lazarus

1991; Omdahl 1995). Lazarus (1991) shows emotions occur because of the cognitive appraisal of the person-environment situation.

Within the past few decades (1980's to present), emotion theory has evolved within the cognitive appraisal framework. Cognitive appraisal theories incorporate emotion research in explaining the cognitive processing that takes place and the inputs of information that lead people to different emotional states. Assessments of situations are key in forming appraisal configurations. Landman (1993) states cognitive and emotion theorists have changed the prevailing view of emotion theories based on their combined findings of the philosophical, physiological, dimensional, and cognitive approaches that have traditionally embodied the emotion literature resulting in a new set of literature, the cognitive appraisal framework (for a review see also Omdahl 1995). According to Omdahl (1995), appraisal theorists include evaluation and interpretation that becomes salient after a situation occurs. All theorists specify some type of condition that is necessary for the emotional response to occur. A majority of the theories mentioned appear to look for the degree to which the situation is pleasant for an individual and some underlying structure such as motivation, goals, or standards. Most theories also indicate that there is a reaction or consequence that transpires in order for appraisal to occur. These appraisals assess the degree to which the situation is congruent or incongruent with the person's goals, standards, or attitudes.

### *Cognitive Structure of Emotions*

Clore and others (Clore, Ortony, and Foss 1987; Ortony, Clore, and Collins 1988) have shown that emotions are valenced reactions to perceptions of situations and have considered emotions a name that is associated with the mental state that a person

possesses. Ortony, Clore, and Collins (1988) explicate that emotions arise as a result of certain kinds of cognitions. According to their theory, people react to three things: events, agents, and objects. Events are defined as a person's construal about things that happen that are considered independently of any beliefs they may have about actual or possible causes (Ortony, Clore, and Collins 1988). For example, an event can be seen as a consumption experience, such as buying a product for a particular purpose. Each of these categories (events, agents, and objects) gives rise to an emotion based on appraisal, which is a precursor to forming emotions (Bagozzi, Gopinath, and Nyer 1999). The regret emotion can only be experienced as a reaction to an event (Ortony, Clore, and Collins, 1988). Because our research focuses on the regret emotion, we will discuss appraisals based on events only.

Global variables affect the intensity of all emotions and their effects are key components in emotional experiences. The four global variables are: sense of reality, proximity, unexpectedness, and arousal (Ortony, Clore, and Collins 1988). The intensity of each emotion, determined by the strength of the global variables, becomes a key determinant in whether an emotion is experienced (Ortony, Clore, and Collins 1988). Sense of reality is the degree to which the event seems real to the person experiencing the emotion. In our study, the sense of reality variable was not studied because we used an actual event, which by definition, is real. Consumers were asked to respond to their feelings associated with the actual purchase they made prior to the survey regarding an outdoor gardening plant (i.e. a real experience) and the feelings accompanied with the outcome at the end of the 2003 season (i.e. whether the plant lived or died). Since the event is real to the respondent, this variable would essentially be a constant. Proximity is

the second global variable, measuring the extent of time that has passed from the event. In this case, the event is defined as buying the specified ornamental plant. The closer in time to the event, the more intense the emotion. In other words, if product failure of the ornamental plant occurs closer to the actual purchase date, more regret should be experienced. If the plant dies two years after purchasing the event, less regret should be experienced. Notice, we do not claim that regret will not be experienced; just that the intensity of the emotion should be lower as more time passes. The notion of unexpectedness pertains to how prepared the person is with respect to the event. The more unexpected the event, the more intense the emotion should be. For example, if a person buys a Sony television set based on the reputation of that brand in January, and the television becomes defective in March, the outcome would be unexpected causing whatever emotion experienced to become more intense. Based on Ortony, Clore, and Collins' framework, we anticipate unexpectedness to be positively correlated with regret (Ortony, Clore, and Collins 1988). The more unexpected the outcome of the event, the more intense the emotion will be. The last global variable is arousal. Arousal is the sense of awareness or the evoking of a feeling, response, or desire about the event. Ortony, Clore, and Collins explain changes in one's level of arousal may be in proportion to the importance of the emotional situation. Therefore, the more aware the person is of the event, the more intense the emotional response will be. Given this set of information, we propose the following hypotheses:

**H<sub>1</sub>: Unexpectedness has a direct positive effect on regret.**

**H<sub>2</sub>: Arousal has a direct positive effect on regret.**

### *Overall Model*

The cognitive appraisal theory explicated by Ortony, Clore, and Collins (1988) serves as the conceptual framework for this study. Although regret is considered a part of a larger framework, we are interested in how regret is related to the global variables of unexpectedness and arousal as described in Ortony, Clore, and Collins (1988). This study investigates the structural relationship between regret and these two global variables. Proximity is also investigated as a moderator of the effects of unexpectedness and arousal on regret. The closer in time the failure occurred, the stronger the effects of both would be on regret. The proposed structural model is shown in Figure 1.

(Insert Figure 1 here)

### **Materials and Methods**

#### *Data Collection*

In September 2003, an internet study was conducted of consumers who had an interest in gardening. Individuals were invited to take part in the survey based on an email database maintained by Survey Sampling Inc. Potential respondents were asked to qualify themselves by responding to questions about whether they purchased certain types of ornamental plants suitable for gardening use. Respondents qualified if they purchased one of three actual outdoor plants (hanging basket, potted rose, or 1 gallon perennial). The qualifying responses were submitted to a FilemakerPro database, which returned the email address of the survey only if the appropriate choices were selected. To prevent browsing back to “guess” the right response, the server placed a cookie in the respondent’s browser when the qualification denial was presented that prevented resubmission of the qualification form. Once qualified, the respondents completed the survey and almost all fields were required to be completed or an error message was

generated. The last input on the survey was the respondent's email address. A note indicating that their email would be secured and only used for correspondence about the honorarium was placed prominently near the input line. 18,666 individuals were invited to participate. In return for their responses, a \$5 e-coupon redeemable at Amazon.com was given as an incentive. The survey was closed after receiving 777 responses for a one-day response rate of 4%. The survey was terminated based on the criteria of costs for incentives and acceptable numbers for appropriate data analysis.

After removing unusable surveys, 743 usable surveys remained. Participants ranged in age from 18 to 76 years, 74% were female, and approximately 41% had a college education or higher; 58% of the participants had a 2002 household income of \$25,001 to \$70,000. Thirty-seven percent of the participants had no dependents, and 68.8% had more than two people in their household. Forty six percent of respondents were from the Midwest region.

### *Measurement*

Arousal was measured using three items asking "Please indicate the extent to which each word described your feelings in the recent past regarding the performance of the gardening plants." There were three words (Surprised, Excited, Rewarded) that were followed a scale anchored by "Does not describe at all/Describes a great deal." Regret was measured by asking "How much regret did you feel after the experience (i.e. at the end of the summer when the majority of the garden performance was gone in your plants)?" followed by a seven point scale anchored by "None at all/Very much." Unexpectedness had endpoints stating "Not unexpected/Very unexpected." Proximity

was measured by asking at which point did the product failure occur with an ordinal scale indicating different points in the spring and summer season.

## **Results**

### *Measurement Model*

The reliability and validity of the arousal construct was analyzed using reliabilities based on Cronbach alpha. Initially, three items were used to measure arousal. One item (surprised) was removed resulting in two measures for arousal ( $\alpha = .88$ ), which is above Nunnally's (1978) cut-off of .70 for such scales.

Only those respondents who had experienced some amount of regret were included in the analysis resulting in 517 cases. Proximity was used to create groups by dividing the sample into those who had failure and experienced regret with their product in the spring and early summer (i.e., close to the purchase date-proximal group) and those who had failure and experienced regret in the middle to late summer (i.e., further removed in time from the purchase date –distal group). The sample sizes for the Proximal and Distal groups are 143 and 180 respectively.

### *Structural Path Analysis*

The structural model was analyzed using a covariance matrix in Lisrel 8.5 (Jöreskog & Sörbom 2003). The covariance matrix of the constructs and the means and standard deviations are summarized in Table 1. The model estimates and fit statistics are summarized in Table 2.

(Insert table 1 and 2 about here)

The fit statistics for the models indicate a good fit for both the Proximal and Distal Groups since all goodness of fit measures met the appropriate cut-off levels (Bagozzi and



Yi 1998). H1, which stated that unexpectedness would be positively related to regret, was supported for both groups. H2, which stated that arousal would be positively related to regret was not supported for either group. It had no significant effect in the proximal group, and a significant negative effect in the distal group.

## **Discussion**

### *Global Variables and Regret*

Our study focused on linking global variables to regret. Following the framework of Ortony, Clore, Collins (1988) which states that global variables are essential for emotions to form, we investigated unexpectedness, arousal, and proximity and their relationships to the emotion of regret. Our results partially supported this theory with the results for unexpectedness being more consistent with Ortony, Clore, and Collins' theory. Unexpectedness was found to have a direct effect on regret for both proximal and distal groups whereas arousal was found to have a negative direct effect only in the distal group. Thus, when a product unexpectedly fails, the consumer experiences regret, although the effect does appear to lessen with the passage of time.

Arousal had no significant effects in the proximal group (spring and early summer) and a negative influence on regret in the distal group (mid to late summer group). This finding was clearly unanticipated. However, the explanation appears to lie in the way arousal was measured. The two measures used to define the arousal construct were excited and rewarded. Clearly after investing time and energy in caring for a plant and then having it die would cause a person not to feel very excited or rewarded. Thus, given our measures, it makes sense that as arousal decreases (i.e., less excited and rewarded) regret would increase.

Clearly in both groups, unexpectedness has a strong effect on regret. The fact that arousal has a stronger effect in the distal group would seem to say that while the death of the plant is still unexpected, the fact that the consumer has devoted more time and energy into caring for it, the more regret will be felt.

The findings in this research have implications for managers and researchers. Our results show the level of unexpectedness has a positive direct effect on regret. Although identifying unexpected situations can be challenging, retailers who anticipate scenarios and inform customers of possible ways to prevent product failure may be able to establish positive relationships with their customers. Customers may be less likely to experience regret if proactive measures are taken by retailers. They therefore may be less likely to switch retailers when the purchase occasion arises.

### *Limitations*

The study reported has limitations. Single item measures were used for regret and unexpectedness. There are situations where single-item assessments are defensible (Courneya 1994), and these measures were taken from previous research in the area (Danson, Block, and Ridgeway 1990; Tsiros and Mittal 2000; Spreng and Mackoy 1996). However, future research should include multiple measures for these items where feasible. We understand when testing real consumption experiences, it may be hard to get consumers to respond to surveys that are extensive and perhaps viewed as laborious. This study was implemented using a real consumption experience and despite using single item measures for some constructs, we feel our results are valuable and contribute to the regret literature.

