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Cognitive and emotional responses to point-of-purchase activities: An experiment using personal computers

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COGNITIVE AND EMOTIONAL RESPONSES TO POINT-OF-PURCHASE ACTIVITIES: AN EXPERIMENT USING PERSONAL COMPUTERS

by

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A dissertation submitted to the Graduate Faculty in Business in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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Abstract

COGNITIVE AND EMOTIONAL RESPONSES TO POINT-OF-PURCHASE ACTIVITIES: AN EXPERIMENT USING PERSONAL COMPUTERS

by

Richard E. Plank

Advisor: Dr. Leon G. Schiffman

This dissertation is concerned with the application of learning theory to point-of-purchase activities for personal computers.

The central aim of this study was to assess how learning theory could be used to develop point-of-purchase activities and test effectiveness of these activities. This assessment was made on the basis of a four-group, after-only with control group, field experiment in a retail department store involving 148 actual shoppers at a Monmouth County, New Jersey Mall.

The dependent variables used in the study were: (1) perceived attributes of the innovation (personal computers),

relative advantage, complexity, compatibility, trialability, and observability, (2) intention to buy, (3) measures of emotion, specifically: happiness, attention and surprise, and (4) a measure of skepticism.

Two moderator variables used in the study were: (1) knowledge of personal computers (held constant at a low level), and (2) arousal seeking tendency.

The manipulations in the study were computer disks of a learning experience which the respondent completed. The actual manipulations were: (1) control group, (2) fully overt, reinforced interactive exercise, (3) non-overt reinforced interactive exercise, and (4) non-interactive exercise.

Twenty-two (22) hypotheses were tested. Twenty of these hypotheses had both main and control effects. In general the main effects based on learning theory could not be supported. It was fairly clear, however, through examination of control group effects that giving a point-of-purchase trial was superior to no trial. Hypothesis twenty-one demonstrated that salesperson generated point-of-purchase trial requests were superior to sign generated requests in getting a trial. Hypothesis twenty-two demonstrated that a person's arousal seeking tendency had an effect on their intention to participate in point-of-purchase activities.

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As with any lengthy scholarly work, a lot of people contribute in one form or another to its completion. While it is not possible to acknowledge all of those who have supported me, it is possible to acknowledge those who have had the greatest impact.

First of all I would like to acknowledge my enormous debt to my major advisor and mentor Leon G. Schiffman. Of all the people who have shaped my career, Dr. Schiffman has had the most impact. Not only do I owe a tremendous intellectual debt, but Dr. Schiffman has provided the emotional support so necessary for the completion of doctoral studies. He has been a superb mentor in the truest sense of the word.

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An important contributor to this dissertation has been David Shaw, a tenth grade student at Scotch Plains High School in New Jersey. David programmed the learning disks which provided the manipulation for this experiment. Without his competent help the dissertation could not have been completed.

My wife Linda Plank has contributed to this process in ways far beyond that of a normal role expected of a wife.

Not only did she spend countless hours assisting in data collection, but she also helped shape the written document. Her influence is far more than strictly emotional support and I am lucky to have a partner with her gifts.

My parents, Enna S. Plank and the late Emil A. Plank, raised me in an environment where education was important, thus providing the imputus for my direction.

Finally to my children Gretchen, Heidi and Andy, I dedicate this work. They have suffered as children usually do, by the absence of their father, but I hope they will realize it was for their greater good.

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CHAPTER 1

INTRODUCTION

The introductory section of this dissertation will define the general problem to be examined, the specific research objectives and the relevance of the research to the development of marketing theory and practice.

Introduction to the Problem

Merchandising is considered a fundamental retailing function. Definitions vary from a very narrow focus on product mix selection, to a more general approach defining the term as the marketing process applied to the retailer. One definition of merchandising is: having the right goods, at the right place, at the right time, and at the right price, quality and quantity to satisfy consumer wants and needs. In this context merchandising addresses matching the what, when, how, and where of the product offering to the consumer. There are many research issues in this broad conceptualization including, retail location retail buying,

and retail pricing, among others. One topic, which has received minimal attention, but which appears more important and deserving of more effort, is point-of-purchase.

As might be expected, point-of-purchase has been defined from more than one perspective. Point-of-purchase (POP) is frequently defined as a promotional technique, more specifically advertising, which is positioned at the selling location. This should not be confused with point-of-sale (POS), which refers to specialized cash registers which gather and process sales data. Point-of-purchase has also been defined by Quelch and Cannon-Bonventre (1983) as being at the point of purchase or where the purchase will actually take place. These authors suggest that communication vehicles such as displays, packaging, sales promotion, in-store advertising, and salespeople comprise the point-of-purchase effort since each of these vehicles operates or can operate at the point of purchase.

The most comprehensive categorization of point-of-purchase as advertising has been suggested by Bolen (1984). He identifies nine types: on-premise signs, window displays, wall displays, cutouts, merchandise racks, display cards, audiovisual displays, vending machines, and the product itself. Within this perspective, point-of-purchase can be an advertising vehicle, but also may be part of the layout consideration, and has potential for important interactions

with in-store personal selling activities.

Given that the point-of-purchase function appears to be important to the retailer, it is surprising that there is only a minimal research tradition established. The Point of Purchasing Advertising Institute (POPAI) offers a number of research studies. With the exception of the POPAI/Dupont Drugstore Consumer Buying Habits Study (1984), these studies are narrow in scope. Woodside and Waddle (1975) have examined the effect of in-store advertising. Chevalier (1975) measured the impact of in-store displays on sales in a supermarket environment. This research paralleled and confirmed that of Curhan (1974). Dickson (1974) has demonstrated that by coordinating point-of-purchase displays with television advertising, substantial gains in effectiveness over stand-alone point-of-purchase could be obtained. Mckinnon, Kelly and Robison (1981) have tested the effect of different types of point-of-purchase signs such as price signs and benefit signs and their interactions. In addition, there are a number of references to point-of-purchase studies and normative articles in practitioner publications. The classic study in this vein was Progressive Grocer (1960).

Given the dearth of research in this topic area, many research options are available. Recent trends in point-of-purchase have been toward the use of audio-visual

and other technology based approaches (e.g. Marketing News 1981, 1983, 1984).

Lener (1984) discusses various sophisticated point-of-purchase technologies being used to sell technological products. He notes Epson's CAST (computer assisted sales tool) used to demonstrate software applications on Epson computers. Coles, the book chain, tried an AVCOR videotext based system, but discontinued the approach when it proved ineffective. There are a number of other systems, many of which are used to sell computers or computer related products. One of the most interesting is by Interactive Research and is being supplied to a group of twenty-three electronics retailers which are part of the Federated Department Stores group. The target for this point-of-purchase activity is first-time computer users who sit down at a personal computer and go through twenty minutes of programmed exercise. Another interesting point-of-purchase activity has been reported by Quelch and Cannon-Bonventre (1983). They describe the Atari ERIC system where the retailer asks the consumer a series of questions and, based on the answer, selects a series of audiovisual presentations for the consumer to view. It is interesting to note that with the Atari promotional tool the consumer is passive, while in the Interactive Research situation the consumer actually uses the machine rather than observing.

The limited research activity and reports of retailer use suggest that point-of-purchase activities are valuable. Since little research has been completed and the focus of that research has been narrow, there is little guidance for the retailer or manufacturer in developing an effective point-of-purchase program. This is especially true for those marketers who operate in environments other than the supermarket or drug store.

The current trend in the use of point-of-purchase is toward audio visual and technological approaches, some of which encourage interaction by the consumer. Typical audio visual displays are in Sears and can be seen at various home center stores such as Rickel and Channel which are chains in the New York metropolitan area. Given the research base and the apparent trends, this dissertation will be directed at a topic area not previously researched, but one that promises to be more important in the future.

A Pragmatic Problem Definition

At a pragmatic level the problem focuses on whether insights into point-of-purchase activities in particular situations can be developed from existing theoretical bases, which will then guide the practicing retailer.

The problem can be defined in terms of a particular set of situations that will be examined. It should be emphasized

that an essential assumption of this proposal is the extension of point-of-purchase from its very narrow research base as an advertising or signage issue to a much broader conceptualization, which is more properly defined as a specific set of activities or techniques practiced at the point of sale which support and reinforce other marketing and selling activities.

The specific product class that will be dealt with is the personal computer. Personal computers are relatively new products and while product life cycles for individual models tend to be short, the generic life cycle is expected to be lengthy and is currently in the very early growth stage. The particular retail setting will be a leased computer department of a major New York metropolitan retail department store chain. The actual location for the study is in a large mall with several anchors located in Monmouth Country, New Jersey.

The particular point-of-purchase technique to be tested will be the product itself. In practical terms, the issue becomes that of how computer manufacturers supporting a retailer or the retailers themselves, could best develop effective point-of-purchase programs. Most point-of-purchase tends to be non-involving in the sense that the person who comes into contact with the activity is a passive

participant. An alternative is to actually involve the person. This is not a new idea, tasting foods in a supermarket is an example of involving the potential buyer at the purchase location by using samples.

The effectiveness of interactive versus non-interactive point-of-purchase has not been tested. Since the product class being tested is a relatively new one, the problem can be expressed in terms of accelerating the diffusion of that product. While the dependent variable should be sales in one form or another, it is clearly not feasible for a number of reasons. One important point is that the product class is not likely to be an impulse purchase. As will be noted in the literature review, point-of-purchase research has used sales as the dependent variable because most research has dealt with easily purchased products which may be purchased on impulse. Thus, in order to use sales as a dependent variable a longitudinal research design with a relatively lengthy time frame is necessary. An alternative is to use intention to buy and measures of the perceptions of the innovation. These are, of course, cognitive measures which have significant research histories, although not in this context.

Most research into consumer behavior during the past fifteen years has been cognitive in approach and has assumed consumers rely on some sort of rational problem solving model

for decision making. Early work by Levy (1959) and more recent work by several authors including, but not limited to, Hirschman and Holbrook (1982), Holbrook (1980) and Holbrook and Hirschman (1982), have attempted to explore and define the role of emotions or affect in consumer decision making processes. While these attempts have been on a limited basis, compared to the traditions of emotion research in psychology, they have encouraged marketers to give more consideration to affect.

A recent paper by Williams and Slama (1985) suggests an involvement concept, which they define as emotional arousal, and argues for the potential of the concept in understanding consumer decision making. While not much is known about the effects of emotions on consumer decision making, a long and controversial history of psychological research in emotions is instructive and has noted the importance of emotions in most human activity. It seems reasonable, therefore, to suggest that point of purchase activities would impact on the emotional status of the individual. Also, we will probably find that this emotional status will be more important in consumer behavior activities to some people and/or in some product class or situation then will cognitive factors. Therefore, a second set of dependent variables, dealing with emotional arousal, will be developed for this dissertation.

A Theoretical Problem Definition

Theoretically the problem can be defined in terms of learning theory, which is integrated into a diffusion of innovations framework and linked to emotional arousal. Learning is an important concept for marketing, with Britt (1975) describing many applications of learning theory. Learning theory itself has a long history of theory building in psychology with a number of somewhat separate and competing theories of learning. The terms "inform" and "persuade" are commonly used in defining advertising and, as such, learning could be used to describe the effectiveness of such activities.

Two theoretical approaches to learning that are useful in the context being discussed here are: instrumental or operant learning theory, and cognitive theories of learning. Instrumental learning theory was originally developed by Skinner (1953). Nord and Peter (1980) and Peter and Nord (1982) have discussed the theoretical aspects in a marketing context within the rubric of a "behavior modification perspective". The concept of reinforcement and its various schedules allows the user to perceive the interactive point-of-purchase device within a reinforcement response framework and to suggest outcomes of the point-of-purchase activity.

Cognitive learning theory has several different competing theories, at least with respect to memory functions and the recall of memory. The most influential model appears to be Atkinson and Shiffrin (1968), which posits different types of memory storage systems; sensory stores, short term memory, and long term memory. Craik and Lockhart (1972) suggest a single memory model, but with different levels or depths of processing. They suggest that the degree of retention in memory of learning depends on the depth of processing. Craik and Tulving (1975) extend these notions by suggesting that the elaboration of coding used by the individual may be as important as the depth itself. A third theory, activation theory, has been suggested by Collins and Loftus (1975). This theory suggests that memory must be activated through stimulation and if not stimulated, the memory will die out. The last two theories suggest that if marketers can get the individual to process information at a deeper level, encourage them to be more elaborate in their coding, and insure activation, then learning, at least in terms of memory retention is apt to be greater.

The primary paradigm for examining the spread of ideas, including new products, has been the diffusion of innovation. Marketing has contributed about 10% of the total research in the diffusion of innovations area (Rogers, 1983). Most of this literature deals with the new product

diffusion process and related areas. An important concept is that of the rate of adoption of innovation. Rogers defines this as "the relative speed with which an innovation is adopted by members of a social system." (p. 232) Operationalizing the concept is generally in terms of how many members adopt in a particular time frame. Rogers suggests five sets of variables that may affect the rate of adoption; perceived attributes of the innovations, type of innovation decision, communication channels, nature of the social system, and extent of change agents' promotional efforts.

The perceived attributes of innovations represent a useful concept of measure learning in reference to a new product. There is a significant research history in terms of viewing the effect of these perceptions on the rate of adoption. While results are mixed (see Rogers 1983), they do in general weakly support the notion that how a person views an innovation affects his or her adoption of that innovation. In the marketing literature both Ostlund (1969,1974) and Hayward (1978) support the relationship.

Emotions also play a role in the adoption process, something that has not been recognized heretofore, and in fact may be one of the major weaknesses of the innovation adoption paradigm.

Emotional arousal has been defined by Williams and Slama (1985) as:

> "the degree to which a person becomes experientially, physiologically, and expressively caught up in the non-rational dimensions of the purchase/consumption process and with the symbolic and non-utilitarian aspects of the object of the purchase (product) as well." (p. 13)

This is clearly a rather complex view of what is meant by emotions, but then it does appear from reviewing the research on this construct that such an broad complex definition is warranted.

The work of Izard (1977) and various colleagues provides a theoretical and operational linkage for examining the effect of point-of-purchase on the development of emotional arousal and the effect of emotional arousal on ultimate purchase behavior. Obviously this perspective will not be able to operationalize the richness of emotional arousal as posited by Williams and Slama (1985).

The cause and effect relationship being suggested, that of specific types of point-of-purchase devices affecting the diffusion on an innovation is likely to be moderated by a number of a variables. A rich research tradition, from many disciplines, has examined a number of potential moderating variables in attempting to predict those people who would be innovators. Rogers (1983) summarizes and categorizes this

research into three sets of variables; socioeconomic characteristics, personality characteristics, and communication behaviors. Many of the results are ambivalent, while others are positive, but based on very few studies. Unfortunately, most of the studies have not verified the reliability nor made attempts to ascertain the validity of the measures used. Also, much of the research has been on an ad-hoc basis in that the choice of moderating variable has not had any theoretical support.

A concept that has received extensive research attention is that of product familiarity. Johnson and Russo (1984) have recently reviewed this literature and have further demonstrated the effect of familiarity upon consumer learning. Since product familiarity has a long history of recognition as a moderator variable in consumer behavior (e.g., Howard and Sheth, 1969), it seems as important and appropriate moderator variable on the relationship of point-of-purchase activities and the diffusion of innovation.

An additional variable of interest in this research situation is arousal seeking tendency. This is a personality construct as defined by Mehrabian and Russell (1974). They note consistent individual differences with respect to preferred amount of arousal. Since it is being suggested that point-of-purchase activities can effect emotional as well as purely cognitive response, it would be expected that

the degree of desired arousal will moderate on the emotional change effected by point-of-purchase.

Specific Research Objectives

From the brief statements of the problem, a more specific set of research objectives can be summarized as follows;

(1) To examine within the framework of operant learning theory, specific types of response reinforcement point-of-purchase interactions that might contribute to the development of positive perceptions of personal computers (learning) and thus potentially contribute to a faster adoption rate.

(2) To examine within the framework of cognitive learning theory, the concept of interactive versus non-interactive point-of-purchase activities and their likely contribution to developing positive perceptions of personal computers (learning) and thus potentially contribute to a faster adoption rate.

(3) To test the concept of interactive versus non-interactive point-of-pruchase activities in generating emotional involvement.

(4) To test the moderating effect of arousal seeking tendency on the affect generated by various interactive and non-interactive point-of-purchase activities.

Relevance of the Dissertation Research

The relevance of this research is both applied and theoretical. The research seeks to suggest directions for point-of-purchase activities, albeit in a limited setting. The setting involves expensive, not easily purchased products that are sold in various types of mass merchandise outlets, as well as specialty stores.

Since this is not a setting that researchers have considered in the past, it is hoped that this examination will spur future researchers to consider more of the issues involved with this type of setting. In addition, the assumptions inherent in the research seek to broaden the conceptualization of point-of-purchase and suggest that point-of-purchase activities may be more effective in numerous settings not being considered now.

This research is an application of theory to a practical problem, much like Calder and Tybout (1981). It will attempt to demonstrate how application of theory to practical problems can provide insight into solving those problems.

Finally, by dealing with emotional aspects of the point-of-purchase process, it is hoped that this will stimulate more research into the role of emotion in buying behavior and the effect of promotional efforts such as point-of-purchase in generating positive emotional feelings.

Especially relevant to this work is the concept of retail atmospherics and the effect of in-store activities on the development of an atmosphere.

Conclusion

The remainder of this dissertation will have six additional chapters. Chapter two will be a brief conceptual exposition of the research model that was employed and will provide the framework for the literature review. Chapter three will follow that model and review the literature relevant to the research. Chapter four will synthesize that literature and develop theoretical and operational definitions that lead to specific hypotheses. Chapter five will describe the research design. Chapter six will provide results in the form of descriptions of the sample and tests of the hypotheses as well as reliability and validity considerations. Chapter seven will draw conclusions and suggest future research.