Another limitation may have been the omission of variables that are not accounted for and have not been identified by cognitive appraisal models. For example, while the theoretical framework shows global variables are the contributing factors to the onset of emotions, we recognize there may be other underlying influences and situations that may contribute to the onset of emotions. The last limitation is based on using the Internet to collect our data. Although we feel the sample gathered is representative of the traditional garden shopper, other studies should consider gathering responses via other methods to enhance the generalizability of our findings.

### *Future Research*

Our research has only begun to touch the surface in cognitive appraisal research of regret. Future researchers should look at relationships between regret and other emotion variables. Zeelenberg (1996) has examined the differences between regret and disappointment. Landman (1993) has distinguished between regret, disappointment, guilt, remorse, and sadness. Other emotions, both positive and negative, should be examined to evaluate the distinguishing characteristics between them and regret. These emotions can also be explored for their impact on consumption experiences.

Future researchers can also examine regret within an integrative model. Researchers can examine the consequences associated with experiencing regret in a consumption situation. If regret does occur, what happens to the consumer? Past research suggests regret is an emotion associated with self agency and responsibility (Zeelenberg 1996). Researchers should examine what the implications are for regret with respect to repurchase intentions and actual purchase behavior. Another topic of interest is to determine if regret is experienced immediately for those consumers who have various

degrees of experience with certain products. For example, linking the level of consumer knowledge and involvement of products to determine the threshold level between high, medium, and low knowledgeable consumers with the number of times product failures could occur before regret is experienced would be of interest. Within the gardening sector, people who have ample experience with plants, termed Master gardeners, may not experience regret immediately because they may realize plants that die are apart of the gardening process. Could the level of consumer's experience play a role in deferring the onset of regret?

Another area of interest is the product category being purchased. In this research, the product was one that when failure occurred, it could not be remedied (i.e., the plant is dead, and there were no guarantees). The effects of unexpectedness and arousal may be different when a remedy (e.g., fix or replacement) can be obtained.

Table 1. Means, standard deviations, and covariances of constructs.

Factors	M	SD	Covariances			
			1	2	3	4
<b>Spring and Early Summer (n = 143)</b>						
1. Regret	5.25	2.04	3.8			
2. Unexpectedness	4.67	1.64	1.2**	2.4		
3. Excited <sup>1</sup>	4.19	1.52	.58*	.64	2.3	
4. Rewarded <sup>1</sup>	4.16	1.66	.49	.72**	1.8**	2.7
<b>Mid to late Summer (n = 180)</b>						
1. Regret	4.61	1.95	3.8			
2. Unexpectedness	4.41	1.52	.60**	2.2		
3. Excited	4.17	1.67	-.40	-.36	2.7	
4. Rewarded	4.31	1.75	-.85**	-.41*	2.2**	3.1

\* Indicates significance at the 0.05 level.

\*\* Indicates significance at the 0.01 level.

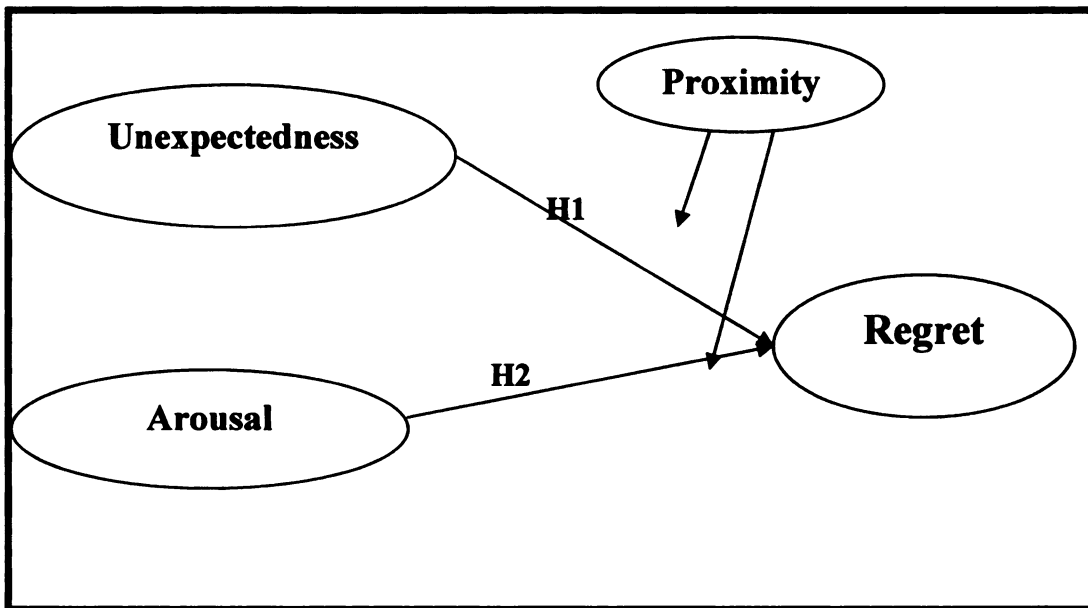
<sup>1</sup>. Excited and rewarded measure the arousal construct.

Table 2. Parameter values for the models.

Path (hypothesis)	Coefficients (t values)	
	<i>Spring &amp; Early Summer</i>	<i>Mid to Late Summer</i>
Unexpectedness to Regret (H1)	.47 (5.01)	.24 (2.51)
Arousal to Regret (H2)	.13 (1.02)	-.36 (-3.14)
Chi Square (1) =	.76	1.45
P =	.38	.22
NFI =	.99	.99
CFI =	1.00	1.00
RMSEA =	.00	.05
AGFI =	.97	.96

t-values over 2.00 are significant at 0.05.

Figure 1. Proposed model of regret tested with hypothesized paths.



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**SECTION III**

**WHAT HAPPENS AFTER PRODUCT FAILURE:  
AN EXAMINATION OF SWITCHING?**

**ASSOCIATION FOR CONSUMER RESEARCH**

**SUBMITTED: MARCH 11, 2004**

**What Happens After Product Failure: An Examination of Switching?**

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### **What Happens After Product Failure: An Examination of Switching?**

Consumption experiences are rarely entirely positive. Some consumers may experience a range of negative emotions. What happens when negative emotions are experienced? Do consumers continue to make the same mistakes and repurchase the same product or do they do something else? Our research examines the behavioral consequences of regret (a negative emotion) and satisfaction (a judgment), which may include switching behavior. We examined an actual purchase situation: the purchase, use, and enjoyment of ornamental plants, through an Internet survey. Our results showed regret has a direct effect on switching and totally mediated the effects of satisfaction on switching.

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## **Introduction**

The mere process of consumption leads to an evaluation of a product or service consumed. The evaluation often results in a feeling or emotion about the product, service, or experience regardless of the outcome (Richins 1997). While companies hope they have met customers' needs, product and service experiences may fail to meet desires and expectations resulting in negative emotional experiences. Researchers and retailers alike should be concerned with the outcomes of negative emotions. Negative emotions may affect the consumer's willingness to patronize that business again resulting in switching providers. The goal of this research is to help researchers and managers understand the mechanisms that take place once these negative emotions have occurred. Specifically, this study explores satisfaction and the emotional state of regret by examining the behavioral consequences that are associated once regret and satisfaction have occurred. Our objectives are two-fold. First, we want to determine whether satisfaction has a direct impact on consumer switching behavior. Second, we examine regret as a mediator between satisfaction and switching. Based on information provided in the literature, we consider the consequences of regret important because there are direct implications for altering actual behavior of consumers who blame themselves (self-agency) for the outcome of the consumption event.

## **Theoretical Background and Hypotheses**

### *Switching*

The concept of switching is derived from the loyalty literature. Switching differs from loyalty because it is the negative consequence for a firm, product, or service provider that results in moving to another product or service. Recently, switching has

become a separate stream of research distinct from the loyalty literature (Bansal and Taylor 1999). Switching has been studied in many contexts including services (Keaveney 1995; Keaveney and Parthasarathy 2001), dissatisfaction in the insurance industry (Crosby and Stephens 1987), service encounter failures in retail stores (Kelley, Hoffman, and Davis 1993), channel switching behavior relationships (Reardon and McCorkle 2002), and emotions (Inman and Zeelenberg 2002; Zeelenberg, Inman, and Pieters 2001; Zeelenberg and Pieters 1999). Only a few of these studies have investigated the switching framework. Keaveney (1995) generated a framework of switching behavior based on services listing eight causal factors that contributed to switching. Expanding on Keaveney's framework, Roos (1999) examined factors important in switching and found emotions played a strong role in irrevocable decisions to switch. Emotions such as anger, distress, shame, stress, and dissatisfaction were explored. Her findings showed "customers may react with really strong negative emotions in badly handled situations...and emotions play a crucial role at the moment of the switching decision" (Roos 1999, p. 80). Roos (1999) stated customers made prompt switching decisions based on strong emotions, such as anger, and identified pushing determinants as factors that pushed the customer towards switching such as price of the product and failure of the system. Thus, emotions and product failures can cause consumers to switch to other products and may provide further incentive for a faster switching process.

Regret and switching have been studied in a slightly different context. Zeelenberg and Pieters (1999) investigated behavioral responses of regret using vignettes and experience sampling to elicit situations found within autobiographical episodes and



showed regret directly promoted switching behavior. Although their study examined regret and switching, we add to the literature in two ways. First, we use an actual consumption experience that is closer in time to the actual event. Consumers were asked to respond to their feelings associated with the actual purchase they made prior to the survey regarding an outdoor gardening plant (i.e. a real experience) and the feelings accompanied with the outcome at the end of the 2003 season (i.e. whether the plant lived or died). Zeelenberg and Pieters' (1999) study examined emotions such as regret according to the respondent's memory, which could have occurred in various stages of time. Our research specifically focuses on one year, the spring and summer gardening season of 2003. Past research has shown vignette methodologies have a tendency to be weaker because they are not based on real-life experiences and longer time frames of recall may be weaker due to forgetting the actual experience (Omdahl 1995; Ortony Clore and Collins 1988). Second, our consumption situation has one unifying experience, the buying and enjoyment of plants within a particular season whereas the autobiographical episodes used to complete the Zeelenberg and Pieters (1999) study came from an array of different consumption experiences in varying time frames. Third, Zeelenberg and Pieters (1999) state topics of behavioral consequences of emotions are virtually neglected in emotion research. Our research will help fill this gap.

### *Regret*

Regret is a "negative, cognitively determined emotion that we experience when realizing or imagining that our present situation would have been better, had we acted differently" (Zeelenberg 1996, p. 6). Ortony, Clore, and Collins (1988) showed regret is a negative based emotion that results after an undesirable appraisal of an event. Both

definitions conclude that regret is an emotional state. Regret has been differentiated from other emotions based on the concept of self-agency and responsibility (Frijda, Kuipers, and ter Schure 1989; Zeelenberg, van Dijk, and Manstead 1998b). Self-agency is based on the appraisal of attributing responsibility of the experience to the individual instead of external forces such as the retailer or uncontrollable events such as weather.

Responsibility is also seen as taking accountability for the choice or outcome associated with the choice. Regret usually stems from comparisons based on outcomes and thoughts about better alternatives (Zeelenberg and Pieters 1999). Roseman, Weist, and Swartz (1994) and Zeelenberg & van der Plight (1998a) also distinguished regret from other emotions by showing that regret was characterized by having a sinking feeling, thinking about a lost opportunity, wondering if a mistake was made, feeling the tendency to kick oneself, wanting to correct the mistake, and wanting a second chance to improve one's performance. This is consistent with other researchers showing regret is focused on self-attribution as the cause of the event as well as possibilities to undo the event (Frijda, Kuipers, and ter Schure 1989; Zeelenberg and van der Plight 1998a; Zeelenberg, van Dijk, and Manstead 1988b). Because regret is based on self-agency, customers who experience regret should be more likely to switch to correct their mistake as shown by characteristics of this emotion.

### *Satisfaction*

Oliver (1997) states satisfaction is "the consumer's fulfillment response. It is a judgment that a product or service feature, or the product or service itself, provided a pleasurable level of consumption-related fulfillment...". Within the satisfaction concept, the disconfirmation model has become the accepted model describing the process of

postpurchase evaluation (Yi 1990). The disconfirmation model utilizes a standard of comparison (e.g., predictive expectations, desires, or norms) that is compared to actual performance, and the outcome of this comparison is defined as disconfirmation. Disconfirmation then produces satisfaction (Oliver 1997). Included in this model are two components known as negative disconfirmation (performance that is below the standard) and positive disconfirmation (performance that is above the standard). Dissatisfaction results from negative disconfirmation and satisfaction results from positive disconfirmation. Satisfaction and dissatisfaction have been examined as a comparison between standards and performance with little information known about the use of satisfaction and dissatisfaction as emotions (Bougie, Pieters, and Zeelenberg 2003).

Richins (1987) showed numerous behavioral responses to dissatisfaction including complaining, word-of-mouth, and switching. Richins (1987) showed consumers who used word-of-mouth to communicate about product dissatisfaction were also more likely to switch brands. Her research also demonstrated switching was prompted by understanding characteristics of the problem and the level of redress expected. Singh (1991) demonstrated that dissatisfied customers had three options: (1) switch or exit the relationship, (2) voice/complain, or (3) remain loyal.

A few studies have examined the relationship between consumer satisfaction and regret, distinguishing the difference between the two constructs. Oliver (1997) suggests that regret and satisfaction are different constructs with regret being an antecedent of satisfaction. Loomes and Sudgen (1982) examined regret and satisfaction showing regret is generally compared to outcomes of what customers received with what they would have received had they made a different choice and satisfaction is compared to an

expectation and actual performance. Likewise other researchers have distinguished conceptual differences between satisfaction and regret stating comparisons within satisfaction are related to internal standards while regret is related to comparisons of other alternatives (Gardial et al. 1994; Inman, Dyer, and Jia 1997; Tsiros and Mittal 2000). Tsiros (1998) questioned whether satisfaction was different from regret. Taking information from two separate studies, Tsiros (1998) determined a difference by showing satisfaction was specific to outcomes and regret was specific to choice. Tsiros and Mittal (2000) later distinguished between regret and satisfaction by stating regret is viewed as a comparison between the performance of the chosen and foregone alternative whereas satisfaction is the comparison between expected and actual performance.

Past research has shown regret and satisfaction should both have direct effects on switching. We argue satisfaction's relationship to switching will be indirect due to the stronger feelings associated with regret and the defining component that regret is an emotion. The feelings associated with regret are stronger as shown by the need to correct the mistake and undo the situation, which is based on self-responsibility (Frijda, Kuipers, and ter Schure 1989; Zeelenberg and van der Plight 1998a; Zeelenberg, van Dijk, and Manstead 1988b). We hypothesize regret is the driver of switching and satisfaction will have an indirect effect via regret.

**H<sub>1</sub>: Regret will mediate the effect of satisfaction on switching.**

### ***Overall Model***

The switching literature along with research on satisfaction and regret serve as the conceptual framework for this study. We recognize satisfaction is part of a larger framework and are interested specifically in how satisfaction and regret affect the

behavioral consequence of switching. This study investigates the structural relationship between satisfaction, regret, and switching. We first investigate whether satisfaction has a direct effect on switching. Tsiros and Mittal (2000) state comparisons between chosen and foregone alternatives (i.e., situations of regret) influence behavior. We use this as a foundation to investigate whether regret mediates the relationship between satisfaction and switching in our second model. To test this hypothesis we will examine the conditions necessary to infer mediation.

(Insert Figure 1 and 2 here)

## **Materials and Methods**

### ***Survey and Data Collection***

In September 2003, an Internet study was conducted with volunteer consumers who had an interest in gardening. Individuals were invited to take the survey from an email database maintained by Survey Sampling Inc. Potential respondents were asked to qualify themselves by responding to questions about whether they had purchased certain types of ornamental plants. The qualifying responses were submitted to a FilemakerPro database, which returned the email address of the survey only if the appropriate choices were selected. To prevent browsing back to “guess” the right response, the server placed a cookie in the respondent’s browser when the qualification denial was presented that prevented resubmission of the qualification form. Once qualified, the respondents completed the survey and almost all fields were required to be completed or an error message was generated. The last input on the survey was the respondent’s email address. A note indicating that their email would be secured, not shared, and only used for correspondence about the honorarium was placed prominently near the input line. We

invited 18,666 individuals to participate. In return for their responses, a \$5 e-coupon redeemable at Amazon.com was given as an incentive. The survey was closed after receiving 777 responses for a one-day response rate of 4%. The survey was terminated based on the criteria of costs for incentives and acceptable numbers for appropriate data analysis.

After removing unusable surveys, 743 responses remained. Participants ranged in age from 18 to 76 years; 74% were female; and approximately 41% had a college education or higher; 58% of the participants had a 2002 household income of \$25,001 to \$70,000. Thirty-seven percent of the participants had no dependents, and 68.8% had more than two people in their household. Forty six percent of respondents were from the Midwest region.

### *Measurement*

Satisfaction was measured with 7 point, multi-item scales adapted from a previous study (Spreng and Mackoy 1996). The scales were introduced with the following statement: "Choose a number that closely reflects how you felt about the performance of the above chosen product" (hanging basket, 1 gallon perennial, and potted rose) followed by scales anchored by "Very Dissatisfied/Very Satisfied," "Very Displeased/Very Pleased," "Frustrated/Contented," and "Terrible/Delighted." Switching was also measured with 7 point, multi-item scales adapted from a previous study (Zeelenberg and Pieters 1999) using three statements "I will use less of the services of the store in the near future," "I will make use of the services of a competitor (another retail nursery, garden center, home store, mass merchandiser, etc.)" and "I may make use of a more knowledgeable and perhaps more expensive competitor" using endpoints "Strongly

Agree/Strongly Disagree.” Regret was measured using adapted scales (Oliver 1997; Tsiros and Mittal 2000) obtaining responses to “Based on your experience this summer, what are your feelings concerning the decision to buy the hanging basket, perennial, or potted rose?” followed by seven point scales anchored by “Regrettable Decision/Excellent Decision,” “Many doubts about this choice/No doubts about this choice,” “Sorry I made the decision/Glad I made the decision,” and “I should have chosen another/My choice was correct.”

## **Results**

### *Measurement Model*

Evaluation of reliability and validity of multiple-measure constructs was analyzed using confirmatory factor analysis and reliabilities based on Cronbach’s alpha. Table one lists the constructs and reliability statistics. All reliability values are above Nunnally’s (1978) limit of 0.70 for such scales.

(Insert table 1 here)

A confirmatory factor analysis (CFA) was conducted to assess the reliability and validity for the three model constructs using Lisrel 8.5 (Jöreskog & Sörbom 2003). The fit of the model was good, with appropriate cut-off levels for the goodness of fit statistics including normed fit index (NFI) = 0.98, comparative fit index (CFI) = 0.99, adjusted goodness of fit index (AGFI) = 0.93, and root mean square error of approximation (RMSEA) = 0.06. The NFI, CFI, AGFI, and RMSEA indicate satisfactory model fit because they all met their minimum acceptable levels. Furthermore, the majority of all the individual scales exceeded the recommended minimum standards proposed by Bagozzi and Yi (1988) with respect to construct reliability (greater than 0.60) and

percentage of variance extracted by the latent construct (greater than 0.50). Only those respondents who had experienced some amount of regret were included in the analysis resulting in 517 cases.

### *Structural Path Analysis*

We tested the structural model using Lisrel 8.5 (Jöreskog & Sörbom 2003) with a covariance matrix as input. The correlation matrix of the constructs and the means and standard deviations are summarized in Table 2. The model estimates and fit statistics are summarized in Table 3.

(Insert table 2 and 3 about here)

In order to show mediation, we first had to show that satisfaction had a direct effect on switching. Model 1 estimated the effects of satisfaction on switching and showed that indeed satisfaction did have a significant effect on switching. The model 1 fit statistics indicates a satisfactory fit although the chi-square to degrees-of-freedom ratio was not within the appropriate level ( $\chi^2/df = 6.26$ ). The remaining goodness of fit measures for model 1 exceeded the appropriate minimum levels for an adequate model fit.

Model two estimated the indirect effects of satisfaction on switching with regret as a mediator. Satisfaction and regret have a relationship as shown by their significant correlation ( $r = -.804$ ). H1, stating regret would mediate the effect of satisfaction, was supported. Direct paths from satisfaction to regret and regret to switching were both significant showing satisfaction had a direct negative relationship with regret. Likewise, regret was shown to have a significant positive relationship with switching. The path from satisfaction to switching became non-significant ( $\gamma = -0.13$ ,  $t = -1.45$  (model two



(b)), indicating regret is a total mediator of the effect of satisfaction on switching behavior. Our second model showed satisfaction directly affects regret followed by direct relationships from regret to switching. The results showed when people experienced a high level of regret, they switch to an alternative product.