CHAPTER 2

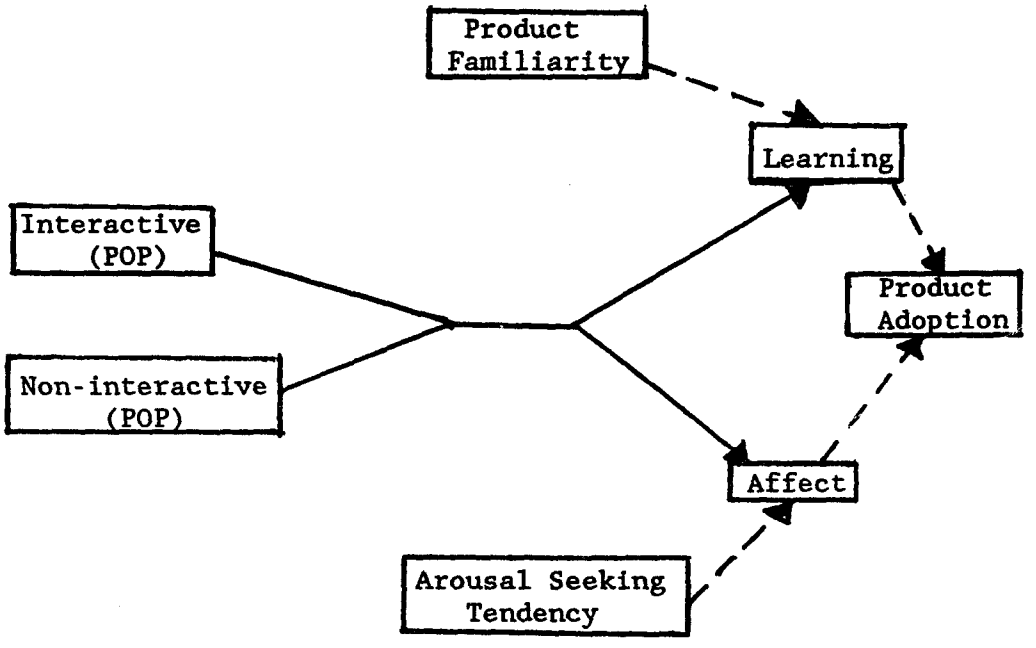
RESEARCH MODEL

The Research Model

The literature review and subsequent development of hypotheses for this dissertation are organized in terms of the research model illustrated in Figure 2-1 below.

Figure 2-1

Point-of-Purchase Research Model



As noted in the introduction, a primary goal of this dissertation is to demonstrate how theoretical perspectives from learning theory, diffusion of innovations, and emotion can be integrated to generate a solution to a practical problem. That practical problem concerns itself with how retailers and manufacturers of personal computers can develop point-of-purchase activities to help sell their products.

Briefly, point-of-purchase activities encompass more than just advertising signs. In this research the product itself and a floppy disk programmed to provide a particular manipulation serve as the point-of-purchase activity. There were three types of activity, two of which were interactive point-of-purchase and one which was non-interactive.

It is hypothesized that these point-of-purchase activities will provide a learning experience for the user. This was measured in terms of the perceptions of the attributes of a personal computer and the intention of the respondent to buy the product. These are essentially attitude measures.

These point-of-purchase activities will also provide some emotional affect to the respondent going through the learning experience. Emotional affect or arousal is defined and measured following the work of Izard (1977). It is hypothesized that emotional affect will impact on the cognitive learning that is taking place.

The learning that takes place will be moderated by product familiarity. The more familiar the person is with the product, the more apt he/she is to have strongly developed perceptions and the more difficult they will be to change. In addition, people with more knowledge would have to be given point-of-purchase activities different from those given to a computer novice.

The degree of affect the person feels when undergoing the point-of-purchase activity will be moderated by that person's need for emotional stimulation, defined as arousal seeking tendency.

Ultimately, the learning will result in some decision with regards to product adoption, at least for a large portion of the potential adopters. It may well be to purchase the product or not and learning may speed up the process.

Thus the major areas of literature review will encompass point-of-purchase, learning theory, diffusion of innovation and particularly perceptions of innovation attributes, emotion or affect, product familiarity, and the personality trait known as arousal seeking tendency.

The actual research undertaken here will deal with those concepts and relationships in Figure 2-1 that are connected by solid lines. The dotted lines represent relationships

that are not tested in this dissertation, or a relationship that is being not being manipulated; i.e. the effect of product familiarity on cognitive processes.

CHAPTER 3

LITERATURE REVIEW

Introduction

The following literature review will have six parts. The first will examine research related to point-of-purchase activities. The second part will examine learning theory relevant to the theoretical development contained in this research. The third will detail the diffusion of innovation literature with special emphasis on the issue of perceptions of the attributes of an innovation. The fourth part will be a review of the concept of emotion, with emphasis on the differential emotions theory of Izard (1977), and discussion of related measurement of moods by Nowlis (1965, 1970). The fifth issue to be dealt with will be the concept of product familiarity. The last will be the work of Mehrabian and Russell (1974) in the area of arousal seeking tendency. The purpose of this literature review is primarily to provide a

description of the major work that led to the development of the model illustrated in Figure 2-1. The integration of the concepts will occur during hypothesis development and a thorough discussion of measurement is contained in the operationalization chapter.

Point-of-Purchase

As already noted, point-of-purchase is a neglected area of research. It has not been ignored by practitioners, however. A recent (1982) estimate in the Marketing News (1983) noted total industry sales exceeded $4.4 billion for point-of-purchase. Bolen (1984) states that point-of-purchase is usually defined as an advertising form or media vehicle, but is also known as dealer displays, point-of-sale displays, and dealer aids. Bolen (1984) also defines point-of-purchase as an advertising media vehicle and classifies nine different types. Since all of the empirical research has dealt with point-of-purchase from this perspective, this definition will be utilized rather than the Quelch and Cannon-Bonventre (1983) approach which is somewhat broader in scope, incorporating all activity at the point of the sale including personal selling activities.

Types of Point-of-Purchase

The types of point-of-purchase are classified by Bolen (1984) as follows: (a) on-premise signs, (b) window displays, (c) wall displays, (d) cutouts, (e) merchandise racks, (f) display cards, (g) audiovisual, (h) vending machines, and (i) the product itself.

On-premise signs refer to identification types of signs, usually on the outside of the building. Window displays refer to the displays usually seen in an outside window of the building in which the business is located. Wall displays refer to items such as menu signs, clocks, or other types of wall decorations that have advertising value. A cutout is an aisle display that can be put together by the field representative or retail personnel for promotional purposes. These are not likely to be permanent. A merchandise rack is apt to be more permanent and allows the retailer to take the merchandise out of a normal display pattern in the store The hosiery racks of L'eggs are typical examples. Display cards are probably the most common point-of-purchase device These are signs which bring attention to the product and are the focus of most point-of-purchase research.

Audiovisual displays are one of the newest techniques and involve having a taped presentation, usually of the product

in action, that the consumer can watch. In one reported study for K-Mart, using audiovisuals to sell sporting goods, sales increased 251% (Marketing News, 1981). Vending machines can also be viewed as a point-of-purchase device with the machine itself acting as a display device. Lastly, the product itself can function as its own point-of-purchase device as will be demonstrated in this research.

Point-of-Purchase Research

Research into point-of-purchase and its effectiveness can be examined in terms of two categories. The first category is research sponsored by the industry and/or which appears in industry trade magazines or general practitioner publications. The second category is academic research which has been published in scholarly journals.

The trade organization for the point-of-purchase industry is The Point of Purchase Advertising Institute, known by its acronym POPAI. POPAI lists about 18 research reports, bulletins, and studies for sale. these include studies of retailer attitudes toward point-of-purchase, particular campaigns, trade practices, and the effects of motion displays in various situations. One of the studies (Dickson 1974) has appeared in the academic literature.

POPAI, in conjunction with Dupont, has also sponsored studies on consumer buying habits in supermarkets and drug

stores--two retail environments with heavy point-of-purchase usage. POPAI has also used the various trade papers and magazines to good effect in reporting research results. Higgins (1983) reports on a study by POPAI that ranked advertising media in cost per thousand (CPM) and noted that point-of-purchase ranked third lowest in cost, behind only 3x5 metal outdoor signs and metal curbstand signs. All other forms of advertising in the comparison had higher costs per thousand. At least twenty similar articles have appeared in the practitioner press in the past five years.

There are also a number of classic trade press articles dealing with point-of-purchase. An article in Advertising Age (1961) called for research into effectiveness of point-of-purchase. Printers Ink (1958a,b) ran two articles on point-of-purchase effectiveness. Progressive Grocer (1971) details how in-store merchandising can boost sales.

Academic research in point-of-purchase has been minimal, most of it following the conceptual and methodological framework of the work on shelf space and sales relationships. Research on shelf space and sales has been done by a number of authors including Cox (1964, 1970), Burgoyne and Johnson (1968), Kotsan and Evanson (1969), and Curhan (1970, 1971) among others. Much of this work has been reviewed by Doyle and Gidengil (1977) who note many of these in-store experiments suffer from methodological problems and

that the results often conflict between studies.

Primary research relating directly to point-of-purchase has been conducted by Curhan (1974), Dickson (1974), Woodside and Waddle (1975), Chevalier (1975), and McKinnon, Kelly and Robison (1981). In addition, Quelch and Cannon-Bonventre (1983) have surveyed the point-of-purchase field from a conceptual viewpoint.

Curhan (1974), though not looking directly at point-of-purchase, conducted a fractional factorial field experiment that manipulated retail price, newspaper advertising, display space, and display location quality. He found affect variation over products, which were different types of fruits and vegetables. This finding has since been generalized over more of the merchandising function including point-of-purchase .

Dickson (1974) designed a Latin square experiment to test the synergy of point-of-purchase and television advertising. It was hypothesized that those point-of-purchase treatments which coordinated with television advertisements would be more powerful than those that were not. A field experiment was conducted in supermarkets using end-aisle displays with three different products. Copy was the same for each treatment, but by using different visual effects, point-of-purchase was coordinated with television advertisements After a pretest to select point-of-purchase

treatments, the actual test consisting of four treatments took place. Treatment one was no display/shelf sales only. Treatment two was a display with non-television-related point-of-purchase. Treatment three was a display, but with no point-of-purchase sign. Treatment four had television-related point-of-purchase. The results indicated that treatment four was the best in terms of sales generation, more than 15 percent better than treatment three (no point-of-purchase). Treatment one, no display, was only about 35 percent as effective as treatment four (television-related point-of-purchase). The results demonstrate the value of point-of-purchase, especially when it could be coordinated with other promotion, in this case television.

Woodside and Waddle (1975) examined the effect of point-of-purchase on sales in conjunction with price effects. A Latin square field experiment was designed with four stores and four weekly time periods using instant coffee as the product examined. The authors hypothesized that point-of-purchase effects were stronger than price effects, i.e. a price discount, and that together the two created a synergistic effect. The results of the study supported the hypotheses.

Chevalier (1975) conducted an in-store field experiment of point-of-purchase effectiveness in supermarkets with eight

product classes and two products per class. Using a factorial design, Chevalier tested point-of-purchase effectiveness by manipulating a number of factors. He divided product categories into mature or growth, price cuts were manipulated at 6 percent or 12 percent, and individual products were either leaders or followers in the market. The results noted wide differences between product groupings as different product classes had better or worse response to point-of-purchase. Growth products tended to respond less to point-of-purchase than did mature products. The level of price discount, 6 percent or 12 percent, had no effect.

McKinnon, Kelly, and Robison (1981) undertook an expanded replication of the work of Woodside and Waddle (1975) by concentrating on in-store signage. The authors sought to determine whether price-only signs and descriptive benefit signs were equally effective and under which conditions. The major condition tested was that of regular price versus a sale price. A balanced, randomized block design was utilized with six products (clothing and bath towels) in a national chain department store. In general, they found that benefit signs were better than price signs, which were better than no sign at all. Sale conditions generally made for greater magnitude of the effects.

Quelch and Cannon-Bonventre (1983) conceptualize point-of-purchase as the use of various communication

vehicles at the point of purchase. While they discuss the use and development of displays, the main thrust of their discussion is in implementing a set of communication vehicles at the point of purchase in a consistent manner.

This concludes the review of research on point-of-purchase. In summary, little is known, and there has been little theory building in the area. Most of the academic research has focused narrowly on signs for easily-purchased consumer goods. Broader conceptualizations of point-of-purchase have been offered by Bolen (1984) and Quelch and Cannon-Bonventre, (1983) but for the most part there has not been serious research from a broader perspective. The weight of practitioner evidence seems to indicate that there are positive results when using in-store point-of-purchase activities. There is limited empirical evidence suggesting point-of-purchase, as narrowly defined, interacts with other advertising and marketing efforts, but numerous case studies attest to this. Haugh (1977) note that the average supermarket had 63.5 end aisle displays and 159.9 other merchandise displays, indicating the extent of these practices within that setting.

From a theoretical perspective, Woodside and Waddle suggest an exposure hypotheses and a comparison process hypothesis as two complementary rationales for explaining the efficacy of in-store advertising. McKinnon, Kelly, and

Robison (1981) suggest information processing theory as a rationale. Both of these suggested theoretical explanations are based on learning theory. Since advertising in general has as its fundamental goal learning of some type, a review of learning theory follows.

Learning Theory

It is commonly acknowledged that learning is a subject of extreme importance to the marketer. Schiffman and Kanuk (1983) define consumer learning from a marketing perspective as "the process by which individuals acquire the purchase and consumption knowledge and experience they apply to future related behavior" (p. 173).

From a psychological perspective, learning has a long history of theoretical development. There are literally dozens of perspectives, with perhaps four or five major theoretical approaches dominating the field. Marketing and consumer behavior generally rely on classical conditioning, instrumental conditioning, and cognitive learning theory. Of the three, cognitive learning theory, with its focus on some sort of problem-solving behavior, has been the primary focus. This dissertation will use both instrumental conditioning and cognitive learning theory, hence both will be reviewed.

Instrumental Conditioning

Instrumental conditioning or learning, also called operant conditioning, refers to the acquisition of a response which is traditionally under the control of the individual. Learning occurs through the association of an outcome or consequence (reinforcement) of emitted behavior with that behavior. By natural extension, the term reinforcer has come to be used to refer to those outcomes whose presentation increases the probability of a particular response. This presents a problem in that the presentation of some reinforcers may suppress the response. As a result, a scheme for classifying reinforcers based on their effect on response and their addition or removal, has been developed. Four categories are developed: positive reinforcement; negative reinforcement; positive punishment; and negative punishment.

A positive reinforcer is a stimulus which, when presented following a response, increases the probability of that response. A negative reinforcer is a stimulus which, when removed following a response, increases the probability of that response. A positive punishment refers to the delivery of a negative reinforcer after a response, thus decreasing the probability of the occurrence of that response Negative punishment is the removal of a positive reinforcer after a response, thus decreasing the probability of the occurrence

of that response. Thus the positive condition implies the addition of an event whereas the negative condition involves the removal of an event. Reinforcement is the increase of the probability of the occurrence of a response and punishment is the decrease in the probability of the occurrence of a response.

Reinforcement can be administered on different schedules. Five general schedules exist, one of which is continuous, the other four are partial. A continuous schedule provides reinforcement after each response. The partial reinforcement schedules are; fixed ratio, variable ratio, fixed interval, and variable interval On a fixed ratio schedule, reinforcement is provided after a fixed number of non-reinforced responses. Variable ratio schedules involve a variable number of reinforced and non-reinforced responses around a fixed mean The interval schedules are similar except that time rather than response is the criterion used to establish the pattern.

Instrumental Conditioning Research

There is a long and rich history revolving around the instrumental conditioning paradigm. Most of the research is based in a laboratory and uses animals. A typical simplistic scenario is to have some animal negotiate a maze or other device a number of times and measure results based on the

number of times the animal gets through the device in a specific way. Learning has been found to occur most rapidly under conditions of continuous reinforcement. However, this learning appears to be maintained for a longer period of time after reinforcement is removed, when learning has occurred under partial reinforcement.

A review of the marketing literature reveals about five articles which in some manner apply instrumental conditioning to marketing. Three of these articles; Nord and Peter (1980), Rothchild and Gaidis (1981), and Peter and Nord (1982), are conceptual. Two articles by Carey, et al. (1976) and Deslauries and Everret (1977) are empirical

Nord and Peter (1980) use the term "behavior modification perspective" to describe a focus on the manipulation of environmental factors in order to influence behavior. They review the literature in marketing and suggest that behavioral modification techniques have been little used in marketing theory building and research. They also note four behavior modification techniques; respondent conditioning, operant conditioning, vicarious learning, and ecological design. These are defined and some applications to marketing are discussed. Regarding operant conditioning, the issues of reinforcement, shaping, and discriminative stimuli are discussed. The authors call for more research, either

historical or experimental, to assess the effectiveness of reinforcers as marketing tactics.

Rothchild and Gaidis (1981) define behavioral learning theory as operant conditioning. They suggest that in high involvement situations where cognitive activity is high, behavioral learning theory does not apply but that it is appropriate for low involvement purchasing situations. They also review the promotional effects of various tools as predicted by behavioral learning theory, self perception theory, and the consumer franchise-building model. The authors go on to suggest a number of research areas and questions which behavioral learning theory could enlighten They conclude by noting that their primary position is that behavioral learning theory can provide a number of insights into buying behavior and provide normative direction for those situations that are low involvement in nature.

Peter and Nord (1982) respond to Rothchild and Gaidis by stating that the latter's discussion of behavioral learning theory does not correctly interpret the long history of the concept of operant conditioning. They also suggest that high involvement situations can also be modified by operant conditioning techniques.

Empirical work in this area is minimal. Carey, et al.(1976) found that significant increases of sales in a

jewelry store were due to the positive reinforcement of a follow-up telephone call. However, the research design can be faulted on several counts. Deslauries and Everret (1977) tested different reinforcement schedules on bus ridership. They found that by giving rewards on a variable-ratio schedule, the same number of responses could be obtained as with continuous reinforcement.

Cognitive Learning Theory

Whereas instrumental conditioning suggests that learning takes place as a result of repeated trials with the brain playing a passive role, cognitive learning theory suggests that learning takes place as a result of the organism actively engaging in problem-solving mental activities. Thus instrumental learning assumes the organism cannot control, while cognitive learning assumes the organism has a degree of control or at least attempts to control its environment. Most cognitive learning researchers attempt to understand how the mind processes information as the major thrust of their research theorizing.

Bettman (1979a) has attempted to develop a comprehensive theory of consumer information processing related to consumer choice. Bettman (1979b) also notes in a review article the extensive role memory plays in information processing and therefore consumer choice. Schiffman and Kanuk (1983) note

four processes that are essential for understanding the role of memory; rehearsal, encoding, storage, and retrieval. The entire information processing concept and its view of the memory process are the subject of three somewhat differing theories. These three theories developed by Atkinson and Schiffrin (1968), Craik and Lockhard (1972), and Collins and Loftus (1975) will be briefly reviewed.

Three Cognitive Theories of Learning

The view that has been best received by marketing researchers is that of Atkinson and Schiffrin (1968). They suggest that the human memory is composed of separate storehouses; a sensory store (SS), a short-term store (STS), and a long-term store (LTS). Bettman (1979b) summarizes the theory as follows:

> In the basic processing sequence, information passes from the sense organs to the appropriate sensory store which is hypothesized to be very short lived, losing information within fractions of a second unless the information is further processed (i.e. unless attention is allocated to the stimulus). If the information is attended to and processed, it is transferred to the STS. The STS has a limited capacity and information can be kept active in it by further processing. Information which is active in the STS can be retrieved quickly and almost automatically. Information in the LTS may be brought into the STS as needed to interpret the input information. Thus the STS is the locus of current processing activity, where information from the sense organs and long term memory can be brought together and processed. Finally, a portion of that information, if adequately processed...can be transferred to the LTS which is hypothesized to be essentially unlimited in capacity and a permanent repository of information.

Bettman also notes that the notion of separate stores should not be taken literally as if there were several distinct physical locations as such. The multiple store theory refers to separate functions, not separate physical locations.

Craik and Lockhard (1972) suggest a single memory, but with different levels of processing. They suggest that processing can be at a very simple sensory range or advance in complexity to relating information to memory or seeing how information relates to existing beliefs. It is suggested that the deeper the processing, the greater the retention in memory. Craik and Tulving (1975) have advanced this theory by suggesting that the spread of processing, meaning the degree of elaboration of coding, is even more important than the depth issue. Bettman (1979b) reviews the criticism of this model and suggests that its major flaw is that the concept of depth of processing has not been, and may not be, operationalized properly. In this case Bettman is alluding to the issue of developing theories that may not be testable.

A third theory is the activation theory which suggests a single memory store, only a portion of which can be used, and that some activation mechanism must be present in order to use it. A general model of this type has been presented by Collins and Loftus (1975), and there have been several other similar approaches and/or minor extensions of the idea.

While there are three distinct theories of memory and information processing, they are really not all that different. Bettman (1979b) notes that if one ignores the issue of physically separate areas of memory (Shiffrin and Atkinson, 1969) as has been suggested, and treats the Atkinson and Shiffrin (1968) model as functions, all of the models can be viewed as activation models. What is also consistent among the models is the idea of a limited short term storage.

Diffusion of Innovation

As already noted, the literature on diffusion of innovation is broad in terms of the disciplines which have used the paradigm. Much of this research has focused on the prediction of the rate of adoption of some innovation. Rogers (1983) has suggested that there are five sets of variables that affect the rate of adoption: the perceived attributes of the innovation, the type of innovation decision, the communication channels used, the nature of the social system, and the extent of change agents' promotional activity.

This literature review will concentrate on the issue of perceived attributes. Change agent effort will also be discussed briefly since the research being conducted here really concerns itself with the interaction of change agent

effort, point-of-purchase, and perceptions of the attributes. Change agent effort leads to changes in perceptions of the attributes of personal computers and this eventually leads to changes in adoption rates. In effect the independent variable, perceptions of the attributes, is a dependent variable in this research. Point-of-purchase activities are the change agents in this study.

The rate of adoption has been defined by Rogers (1983) as "the relative speed with which an innovation is adopted by members of the social system" (p. 232). For the typical marketing manager this translates into ensuring the newly introduced product is tried and purchased by all possible users. It can also be thought of in terms of getting a product into the mature stage of the product life cycle as quickly as possible. The concept of the rate of adoption as a dependent variable will not be central to this research, and in fact is not specifically tested as noted in Figure 2-1, but underlies the conceptualization being developed.

Perceived Attributes of Innovations

There are five general perceived attributes that affect the diffusion process. Each will be defined and examined in turn, with the research evidence as reviewed by Rogers (1983) providing for limited generalizations.

The first perceived attribute to be examined is that of relative advantage, which can be defined as the degree to which an innovation is perceived as being better than the one it replaces. Even truly new innovations usually replace something else. In general, relative advantage has been found to be a strong predictor of the rate of adoption. In many studies it has been the single most important attribute.Rogers notes a generalization: the higher the degree of perceived relative advantage, the higher the rate of adoption. He notes that in 43 studies this generalization has been supported 29 times, or 67 percent of the time. One problem for both practicing marketers and those researchers trying to draw generalizations is that the concept is clearly multidimensional, and that different dimensions may be important to different people and/or at different times or situations.

Compatibility of an innovation is the perception that the innovation is consistent with the values, experiences, and needs of the potential adopter. It, too, is a multidimensional concept. Rogers suggests that the greater the degree of compatibility, the greater the rate of adoption. He cites 27 studies with eighteen, or 67 percent, supporting the generalization. It should be noted that the concept of lifestyle as used in a marketing context captures much,

though not all, of what is meant by the multiple dimensions of compatibility.

Complexity is the degree to which an innovation is perceived as being too difficult to use or comprehend. In general, it would be expected that the greater the perceived complexity, the lower the rate of adoption. Rogers notes that this generalization appears to be weaker than others with nine of sixteen studies, or 56 percent, supporting it.

Observability refers to the perception by the potential adopter that the adoption is visible to others. Rogers suggests that the greater the degree of observability, the greater the rate of adoption. He cites seven of nine studies, or 78 percent, supporting this generalization.

Trialability refers to the perception by the potential adopter that the innovation may be tried or used prior to purchase. Rogers suggests that the greater the perception of trialability, the greater the rate of adoption. He cites nine of thirteen studies supporting this generalization or 69 percent of the cases.

Marketing Studies of Perceived Attributes

Most research dealing with attributes of innovation has been outside of marketing. However, Ostlund (1969, 1974) has studied the effects of perceptions of innovation attributes on innovativeness within a consumer behavior context. Thus

he went beyond the rate of adoption as a dependent variable to predict who would or would not adopt an innovation. Ostlund developed two studies, the first using six newly developed package goods, one of which actually went into national distribution. Data was collected from individuals during the test period and the author went back one year later to collect data on usage for the product. Using aided and unaided recall, he found that attributes of innovations were predictors of new product purchase. Depending on whether recall was aided or unaided, relative advantage and compatibility were the most powerful predictors. Socioeconomic indicators were of little consequence, which was interesting in that much of the work done in predicting innovativeness has dealt with these characteristics.

A second study by Ostlund, involving an oven roasting bag, was formulated using actual purchase data from a syndicated panel. In this study, the relative advantage variables of time savings and effort savings were the best predictors, followed by perceived risk. Again, socio-economic characteristics were not important.

Since the issue of socioeconomic indicators are not within the scope of this research, an elaborate discussion of these findings is not appropriate. However, it should be noted that issues such as measurement, poor test procedures

and the fundamental issue of the expected role of these constructs all contribute to the findings by Ostlund.

Hayward, et al. (1976, 1977) and Hayward (1978) have examined perceived attributes and rates of adoption in the flour milling innovation area, an industrial capital goods product/market. They found support for using perceived attributes of innovations to predict rates of adoption.

Change Agents

Most of the research on change efforts within the diffusion of innovations paradigm has occurred outside of the marketing discipline. Rogers has generalized a number of factors which seem to affect the rate of adoption. They are: the extent of change agent contact, a client rather than agency orientation, the degree of compatibility with client needs, change agent empathy, homophily with clients, credibility, extent of the use of opinion leaders, and ability to increase clients' ability to evaluate an innovation.

Marketing scholars have, of course, spent most of their time examining the concept of opinion leadership. Yet, intuitively, most of the work on the effectiveness of marketing activities deals with marketers as change agents. This research deals with the ability of the change agent to

increase the client's (i.e. consumer's) ability to evaluate an innovation, in this case favorably, through a point-of-purchase activity. The nature of marketing as a persuasion tool, with the end of that persuasion being the purchase of a product or service, provides the natural bias in most educationally-based marketing activities. Thus, all marketing activity can be viewed in terms of a change agent orientation.

Emotion

Emotion is one of those concepts for which there is a long history of debate in the academic annals. Yet, in spite of all the effort, there is no agreement as to a theory of emotions, nor even to define exactly what we mean by emotion. Strongman (1973) notes that many terms in the emotional literature are employed freely and inconsistently, including the term emotion itself. The study of emotion has been mainly within the province of psychologists and at least one, De Rivera (1977), suggests that there are over 100 theories. At least one sociologist, Kemper (1978), has constructed a sociological theory of emotions.

Kemper also suggests that there have been seven distinct psychological approaches to the study of emotion. These are:

(a) phylogenic and innate theories, (b) recognition studies, (c) basic dimension studies, (d) information theory approaches, (e) psycho-physiological studies, (f) cognitive studies, and (g) situational approaches.

Phylogenic theories date from Darwin (1873) and suggest that emotions are innate or instinctual and are released by some sociological cue or contingency. They are not learned.

Recognition studies are mostly empirical approaches to theory development and attempt to demonstrate the character of emotions in facial and body movements. The work of Tompkins (1970) and Ekman, et al. (1972), is typical of this large stream of research.

Basic dimension studies are among the longest-term research streams, basically being the search for a fundamental set of emotions. There have been many theories put forth as to the number of basic emotions, as well as a large stream of empirical research. The works of Nowlis (1965, 1970) and Izard (1977) are typical. Kemper notes that on the basis of consensus, three emotions are apparent; fear, anger, and joy, but there is also overlap in general among many of the theorists and empirical tests. It should be noted that Nowlis and Izard are exceptions to the idea of three discrete emotions and will be dealt with in detail.

Information-theory approaches to emotions are based on studies of how the organism responds to various interruptions in information processing.

Psycho-physiological studies are conducted mainly with animals and look at the operation of the brain and the autonomic nervous system in relation to emotions. The major question revolves around whether emotions are induced by specific organs or by secreting hormones or other chemical reactions.

Cognitive studies empirically focus on the intervening processes of cognition, interpretation, and appraisal with regards to emotional response. The work of Schacter and Singer (1962), which argued that emotional response was both physiologically and cognitively related to the social system, is typical.

Situational theories are grounded in examining the environment of the organism. Much of this work has viewed learning theory as rewards and punishments--consistant with the operant conditioning paradigm. As Kemper has noted, this approach provides the ability to predict emotional activity which is missing in most approaches. It should also be noted that many cognitive studies are also situational in nature, but that much of the work done to date has given little guidance as to which situations tend to produce which types of responses.

The approaches that are of interest for this dissertation are basic dimension studies. They provide the operational definition of emotion and thus the measurements, as well as the situational approach which provides insight to the linkage of learning and emotional response. However, prior to such discussion, there is a need to review a basic issue of emotion that impacts on this dissertation.

Affect and Cognition

In order to understand the role of emotion there must be some understanding of the process of emotional experience and other major processes, notably cognition. An important issue is that of the primacy of affect. Zajonc (1984) notes that the primacy of affect was first suggest by Wundt (1907) and has been supported by a number of others, notably Zajonc (1980) and Izard (1984). Lazarus (1982) has argued that affect is always preceded by cognition and defines emotion to have a cognitive precondition. Zajonc (1984) argues that this is an empirical matter and not one to be dealt with through definitional assumption. He proceeds to review a large body of evidence which suggests that affect can occur without cognition. He notes that if we define emotion in such a manner, we have to define cognition in terms of the firing of retinal cells. In this case we would lose all distinctions between cognition, perception, and sensation.

Basic Dimension Studies

There are two traditions in this area, theoretical assertions and empirically-grounded research. Kemper (1978) reviews both approaches in some detail. He notes that non-empirical research has an ancient history. Aristotle discussed fifteen emotions, while Descartes offered six and Hobbes suggested seven. More recently, McDougall (1933) proposed seven instinctual emotions, while Plutchik (1962) proposed eight. There are many others.

Empirically, the results are more recent. Burt (1950) identified three categories, as did Schlossberg (1954), although not the same three. Plutchik (1970) reported eight, while the recognition studies of Osgood (1966) and Tompkins (1970) found nine. Again there are many others. The work of Izard (1977) and Nowlis (1965, 1970) is of special interest and will be examined in detail separately.

Within the dimensional literature there are a number of issues that have been debated and should be noted. Dimensional studies deal with the structure of emotion. A major issue is obviously the number of dimensions, an issue on which there is little agreement. In addition are issues regarding the polarity of emotion and how the various dimensions interrelate to form a structure. Daly, Lancee, and Polivy (1983) review the issue of polarity of affect. Monopolar or discrete descriptions argue that each affective

state is a separate dimension. The work of Izard (1977) and Nowlis (1965) takes this position. The bipolar model of affect suggests that affective states are related to one another in some way. There is evidence that affect is bipolar and Daly, Lancee, and Polivy (1983) argue that previous attempts which suggest monopolar relationships are a function of methodological problems. Yet evidence also exists for the monopolar view.

Essentially the dimensional issue has two sets of proponents: those utilizing a monopolar perspective having many dimensions and those utilizing a bipolar perspective generally having three. Some work within the bipolar perspective has debated the manner in which the three emotions relate. Daly, Lancee, and Polivy (1983) suggest what they refer to as a conical model having three basic emotions. Most work establishes two dimensions; pleasantness and activity, with potency being the most common third dimension. These arguments have important ramifications not only from a theoretical perspective but clearly from a scaling perspective in attempts to measure affect using pencil-and-paper-type scales.

Differential Emotions Theory

Izard (1977) takes the view that emotions constitute the primary motivational system for human beings. He suggests

that a complete definition of emotion must include the experience or conscious feeling of emotion, the processes of the brain and central nervous system, and observed patterns of emotion (in his view particularly on the face). He suggests that emotions are innate or fundamental as suggested by Darwin (1873), but that people learn how to use their emotions and inhibit or modify them. In the spirit of Murphy (1958) he notes this is not an absolute dichotomy in the sense that almost any expression requires some practice or experience.

Differential emotions theory is, in the traditional sense, a carefully developed theoretical statement. Izard and colleagues have, over time, suggested theoretical propositions and tested them to arrive at the current position. Izard (1977) bases the theory on five key assumptions (p. 43, 45-46) as follows:

(1) There are ten fundamental emotions -
Interest-Excitement
Enjoyment-Joy
Surprise-Startle
Distress-Anguish
Anger-Rage
Disgust-Revulsion
Contempt-Scorn
Fear-Terror
Shame/Shyness-Humiliation
Guilt-Remorse

(2) Each of these fundamental emotions has properties that are unique in motivational and phenomenological terms.

(3) Fundamental emotions lead to different behavior consequences as a result of different inner experiences.

(4) The emotions interact with each other and may activate, amplify, or attenuate each other.

(5) Emotional processes interact with and influence homeostatic, drive, perceptual, cognitive, and motor processes.

Izard (1977) argues that emotions are not only the principal motivational system, but are the personality processes which give meaning and significance to human behavior. Thus he concludes that emotions are important for behavior, sensing, experiencing, and being.

Williams and Slama (1985) argue that if this theory is correct we should be able to group feelings from the purchasing/consumption process under these ten basic categories and expect that these experiences will be the result of one or more emotional categories. This is essentially what the authors refer to as emotional arousal, defined as:

> ...the degree to which a person becomes experientially, physiologically, and expressively caught up in the non-rational dimensions of the purchase/consumption process and with the symbolic and non-utilitarian aspects of the object of the purchase (product) as well.

Williams and Slama treat emotional arousal as a spectrum which has six dimensions to it. They suggest it has a composition in terms of a variety of emotions elicited at a given time. They also note the intensity and strength of those feelings and suggest components of duration, stability, a valence or direction, and a degree of complexity.

Izard et al. (1974) have operationalized the theory by developing a pencil-and-paper scale to measure the emotions and thus not resorting to coding facial expressions or the biological and/or physiological measures that are frequently used in studies dealing with emotion.

Fuenzalida et al. (1981) have recently validated the use of the scale. The two original scales, DES I and DES II, have reported coefficient alpha internal consistencies of .81 and .84 respectively, and average test-retest reliabilities of .77 (Izard et al. (1974). These scales contain 30 items, with three adjectives or short phrases to measure each dimension of emotion. It should be noted that the major difference between the two scales is that DES I measures the feeling at the present time or state while DES II measures the frequency of the feeling or trait.

Mood

Nowlis (1965) has noted that the concept of mood does not have a central place in contemporary psychological theory,

but various dimensions of mood such as anxiety or aggression are important psychological issues. Nowlis (1970) defines mood as a multidimensional set of temporary, reversible dispositions and argues that it involves the entire person and that a set of moods is always present.

Nowlis (1970) notes that mood theory goes back to Aristotle who described it as a frame of mind or disposition. Aristotle suggested that an orator would be able to elicit emotional or other responses from an audience more easily if the orator has induced a particular mood.

The academic efforts in the area of mood are mostly empirical, and much of this work has dealt with the use of drugs. Nowlis (1970) notes that section 166.2 of the regulations pursuant to the Drug Abuse Control Amendments of 1965 lists twenty-six criteria for determining whether a potentially dangerous drug has certain effects. Fully thirteen of these criteria refer directly to mood or mood change.

As opposed to the work of Izard and colleagues, the work on mood has been largely empirically-based and essentially atheoretical. The contribution of Nowlis (1965) and colleagues (Nowlis and Green 1957, 1964 and Nowlis and Nowlis 1956), has been on the development of a pencil-and-paper mood assessment scale known as the Mood Adjective Check List (MACL). A purely empirically-derived scale, the short

versions use 40 adjectives and measure the following moods: (a) aggression, (b) anxiety, (c) surgency, (d) elation, (e) concentration, (f) fatigue, (g) social affection, (h) sadness, (i) skepticism, (j) egotism, (k) vigor or general activation, and (l) nonchalance or general deactivation.

Nowlis (1965) reviews fifteen studies using the checklist in various versions and notes the successful measurement of many of the factors over time and across studies.

Situational Approaches to Emotion

As noted previously, situation theories are concerned with the response of the organism to its environment. Gray (1971) has noted that there is a common element binding emotions into a class, that being that emotions represent a reaction to an impending reinforcing event or to some actual event. Instrumental learning theory views learning as a response of the organism to a series of rewards and/or punishments. Thus emotions can be thought of as responses which are learned as a result of trial and error. Also, as noted previously, this permits a degree of specificity in predicting emotions. Two examples are Lazarus (1968) and Gerwitz (1969).