### **Discussion**

Important linkages have been established between regret and switching in a real consumption situation. Our findings contribute to the existent literature by showing the relationship between regret and satisfaction and its effects on switching. To our knowledge, this is the first attempt to examine emotional consequences based on an actual consumption situation. The findings from this study show the behavioral consequence of regret can result in switching behavior. The results are consistent with Roos (1999) that emotions may prompt an accelerated switching process. In our case, regret was the driver that initiated switching among consumers who were dissatisfied. Our results showed dissatisfaction of the product was sufficient and induced switching. However, when regret was introduced, satisfaction became non-significant showing the strong influence of regret based on an emotional response to a failed encounter. By simultaneously distinguishing between the effects of satisfaction and regret, we show these constructs behave differently alone than when incorporated into the same model.

### ***Directions for Future Research***

The relationships between satisfaction and regret have been explored. This study did not show the differences in behavioral consequences such as word-of-mouth or complaining. This study investigated a limited part of the regret framework and its consequences. Future researchers may want to explore other behavioral consequences of

regret. Although the literature states self-agency and responsibility contribute to consumers who do not tell about product or service failures when regret is experienced, we feel other consequences are bound to exist. Researchers should explore opportunities that investigate this possibility.

Future researchers may also want to examine whether emotional reactions lead to a faster switching process as suggested in Roos (1999). Are there instances where consumers make hastier decisions based on emotional responses of anger or regret verses dissatisfied responses? A closer understanding of these processes could provide managerial insight into better handling of negative situations.

**Table 1. Reliabilities of Constructs.**

<b>Constructs</b>	<b>Number of Items</b>	<b>Cronbach's Alpha</b>
<b>Satisfaction</b>	<b>4</b>	<b>.95</b>
<b>Switching</b>	<b>3</b>	<b>.82</b>
<b>Regret</b>	<b>4</b>	<b>.96</b>

Table 2. Means, Standard Deviations, and Correlations of the Constructs.

Pearson Correlations									
Factors	1	2	3	4	5	6	7	8	9
<b>Switching</b>									
1. Less Services	1.0								
2. Comp. Services	.54	1.0							
3. Expensive	.55	.73	1.0						
<b>Satisfaction</b>									
4. Satisfied	-.17	-.21	-.27	1.0					
5. Pleased	-.17	-.21	-.28	-.84	1.0				
6. Contented	-.13	-.18	-.25	-.77	.84	1.0			
7. Delighted	-.15	-.19	-.25	-.77	.86	.88	1.0		
<b>Regret</b>									
8. Excellent	.18	.24	.29	-.73	-.73	-.71	-.73	1.0	
9. Doubts	.17	.21	.27	-.69	-.69	-.68	-.70	.81	1.0
10. Glad	.16	.19	.26	-.68	-.71	-.71	-.71	.80	.85
11. Correct	.16	.19	.26	-.68	-.71	-.71	-.71	.80	.85
Means	3.4	3.7	3.4	5.8	5.8	5.8	5.8	5.9	5.8
Standard Deviations	1.9	1.8	1.8	1.5	1.4	1.5	1.4	1.4	1.4

Table 2. Means, Standard Deviations, and Correlations of the Constructs.

Pearson Correlations		
Factors	10	11
<b>Switching</b>		
1. Less Services		
2. Comp. Services		
3. Expensive		
<b>Satisfaction</b>		
4. Satisfied		
5. Pleased		
6. Contented		
7. Delighted		
<b>Regret</b>		
8. Excellent		
9. Doubts		
10. Glad	1.0	
11. Correct	.86	1.0
Means	5.9	5.8
Standard Deviations	1.5	1.5

\* All variables were significant at the .01 level.

Table 3. Parameter values for the models.

Path (hypothesis)	Coefficients (t values)		
	<i>Model One</i>	<i>Model Two</i>	<i>Model Two (b)</i>
Satisfaction to Switching	-0.29 (-5.95)		-0.13 (-1.45)
Satisfaction to regret		-0.83 (-21.82)	-0.83 (-22.07)
Regret to Switching		0.31 (6.26)	0.19 (2.05)
Chi Square (13, 42, 41) =	81.37	236.94	143.74
P =	.00	.00	.00
NFI =	.98	.97	.99
CFI =	.98	.98	.99
RMSEA =	.10	.09	.07
AGFI =	.91	.88	.92

t-values over 2.00 are significant at 0.05.

Figure 1. Proposed switching model tested with hypothesized path.

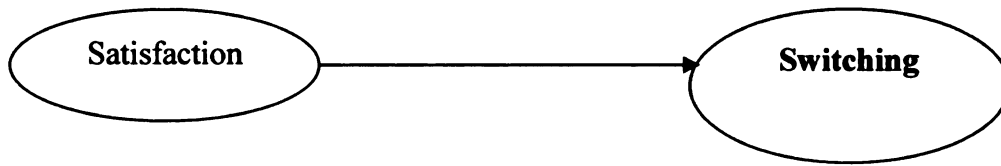
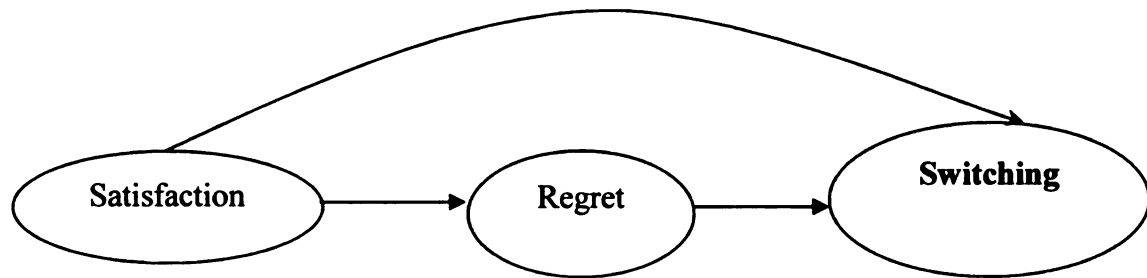


Figure 2. Proposed switching model tested with regret totally mediating the relationship between satisfaction and switching.



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**SECTION IV**  
**DO PLANT GUARANTEES MATTER?: UNDERSTANDING THE ROLE OF**  
**SATISFACTION AND REGRET WHEN GUARANTEES ARE PRESENT**

**HORTSCIENCE**  
**SUBMITTED FOR PUBLICATION: MARCH 16, 2004**

## **Do Plant Guarantees Matter?: Understanding the Role of Satisfaction and Regret when Guarantees are Present**

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## Marketing and Economics

*Additional Index Words.* consumer satisfaction, guarantees, hanging baskets, perennials, regret, *Rosa species*, survey

**Abstract.** An Internet survey was conducted to examine the effects of plant guarantees on satisfaction and regret in the purchase of three horticultural products: hanging baskets, potted roses, and perennials. Respondents were divided into two groups: those with and without guarantees. The effects of satisfaction and regret on repurchase intentions were recorded on multi-item seven-point scales. A structural equation model was used to examine simultaneous relationships between regret, satisfaction, and repurchase intentions. Survey results indicated guarantees would increase satisfaction, decrease regret, and have a direct positive effect on repurchase intentions for hanging baskets, but not for perennials or roses. Five of six models showed regret and/or satisfaction directly impacted repurchase intentions. Both satisfaction and regret had a direct influence on repurchase intentions for the hanging baskets model regardless of guarantees. When guarantees were absent, satisfaction and regret had direct effects on repurchase intentions for the perennial model. Regret was the only construct to directly impact repurchase intentions in the potted rose model when guarantees were absent. Guarantees appear to lower the risks of buying some products and may improve the perception of quality of the product.

## **Introduction**

Traditional horticultural retailers have lost market share as competition intensifies from non-traditional outlets such as mass-merchandisers and do-it-yourself stores (National Gardening Association, 2002). In 2002, 37 million households bought lawn and gardening products from garden centers, down from 39 million in 2001, representing a decrease of 5% (National Gardening Survey, 2002). From 1995-1999, garden centers led other retailers as the top place from which consumers purchased lawn and gardening products. As of 2000, home centers surpassed garden centers for the top spot. Garden centers remain second with mass merchandisers a close third (National Gardening Association, 2001). These data show garden centers are declining as more non-traditional outlets market these highly-profitable products. Intensified competition has challenged many traditional retail garden centers to seek creative ways to remain profitable. In what ways could horticulture customers perceive value in the products of the traditional garden center? Increasing consumer satisfaction may be one competitive component, and one aspect of satisfaction may be providing guarantees. How do plant guarantees influence consumer satisfaction? We propose to quantify the strength of the relationship and the effect satisfaction has on plant guarantees. Researchers understand some dimensions of satisfaction, but many questions remain unanswered. Do plant guarantees contribute to increasing satisfaction? Will guarantees increase the level of product quality recognized by customers? How do satisfaction and regret contribute to consumer's intent to repurchase gardening products?

In past studies, researchers sought to improve profitability and consumer satisfaction of retail outlets by examining factors such as consumers' reason for choosing

a particular retail outlet (Day, 1994). Garber and Bonadari (1998) identified opportunities to help retailers effectively merchandise plant material by examining better tags and labeling; better packaging and delivery; increased advertising assistance; pricing on pots, and point of purchase materials. Researchers also investigated the importance of plant attributes and store features including plant labels and signs; selection of products; knowledgeable staff; and healthy plant material as a way of improving marketing efforts within the horticulture retail sector (Behe and Barton, 2000; Brand and Leonard, 2001). In an effort to aid retail outlets, other studies have investigated plant quality and found it to be an important part of providing service quality by creating a competitive advantage within traditional retail garden centers. Plant quality accounts for 30% of the perception of service quality received at a garden center (Behe and Barton, 2000; Day, 1994).

Plant guarantees have been studied to examine methods of understanding customer motivations for shopping at garden centers. Niemiera et al., (1993) investigated information customers used when selecting plants. Consumers appear to find detailed information to identify and maintain plants, followed by an unconditional guarantee as most important. Behe and Barton (2000) found consumers expected retailers to provide healthy plants, label variety and names, and provide plant guarantees. Behe and Barton (2000) also found retailers were most challenged (largest gaps identified) in meeting customer expectations for the garden center's willingness to guarantee plants. Despite indirect measures showing plant guarantees were important to consumers, no one has explicitly quantified the effects of guarantees on a customer's perception of whether consumers will repurchase or stop buying plants based on their gardening experience. Using a survey approach, our goal was to evaluate the effect plant guarantees have on the

level of consumer satisfaction and regret experienced with three horticultural products: hanging baskets, perennials, and potted roses.