Lazarus, who was dealing with the treatment of depression, suggests that anxiety is a consequence of noxious

stimuli; whereas depression is a reaction to deprivation of positive reinforcements. Gerwitz took the same position suggesting that a depressed mood is a result of the lack of environmental positive reinforcement.

Mowrer (1960), essentially a learning theorist, has stated that emotions play a central role, (an indispensable role) in changing behavior or performance (i.e. learning). He goes on to note the tendency of western civilization to look at emotions with contempt as lower order than reason and logic. He suggests this is incorrect as emotions are themselves a high order of intelligence.

Izard (1977) has noted the principle of emotional contagion, meaning that emotion is catching. Williams and Slama (1985) address this issue in detail and argue it is linked to classical conditioning. Joy expressed in an advertisement may lead to emotional arousal on the part of the person who views the ad. They mention 30 years of Pepsi Cola campaigns as an example of the strategy. Literally hundreds of advertising campaigns from a broad variety of products and services appear to be taking advantage of the principle of emotional contagion.

Emotion in a Marketing Context

The study of emotion in a consumer behavior or marketing-related context has been minimal. The major thrust has been

cognitive decision making. One of the earliest empirical studies was by Axelrod (1963), who used the Mood Adjective Check List in gauging manipulation of moods and attitudes in relation to advertising. Early conceptualizing by Gardner and Levy (1955) and Levy (1959, 1963) led to the idea that products are purchased for the symbolism they represent as much as for the other attributes they possess. A conference on emotion and symbolism led to Hirschman and Holbrook (1981) editing the resulting papers, and Hirschman and Holbrook (1982) also developing the concept of hedonic consumption. Holbrook, et al. (1983) looked at the role of emotions in game playing. Zaltman and Wallendorf (1983) discuss the role of emotion in their consumer behavior textbook, the only text at that time to give it anything but anecdotal treatment.

Holbrook and O'Shaughnessy (1984) have reported an extensive review of emotion with respect to advertising. They suggest that emotion must be differentiated from other motivational and affective constructs. They further suggest that emotions are environmentally triggered, whereas motivations are internal. The authors note that emotion and affect are often used interchangeably while some people, notably Zajonc (1980), suggest that emotion has a more complex qualitative content. A typology is developed where motivation and affect are a range of phenomena and emotion is

only one of many. Constructs can be active or goal-directed. They can also be reactive or involve a response to an environment. They can be acute or satiated in a short time frame, chronic and persist over time, and they can be specific or general. Emotion is defined as an active acute specific state as contrasted to mood which is an active acute general state. The authors also develop a model of the emotional process which assumes that cognitive activity precedes emotional activity in the form of an appraisal leading to physiological changes and expressive behavior. As noted previously, this is an issue of intense debate with the above authors siding with Lazarus (1982).

While there are other empirical works that deal with emotion in one form or another, only two other approaches have been suggested to study emotions in marketing. As previously noted, Williams and Slama (1985) have argued that the differential emotions theory of Izard (1977) is an appropriate perspective to use to develop an understanding of emotions and consumer behavior under the rubric of emotional arousal. Woods (1985) has synthesized previous work to arrive at a perspective for understanding the experiential aspects of consumer behavior. His theoretical approach is essentially psycho-physiological, but incorporates the concept of learning, especially habituation.

Product Familiarity

The learning process as depicted in the literature review is not apt to be appropriate in all situations. One obvious reason is that different people have different propensities and abilities to learn in different situations. It would be expected that the effectiveness of point-of-purchase devices as learning tools would be moderated by any number of variables. These could be actor-related variables such as product familiarity which will be dealt with here, or they could be other situational variables such as those from the typology developed by Belk (1975). An actor-based variable, product familiarity, has been selected because of the potential managerial significance of product familiarity. It provides a clear focus in terms of who the target of the point-of-purchase activity should be. This study could be extended at a later date to include other actor-based variables, as well as other situational influences--especially those pertaining to physical surroundings.

Product familiarity and its effect on learning new information has long been acknowledged in consumer behavior. Howard and Sheth (1969) consider it, as does a more recent theoretical approach to information processing by Bettman

(1979a). Recent research by Johnson and Russo (1981, 1984) has put some of the issues of product familiarity into perspective.

An original study by Chase and Simon (1973) has shown that people with more product knowledge learn new knowledge better than those with less product knowledge. This is what Johnson and Russo (1984) refer to as the enrichment hypothesis. Other authors, notably Bettman and Park (1980) and Miyake and Norman (1979), found an "inverted U" pattern which seemed to indicate that highly familiar consumers actually searched less than those who are moderately familiar.

Johnson and Russo (1984) sought to reconcile what are apparently two conflicting hypotheses. They suggest that there are three separate skills that develop from increased familiarity; these are: superior knowledge of existing products which reduces search; superior ability to encode new information which may increase search and learning for new products; and the ability to pay attention to relevant concepts and ignore irrelevant information , thus performing a more selective search. The authors developed an experiment to test the notion that the enrichment hypothesis was the result of superior product coding and the "inverted U" hypothesis was the result of the consumer's ability to reject

or eliminate useless information. The authors defined familiarity as knowledge of the product class - in their research situation automobiles - and studied learning under task conditions of choice and judgement. They determined that familiarity had an enrichment effect on judgement tasks and an "inverted U" effect on choice tasks.

Normally point-of-purchase will function to stimulate choice as a reminder to the consumer or to create an impulse buy. This research suggests a broader set of functions for point-of-purchase in that it is being used to develop long-run positive perceptions of the product class and as such is asking consumers to make judgements which eventually may lead to choice. Thus we would expect the enrichment hypothesis to be prevalent within this research setting. In this dissertation, product familiarity will be held at a constant low level for reasons to be explained more fully in a later section.

Arousal Seeking Tendency

Psychology has a long history of what is referred to as the doctrine of individual differences. It is expected that different people respond to standard stimuli differently. It is also expected that some people will be highly susceptible to venting their emotions and that others are less apt to become emotionally involved or to develop emotional

responses. One scale that has been used in marketing which deals with this phenomenon is, in its latest form, by Zuckerman (1979) and has been referred to as the "sensation seeking scale". There are a number of other scales that purport to measure stimulus seeking.

Mehrabian and Russell (1974) have recently attempted to synthesize this literature and to develop a scale for a personality trait they refer to as arousal seeking tendency. They argue that different persons will enter a situation with a different level of emotion. These characteristic levels combine with the situation to determine the overall emotional response. We would expect different people to have different levels of arousal seeking tendency. Thus some people seek calm settings or low arousal, while others seek to increase their arousal by selecting settings that are unpredictable, complex or novel. The level of arousal seeking would affect their propensity to become involved with a point-of-purchase activity and would also affect their actual arousal during such an activity.

Conclusion

This concludes what is a descriptive review of the various literatures that are germane to this dissertation research. Chapter 4 will deal with the integration of literature and development of testable hypotheses.

CHAPTER 4

HYPOTHESIS DEVELOPMENT

Introduction

The six basic elements of this dissertation research are: point-of-purchase displays, learning theory, diffusion of innovation, emotion, product familiarity, and arousal seeking tendency. The literature pertaining to these areas and germane to this research has been briefly and descriptively reviewed. The purpose of this chapter is to integrate this literature and in doing so to create testable hypotheses.

The process will begin with a restatement of the purposes of this research in terms of the six topics that have been reviewed. Theoretical definitions will be carefully framed for each of the concepts that are of interest to this research, and linkages of the concepts will be outlined. Operationalization of the concepts to be measured will also be developed. A number of research hypotheses concerning these linkages will then be stated.

Hypothesis Development

The research being reported here stems from a very practical question. If a manufacturer of a relatively new technical consumer product, such as a personal computer, wished to develop a point-of-purchase program for retailers, what would be the best way to do so? A review of the point-of-purchase literature does not provide very much assistance. Research indicated that point-of-purchase displays can be effective, but most of the research is based on easily purchased, lower priced, impulse-type products marketed in supermarkets, drug stores, and other mass merchandisers. One finding that appears significant is that point-of-purchase effect is product dependent.

The problem is, however, much broader than just developing a point-of-purchase display. Given that the product class being used for this research is in the early growth stages of its product life cycle, a great many potential users have not yet tried or purchased the product and a good many do not have the kind of information necessary to even evaluate it. From a learning perspective, some of the potential customers need to have demonstrated that the product is superior to other brands, while others need to get some very elementary information about the product class itself.

Bolen (1984) notes that point-of-purchase is also known as remembrance advertising and as such implies a passive role, but he suggests that for many situations a more active involvement is desirable. The research that has been done in point-of-purchase generally revolves around the type of product which is inexpensive and might be purchased in an unplanned manner, or if planned is easily forgotten. Hence, the reminder effects of point-of-purchase advertising are apt to be consequential. In fact Bolen (1984) suggests a major advantage of point-of-purchase is that it promotes impulse buying. Therefore, a very elementary question that should be asked concerns the role point-of-purchase should play.

Clearly the product class in question is not an impulse item for most buyers. While point-of-purchase can and should provide a reminder function, if it does only this it is not likely to be very successful. In the type of product class this research centers on, point-of-purchase has to play a larger role. It would clearly be advantageous if the point-of-purchase activity could provide some sort of education to the consumer over and above reminding them about the brand in question. Most audiovisual displays attempt to do that.

Given this scenario, point-of-purchase takes on a

broader purpose; that of providing a learning experience for the customer that allows him or her to better make judgements about the product, and even assists the salesperson in the retail selling function. Thus learning theory is apt to provide insight to the development of point-of-purchase activities. Extending this scenario further is to question what is to be learned. The traditional response is apt to be product knowledge so that comparisons may be made. The traditional measurement used in point-of-purchase research has been actual purchasing behavior.

The diffusion of innovation literature provides insight into defining what is to be learned. As previously noted, Rogers (1983) summarizes five general attributes of innovations which potential adopters of an innovation are apt to develop perceptions. Research has indicated that these perceptions are related to the rate of adoption and at least one study, Ostlund (1974), has related these characteristics to individual purchase behavior; i.e., the individual adoption process. Since it can not be expected, given the product class, that point-of-purchase activities will have significant effects in the short run on purchasing behavior, using actual purchase measures is not going to be efficient, nor meaningful. If this research were longitudinal and covered a period of six months or

more, actual purchase behavior might be viable, but since it is not, development of perceptions in the short run provides the most reasonable dependent variable measure. Another obvious reason for utilizing the diffusion of innovations paradigm is that it is very generalized and has an extensive research base, especially outside of a marketing context.

However, the development of positive attitudes toward the attributes of the product is only a very narrow portion of the purchasing/consumption process. While there is not very much evidence in the marketing literature, there is a great deal more in the psychological literature that suggests and demonstrates the important role emotions play in everyday human activity. Therefore, we would expect that point-of-purchase activities should be able to generate significant emotional activity. This effect can be viewed in terms of itself, or the synergistic effects created in conjunction with attitude development.

In summary, this research begins with the premise that point-of-purchase as used in this type of product/situation should, and in fact must, produce more effect than strictly reminding the potential buyer of the product and previous promotional experiences, if any, with it. Point-of-purchase is suggested as a learning tool and as an aid that

must be given to retail sales efforts. Learning theory should give the point-of-purchase developer the theoretical background necessary to determine which types of point-of-purchase activities are going to be the most effective, both in the area of creating positive perceptions of the product and in creating positive emotional affect as well.

Two trends are apparent in the use of point-of-purchase. One is the use of complex and higher technology point-of-purchase activities. Audiovisual and motion displays are typical of this trend. Another less apparent trend is the idea of getting the customer involved in the activity, such as the Interactive Research computer example cited in the literature review. As Lener (1984) has noted, this type of application is becoming more prevalent and has had both successes and failures. The use of audiovisual is usually non-interactive, but may provide much more information than just signs or fixed displays. The use of the product itself, or some other device to get the potential customer actually interacting with the product and its uses, has the potential to provide still more information and more emotional change.

In comparing interactive versus non-interactive point-of-purchase activities, cognitive learning theory,

especially that of Craik and Lockhart (1972) and Collins and Loftus (1975), would suggest that the interactive point-of-purchase would be more effective than the non-interactive. Using Craik and Lockhart and Craik and Tulving (1975) we would argue that the interactive nature of the learning process would involve a deeper level of information processing and cause the person to use a more elaborate coding scheme than non-interactive visual displays, which are just observation and are likely to require only sensory evaluation. Using Collins and Loftus (1975) the interactive experience is likely to promote a more intense activation and a longer one, thus producing more complete learning and memory retention. As Bettman (1979b) notes, since the allocation of processing capacity is a major mechanism in the work of Craik and Lockhart, their model could also be viewed in terms of activation.

There are a number of potential mechanisms that can be used in developing interactive point-of-purchase. Instrumental conditioning provides insight to the development of these types of activities. The concepts of reinforcement and schedules of reinforcement have been extensively tested as noted previously, but in a context somewhat different from that to be tested here. In the traditional work the accent has been on multiple trials

with different reinforcement schedules. In this point-of-purchase context the research will be based on one trial lasting for a given time period with multiple reinforcement of some schedule and type occuring during the trial. Based on the work using animals and work in advertising by Zielske (1959), Strong (1972), and Zielske and Henry (1980), we would expect that continuous reinforcement would be more effective then no reinforcement. It should also be noted that the term reinforcement as used in this research context refers to overt reinforcement and will be discussed in greater detail in the definition stage.

To measure efficacy of learning, a decision must be made as to what is to be measured. The most general paradigm that can be used in a research context is that of the diffusion of innovation. Since point-of-purchase is being viewed as more than simply a reminder device, and takes place over a period of time, rather than just in the store at the moment, diffusion of innovation is more appropriate than actual purchasing behavior in non-longitudinal research settings. The concept of the development of perceptions of an innovation related to the rate of adoptions and in one case, Ostlund (1974), innovativeness, has been tested and found to be both predictive and explanatory to some degree. However, the

relationship is not a consistently strong one. Given the general problems in measurement and the lack of validity and reliability measures for many of the studies, this is not unexpected. If point-of-purchase activities can change the perceptions of an innovation in a positive manner, then one could conclude that this will have some effect on the diffusion of innovation by improving the likelihood of individual adoption. Actual purchasing behavior will occur with a substantial lag, however, given the nature and expense of the product.

Learning theory also provides insight as to the development of affect. If it is assumed that emotion can be described as having separate dimensions as suggested by Izard (1977), and it is also assumed that expressing our emotions is to some extent a socially learned phenomenon, both types of learning theory provide guidance. Since instrumental learning theory posits that learning is a response-reinforcement activity, it could be argued that lack of reinforcement offers less opportunity for the organism to respond positively and is less apt to provide pleasant emotional experiences.

With the same logic it could also be argued that unpleasant stimuli or reinforcers are likely to produce unpleasant experiences. This is in line with Lazarus

(1968) and Gerwitz (1969). Stimulating positive emotional response would require positive reinforcers on a regular basis If it is assumed that emotional affect is not strictly a biological or glandular phenomenon, but has cognitive components, then it could be argued that cognitive learning theory would provide insight. The focus would be on inducing a person to process information on a broader and deeper level through interactive methods and thus obtain a greater emotional response.

The learning process as simply depicted above is not going to be appropriate in all situations. Different people have different propensities to learn in different situations It would be expected that the effectiveness of point-of-purchase activities would be moderated by dozens of potential conditions.

Product familiarity is clearly important. This research defines as its target respondents those people who have little or no knowledge or experience with personal computers. People with experience, especially extensive experience, would require different messages. Given the specific goals of this research, this variable has been controlled with respondents having a low level of product familiarity.

It would also be expected that people would have

different arousal seeking tendencies. Some people seek situations to express emotion and others choose to express it minimally or not at all. The level of arousal seeking would act on their propensity to become involved with a point-of-purchase activity and modify their ultimate emotional response. Obviously, the higher the arousal seeking tendency, the more apt the person is to become involved with a point-of-purchase activity and the greater their potential emotional response.

Concept Definition

Based on the above discussion it is necessary to define the relevant concepts used in this research and then develop a set of hypotheses for testing. The concepts are defined as follows:

Interactive Point-of-Purchase Activity: Any point-of-purchase activity that allows the person to become involved both physically and mentally with the activity.

Non-interactive Point-of Purchase Activity: Any point-of-purchase activity with which people are involved either mentally and/or physically in a passive manner.

Continuous Positive Reinforcement Schedule: A reinforcement schedule that rewards the respondent with a positive overt reinforcement after each response.

Relative advantage: The perception of the consumer that a particular innovation is better than other products or services it replaces on criteria the consumer utilizes to form that perception.

Compatibility: The perception of consumers that a particular innovation is consistent with their lifestyles.

Complexity: The perception of the consumer that a particular innovation is too difficult to use or comprehend.

Observability: The perception of consumers that a particular innovation they purchase is going to be noticed by others.

Trialability: The perception of the consumer that a particular innovation is easy to try out before buying.

Intention to buy: The stated intention of the consumer to purchase the particular innovation within a given time period.

Emotional arousal: The degree to which a person becomes experientially, physiologically and expressively involved with the symbolic and non-utilitarian aspects of the purchase/consumption process (Williams and Slama 1985).

Product familiarity: The consumer's knowledge about a particular product or product class.

Arousal seeking tendency: An enduring predisposition (personality trait) indicative of an individual's preferred level of emotional arousal.

Conceptual Linkages

The linkages of these concepts can be stated briefly and will be evident in the hypotheses to be developed. First it is assumed that the nature of the point-of-purchase activity will act on the learning process of the individual. This learning process thus affects the adoption process for the product with the faster and more effective the learning process, the more apt there will be individual adoptions and an increase in the rate of adoption. The learning process facilitates adoption in at

least two ways. One deals with the improvement of potential consumers' perceptions of the attributes of the product. The other deals with appealing to the emotional aspects of the purchasing situation and the consumers' emotional state by involving them in a pleasant activity which heightens their emotional state or arousal. The consumers familiarity with the product class moderates the effectiveness of the point-of-purchase activity. The consumers' arousal seeking tendencies will moderate the effect of their emotional responses.