### *Guarantees*

Most consumers realize at least some risk is involved when they consider buying any product or service. Efforts to increase their success rate are made by evaluating salient characteristics and product attributes. Some may consider labels to select the right product for the right use. However, what occurs when products lack the cues to produce sufficient information to reassure the customer, who may lack some knowledge or experience, that their choice to buy was correct? Some products can only be evaluated after purchase (e.g., experience products) and are extremely vulnerable to unfavorable selections. This may inhibit or challenge consumers' choices because there is uncertainty of whether the product will perform as expected.

Kirmani and Rao (2001) explicated one solution for lowering the risk of experience goods was to use signals such as brand name, price, warranties, and money-back guarantees. These signals indicate a certain level of quality associated with the product and are costless to the retailer at the time of offering. Guarantees serve as a source of product (or retailer) differentiation, provide a means for decreasing risk with experience goods, and provide a supplement to signal quality attributes about the particular product (Moorthy, 1995). Money-back guarantees are short-term remedies that offer a full or partial refund in a short amount of time, usually less than 30 days. Guarantees are differentiated from warranties because the latter cover longer time periods (e.g., 3 to 5 years) and often are used for repairs or replacements and do not involve refunds. Although gardening plants can be categorized as "experience goods," money-



back or plant guarantees have not been prominently used or promoted in the retail horticulture industry.

The goal of this research was to examine the influence of plant guarantees on satisfaction and regret based on the actual experience associated with the product. Satisfaction was evaluated based on comparisons between performance and expectations. Regret was operationalized as a negative emotion that results after an undesirable appraisal of an event. Regret can be affected by intensity factors such as the degree to which the event is unexpected (Dennis et al., 2004a; Ortony et al., 1988). This study also examined the direct effects of satisfaction and regret on repurchase intentions. Repurchase intentions were measured as the consumer's willingness to buy again based on previous experiences with the same or similar product.

We hypothesized that the strength of the relationship for regret would decrease when guarantees were given for the three plants purchased (H1). Hypothesis two stated the strength of the relationship for satisfaction would increase when guarantees were provided (H2). Our final hypothesis stated that regret and satisfaction with the purchase of the three plants would have direct effects on repurchase intentions (H3).

### **Materials and Methods**

In September 2003, an Internet study was conducted by inviting individuals to take part in the survey based on an email database maintained by Survey Sampling, Inc. (Farfield, CT). The research study was approved by the Institutional Review Board for Protection of Human Subjects at Michigan State University prior to implementation. Potential respondents were asked to qualify themselves by responding to questions about whether they purchased certain types of ornamental plants suitable for gardening use.

Respondents qualified if they purchased one of three outdoor plants (hanging basket, potted rose, or 1 gallon perennial). The qualifying responses were submitted to a FilemakerPro database (Santa Clara, CA), which returned the email address of the survey only if the appropriate choices were selected. To prevent browsing back to “guess” the right response, the server placed a cookie in the respondent’s browser when the qualification denial was presented that prevented resubmission of the qualification form. Once qualified, the respondents completed the survey and almost all fields were required to be completed or an error message was generated. The last input on the survey was the respondent’s email address. In return for their responses, a \$5 e-coupon redeemable at Amazon.com was given as an incentive. A note indicating that their email would be secured and only used for correspondence about the honorarium was placed prominently near the input line.

18,666 individuals were invited to participate in the survey. The survey was closed after receiving 777 responses in five hours for a one-day response rate of 4%. The survey was terminated based on the criteria of costs for incentives and acceptable numbers for appropriate data analysis. After removing unusable surveys for incomplete responses, 743 remained. Participants ranged in age from 18 to 76 years with a mean age of 39 years. Participants were predominately (74%) female and had completed a mean of 15 years of education. Forty-one percent of the participants had completed 16 or more years of formal education, or the equivalent of a Bachelor’s degree. Fifty-eight percent of the participants had a 2002 household income of \$25,001 to \$70,000 with a mode of \$25,001 to \$50,000 (30%). Households included a mode of two persons (68.8%) with zero children (37.7%). Participants were from the entire U.S. population with 46%

responding from the Midwest region. The largest number of responses came from Illinois (18%), Ohio (17%), and California (17%). According to the National Gardening Association (2002), gardeners who participated in flower gardening were 46% female; with 51% between the ages of 35-44 and 46% between the ages of 45-54; had some college or were college graduates; 44% earned \$35-49,999; 43% were married with children.

Evaluation of reliability and validity of multiple measure constructs was performed using confirmatory factor analysis (CFA) and Cronbach's alpha. All constructs were measured with 7-point Likert scales. Satisfaction, regret, and repurchase intentions were measured using four items, each with alpha values of 0.95, 0.96, and 0.85 respectively. All reliability values exceeded Nunnally's (1978) lower threshold of 0.70 for such scales.

A CFA was conducted to assess the reliability and validity for the three constructs used in each model using Lisrel 8.5 (Jöreskog and Sörbom, 2003).

Only those respondents who experienced some amount of regret were included in the analysis, resulting in the use of 517 cases. We analyzed the structural model using Lisrel 8.5 (Jöreskog and Sörbom, 2003).

Six models were evaluated. Each horticultural product (hanging basket, 1 gallon perennial, and potted rose) was analyzed separately within two groups - those that had guarantees (G) and those that did not (NG). The fit statistics for the six models indicated a satisfactory fit for all models because the chi square to degrees-of-freedom ratios were within the appropriate levels and all goodness of fit measures met the appropriate

minimum levels except for adjusted goodness of fit index (Figure 1, 2, and 3) (Bagozzi and Yi, 1998).

## **Results and Discussion**

### *Gardening Enjoyment and Experience*

The mean for gardening enjoyment was 5.5 out of 7.0, indicating on average most participants liked gardening. Gardening knowledge and enjoyment were positively correlated ( $r = 0.64$ ) meaning as gardening knowledge increased gardening enjoyment would increase positively as well. Gender comparisons showed no difference between male and female respondents on the seven-point Likert scale measuring enjoyment (chi square = 8.19,  $p = 0.23$ ). However, the overall finding was consistent with that of Hardy's et al. (1999), who found that more female gardeners enjoyed gardening enjoyment and considered themselves plant experts than males.

### *Dollars and time spent in the garden*

We asked how much time and money was spent on annual and perennial plants in 2002. Answers ranged from 0 to \$101+ for both annuals and perennials, with a mode of \$21-30 (15.6%) for annuals and \$21-30 (14.3%) for perennials. The second most frequent response for annuals was \$11-20 (14%) and \$101+ (12.1%) for perennials. Expenditures on annuals and perennials were less than expenditures of \$74 on flower gardening reported for 2002 by the National Gardening Association. Respondents were also asked to identify how many hours per week they spent in the gardens in a typical month, with responses ranging from 0 to 10+ hours. The mode was 10+ hours (22.9%) with the next highest category at 3 hours (13.9%).

## *Guarantees*

We hypothesized that the strength of regret would decrease when guarantees were present (H1). The hypothesis was supported for hanging baskets only. When guarantees were provided for hanging baskets, the strength of the relationship decreased for the regret construct (Table 1). The perennial and rose models had different results showing an increase in strength for regret when guarantees were provided (Table 1). We also hypothesized that satisfaction would increase when guarantees were present (H2). This was supported for the hanging basket model (Table 1). The perennial and rose model again showed a different set of results as satisfaction decreased when guarantees were given (Table 1). Lastly, we hypothesized that satisfaction and regret had direct effects on repurchase intentions (H3). This was supported for hanging baskets (Figure 1). The level of regret and satisfaction experienced did affect consumers' likelihood to purchase again.

In the perennial model, satisfaction had a direct effect on repurchase intentions only when guarantees were not given (Figure 2). Findings suggest that when guarantees were not provided, intention to buy was negatively affected and consumers were not willing to repurchase from a retail outlet when the level of satisfaction experienced was questionable. These results also indicated consumers may view guarantees as necessities and see their function as neutralizing the effects of satisfaction when products fail to meet desires and no recourse is provided. Consumers may feel entitled to plant guarantees for gardening products because there are few industries that do not provide them. Regret had a direct effect on repurchase intention for the guarantee and no guarantee model indicating the level of regret experienced would be a considering factor in repurchasing

products in the future. These findings showed when no safety net was in place, any misfortunate circumstances may affect consumer' willingness to buy again.

Regret had a more isolating effect with potted roses only influencing repurchase intentions when guarantees were not given (Figure 3). This makes intuitive sense because those customers that experienced regret had a strong emotional response attributed to self-responsibility and had a need to redo or undo the situation. Those who had no safety net to fall back on would be less likely to repurchase once they experienced regret. Regret is a strong emotion that could affect the ability to repeat buying irregardless of a signal such as a guarantee and had an effect even when guarantees were not present. Regret is such a strong emotion that it leads to harsh consequences such as switching to another product (Dennis et al., 2004b) or the crippling ability to get customers to repurchase again.

### **Conclusions**

Independent retail garden centers have lost market share to mass merchandisers and home stores, but they remain among the top three types of retail outlets visited (National Gardening Association, 2002). Consumers may be looking for a way to differentiate and assess quality with "experience goods" such as gardening products. The potential to use plant guarantees to create this distinguishing characteristic may be an option. Future research should focus on the cost of guarantees to the retail establishment. This survey used a national approach to examine levels of consumer satisfaction and regret consumers experienced when plant guarantees were given to three types of gardening products. Consumers experienced stronger relationships with satisfaction and decreased strength of regret with hanging baskets when guarantees were provided for

plant material. This shows guarantees are influential and provide value to consumers when making decisions. Increasing value and decreasing the level of regret experienced is important because the behavioral consequence of regret is switching from the failed product. Two other products, roses and perennials, showed consumers may conceptualize guarantees to be a necessity item and experienced higher degrees of regret when guarantees were not presented as an option. The surprising results for perennials and roses indicated guarantees may not have the same effect for all products in the same way. Future research should also examine the effects of different products on guarantees. Independent garden centers may be able to maximize their competitiveness by positioning plant guarantees as a signal of excellent plant quality for selected plants.