Concept Measurement

The major concepts to be measured include perceptions of the attributes of an innovation (personal computers), intention to buy, emotional arousal, arousal seeking tendency, and product familiarity (with personal computers). In addition to the participants' intention to respond to a point-of-purchase request, several manipulation checks and demographics to describe the sample, and position it against computer innovators are also being measured. Each set of variables, with the exception of the manipulation checks, will be discussed in turn. The manipulation checks will be discussed in the research design section. Table 4-1 is a summary of the various measures (indicants) with the terms that will be

used for each measure in further discussions. Only measures that are concerned with the testing of hypotheses are included Table 4-1.

Table 4-1

Measurement of Constructs

Construct	Measures	Questionnaire Location (1)
Intention to buy	LCOPURCH	C-1
	MGINTENT	D-1
	POLLA	E-1
Relative Advantage	LDOTHING	C-3
	POLLC	E-3
	LLEASY	C-8
	POLLE	E-5
	LWORTH	C-10
	POLLJ	E-10
	MGUSE	D-2
Complexity	LLUSE	C-7
	MGOPERAT	D-5
	POLLG	E-8
	LCOMPLEX	C-9
	MGUNDERS	D-4
	POLLH	E-9
Compatibility	LLIFESTY	C-5
	MGLIFE	D-3
	POLLF	E-6
Trialability	LETOTRY	C-4
	MGTRY	D-7
	POLLD	E-4
Observability	LKNOW	C-2
	MGOBSER	D-6
	POLLB	E-2

Happiness	DELIGHT	B-2
	HAPPY	B-11
	JOYFUL	B-23
Attention	ATTENT	B-8
	CONCENTR	B-14
	ALERT	B-28
Surprise	SURPRISE	B-5
	AMAZED	B-15
	ASTONISH	B-27
Skepticism	SKEPTCAL	B-13
	SUSPICS	B-20
	DUBIOUS	B-33
Arousal Seeking Tendency	QA to QAN	A-III-1 to A-III-40
Point-of-Purchase Response	TRLESSA	A-I-2
	TRLESSB	A-IV-7

(1) Questionnaire location refers to the appendix (letter) and question number.

Perceptions of the Attributes of the Innovation

Rogers (1983) has outlined five general perceptions of the attributes of an innovation and these have been redefined above. In general the measures developed have been self-rating self-report scales where the respondents indicate their perceptions on a scale of one to five or one to seven. Three measures of each construct have been especially developed for this research. The first type of measure is a seven point self-rating scale anchored on either end by "totally disagree" and "totally agree". The

second measure places the respondent in a situation relating to the concept to be measured and asks the participant to give the response which best fits how they would react if they were placed in that situation. Each situation has five possible responses. The third measure uses the same questions as the first measure with minor changes on two questions to reverse the meanings of the responses. Instead of having the consumers respond via pencil they utilize the Lampert Attitude Pollimeter (1979, 1981) to record their answers.

Relative advantage is measured using three questions for the first and third measurement types and one question for multiple choice format. One component is the ability to do things with the computer, the respondent could not otherwise do. A second component is the respondents getting their money's worth out of the purchase. The third question deals with the computer being able to make life easier. The multiple choice question places them in a home situation using the computer and asks their perceptions of it being more or less efficient and whether it enables them to do more.

Complexity is measured using two questions for all three measurement types. The two components tapped are ease of understanding a computer and the ease of learning how to use one.

Compatibility uses one question per measurement type. It is defined in terms of when the respondents' friends would know about their purchase of a personal computer.

Trialability uses one question per measurement type. It is defined in terms of how easy a computer is to try out before buying.

Intention to Buy

Intention to buy is measured three ways as above, using one question per measurement type. For the Pollimeter and self report measures the respondent is asked their intention to buy the computer, within one year. The mutliple choice format uses "never" to "within the next month" for the response range.

Emotional Arousal

Emotional arousal has been measured using the Izard, et al. (1974) scale which was briefly discussed in the literature review. The ten separate emotions as noted were measured, each using three questions from the original scale. The entire theoretical definition of Williams and Slama (1985) is not captured by this measure, nor could any one set of measures be expected to do so. The addition of skepticism from the Izard, et al. (1974) DAS scale using

three questions completed the set of emotion measures. Skepticism and three emotions; happiness, attention, and surprise, are the constructs which are subject to hypotheses testing.

Arousal Seeking Tendency

Arousal seeking tendency is a personality construct defined by Meharabian and Russell (1974) and is measured using their 40 item scale. The respondents' agreement or disagreement with the 40 statements was gauged using a +4 to -4 nine-point scale. A total score of between +160 and -160 indicates the respondents' arousal seeking tendencies.

Product Familiarity

Product familiarity is measured three ways prior to the person's taking the manipulation. One measure is the person's assessment of their own degree of personal computer familiarity based on responding to a scale of one (representing "very familiar") to seven ("not familiar at all"). A second measure is a multiple choice question with five possible answers from "I have none" to "I am an expert". A third measure is a series of three test-like questions which can be answered either "true", "false", or "don't know". A single score is recorded by adding a one for a correct answer, subtracting one for an incorrect answer and a zero for a don't know response.

Point-of-Purchase Response

Two questions ask about the respondents' tendencies to respond to in-store point-of-purchase activities relating to computers. One asks whether they would respond to a sign. the other whether they would respond to a salesperson. Both scales are one to seven and anchored by very likely and very unlikely.

Demographics

Six different demographic variables are measured. Each of the six uses the census measurement technique of 1980 or provides a response that can be compared to the 1980 Census of Populations. The demographics are: marital status, occupation, own or rent current living space, education, age, and family income. Marital status has five categories, occupation has ten, living space has two, education has eight, and income has five. Age is a ratio scale and can have as many categories as respondents.

Hypotheses

Based on the definitions and linkages discussed previously, four sets of hypotheses can be developed. The first set deals with the relationship of overt reinforced interactive point-of-purchase to non-interactive point-of-purchase with the dependent variables being the

cognitive variables. The second set deals with the relationship of types of reinforcement; overt reinforced and non-overt reinforced, to effectiveness of interactive point-of-purchase with the dependent variables being the cognitive variables. The third set concerns itself with the emotional variables as dependent variables in interactive, non-interactive and different reinforcement types of point-of-purchase as well as the moderating effects of arousal seeking tendency on emotional response to point-of-purchase activities. The last set deals with a respondent's tendency to respond to a point-of-purchase activity.

Hypotheses Set One

(Interactive versus Non-interactive, Cognitive Variables)

1) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of relative advantage than will non-interactive, and each will have a more positive effect than no activity.

(2) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of complexity than will non-interactive, and each will have a more positive effect than no activity.

(3) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of compatibility than will non-interactive, and each will have a more positive effect than no activity.

(4) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of observability than will non-interactive, and each will have a more positive effect than no activity.

(5) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of trialability than will non-interactive, and each will have a more positive effect than no activity.

(6) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's stated intention to buy than will non-interactive, and each will have a more positive effect than no activity.

Hypothesis Set Two
(Overt versus Non-overt, Cognitive Variables)

(7) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of relative advantage than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

(8) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of complexity than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

(9) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of compatibility than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

(10) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of observability than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

(11) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of trialability than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

(12) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's stated intention to buy than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

Hypothesis Set Three
(Emotional Arousal Variables)

(13) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of happiness than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(14) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of attention than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(15) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of surprise, than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(16) Overt reinforced interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of skepticism, than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(17) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of happiness, than will non-overt reinforced interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(18) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of attention, than will non-overt reinforced interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(19) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of surprise, than will non-overt reinforced interactive point-of-purchase activities, and each will have a more positive effect than no activity.

(20) Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's degree of emotional arousal, modified by arousal seeking tendency, in terms of skepticism, than will non-overt reinforced interactive point-of-purchase activities, and each will have a more positive effect than no activity.

Hypothesis Set Four
(Point-of-Purchase Responses)

(21) Respondents with a high level of arousal seeking tendency will have a greater tendency to respond to point-of-purchase offers than will respondents with lower levels of arousal seeking tendency.

(22) Respondents will have a greater tendency to respond to salesperson generated point-of-purchase requests than sign generated point-of-purchase requests.

This concludes the listing of hypotheses. Chapter 5 will discuss the research design to test the various hypotheses.

CHAPTER 5

RESEARCH DESIGN

Introduction

This study was undertaken as a field experiment in order to assess the effectiveness of point-of-purchase activities for personal computers in an environment where these activities would normally take place. Experimental designs lend themselves to higher degrees of control and are more capable of demonstrating relationships between variables than non-experimental research designs (Kerlinger 1973). Kerlinger notes that random assignment and the manipulation of independent variables of interest are the critical factors of experimental design. Both of these controls are used in this study.

This chapter will examine the following aspects of this study's methodology:

(a) The basic research design, (b) procedures common to all groups in the study, (c) the manipulations, (d) pre-testing and data collection instrument development, (e) manipulation checks, and (6) sample size derivation.

Basic Research Design

The study being reported on here is a field experiment following the after-only with control group design as referred to by Campbell and Stanley (1963). This design provides for a control group which completes the data collection instruments, but does not undergo a manipulation. The data collection instruments, which collect the dependent variables are administered after the manipulation for those groups receiving one. While this design is not the strongest one in terms of dealing with the myriad of problems posed by experimental research e.g., history, maturation, etc., it is relatively inexpensive and lends itself to field work and thus is a good compromise for the work being reported on here.

Common Procedures for all Groups

The study was undertaken in a major, retail department store anchoring a large regional mall in Monmouth County, New Jersey. The actual study took place in the computer department of the store. This department is leased to a computer retailer who specializes in department store locations and has over 100 sites in approximately 20 states. The choice of mall, department store, and leased department computer retailer was purely one of convenience, as it was difficult to obtain a location with cooperative

management and this group agreed to the use of the facilities for the study.

The actual site of the study was a corner of the third floor of the department store, behind housewares and next to the consumer electronics department handling products such as stereo receivers, televisions and telephones. The actual study was conducted by the researcher, assisted by his wife who is a marketing practitioner, and a group of students from a marketing research class who were trained for this exercise as part of that course. The study took place over a period of nine weeks, collecting data on Friday, Saturday, and Sunday during store hours from Friday, February 14, through Saturday, April 12, 1986.

The study was disguised as a university project which was seeking to determine how best to teach adults how to use personal computers. Two students at a time were stationed in the area near consumer electronics. As a shopper entered the area they approached that person, identified themselves as Rutgers students and asked if the person had time to answer a few questions about personal computers. The person approached was selected by sex, depending on the sequence dictated by the experimental design. The students approached males and females alternately and asked the person what kind of experience

the individual had with computers in general and what they know about personal computers. If the person indicated they had little or no experience with computers, did not own one, and had limited knowledge, the students then discussed the "adult computer education experiment" they were conducting and asked if the respondent had 20 to 30 minutes to participate. As an inducement they told the person that there would be a raffle for eight $50 gift certificates and that all participants had a chance to win.

If the person encountered had too much experience, or refused to participate the interview did not go further. The students then thanked them and approached the next person of appropriate sex coming through the area.

Those who accepted, were escorted back to the computer area and seated at a table in the back of the department, where the respondent filled out the preliminary questionnaire shown in Appendix A. That questionnaire included: questions on computer familiarity used as a check to ensure participants had minimal PC knowledge; tendency to participate in a point-of-purchase activity; the Mehrabian and Russell (1974) Arousal Seeking scale; and six demographic measures. This questionnaire took an average five to eight minutes to complete, with some people

requiring more than ten. Each questionnaire was precoded for the manipulation the person was to take to ensure cell size would be equal, but organized in random order.

Upon completion of the questionnaire a third research assistant (student), either administered the manipulation or escorted the respondent to the back office of the computer department where the researcher administered the four remaining questionnaires. The control group was given these without the manipulation, while the other groups completed them after the manipulation.

The four questionnaires have two versions; with and without manipulation check measures. Appendices B through E list the eight (8) questionnaires which were given in the following order:

(1) The Izard DES Emotions scale, consisting of thirty adjectives, three additional adjectives to measure skepticism, and four manipulation check questions for the manipulation groups. This is titled the Computer Education Feelings Scale in Appendix B. The code MA means that this questionnaire was used in the manipulation situations and NM means it was used for the control group.

(2) The self-rating scales measuring the perceptions of the attributes and intention to buy, or the Lampert Pollimeter measure, on an alternating schedule. The self

rating scales questionnaire is shown in Appendix C and the Lampert Pollimeter Scale is shown in Appendix E.

(3) The multiple choice format scale. This scale is shown in both versions in Appendix D.

(4) The self-rating scale or the Lampert Pollimeter, depending on which was administered previously.

All of these were administered by the researcher or his wife, for the sake of consistency. At the end of the session respondents were thanked for their time and cooperation. At that time they filled out a form to enter the drawing for gift certificates.

In all cases there was no attempt made to control any extraneous variables that would normally be expected in the context of the research location. Therefore, parents with children, as an example, were part of the research group and only minimal attempts were made to occupy those children. If the children were old enough, students introduced them to games on another computer not being used in the study. In the case of very young children, the parents often completed the manipulation with a child on their lap. When it came to completing questionnaires; however, every effort was made to deal with this problem, and students kept the children occupied.

Manipulations

The manipulation in this study was a computer exercise which was designed to introduce the person who did not have much experience with them to some potential applications of computing. All respondents who went through manipulations performed the same exercise except for those variations specific to that manipulation. The exercises covered data base management via an electronic address book, word processing by correcting a pre-typed letter, and financial applications through entries in a personal checkbook. The research assistant loaded the appropriate, self-booting, computer floppy disk, and instructed the respondent to follow the directions on the screen, or to just sit back and watch, depending on the the manipulation being administered. The manipulations are as follows:

Manipulation One - No Manipulation

The first cell of the experiment had no manipulation and hence was the control group. In this case the respondents filled out the first questionnaire, followed immediately by the second questionnaire. After all questionnaires were completed, a courtesy lesson on the computer was offered and in most cases, accepted.

Manipulation Two - Fully Reinforced Interactive

The second cell of the experiment required the respondent to go through a computer exercise where, after every correct answer, the respondent was rewarded with an overt positive reinforcement such as "you did a great job", "great", etc., which appeared prominently on the screen. Appendix F lists the entire manipulation. The respondent interacted with the computer by entering responses on the keyboard to get the computer to advance to the next screen.

Manipulation Three - Non-Reinforced Interactive

The third cell of the experiment is identical to the second with the exception of the messages to the respondent after each correct keyboard entry. No overt reinforcement is given only the inherent reinforcement of the screen displaying the next part of the exercise. Appendix G lists the entire manipulation.

Manipulation Four - Non-Interactive

The fourth manipulation is non-interactive in that the respondent just observed the computer screen and did not interact with the computer by keyboard entry. In addition there were minor changes in the text of the program for continuity and coherence. Appendix H lists the entire manipulation.

Pretesting and Data Collection Instrument Development

Pretesting both the manipulations and the data collection instruments was done in several steps. Preliminary development of the data collection instruments was completed in May of 1985, and in June of 1985 students in several summer classes at Rutgers University were given the preliminary questionnaire on a Monday followed by the dependent variable questionnaires on a Wednesday. Students were asked to imagine being involved in a particular point-of-purchase experiment and then to fill out the questionnaires. Approximately 125 students did so and each questionnaire was specifically addressed when the students were debriefed a week later.

The manipulations were developed during the Fall of 1985 and tested on about 10 students who knew little about computers. Two adults with substantial computer knowledge also went through the manipulations with the intent of damaging the program. Changes were made as a result of both of these tests.

Field pretesting took place on the first week of data collection. Problems surfaced with the length of the questionnaire; with the wording of some questions; with some of the instructions not being clear; and with an error in the non-interactive manipulation program. A total of 35

respondents was obtained in the first weekend and this became the pretest. The pretest led to an improved non-interactive program and shortened questionnaires. This shortening involved deleting one demographic measure and the multiple measurement of age. In addition, a reduction of from five to three questions used to check computer knowledge, and removal of certain multiple measures of some of the perceptions of the attributes of the innovation, was completed. In total, the questionnaire was reduced about 15 percent. No changes were made in any existing scales used from other sources except for refining the instructions for both the Izard, et al. (1974) DES scale and the Mehrabian and Russell (1974) Arousal Seeking scale.

Manipulation Checks

Manipulation checks are utilized in a study to see if the experimental effect actually occurred. In reality the manipulations in this study are self-evident. They are embedded into the program disk and each and every respondent, except the control group, was exposed to one of the manipulations.

However, it still is necessary to use alternative measures to determine if in fact the respondents were aware of the manipulation. The primary manipulation in this

study was the use of interactive or involved point-of-purchase versus non-interactive or passive point-of-purchase. A second manipulation within the interactive point-of-purchase was the overt reinforcement that was either given or withheld in the point-of-purchase exercise.

There are a number of manipulation checks in this study. Each exercise has a section which contains the image of a worm and appears for about five seconds in between the word processing and the checkbook exercises. The worm has the name David Shaw on one half and is shaded in on the other. This check is identical in each manipulation. The computer education feelings scale has four test questions that relate to this worm. It would be expected that the more involved the person was with the manipulation the higher the score would be on the four question test. The test is scored +2 for a correct answer, +1 for a "not sure", and 0 for a wrong answer yielding a scale of from 0 to +8.

A second manipulation check is the self-report by the respondent on how involved they were with the manipulation. Two questions in each of the self-rating scale and the Pollimeter format, and one question in the multiple choice format, explore this.

A third manipulation check has to do with the length of time that is taken to complete each manipulation. On the average the reinforced manipulation should take longer than the non-reinforced manipulation since there is more reading to do. The non-interactive manipulation is fixed at six minutes.

A final manipulation check is the number of times a participant requested assistance while undergoing the manipulation. The number of helps is fixed at zero for the non-interactive manipulation since nothing is done by the respondent. It would be expected that the full reinforcement manipulation would produce fewer requests for help than would the non-overt reinforcement manipulation.

Sample Size Determination

The procedure used to determine sample size for this study comes from Cohen (1977). Cohen argues that the power of a statistical technique is the probability of its yielding a significant finding. In determining power, he identifies four factors: power; the significance criterion; sample size; and effect size. Thus given power, significance and effect sizes, an optimum sample size can be computed as has been done in this study.

There is no statistical basis on which to select the power level. Cohen argues that .80 should be the level

used by the researcher, as it is here.

The significance criterion, also called alpha error, is also set by convention. A typical social science convention is .05 and that has been utilized here.