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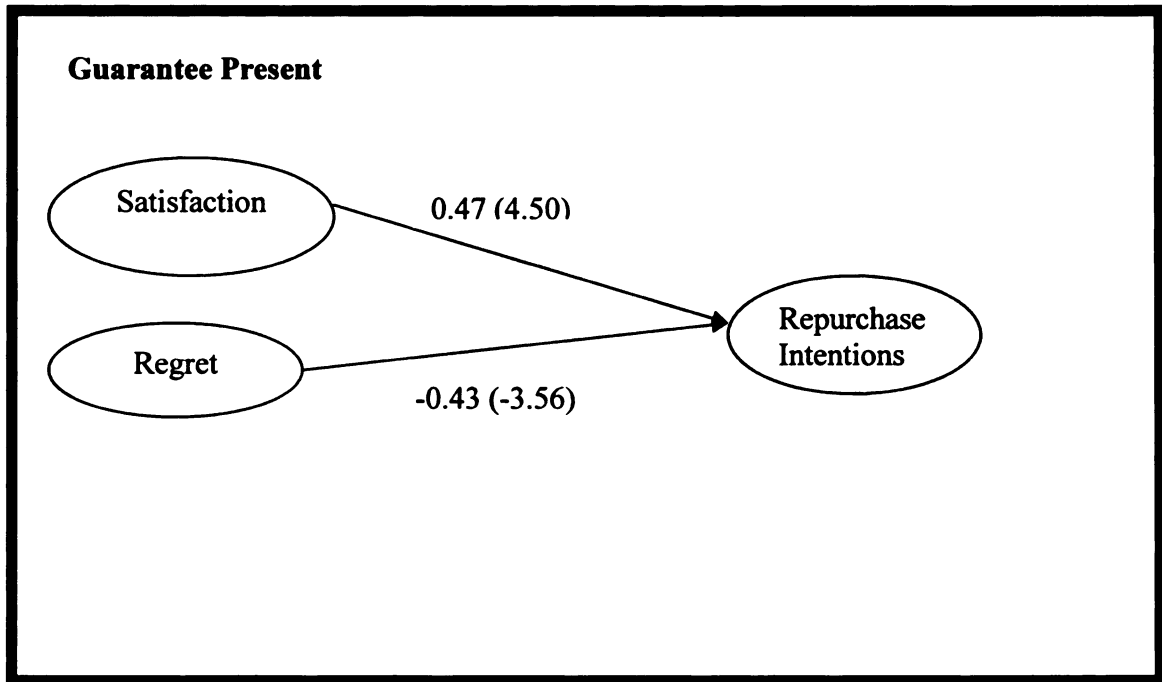
Table 1. Parameter values for Hanging Basket, Perennial, and Potted Rose models.

Path (hypotheses)	Coefficients (t values)		
	<i>Absent</i>	<i>Present</i>	<i>Change</i>
	<i>Guarantees</i>	<i>Guarantees</i>	
<b>Hanging Baskets</b>			
A. Regret to Repurchase Intentions(H1)	-0.93 (-8.99)	-0.43 (-3.56)	-
B. Satisfaction to Repurchase Intentions(H2)	0.25 (2.31)	0.47 (4.50)	+
<b>Perennials</b>			
C. Regret to Repurchase Intentions(H1)	-0.54 (-2.92)	-0.62 (-3.38)	+
D. Satisfaction to Repurchase Intentions(H2)	0.44 (2.37)	0.05 (0.52)	-
<b>Potted Roses</b>			
E. Regret to Repurchase Intentions(H1)	-0.79 (-3.12)	-1.12 (-1.64)	+
F. Satisfaction to Repurchase Intentions(H2)	0.09 (0.35)	-0.65 (-0.74)	-

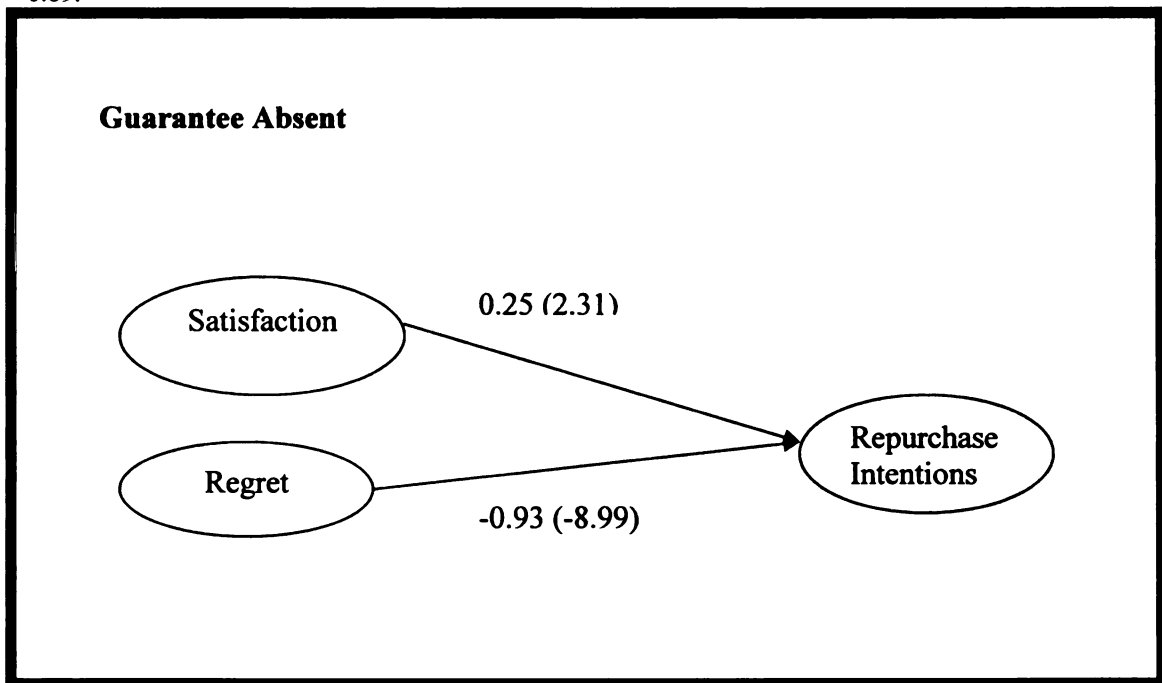
t values over 2.00 are considered significant.

t values over 2.00 are considered significant.

Figure 1. Satisfaction and regret models measuring the effect on repurchase intentions for hanging baskets.

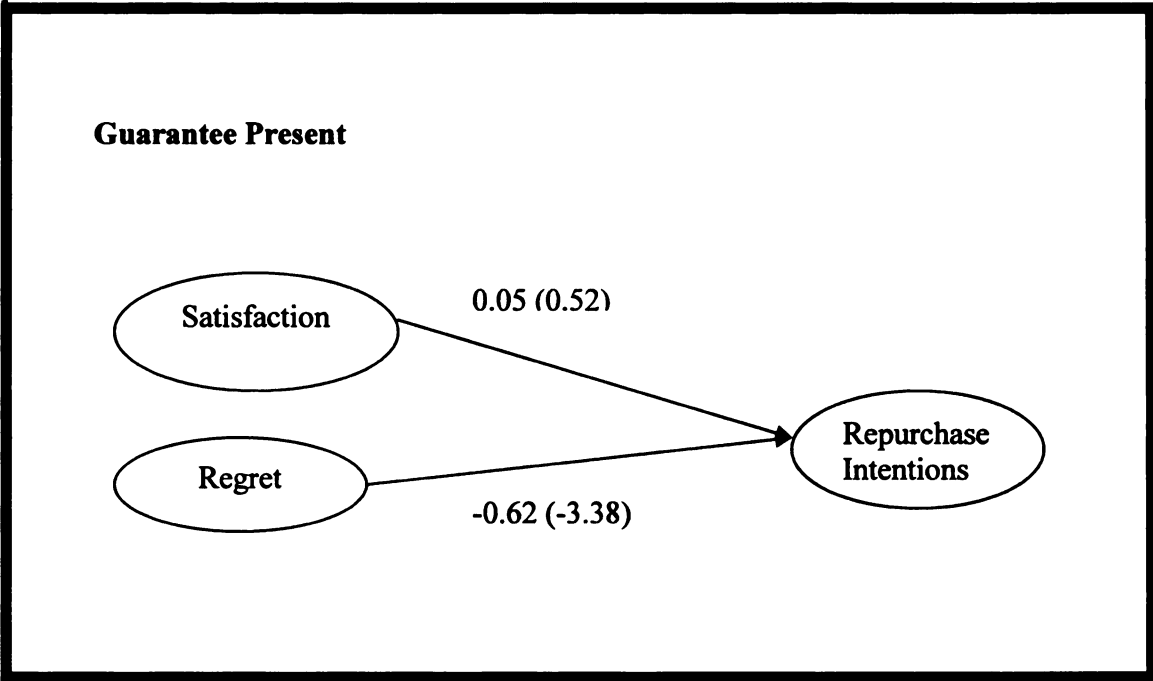


Statistics for the model:  $\chi^2 = 235.40$ , d.f. = 51, Root Mean Square Error Approximation (RMSEA) = 0.15, Normed Fit Index (NFI) = 0.95, Comparative Fit Index (CFI) = 0.96, Adjusted Goodness Fit Index (AGFI) = 0.69.

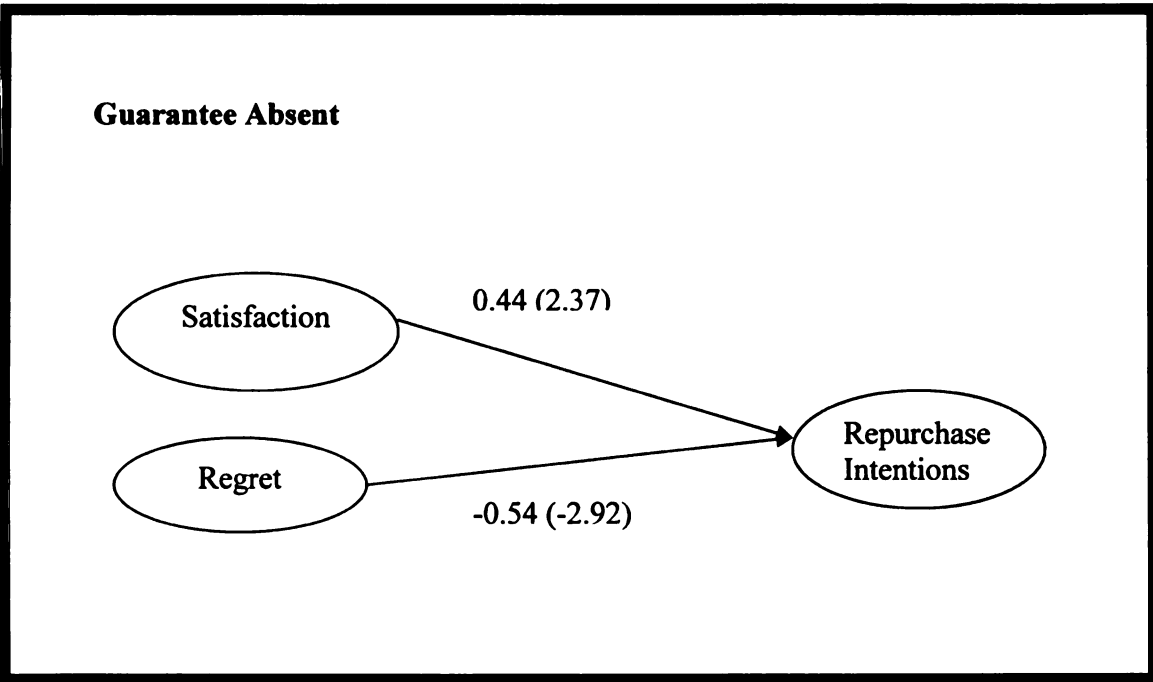


Statistics for the model:  $\chi^2 = 241.37$ , d.f. = 51, Root Mean Square Error Approximation (RMSEA) = 0.15, Normed Fit Index (NFI) = 0.93, Comparative Fit Index (CFI) = 0.93, Adjusted Goodness of Fit Index (AGFI) = 0.70.

Figure 2. Satisfaction and regret models measuring the effect on repurchase intentions for perennials.

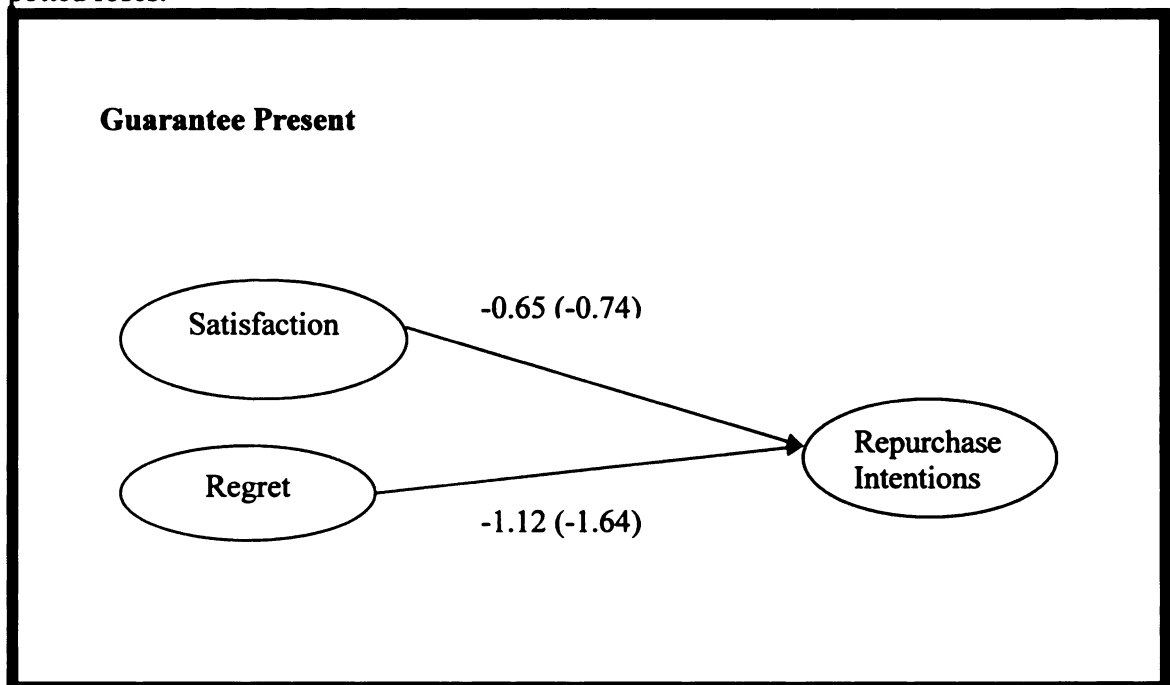


Statistics for the model:  $\chi^2 = 39.52$ , d.f. = 51, Root Mean Square Error Approximation (RMSEA) = 0.00, Normed Fit Index (NFI) = 0.95, Comparative Fit Index (CFI) = 1.00, Adjusted Goodness of Fit Index (AGFI) = 0.94.

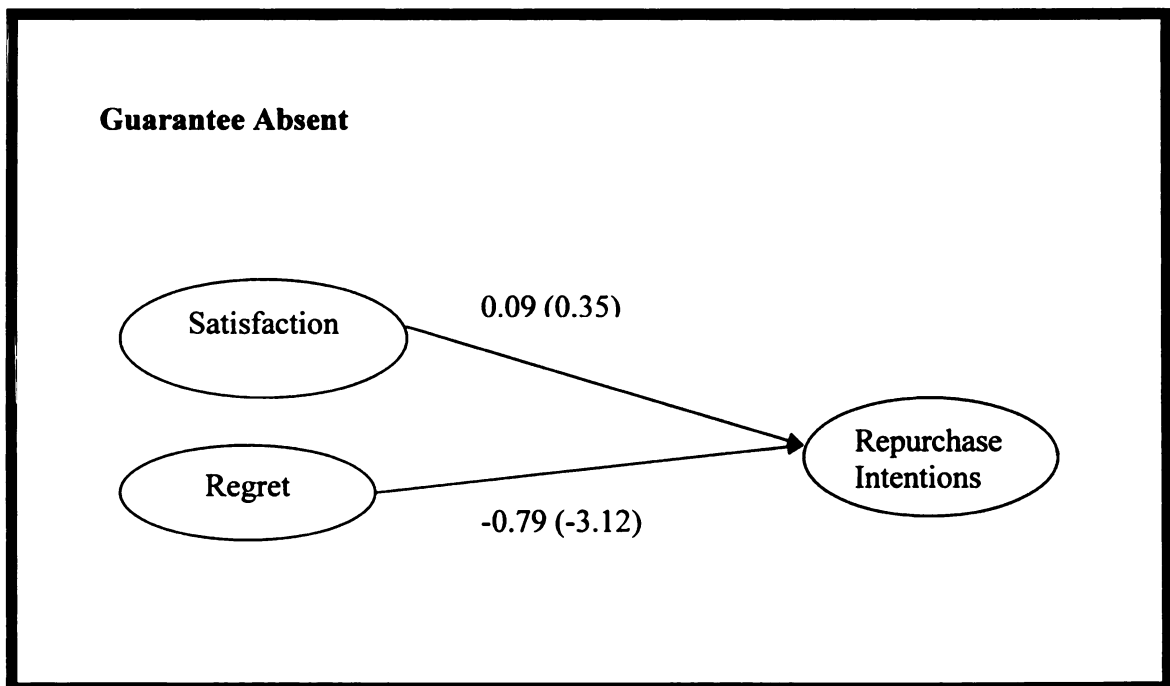


Statistics for the model:  $\chi^2 = 95.55$ , d.f. = 51, Root Mean Square Error Approximation (RMSEA) = 0.10, Normed Fit Index (NFI) = 0.96, Comparative Fit Index (CFI) = 0.98, Adjusted Goodness of Fit Index (AGFI) = 0.73.

Figure 3. Satisfaction and regret models measuring the effect on repurchase intentions for potted roses.



Statistics for the model:  $\chi^2 = 11.15$ , d.f. = 51, Root Mean Square Error Approximation (RMSEA) = 0.00, Normed Fit Index (NFI) = 0.98, Comparative Fit Index (CFI) = 1.00, Adjusted Goodness of Fit Index (AGFI) = 0.96.



Statistics for the model:  $\chi^2 = 50.15$ , d.f. = 51, Root Mean Square Error Approximation (RMSEA) = 0.00, Normed Fit Index (NFI) = 0.97, Comparative Fit Index (CFI) = 0.99, Adjusted Goodness of Fit Index (AGFI) = 0.82.

## **DISSERTATION CONCLUSION AND RESEARCH SUMMARY**

## **Dissertation Conclusion and Research Summary**

Regret is a powerful emotion that has an effect on consumers' willingness to buy again and may have repercussions for retail outlets. Regret was distinguished as a construct different from consumer satisfaction and was shown to behave differently when both were presented in the same model.

Based on the information presented in this dissertation, summary comments can be made about regret and the relationships with global variables (unexpectedness, arousal, and unexpectedness), consumer satisfaction, guarantees, and switching behavior. Regret had a positive direct relationship with unexpectedness. Proximity, or the time between the event and the appraisal, did not moderate the effects of unexpectedness and arousal on regret. Unexpectedness, or the degree to which the event was anticipated, did not cause higher levels of regret when the emotion occurred closer in time with the event. Consumers whose experience was unexpected may encounter an increased level of regret irregardless of proximal or distal times associated with the event. On the other hand, arousal did not directly affect the level of regret experienced and was not moderated by proximity to the event.

We showed that regret was a powerful construct affecting behavior of future interactions with horticultural products once the product failed. Participants of this study were more likely to switch products when regret was experienced. Although satisfaction had a direct effect on switching, regret mediated that relationship and became the driver of switching behavior.

Finally, guarantees have the ability to regulate the levels of satisfaction and regret experienced with certain products such as hanging baskets. Regret decreased and

satisfaction increased when guarantees were provided to consumers. For perennials and potted roses, the opposite effects were observed. Consumer satisfaction decreased and regret increased when guarantees were present. These results have the potential to show guarantees may be seen as necessities neutralizing the effect of remorse when something goes wrong.

Each manuscript from this dissertation has added to the existing body of literature on consumer satisfaction, regret, switching, cognitive appraisal theory, and guarantees.

The objectives of this dissertation included:

1. To test the framework of regret and its global variables (unexpectedness, proximity, and arousal);
2. To examine the moderating relationship of guarantees (irreversibility of the outcome) on regret, satisfaction, and repurchase intentions for three distinct horticultural products; and
3. To examine switching behavior associated with a negative outcome such as regret based on consumption with three gardening plants.

All objectives outlined in the dissertation preface were accomplished. This body of research not only contributed to the literature, but has practical applications extending to traditional retail outlets such as garden centers that strive to encourage repeat patronage. The goal is now to disseminate this information in a way that will reach academic and trade audiences.

Future researchers should extend research to include other emotions such as anger and its impact on consumer satisfaction issues. Likewise, understanding the mechanisms associated with redeeming guarantees including costs to the retailers would be a logical



next step. Testing of other garden plants and products would also be a logical next step for future research.

## **APPENDICES**

## **Appendix A**

**Survey instrument used for regret survey at Michigan State University  
24 September 2003.**

**Title of Survey:  
Gardening Purchasing Survey**

## GARDENING PURCHASE SURVEY

**All questions below refer to your purchasing and enjoyment of the plant(s) bought this season (2003 spring/summer) unless otherwise noted.**

Please choose one of the following products and answer the following questions based on that product.