The effect size criterion is normally taken from previous research in the general topic area and applied to the current research. Since there is no closely related research in the area this could not be done. A second possibility is to conduct a pilot study. However, this was not feasible since the location for the test was only available for a limited time and using students as pretest respondents presented problems with locating equipment for the pretest as well as obvious problems with generalizing their results to the study population. The decision was made to base the sample size calculations on the first fifteen respondents in each experimental cell. The manipulation check consisting of an overall score from 0 to 8 was predetermined to be the variable used. Separate sample size calculations were made to detect the two major sets of hypotheses, the first being interactive versus non-interactive and the second being reinforcement versus non-reinforcement.

The actual effect size was determined by utilizing the following formula from Cohen (1977):

$$d = \frac{Mmax - Mmin}{s.d.}$$

Where: d = difference
Mmax = the largest of k means
Mmin - the smallest of k means
s.d. = within population standard deviation

For the interactive versus non-interactive the following was the result:

$$d = \frac{7.4 - 6.33}{1.546} = .69$$

For the reinforcement interactive versus non-reinforcement interactive the following was the result

$$d = \frac{7.4 - 6.87}{1.546} = .34$$

For the three values of power (,80), alpha (.05) and d (.34), Table 8.4.4 of Cohen (1977) page 384, yields a sample size of 35.4 or 36 rounded to the highest integer. Thus the total sample required to capture the weakest effect was 144. A total of 148 was actually utilized.

CHAPTER 6

RESEARCH FINDINGS

This chapter examines the research findings which test the hypotheses developed in Chapter 4. The following four parts comprise this chapter: (1) a profile of the subjects of the study in total and by manipulation, (2) an examination of the scales and variables used in the study as measuring tools for the constructs they purport to measure, (3) an analysis of the manipulation check results, and (4) tests of the hypotheses.

Profile of Subjects

A total of 148 subjects were subjected to analysis in study, 37 per experimental cell. A total of 229 subjects were in the actual pool of respondents. Thirty-five of these were in the pretest. The remainder were not included for two reasons; not completing the entire exercise, 35 respondents, and not passing the requirements for limited knowledge, 21 respondents.

Table 6-1 is a summary of respondents on seven demographic variables using frequencies or summary statistics where appropriate.

Table 6-1

Summary Profile of Subjects

A. By Sex

Cell	Number	Male	Female
1	37	19	18
2	37	18	19
3	37	17	20
4	37	19	18
Total	148	73	75

B. By Marital Status

Cell	Married	Never Married	Separated	Widowed	Divorced
1	25	7	3	1	1
2	26	8	1	0	2
3	22	8	0	3	4
4	18	14	2	0	3
Total	91	37	6	4	10

C. By Family Income

Cell	Median	Mean ($1000)	Standard Deviation
1	5	35.4	1.26
2	5	34.1	1.28
3	4	31.6	1.09
4	4	31.4	1.18
Total		33.1	1.20

D. By Age

Cell	Mean	Standard Deviation
1	40.5	13.2
2	37.4	11.7
3	42.7	15.3
4	39.6	16.1
Overall	40	14.2

E. By Education

Cell	Median	Standard Deviation
1	4	1.64
2	4	1.61
3	4	1.52
4	4	1.63

F. By Occupation

Occupation	Cell 1	Cell 2	Cell 3	Cell 4	% total
Prof.& Techn.	13	15	18	16	41.9
Student	0	2	0	1	2.0
Mgr. or Propr.	8	5	6	5	16.2
Clerical	1	2	4	9	11.5
Homemaker	6	7	6	2	14.2
Serv. Wkr.	0	2	0	1	2.0
Farmer	1	0	0	0	0.7
Laborer	3	0	1	1	3.4
Retired	3	0	2	1	4.1
Other	2	3	0	1	4.1
Total	37	37	37	37	100.0

G. By Dwelling Status

Cell	Own Dwelling	Rent Dwelling
1	29	8
2	29	8
3	24	13
4	28	9
Total	110 (75.3%)	38 (24.7%)

The purpose of this examination is twofold. Data will be compared across cells on these seven variables to serve as a check on the randomized assignment of respondents to manipulations. Demographic data will also be compared against previous studies conducted by Danko and McLachlan (1983) and Dickerson and Gentry (1983), to determine how the current research profile of non-innovators in personal computers compares to those studies of innovators. The former will actually be a statistical evaluation while the latter will involve qualitative evaluation of statistical data drawn from distinctly different sampling frames.

Tables 6-1 A through G illustrate the broad nature of the respondent pool in terms of the demographics collected. In order to determine if the cells were reasonably randomly distributed and approximately equal on these characteristics, three types of analysis were used, depending on the measurement level of the data. A one way ANOVA with a Duncan Multiple Range Test (SAS 1979) was used on the continuous variable age. Two other variables, education and income, are rank order data and were analyzed using a NPARIWAY for a two-tailed Kruskal-Wallis test (SAS 1979). The final four variables, sex, marital status, occupation, and dwelling type are categorical and were analyzed using chi square analysis. The results are shown in Table 6-2 A through C.

As can be judged from the tables, none of the measured variables are different across the experimental cells. It should be noted, however, that the variables marital status and occupation had expected frequencies of less than five in a majority cells and hence the chi square test may not be valid. In general, it does appear that the random selection of people to treatments was efficient.

Table 6-2

Summary Tests of Subjects

A. ANOVA and Duncan Multiple Range

Variable	DF	F Value	PR > F	Duncan (.05)
Age	147	0.88	.45	No Difference

B. NPARIWAY and Kruskal-Wallis

Variable	DF	Chi Square	Probability > Chi Square
Education	3	1.30	0.7284
Income	3	3.78	0.2861

C. Chi Square

Variable	DF	Chi Square	Probability
Sex	3	0.297	0.961
Marital Status	12	16.361	0.175
Occupation	27	33.625	0.175
Dwelling Type	3	2.408	0.492

Previous research by Dickerson and Gentry (1983) and by Danko and Maclachlan (1983) has defined profiles of personal computer innovators and early adopters versus those who did not adopt. In particular Dickenson and Gentry have developed a profile based on a national sample. They found that adopters have more education, are more likely to be homeowners and have higher incomes. Rogers (1983) hypothesizes that these differences exist.

The raw numbers developed in this study can not be used for statistical comparison purposes, because they were drawn from a sample that was high in education, income and employment. The regional shopping center used in this study draws primarily from Monmouth County which is higher then the national average and is not equivalent to the sample drawn by Dickerson and Gentry. The department store used for the study essentially has a middle to upper middle class target market, which by nature has higher than national average education, income and employment. Table 6-3 A through C compares current study data on income, education, and home ownership to the data from Dickerson and Gentry and will be the basis of a qualitative appraisal.

Table 6-3

Demographic Characteristics Percentage Comparison

A. Income

Income ($000)	Dickerson & Gentry Adopt	Dickerson & Gentry Nonadopt	Current Study
Under 19.9	18.6%	40.5%	9.3%
20-29.9	22.3%	24.3%	18.2%
30-39.9	23.3%	16.3%	19.7%
40-59.9	23.9%	13.9%	39.9%
Over 60	12.0%	5.9%	12.9%

B. Education

Education	Dickerson & Gentry Adopt	Dickerson & Gentry Nonadopt	Current Study
9 Yrs or less	1.0%	0.9%	0.6%
High School No Diploma	2.3%	2.4%	1.2%
High School Grad.	1.3%	6.3%	21.7%
Attended College	12.6%	23.8%	31.8%
Graduated 2 yr. College	7.0%	4.5%	6.8%
Graduated 4 yr. College	23.6%	25.9%	12.9%
Attended Graduate School	52.2%	36.3%	25.0%

C. Homeownership

	Dickerson & Gentry		Current Study
	Adopt	Nonadopt	
Own	82.8%	58.6%	75.3%
Rent	17.2%	41.4%	24.7%

As noted previously it is not appropriate to compare the data statistically because of the differences in sampling frames as well as the time samples were drawn. Qualitiatively it does appear that the sample is probably in line with the nonadopters noted in previous studies. Homeownership appears to be the clearest in terms of the raw numbers, and the sample appears to be less educated on the average and have lower incomes than the typical Monmouth County resident. Thus it is expected that the pre-questioning of sample respondents and the checks within the research procedure produced a sample that did not own personal computers and which did have minimal knowledge about them.

Scale and Variable Analysis

This section describes the analysis performed on the scales and variables used in this study to test hypotheses proposed in Chapter 4. The following items will be discussed in order: (1) Mehrabian and Russell (1974) Arousal-Seeking

Tendency Scale, (2) Measures of computer Knowledge, (3) Izard et al. (1974) DES I discrete emotions scale, (4) perceived attributes of personal computer and intention to buy scales, and (5) measures of the tendency to participate in a point-of-purchase exercise.

Arousal-Seeking Tendency Scale

The arousal-seeking tendency scale was developed by Mehrabian and Russell (1974). They developed this scale using factor analysis in three studies. They started with a total of 312 items taken from other scales that purported to measure arousal seeking behavior. Through a series of three studies this was reduced to 40 items, and a fourth study coupled with the third produced a mean score of 39 with a standard deviation of 34, all subjects being students.

An additional study comprising 530 subjects was factor analyzed using principal components. The first five factors only were obliquely rotated producing five factors of 12, 11, 9, 5, and 3 variables respectively. The five factors were: arousal from change, arousal from unusual stimuli, arousal from risk, arousal from sensuality, and arousal from new environments.

Reliability was assessed by Mehrabian and Russell using the Kudder Richardson (1937) internal consistency scale and found to be .87 for a study with 214 student subjects.

Validity was determined by hypothesized positive correlations with other personality measures where theoretical evidence supported it, and discriminant validity was demonstrated by low correlations with other measures thought to be different.

For this study the first step in analyzing the scale was to try to reproduce the factor structure originally reported. A principal components analysis using an oblique rotation was used. Table 6-4 describes the results with each item, listing its primary loading to three places. A total of twelve factors were produced, but factor eleven had no primary loading and hence is not included in this analysis.

Table 6-4

Factor Loadings Arousal-Seeking Tendency Scale

Variables*	Factors										
	1	2	3	4	5	6	7	8	9	10	12
1					600						
2	378										
3	222								755		
4			326					552			
5			410					456			
6	652										
7					619						
8					518						
9			555								
10	398										
11			550								
12			338								571
13	622										
14	374					514					

15	462				
16		<u>375</u>			713
17	430				
18	729				
19	643				
20	380				
21	545				
22	707				
23		367			
24	766				
25	630				
26	581				
27	716				
28		467			
29	711				
30	686				
31			388		
32	<u>391</u>			636	
33	420				
34	551				
35	507				
36	649				
37			449		
38		<u>301</u>		823	
39	441				
40	613				

* The variables correspond to questions III 1-40 on the Preliminary Questionnaire in Appendix A.

An examination of the factor analysis indicates that there are many more factors in this data set. By loading only on the first five factors, indicated by underlining for eight items in Table 6-4, the breakdown becomes twenty items for Factor 1, six for Factor 2, six for Factor 3, three for Factor 4, and five for Factor 5. Neither factor model is consistent with the original findings. In addition, the data was subjected to a forced five-factor model, but this did not improve the comparison. This is not a surprising result given the different samples and contexts of administration.

Internal consistency was ascertained using the SPSSX (1985) reliability program. The alpha coefficient was .8541 and the standardized item alpha, corresponding to Kudder Richardson was .8590. These are certainly acceptable and correspond to results obtained by Mehrabian and Russell.

The mean and the standard deviation for this sample was 27.3 and 34.4 respectively. The scores could be scaled from +160 to -160 with the minimum being -72 and the maximum +126. This corresponds to a mean of 39 and a standard deviation of 34 reported by Mehrabian and Russell. There is a certain amount of face validity to the notion that differences in sample product different results, age being the primary factor. Correlating age and arousal seeking tendency scores provides support with a correlation of -.167 at the significance level P = .04.

Computer Knowledge Measures

The primary reason for computer knowledge measures was to ensure that people who participated in the study had little or no knowledge of personal computers. The measures were used, one was a three question test which was scored from -3 to +3. A decision was made to delete those people from the study who scored at +2 or higher. This scoring mechanism was utilized to allow for the possibility of guessing, even though respondents were advised not to. A total of 78 or the

148 respondents scored a zero by indicating a not sure response to each of the three questions. Two additional questions asked the respondent about their perceived knowledge of personal computers on a 1 to 7 scale with the scales being reversed for each question. A decision was made to delete those people who scored higher than the midpoint in terms of knowledge. All 148 respondents met the requirements of all questions as noted above

It would be expected that the two measures of perceived computer knowledge would correlate highly. The correlation was -.787 with a significance of P = .0001. The test score did not correlated significantly (P = .05) with either of the perceived measures of knowledge.

Izard's Differential Emotions Scale Measure

Izard, et al. (1974) developed the differential emotions scale to measure the subjective experience of the nine fundamental emotions of differential emotions theory (Izard 1971). Empirical examination demonstrated that shame was composed of two distinct experiences, shyness and guilt and hence the scale measures ten distinct emotions.

The first step in analyzing the scale was to compare the internal consistency using coefficient alpha measures derived from this administration with those reported by Izard, et al. Internal consistency as a whole was not originally

reported, but for this administration was .92. It was .84 for the four sets of three measures which are being used in the tests of hypotheses relating to emotional change. Izard, et al. report an average internal consistency of .81 for each of their three item scales with the range being .71 to .90 with the sample being 279 college freshman. For the sample of 148 in this administration the range was from .494 to .902 with an average for the ten DES I scales being .798.

The four scales used in hypotheses testing; interest, enjoyment, surprise, and skepticism were .816, .843, .845, and .675 respectively. With the exception of the guilt scale (.494) which uses the terms repentant, guilty, and blameworthy, the results are in line with those of Izard, et al. An examination of the correlations of that scale indicates that guilty and blameworthy had a .75 correlation, but that repentant and guilty were .09 and repentant and blameworthy were .17. Clearly the word repentant was not interpreted in the same manner as the original administration to college students. Since the guilt scale is not important to this research, this can be ignored. Obviously this presents a future problem for research where it may be important. In addition, this finding points out the necessity to check all administrations of the scale for similar problems.

Table 6-5

DES I Factor Loadings Izard, et al. (1974)

Interest	Disgust/Contempt
.86 concentrating	.88 disdainful
.84 attentive	.79 feeling of revulsion
.72 alert	.61 contempt
	.52 scornful
Enjoyment	.40 feeling of distaste
.86 delighted	Fear
.83 joyful	
.81 happy	.90 scared
	.84 fearful
Surprise	.83 afraid
.88 surprise	Shame/Shyness
.84 astonished	
.76 amazed	.95 shy
	.83 bashful
Distress	
	Guilt
.85 discouraged	
.74 downhearted	.94 repentant
.69 sad	.83 blameworthy
	.66 guilty
Anger	
.90 enraged	
.89 angry	
.79 mad	

The next examination of the scale was to factor analyze the results of this administration and compare them to the original factor analysis. Table 6-5 is as reported by Izard et al. (1974) in appendix B. Reported findings indicate only nine factors as sheepish and disdainful did not load as

they had in an earlier scale. Table 6-6 identifies the loadings for the current administration of the scale.

Table 6-6

Factor Loadings DES I Scale All Experimental Cells N = 148

Factor 1	Factor 3
.865 disgust	.756 scared
.854 angry	.722 fearful
.838 sad	.631 afraid
.811 mad	.491 scornful
.810 discouraged	
.750 enraged	Factor 4
.593 feeling of distaste	
.591 downhearted (4)	.802 bashful
.584 feeling of revulsion (3)	.705 shy
.546 blameworthy (3)	.667 sheepish
.517 disdainful (3)	
	Factor 5
Factor 2	
	.771 astonished
.841 happy	.730 surprised
.810 attentive	.722 amazed
.755 concentrating	
.744 alert	Factor 6
.716 joyful	
.678 delighted	.771 repentant
	.624 contemptuous (1)

Underlined items loaded on other factors within .20 of the primary loading and the number in parentheses indicates the secondary factor.

The original factor analysis reported by Izard, et al. and this administration were both principal components with a varimax rotation. While this analysis did not have the factors as clearly delineated as the original, in general the same terms load together. The exception was the term

scornful which should have loaded with factor six or one, but loaded instead on factor three with the fear terms. Factor two contains the interest and enjoyment measures, possibly indicating problems with the discrimination of these two emotions. Factor five contains the surprise emotional component.

The final step was to initiate a confirmatory factor analysis using the LISREL computer program to examine components of validity. One component discriminant validity involves developing a model to determine if the various measures which purport to measure the constructs, in fact measure separate constructs. Since the research hypotheses dealt with only three constructs from the DES scale and one from the DAS scale, only these scales will be examined. Tables 6-7 through 6-10 summarize the analysis of the scales. Table 6-7 reports on a four factor model of all the constructs. Table 6-8 reports on a three factor model. Tables 6-9 and 6-10 report on two factor models. Each of these tables will be discussed in turn and will result in the development of modified models shown in Tables 6-11 through 6-13. These modified models will be the measures that are used for hypotheses testing.

Table 6-7

Confirmatory Factor Analysis of the Four Factor Model
LatentVariables Enjoyment,Surprise,Interest,Skepticism

A. LISREL Maximum Likelihood Estimates and Phi Matrix

	Estimates				Phi Matrix			
Items	1	2	3	4		1	2	3	4
delight	.757	0	0	0	1	1.00			
joyful	.764	0	0	0	2	.601	1.00		
happy	.869	0	0	0	3	.828	.458	1.00	
surprise	0	.728	0	0	4	-.110	.403	-.092	1.00
amazed	0	.858	0	0					
astonish	0	.835	0	0					
attentive	0	0	.794	0					
alert	0	0	.730	0					
concentrating	0	0	.797	0					
skeptical	0	0	0	.588					
suspicious	0	0	0	.769					
dubious	0	0	0	.563					

B. Theta Delta (ERROR) and Squared Multiple Correlations

Variable	Theta Delta	Squared Multiple Correlations
delight	.426	.574
joyful	.417	.583
happy	.245	.755
surprise	.470	.530
amazed	.264	.736
astonish	.302	.698
attentive	.369	.631
alert	.467	.533
concentrating	.364	.636
skeptical	.654	.346
suspicious	.409	.591
dubious	.683	.317

Total Coefficient of Determination = 0.994

Chi Square with 48 degrees of Freedom = 85.94 (p=0.001)

Goodness of Fit Index = 0.914 Adjusted Fit Index = 0.860

Table 6-8

Confirmatory Factor Analysis of the Three Factor Model
Latent Variables Enjoyment Surprise Interest

A. LISREL Maximum Likelihood Estimates and Phi Matrix

	Estimates			Phi Matrix			
Items	1	2	3		1	2	3
delight	.750	0	0	1	1.00		
joyful	.764	0	0	2	.596	1.00	
happy	.875	0	0	3	.829	.460	1.00
surprise	0	.712	0				
amazed	0	.874	0				
astonish	0	.831	0				
attentive	0	0	.794				
alert	0	0	.731				
concentrating	0	0	.798				

B. Theta Delta (ERROR) and Squared Multiple Correlations

Items	Theta Delta	Squared Multiple Correlations
delight	.438	.562
joyful	.417	.583
happy	.234	.766
surprise	.494	.506
amazed	.237	.763
astonish	.310	.630
attentive	.370	.630
alert	.466	.534
concentrating	.364	.636

Total Coefficient of Determination = 0.986

Chi Square with 24 degrees of freedom = 61.09 (p = .000)

Goodness of Fit Index = 0.918 Adjusted Fit Index = 0.846

The four factor model has a very high coefficient of determination and moderate fit indices, but was not significant, indicating the model did not fit. The coefficient of determination explains a very high percentage

Table 6-9

Confirmatory Factor Analysis of the Two Factor Model

Latent Variables Enjoyment Surprise

A. LISREL Maximum Likelihood Estimates and Phi Matrix

	Estimates		Phi Matrix		
Items	1	2		1	2
delight	.783	0	1	1.00	
joyful	.806	0	2	.612	1.00
happy	.813	0			
surprise	0	.712			
amazed	0	.873			
astonish	0	.831			

B. Theta Delta (ERROR) and Squared Multiple Correlations

Items	Theta Delta	Squared Multiple Correlations
delight	.386	.614
joyful	.350	.650
happy	.338	.662
surprise	.493	.507
amazed	.237	.763
astonish	.310	.690

Total Coefficient of Determination = .969

Chi Square with 8 Degrees of Freedom = 12.01 (p = .151)

Goodness of Fit = .975 Adjusted Fit Index = .934

of total variation. Theta Delta measures indicate resonable reliability. While the goodness of fit indices are high, they are not significant, thus indicating there are problems with the discriminant validity of the model. The same was true of the three factor model indicated in Table 6-8. Both two factor models had good coefficients of determination,

Table 6-10

Confirmatory Factor Analysis of the Two Factor Model
Latent Variables Attention Skepticism

A. LISREL Maximum Likelihood Estimates and Phi Matrix

	Estimates		Phi Matrix		
Items	1	2		1	2
attentive	.795	0	1	1.00	
alert	.711	0	2	-.065	1.00
concentrating	.813	0			
skeptical	0	.581			
suspicious	0	.734			
dubious	0	.614			

B. Theta Delta (ERROR) and Squared Multiple Correlations

Items	Theta Delta	Squared Multiple Correlations
attentive	.368	.632
alert	.494	.506
concentrating	.339	.661
skeptical	.663	.337
suspicious	.461	.539
dubious	.622	.378

Total Coefficient of Determination = .943

Chi Square with 8 Degrees of Freedom = 8.37 (p = .398)

Goodness of Fit Index = .982 Adjusted Fit Index = .952

excellent fit indicies, and chi square results that indicated a significant fit of the model. Examination of the three and four factor models indicates that the problem lies in the loading of the item happy on the interest scale. In order to address this issue a two factor model of enjoyment and interest was analyzed. Table 6-11 reports the results.

Table 6-11

Confirmatory Factor Analysis of the Two Factor Model
Latent Variables Enjoyment Interest

A. LISREL Maximum Likelihood Estimates and Phi Matrix

	Estimates			Phi Matrix	
Items	1	2		1	2
delight	.720	0	1	1.00	
joyful	.757	0	2	.833	1.00
happy	.899	0			
attentive	0	.795			
alert	0	.734			
concentrating	0	.793			

B. Theta Delta (ERROR) and Squared Multiple Correlations

Items	Theta Delta	Squared Multiple Correlations
delight	.482	.518
joyful	.427	.573
happy	.192	.808
attentive	.368	.632
alert	.461	.539
concentrating	.371	.629

Total Coefficient of Determination = .947

Chi Square with 8 Degrees of Freedom = 19.74 (p = .011)

Goodness of Fit Index = .959 Adjusted Fit Index = .893

As was expected the model does not provide a significant fit. Therefore, based on this analysis there is significant reason to doubt the discriminant validity of interest and enjoyment.

In order to address this problem a modified two factor model was developed deleting the term happy from the enjoyment construct. Thus only two items are in this scale.

Table 6-12

Confirmatory Factory Analysis Two Factor Model
Latent Variables Enjoyment (modified) Interest

A. LISREL Maximum Likelihood Estimates and Phi Matrix

	Estimates		Phi Matrix		
Items	1	2		1	2
delight	.815	0	1	1.00	
joyful	.763	0	2	.730	1.00
attentive	0	.802			
alert	0	.714			
Concentrating	0	.804			

B. Theta Delta (ERROR) and Squared Multiple Correlations

Items	Theta Delta	Squared Multiple Correlations
delight	.335	.665
joyful	.418	.582
attentive	.356	.644
alert	.491	.509
concentrating	.354	.646

Total Coefficient of Determination = .935

Chi Square with 4 Degrees of Freedom = 8.94 (p = .063)

Goodness of Fit Index = .977 Adjusted Fit Index = .913

The results are shown in Table 6-12 and are as expected. The deletion of one indicant produces a two factor model that is significant. There was a slight reduction in the coefficient of determination as is often the case when the total number of indicators is reduced, but it is still more than acceptable.

Modified three and four factor models were then run with

the differences being the deletion of the item happy from the enjoyment construct. Table 6-13 compares the results of the modified models to the original three and four factor models as reported in Tables 6-7 and 6-8.

Table 6-13

Comparison of Original and Modified Factor Models
Three Factor and Four Factor

	Original Four Factor Model	Modified Four Factor Model	Original Three Factor Model	Modified Three Factor Model
Coefficient of Determination	.994	.994	.986	.986
Chi Square	85.95	63.75	61.09	42.00
Probability	.001	.006	.000	.001
Goodness of Fit	.914	.928	.918	.935
Adjusted Fit	.860	.874	.846	.862

The results indicate that the coefficient of determination did not change and that all were very high. There were slight increases in fit indicies, but in all cases the chi square test indicates that the models do not fit, although there is apparent improvement, at least in the proper direction, it is not enough to indicate a fit.

Based on this analysis the latent emotional variables of

enjoyment, interest, surprise, and skepticism will be utilized for hypotheses testing purposes using the modified models. Thus the enjoyment variable will have two indicants, delight and joyful. The remaining three variables will each use the three indicators as originally developed by Izard, et al. (1974). From a discriminant validity standpoint the analysis does not completely confirm the measures used, but provides for a reasonably accurate conclusion that the measures are in fact measuring different constructs. Given the high correlations between the indicants, as shown in Appendix J, convergent validity appears to be reasonably assured.

Measures of Perceived Attributes and Intention to Buy

A total of six latent variables were measured using from three to seven indicators. In the cases of relative advantage and perceived complexity more than one aspect of the latent variable was being measured and as such these variables were presumed to have more than one component. Table 6-14 lists the various indicants and their correlations within each measured construct and/or component. Each of the six constructs will be discussed in turn with additional analysis being presented. The LISREL program will be used to assess the internal reliabilities of each construct. Confirmatory factor analysis will be used to examine

perceived complexity and relative advantage with the LISREL program. The other constructs will be assessed only as to their correlations, as the LISREL program will not assess a three indicants to one factor confirmatory model since these models are exactly identified.

Table 6-14

Correlations of Indicators for Cognitive Constructs

A. Intention to Buy
Three Indicators, One Component

	(1)	(2)	(3
(1)	1.00	.713	.622
(2)	.713	1.00	.497
(3)	.622	.497	1.00

B. Relative Advantage
Seven Indicators, Four Components

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	1.00	.459	.363	.408	.567	.531	.245
(2)	.439	1.00	.469	.348	.506	.642	.248
(3)	.363	.469	1.00	.287	.401	.532	.400
(4)	.408	.348	.287	1.00	.297	.463	.178
(5)	.567	.506	.401	.297	1.00	.489	.315
(6)	.531	.642	.532	.463	.489	1.00	.312
(7)	.244	.248	.400	.178	.315	.312	1.00

Component One, Indicators (1) and (5)
Component Two Indicators (2) and (6)
Component Three Indicators (3) and (7)
Component Four Indicator 4

C. Complexity
Six Indicators, Two Components

	(1)	(2)	(3)	(4)	(5)	(6)
(1)	1.00	.598	.424	.334	.403	.350
(2)	.598	1.00	.241	.301	.290	.320
(3)	.424	.241	1.00	.676	.263	.178
(4)	.334	.301	.676	1.00	.327	.218
(5)	.403	.290	.263	.327	1.00	.328
(6)	.350	.320	.178	.218	.328	1.00

Component One, Indicators (1) (3) and (5)
Component Two, Indicators (2) (4) and (6)

D. Compatibility
Three Indicators, One Component

	(1)	(2)	(3)
(1)	1.00	.507	.685
(2)	.507	1.00	.498
(3)	.685	.498	1.00

E. Observability
Three Indicators, One Component

	(1)	(2)	(3)
(1)	1.00	.345	.432
(2)	.345	1.00	.340
(3)	.432	.340	1.00

F. Trialability
Three Indicators, One Component

	(1)	(2)	(3)
(1)	1.00	.572	.399
(2)	.572	1.00	.502
(3)	.399	.502	1.00

Intention To Buy

The intention to buy construct has been assessed by three indicators, measured in three ways. The correlations between the three variables are consistently high, while the coefficient of determination is .912 which is very high for a three item measure. All three items will be combined and used as the measure for intention to buy.

Relative Advantage

The relative advantage measure is the most complex of the cognitive measures, attempting to pick up three facets of relative advantage with two measures each and a general facet relating to household use with one measure. Indicants two and six have the highest correlation of .642. Indicants one and five have a correlation of .567 and indicants three and seven have a correlation of .400. Indicant four, which is essentially a combination measure of relative advantage, does not correlate well with the other measures and appears to be unreliable.

A three factor LISREL confirmatory factor analysis was run on the three factors that appear reliable. The results are shown in Table 6-15. This model fits well. When a four factor model using indicant four was run it was not significant. This reinforces the apparent unreliablity of indicant four. Thus, hypothesis testing for relative advantage will be based on three factors, each to be measured by two indicants, with indicant four dropped from the analysis.

Table 6-15
Confirmatory Factor Analysis Three Group Relative Advantage

A. LISREL Maximum Likelihood Estimates and Phi Matrices

	Estimate			Phi Matrix			
Items	1	2	3		1	2	3
ldothing	.750	0	0	1	1.00		
pollc	.756	0	0	2	.817	1.00	
lleasy	0	.765	0	3	.642	.762	1.00
polle	0	.839	0				
lworth	0	0	.814				
pollj	0	0	.491				

B. Theta Delta (ERROR) and Squared Multiple Correlations

Item	Theta Delta	Squared Multiple Correlations
ldothing	.437	.563
pollc	.429	.571
lleasy	.415	.585
polle	.296	.704
lworth	.337	.663
pollj	.759	.241

Total Coefficient of Determination = .956

Chi Square with 6 degrees of Freedom = 4.94 (p = 0.551)

Goodness of Fit Index = .989 Adjusted Fit = .963

Complexity

Perceived complexity was developed as a two factor construct measuring ease of understanding and ease of operating a computer. Table 6-16 reports a LISREL analysis of a two factor construct with three measures each, as well as an modified model.

Table 6-16

LISREL Confirmatory Factor Analyis Two Group Complexity

	Six Indicant Model	Five Indicant Model
Item	Maximum Likelihood Estimates	
lluse	.540	.717
mgoperat	.626	.425
pollg	.382	----
lcomplex	.687	.903
mgunders	.640	.465
pollh	.488	.463
Coefficient of Determination	.515	.875
Goodness of Fit	.883	.981
Adjusted Fit	.693	.929
Chi Square	34.25 p = .005	7.12 p = 0.13

As is indicated in Table 6-16, the two factor three indicator model is not appropriate, due to the unreliability of the pollimeter measure for the ease of operation construct. Reducing the model to a two factor, five

indicator model by removing that indicant improves the measure so that it is significant, as well as obviously more reliable. Thus two measures for ease of operation and three measures for ease of understanding will be used for hypothesis testing.

Compatibility

Perceived compatibility was measured with one item in each of three measurement types. With a LISREL coefficient of determination of.832 and high correlations, the measures are suitable.

Observability

Perceived observability was measured with one item in each of three measurement types. With a LISREL coefficient of determination of .655 this appears to be the weakest of the measures. It appears that the multiple choice measure is the weakest, but little improvement is likely if it is removed. Hence all three measures will be used for hypothesis testing.

Trialability

Perceived trialability was measured with one item in each of three measurement types. With a LISREL reliabililty coefficient of .798 and adequate correlations these measures are suitable as they are.

Measures of Tendency to Participate in Point-of-purchase

Two seven point scales anchored with very likely and very unlikely were used to measure the likelihood of participating in a point of purchase exercise. Since they were single items measuring slightly different issues there are no analysis that can be done to determine reliability or validity of the measures other than to examine the questions to make sure they are clear and unambiguous.

Manipulation Check Results

As previously noted, there are a total of four manipulation checks. While this experiment has obvious differences in manipulations since each computer disk had a distinctive manipulation, the purpose of checks, however, is to see if, in fact, the manipulations were operating.

The first manipulation check was built into the computer disks and consists of the screen with the wormlike figure on it for about five seconds and a series of questions regarding that particular screen. It is logical that those manipulations that get the person involved elicit greater concentration and increase the likelihood of more accurate responses to those questions. To test for this difference, analysis of variance and Duncan's Multiple Range test were conducted on the scores. Table 6-17 reports the results.

Table 6-17

Attention Scale Manipulation Check

Manipulation	Mean	Duncan's Multiple Range
2	7.162	A
		A
3	6.730	A B
		B
4	6.324	B

F Value = 2.20 Pr> F 0.1154

The Table indicates that this manipulation check does not completely support the manipulation effect. The F test is not significant at .05, and while manipulation two and manipulation four are different, there is no difference between reinforced and non-reinforced interactive point-of-purchase (2 vs. 3) and non-reinforced interactive versus non-interactive (3 vs. 4). The differences are clearly in the right direction, however.

The next manipulation check was a series of self reports of attention and interest consisting of five questions. Each question was subjected to an analysis of variance and Duncan's Range test and it was expected that respondents in the interactive manipulations (2 and 3) would report themselves as more interested and attentive than would those from the non-interactive manipulation. Table 6-18 reports the results of each analysis.

Table 6-18

Self Report Manipulations Checks

A. Five Point Attention Scale

Manipulation	Mean	Duncan's Multiple Range
4	3.460	A
		A
2	2.703	A B
		B
3	2.243	B

F Value = 0.16 Pr > F .853

B. Five Point Interest Scale

Manipulation	Mean	Duncan's Multiple Range
4	3.648	A
		A
2	3.297	A B
		B
3	2.243	B

F Value = 4.68 PR > F .0112

C. Multiple Choice Attention and Interest

Manipulation	Mean	Duncan's Multiple Range
2	3.541	A
		A
3	3.487	A
		A
4	3.432	A

F Value = 0.16 Pr > F .853

D. Pollimeter Attention

Manipulation	Mean	Duncan's Multiple Range
4	45.00	A
		A
2	36.84	A B
		B
3	27.65	B

F Value = 2.38 Pr > F .0977

E. Pollimeter Interest

Manipulation	Mean	Duncan's Multiple Range
2	74.86	A
		A
3	73.43	A
		A
4	64.78	A

F Value 1.45 Pr > F .2399

The self report manipulation check measures were not effective. Only three of the five A, C, and E were in the correct direction and in each of those cases the results were non-significant. The other two scales had statistically significant results between two manipulations as expected, but in both cases the order of the interactive manipulations was opposite of the expectations, although not significant.

The third manipulation check was a timing of the manipulation. Since the full overt reinforcement manipulation contained more reading than the non-overt reinforced manipulation, it would be expected that the

average time to take this manipulation would be longer. Table 6-19 reports the analysis of variance and Duncan's Range Test for this variable.

Table 6-19

Time Manipulation Check

Manipulation	Mean	Duncan's Multiple Range
2	11.567	A
		A
3	10.783	A
4	6.00	B

F Value = 92.74 p > F .0001

With an F value probability of .0001, there is clearly a difference between manipulations. The Duncan Multiple Range Test indicates that the differences are between the interactive and non-interactive manipulations, but not between the two interactive manipulations. Again the direction of the means are as hypothesized, but the differences are not great enough to reject the null hypothesis that they are the same.

The last manipulation check involves the number of assists a person sought while doing the manipulation. It is suggested that the fully reinforced manipulation, cell two would require less help than the non-reinforced manipulation, cell three. Cell four, the non-interactive manipulation,

requires no help. Table 6-20 reports the analysis of variance and Duncan's Multiple Range Tests.

Table 6-20

Help Status Manipulation Check

Manipulation	Means	Duncan's Multiple Range Test
2	1.973	A A
3	2.730	A
4	0.000	B

With an F value probability of .0001 there is clearly a difference between cells. Again, the Duncan Multiple Range Test does not reject the null hypothesis that the interactive manipulations are not different. Also the means are in the predicted directions, but not statistically significant.

In summary, the manipulation check results are somewhat mixed with the self reported scores showing the least reported effect. In general, it appears that a strong manipulation occurred with regards to the interactive to non-interactive point-of-purchase; but, at best, a weak manipulation between the two interactive point-of-purchase attempts. The term weak, at best, is supported by the fact that several manipulation checks were significant at .10 rather than .05, and that in general, even those that were not significant, did operate in the predicted direction.

Obviously the weak manipulation check measures have significance for the kind of analysis that will be done at the hypotheses testing stage.

Summary of Measured Variables

Based on the preceding discussions Table 6-21 summarizes the measures that will be used to test the various hypotheses. As noted previously some of the measures are modified to reflect improvements in the reliability and validity of the measures. Measures dealing with manipulation checks are not included since these will not be used to test hypotheses.