☐ 14" hanging basket      ☐ 1 gallon perennial (any kind)      ☐ potted rose plant

**For each row, choose a number that most closely reflects how you felt about the performance of the above chosen product?**

<b>Very dissatisfied</b>	<b>Neutral</b>	<b>Very satisfied</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7
<b>Very displeased</b>	<b>Neutral</b>	<b>Very pleased</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7
<b>Frustrated</b>	<b>Neutral</b>	<b>Contented</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7
<b>Terrible</b>	<b>Neutral</b>	<b>Delighted</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7

**Based on your experience this summer, what are your feelings concerning the decision to buy the hanging basket, perennial or potted rose?**

<b>Regrettable decision</b>	<b>Neutral</b>	<b>Excellent decision</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7
<b>Many doubts about this choice</b>	<b>Neutral</b>	<b>No doubts about this choice</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7
<b>Sorry I made the decision</b>	<b>Neutral</b>	<b>Glad I made the decision</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7
<b>I should have chosen another</b>	<b>Neutral</b>	<b>My choice was correct</b>
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6	<input type="radio"/> 7

☐ Yes ☐ No

**Not a factor**                      **Neutral**                      **Definitely a factor**

⤵ 1    ⤵ 2    ⤵ 3    ⤵ 4    ⤵ 5    ⤵ 6    ⤵ 7

**Not a factor**                      **Neutral**                      **Definitely a factor**

⤵ 1    ⤵ 2    ⤵ 3    ⤵ 4    ⤵ 5    ⤵ 6    ⤵ 7

**Very low**                      **Neutral**                      **Very high**

⤵ 1    ⤵ 2    ⤵ 3    ⤵ 4    ⤵ 5    ⤵ 6    ⤵ 7

**Very low**                      **Neutral**                      **Very high**

☺ 1    ☹ 2    ☹ 3    ☹ 4    ☹ 5    ☹ 6    ☹ 7

**Very low**                      **Neutral**                      **Very high**

⤵ 1    ⤵ 2    ⤵ 3    ⤵ 4    ⤵ 5    ⤵ 6    ⤵ 7

Disagree Neutral Agree

1 2 3 4 5 6 7

**For each statement, choose a number that most closely represents your feelings on how easy or difficult your choice was to buy the plant material (this past season).**

Regarding your decision to buy (hanging basket, perennial or potted rose):

<b>Important decision</b>				<b>Neutral</b>			<b>Unimportant decision</b>
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7	
<b>Committed to the decision</b>			<b>Neutral</b>			<b>Not committed to the decision</b>	
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7	
<b>Many alternatives to what I purchased were available</b>						<b>Few alternatives available</b>	
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7	
<b>I was responsible for the decision</b>						<b>I was not responsible for the decision</b>	
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7	

Did you feel responsible for the performance of the hanging basket, perennial or potted rose?

<b>Someone else totally responsible</b>			<b>Equally my responsibility and someone else's</b>			<b>Totally my responsibility</b>
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7

Did you feel someone else was responsible for the performance of the hanging basket, perennial or potted rose?

<b>Someone else totally responsible</b>			<b>Equally my responsibility and someone else's</b>			<b>Totally my responsibility</b>
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7

**Based on your experience with the hanging basket, perennial, or potted rose you purchased this spring/summer, please choose a number that represents how you feel about the following statements. On a scale of 1 to 7, to what extent do you:**

Feel a sinking feeling about the plant purchase you made:

<b>Strongly agree</b>			<b>Neutral</b>			<b>Strongly disagree</b>
⌋ 1	⌋ 2	⌋ 3	⌋ 4	⌋ 5	⌋ 6	⌋ 7

Think that you made a mistake with your plant purchase:

Strongly agree

Neutral

Strongly disagree

1 2 3 4 5 6 7

Think about a lost opportunity because of the plant purchase that was made:

Strongly agree

Neutral

Strongly disagree

1 2 3 4 5 6 7

Feel like correcting your mistake with respect to the plant purchase:

Strongly agree

Neutral

Strongly disagree

1 2 3 4 5 6 7

Want to do something differently:

Strongly agree

Neutral

Strongly disagree

1 2 3 4 5 6 7

Want to get a second chance from your plant purchase:

Strongly agree

Neutral

Strongly disagree

1 2 3 4 5 6 7

Did you have control over your purchase?

Not at all under  
your control

Neutral

Completely under  
your control

1 2 3 4 5 6 7

Please answer the following questions choosing the number that most closely represents how you feel about the outcome of your purchase (how you felt about your purchase at the end of the season).

How desirable was the outcome or performance of the gardening plants (hanging basked, potted rose, perennial) you bought this spring/summer?

Not desirable at all

Neutral

Very desirable

1 2 3 4 5 6 7

**Not unexpected**                      **Neutral**                      **Very unexpected**

↪ 1    ↪ 2    ↪ 3    ↪ 4    ↪ 5    ↪ 6    ↪ 7

- ☐ Spring (April/May)
- ☐ Early summer (June)
- ☐ Mid-summer(July)
- ☐ End of summer (August/September)

Does not describe at all                      Describes somewhat                      Describes a great deal

1   2   3   4   5   6   7

Does not describe at all      Describes somewhat      Describes a great deal

1 2 3 4 5 6 7

Does not describe at all      Describes somewhat      Describes a great deal

1 2 3 4 5 6 7

None at all                      Neutral                      Very much                      No negative experience

1   2   3   4   5   6   7   0

Not much happier                      Neutral                      Much happier                      No negative experience  
 1 2 3 4 5                      6 7                      0



Please answer the following questions choosing the number that most closely represents how you feel about the retail store after your experience with the plant purchase.

I used the services of the store where the plant(s) were purchased less than before.

Increased Neutral Decreased  
1 2 3 4 5 6 7

I have switched to a competitor of the current store where the plant was purchased.

Strongly agree Neutral Strongly disagree  
1 2 3 4 5 6 7

I will use less of the services of the store in the near future.

Strongly disagree Neutral Strongly agree  
1 2 3 4 5 6 7

I will make use of the services of a competitor (another retail nursery, garden center, home store, mass merchandiser, etc.).

Strongly disagree Neutral Strongly agree  
1 2 3 4 5 6 7

I may make use of a more knowledgeable and perhaps more expensive competitor.

Strongly disagree Neutral Strongly agree  
1 2 3 4 5 6 7

After my experience, I did switch to another type of plant.

Strongly disagree Neutral Strongly agree  
1 2 3 4 5 6 7

I did switch to another plant type (and did not buy anything similar to the hanging basket, rose, or perennial originally purchased).

Strongly  
disagree

Neutral

Strongly agree

1 2 3 4 5 6 7

Did you buy a similar product (other garden plants) from the same store where the hanging basket, potted rose, or perennial was purchased?

☐ Yes ☐ No

Did you buy a similar product (other garden plants) because of a product failure with the potted rose, hanging basket, or perennial bought this spring/summer season?

☐ Yes ☐ No

Did you buy a similar product (other garden plants) from a competitor?

☐ Yes ☐ No

Did you buy from the competitor because of a product failure with the potted rose, hanging basket, or perennial bought this spring/summer season?

☐ Yes ☐ No

If you bought a similar product from a competitor, why didn't you choose the original store of the perennial, rose, or hanging basket?

Did you switch to another type of plant because of dissatisfaction or failure of the plant to perform?

☐ Yes ☐ No

Did you switch to another type of activity besides gardening because of dissatisfaction or failure of the plant to perform?

☐ Yes ☐ No

**Based on the past experience with the hanging basket, perennial, or potted rose you purchased this spring/summer, rate the likeliness that you would purchase the same product or similar products next year:**



Do you own your own residence? ☐ Yes ☐ No

Was this purchase:

Are you male or female? ☐ Male ☐ Female

In what year were you born?

How many years of formal education have you completed? (12 years = H.S. graduate)

What was your household income in 2002?

☐ Less than \$25,000 ☐ \$25,001-50,000 ☐ \$50,001-75,000 ☐ \$75,001-100,000 ☐ \$100,001-125,000 ☐ \$125,001-150,000 ☐ \$150,001 or more

Including yourself, how many adults (age 18 or higher) live in your household?

How many children (under age 18) live in your household?

What was the name of the retail store used to make this purchase?

What is your zip code?

**Enter your email address. Since this is the address to which the honorarium will be sent, please make certain it is entered correctly. Your email will not be shared, and it will only be used to verify and return your honorarium.**

**EMAIL ADDRESS:**

Thank you for completing this survey.

[Submit the Survey](#)

## **Appendix B**

**The University Committee on Research Involving Human Subjects approval form.**

**Research Title: Happy Customers Buy More: Improving Garden Center Customer Satisfaction By Understanding the Role of Consumer Satisfaction and Regret of Three Horticultural Products**

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**MICHIGAN STATE  
UNIVERSITY**

May 16, 2003

TO: Bridget BEHE  
A238 Plant & Soil Sci. Bldg  
MSU

RE: IRB# 03-383 CATEGORY: EXPEDITED 2-7

**APPROVAL DATE: May 16, 2003**

**EXPIRATION DATE: April 16, 2004**

**TITLE: HAPPY CUSTOMERS BUY MORE: IMPROVING GARDEN CENTER  
CUSTOMER SATISFACTION BY UNDERSTANDING THE ROLE OF  
CONSUMER REGRET AND SATISFACTION OF THREE HORTICULTURAL  
PRODUCTS**

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete and I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project.

**RENEWALS:** UCRIHS approval is valid until the expiration date listed above. Projects continuing beyond this date must be renewed with the renewal form. A maximum of four such expedited renewals are possible. Investigators wishing to continue a project beyond that time need to submit a 5-year application for a complete review.

**REVISIONS:** UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please include a revision form with the renewal. To revise an approved protocol at any other time during the year, send your written request with an attached revision cover sheet to the UCRIHS Chair, requesting revised approval and referencing the project's IRB# and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

**PROBLEMS/CHANGES:** Should either of the following arise during the course of the work, notify UCRIHS promptly: 1) problems (unexpected side effects, complaints, etc.) involving human subjects or 2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of further assistance, please contact us at (517) 355-2180 or via email: UCRIHS@msu.edu. Please note that all UCRIHS forms are located on the web: <http://www.msu.edu/user/ucrihs>

Sincerely,



Ashir Kumar, M.D.  
UCRIHS Chair



OFFICE OF  
**RESEARCH  
ETHICS AND  
STANDARDS**

University Committee on  
Research Involving  
Human Subjects

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AK: jm

cc: Jennifer Hall-DavisDennis  
A230 Plant and Soil Sciences

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