Table 6-21

Final Measure Sets For Hypotheses Testing

Latent Construct	Measures
Intention to Buy	Lcopurch Mgintent Polla
Relative Advantage	(1) Ldothing Pollc (2) Lleasy Polle (3) Lworth Pollj
Complexity	(1) Lluse Mgoperat (2) Lcomplex Mgunders Pollh
Compatibility	Llifesty Mglife Pollf

Trialability	Letotry
	Mgtry
	Polld
Observability	Lknow
	Mgobser
	Pollb
Emotion-happiness	Delight
	Joyful
Emotion-attention	Attent
	Concentr
	Alert
Emotion-Surprise	Surprise
	Amazed
	Astonish
Skepticism	Skeptcal
	Suspics
	Dubious
Arousal Seeking Tendency	QA to QAN (total score)
Point-of-Purchase Response	Trlessa
	Trlessb

Tests of Hypotheses

This section reports the results of the hypothesis tests. For the means of each of the variables in the various tests, for the entire population of 148 respondents and for each cell the reader is directed to Appendix I.

A total of twenty-two hypotheses will be tested. Prior to the actual statistical tests, an examination of the direction of mean scores for each hypothesis will be undertaken. Clearly, if the means are not in the direction as predicted, the hypotheses can not possibly be confirmed statistically.

Hypotheses one through twenty (1-20) will be tested using the techniques of multiple analysis of variance and

covariance. LISREL is a more appropriate analysis technique for these hypotheses, but due to the problems with the manipulation checks, the technique is not feasible in this situation. Both univariate and multivariate results will be reported. Hypothesis twenty-one (21) links the level of arousal seeking tendency to the response to point-of-purchase requests and will be tested using regression analysis over the entire sample of 148 respondents for both sign and salesperson generated requests. Hypothesis twenty-two (22) suggests that salesperson requests will be more effective than sign requests in generating point-of-purchase trials. A T-test over the entire sample of 148 respondents will test this final hypothesis.

Examination of Mean Scores for Hypotheses Testing

Table 6-22 reports on the mean scores for each hypothesis. Since hypotheses one through twenty use multiple tests, each test is reported. In addition, since there are multiple sets of indicators for hypotheses one, two, seven, and eight, these are reported. In all cases, the reported directions are for multiple measures and thus affect the multivariate tests. Individual measures, where different will be reported under the discussion of each hypothesis. The first column reports the main effect, and the other two columns report whether the control group effect is consistent

with the predicted direction. The exact groups involved in each test are listed at the bottom of Table 6-22. The entry "yes" means that it is possible to confirm the hypothesis statistically, the entry "no" means that it is not, because one of more of the means is not in the order predicted thus making any statistical finding spurious. It should be noted that hypotheses thirteen through twenty are tested with a covariate and hence the means that are represented are not those reported in Appendix I. Instead, they have been adjusted for the covariate and thus indicate whether the hypotheses can be confirmed, given the effects of the covariate.

Table 6-22

Direction of Means for Hypotheses Tests 1-22

Hypothesis	Main Effect	Control (1)	Control (2)
1A	NO	NO	NO
1B	YES	YES	YES
1C	NO	YES	YES
2A	YES	YES	YES
2B	YES	YES	YES
3	NO	YES	YES
4	NO	YES	YES
5	YES	YES	YES
6	NO	YES	NO
7A	NO	YES	NO
7B	NO	YES	YES
7C	NO	YES	YES
8A	YES	YES	YES
8B	NO	YES	YES
9	NO	YES	YES
10	NO	NO	YES
11	YES	YES	YES

Hypothesis	Main Effect	Control (1)	Control (2)
12	YES	YES	YES
13	YES	NO	NO
14	NO	NO	NO
15	YES	NO	YES
16	NO	YES	YES
17	YES	NO	NO
18	YES	NO	NO
19	NO	NO	NO
20	NO	NO	NO
21	N/A	N/A	N/A
22	YES	N/A	N/A

Main effects	Cell 2 to Cell 4	Hypotheses 1-6 and 13-16
Main effects	Cell 2 to Cell 3	Hypotheses 7-12 and 17-20
Control (1)	Cell 1 to Cell 2	Hypotheses 1-6 and 13-16
Control (1)	Cell 1 to Cell 3	Hypotheses 7-12 and 17-20
Control (2)	Cell 1 to Cell 4	Hypotheses 1-6 and 13-16
Control (2)	Cell 1 to Cell 2	Hypotheses 7-12 and 17-20

Hypothesis One (1)

The first hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of relative advantage than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

The hypothesis was analyzed using two related analytical tools. The first analysis was a one-way multivariate analysis of variance of the three pairs of relative advantage variables over experimental cells two, and four and then over cells one and four and one and two. Cell one was the control group, cell two the overt reinforced interactive point-of-purchase activity, and cell four the non-interactive point-of-purchase activity. Thus both parts of the

hypothesis were tested by the three tests. In addition, a second analysis was a one-way univariate analysis of variance over cells one, two, and four with a priori contrasts and various multiple range tests being used to ascertain the univariate differences between the three cells. Thus the contributions of the individual variables could be ascertained. Table 6-23 reports the results for each set of relative advantage variables.

Table 6-23

Test of Hypothesis One

A. Multivariate Results

Relative Advantage Variables Ldothing and Pollc

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.30	.745	1.93	.153	1.05	.354
Pillia's Trace	0.30	.745	1.93	.153	1.05	.354
Wilks Criterion	0.30	.745	1.93	.153	1.05	.354

Relative Advantage Variables Leasy and Polle

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.23	.799	1.12	.331	1.76	.180
Pillia's Trace	0.23	.799	1.12	.331	1.76	.180
Wilks Criterion	0.23	.799	1.12	.331	1.76	.180

Relative Advantage Variables Lworth and Pollj

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.34	.104	5.10	.008	1.57	.215
Pillia's Trace	2.34	.104	5.10	.008	1.57	.215
Wilks Criterion	2.34	.104	5.10	.008	1.57	.215

B. Univariate Results

Relative Advantage Variables Ldothing and Pollc

Ldothing

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.44	.508	1.98	.164	3.87	.053

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.892	2.02	.045
Cell 1 to Cell 2	0.568	1.285	.201
Cell 2 to Cell 4	0.324	0.734	.464

Pollc

Analysis of Variance

Cell 2 and 4		Cell 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.46	.501	0.13	.719	1.06	.307

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	7.405	1.040	.300
Cell 1 to Cell 2	2.405	0.338	.736
Cell 2 to Cell 4	5.000	0.702	.484

Relative Advantage Variables Lleasy and Polle

Lleasy

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.38	.537	2.21	.141	0.68	.412

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.378	0.857	.393
Cell 1 to Cell 2	0.649	1.468	.144
Cell 2 to Cell 4	0.270	0.612	.542

Polle

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.04	.833	3.41	.069	2.19	.143

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	1 AND 4
Student Newman Keuls	1 AND 4
Scheffe Procedure	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	9.811	1.488	.139
Cell 1 to Cell 2	11.297	1.718	.089
Cell 2 to Cell 4	1.487	0.225	.822

Relative Advantage Variables Lworth and Pollj

Lworth

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.42	.519	3.08	.084	1.08	.303

Multiple Range Tests

Test	Groups Signficantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.460	1.041	.299
Cell 1 to Cell 2	0.757	1.715	.088
Cell 2 to Cell 4	0.297	0.674	.501

Pollj

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
3.14	.081	1.81	.182	10.06	.002

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	1 AND 4
Student Newman Keuls	1 AND 4
Scheffe Procedure	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	23.189	3.162	.002
Cell 1 to Cell 2	9.162	1.249	.214
Cell 2 to Cell 4	14.027	1.913	.053

This hypothesis tests three separate elements of perceived relative advantage using two measures in each element. As indicated in Table 6-22 it is not possible to confirm the hypothesis for any part of the first element, nor for the main effect of the third element. An examination of Table 6-23 at the multivariate level indicates that both the second and third pairs of relative advantage variables were statistically significant at .05 for the non-interactive versus control group comparison. The univariate tests for group differences and contrasts demonstrate the contribution of the individual measures to that finding.

Hypothesis Two (2)

The second hypothesis states:

> Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of complexity than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis was analyzed in the same manner as hypothesis one. The results of this analysis are presented in Table 6-24.

Table 6-24

Test of Hypothesis Two

A. Multivariate Results

Complexity Variables Lluse and Mgoperat

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.00	.142	0.70	.499	3.94	.024
Pillia's Trace	2.00	.142	0.70	.499	3.94	.024
Wilks Criterion	2.00	.142	0.70	.499	3.94	.024

Complexity Variables Lcomplex Mgunders and Pollh

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.98	.406	1.68	.178	3.90	.012
Pillia's Trace	0.98	.406	1.68	.178	3.90	.012
Wilks Criterion	0.98	.406	1.68	.178	3.90	.012

B. Univariate Results

Complexity Variables Lluse and Mgoperat

Lluse

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.01	.943	0.85	.361	0.73	.395

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.324	0.833	.406
Cell 1 to Cell 2	0.351	0.902	.368
Cell 2 to Cell 4	0.027	0.069	.945

Mgoperat

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
3.53	.064	7.99	.006	1.21	.275

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	1 AND 2
Student Newman Keuls	1 AND 2
Scheffe Procedure	1 AND 2

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.243	1.182	.239
Cell 1 to Cell 2	0.595	2.889	.004
Cell 2 to Cell 4	0.351	1.707	.090

Complexity Variables Lcomplex Mgunders and Pollh

Lcomplex

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.19	.666	3.63	.061	1.91	.172

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.568	1.435	.154
Cell 1 to Cell 2	0.730	1.844	.067
Cell 2 to Cell 4	0.162	0.410	.682

Mgunders

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.64	.221	2.13	.149	0.05	.821

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	0.054	0.251	.802
Cell 1 to Cell 2	0.324	1.507	.134
Cell 2 to Cell 4	0.270	1.256	.211

Pollh

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.53	.221	11.66	.001	4.66	.034

Multiple Range Tests

Test	Groups Significantly Different at .05	
Duncan	1 AND 2	1 AND 4
Student Newman Keuls	1 AND 2	1 AND 4
Scheffe Procedure	1 AND 2	

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	14.757	2.375	.019
Cell 1 to Cell 2	21.487	3.458	.001
Cell 2 to Cell 4	6.730	1.083	.281

This hypothesis tests two elements of perceived complexity using two measures in the first element and three in the second. Table 6-22 indicates that all six possible effects could be confirmed. The statistical findings presented in Table 6-24 indicate that the main effect was

not supported for either set of perceived complexity variables. In both cases, however, the overt interactive manipulation was statistically superior to the control group as measured in the multivariate analysis of variance. An examination of the univariate tests indicates that one variable in each set was primarily responsible for this finding.

Hypothesis Three (3)

The third hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of compatibility than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-25 reports the results of these tests.

Table 6-25

Test of Hypothesis Three

A. Multivariate Results

Compatibility Variables Llifesty Mglife and Pollf

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.77	.517	1.70	.174	1.06	.372
Pillia's Trace	0.77	.517	1.70	.174	1.06	.372
Wilks Criterion	0.77	.517	1.70	.174	1.06	.372

B. Univariate Results

Compatibility Variables Llifesty Mglife Pollf

Llifesty

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.20	.658	2.16	.146	3.50	.066

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.676	1.411	.160
Cell 1 to Cell 4	0.892	1.862	.065
Cell 2 to Cell 4	0.216	0.451	.652

Mglife

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
2.32	.131	0.12	.729	2.96	.090

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.081	0.336	.737
Cell 1 to Cell 4	0.432	1.794	.075
Cell 2 to Cell 4	0.351	1.458	.147

Pollf

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.40	.528	2.99	.088	4.72	.033

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	1 AND 4
Student Newman Keuls	1 AND 4
Scheffe Procedure	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	16.162	2.293	.023
Cell 1 to Cell 2	11.270	1.599	.112
Cell 2 to Cell 4	4.892	0.694	.489

This hypothesis tests perceived compatability using three measures. As noted in Table 6-22 it is not possible to confirm the main effect. The statistical findings presented in Table 6-25 indicate that none of the testable effects for this hypothesis can be supported. With the exception of indicant Pollf, the results suggest no effect for the manipulation in comparison to the control group.

Hypothesis Four (4)

The fourth hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of observability than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-26 reports the results of these tests.

Table 6-26

Test of Hypothesis Four

A. Multivariate Results

Observability Variables Lknow Mgobser Pollb

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 4		Cells 1 vs. 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.23	.876	1.53	.213	2.04	.117
Pillia's Trace	0.23	.876	1.53	.213	2.04	.117
Wilks Criterion	0.23	.876	1.53	.213	2.04	.117

B. Univariate Results

Observability Variables Lknow Mgobser Pollb

Lknow

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
.01	.909	3.03	..086	2.15	.147

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.703	1.649	.101
Cell 1 to Cell 4	0.649	1.523	.130
Cell 2 to Cell 4	0.054	0.127	.909

Mgobser

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.47	.493	0.01	.903	0.58	.449

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.0	0.0	1.00
Cell 1 to Cell 4	0.189	0.744	.458
Cell 2 to Cell 4	0.189	0.744	.458

Pollb

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.02	.894	0.22	.637	0.11	.741

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	3.297	0.465	.642
Cell 1 to Cell 4	2.351	0.332	.740
Cell 2 to Cell 4	0.946	0.133	.894

This hypothesis tests perceived observability using three measures. As noted in Table 6-22 it is not possible to confirm the main effect. The statistical findings presented in Table 6-26 indicate that none of the effects can be supported. At the univariate level none of the indicants provided any support for confirmation.

Hypothesis Five (5)

The fifth hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondent's perception of trialability than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-27 reports the results of these tests.

Table 6-27

Test of Hypothesis Five

A. Multivariate Results

Trialability Variables Letotry Mgtry Polld

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 2		Cells 1 vs. 4	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.69	.563	7.75	.000	3.94	.018
Pillia's Trace	0.69	.563	7.75	.000	3.94	.018
Wilks Criterion	0.69	.563	7.75	.000	3.94	.018

B. Univariate Results

Trialability Variables Letotry Mgtry Polld

Letotry

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.49	.227	10.48	.002	4.10	.047

Multiple Range Tests

Test	Groups Significantly Different At .05	
Duncan	1 AND 2	1 AND 4
Student Newman Keuls	1 AND 2	1 AND 4
Scheffe Procedure	1 AND 2	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	1.378	3.34	.001
Cell 1 to Cell 4	0.919	2.22	.028
Cell 2 to Cell 4	0.460	1.11	.268

Mgtry

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.59	.212	21.67	.001	10.65	.002

Multiple Range Tests

Test	Groups Significantly Different At .05	
Duncan	1 AND 2	1 AND 4
Student Newman Keuls	1 AND 2	1 AND 4
Scheffe Procedure	1 AND 2	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	1.00	4.667	.000
Cell 1 to Cell 4	0.757	3.532	.001
Cell 2 to Cell 4	0.243	1.135	.258

Polld

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.47	.493	12.36	.001	7.83	.007

Multiple Range Tests

Test	Groups Significantly Different At .05	
Duncan	1 AND 2	1 AND 4
Student Newman Keuls	1 AND 2	1 AND 4
Scheffe Procedure	1 AND 2	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	24.784	3.385	.001
Cell 1 to Cell 4	20.054	2.739	.007
Cell 2 to Cell 4	4.730	0.646	.519

This hypothesis tests for perceived trialability using three measures. As indicated in Table 6-22 it is possible to confirm this hypothesis at the main effects level as well as both control levels. The statistical findings presented in Table 6-27 indicate that the main effect could not be supported. Both control group effects are supported both at the multivariate level and at the individual variable level.

Hypothesis Six (6)

The sixth hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondent's stated intention to buy than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-28 reports the results of these tests.

Table 6-28

Test of Hypothesis Six

A. Multivariate Results

Intention to Buy Variables Lcopurch Mgintent Polla

Multivariate Test	Cells 2 vs. 4		Cells 1 vs. 2		Cells 1 vs. 4	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	1.43	.242	2.27	.088	4.27	.008
Pillia's Trace	1.43	.242	2.27	.088	4.27	.008
Wilks Criterion	1.43	.242	2.27	.088	4.27	.008

B. Univariate Results

Intention to Buy Variables Lcopurch Mgintent Polla

Lcopurch

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.12	.733	3.11	.082	2.17	.145

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.919	1.918	.057
Cell 1 to Cell 4	0.757	1.580	.116
Cell 2 to Cell 4	0.162	0.339	.735

Mgintent

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.89	.348	4.75	.033	7.83	.007

Multiple Range Tests

Test	Groups Significantly Different At .05	
Duncan	1 AND 2	1 AND 4
Student Newman Keuls	1 AND 2	1 AND 4
Scheffe Procedure	1 AND 2	1 AND 4

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.541	2.41	.017
Cell 1 to Cell 4	0.730	3.254	.001
Cell 2 to Cell 4	0.189	0.844	.400

Polla

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.60	.441	0.05	.826	0.28	.601

Multiple Range Tests

Test	Groups Significantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 4	4.946	0.568	.571
Cell 1 to Cell 2	1.973	0.227	.821
Cell 2 to Cell 4	6.919	0.795	.428

This hypothesis tests for stated intention to buy using three measures. As indicated in Table 6-22 the main effect and the second control group can not be confirmed. The statistical findings presented in Table 6-28 indicate that the remaining effect can be supported. At the univariate level the only individual variable significant is Mgintent for both control effects. Both of these are significant as the problem with the control group does not lie with the variable Mgintent.

Hypothesis Seven (7)

The seventh hypothesis states:

Continuous positive overt reinforcement schedule point-of-purchase activities will more positively change the respondent's perception of relative advantage than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis is tested in the same manner as hypothesis one. Table 6-29 reports the results.

Table 6-29

Test of Hypothesis Seven

A. Multivariate Results

Relative Advantage Variables Ldothing and Pollc

Multivariate Test	Cells 2 vs 3		Cells 1 vs 3		Cells 1 vs 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.02	.979	1.10	.338	1.05	.354
Pillia's Trace	0.02	.979	1.10	.338	1.05	.354
Wilks Criterion	0.02	.979	1.10	.338	1.05	.354

Relative Advantage Variables Lleasy and Polle

Multivariate Test	Cells 2 vs 3		Cells 1 vs 3		Cells 1 vs 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.37	.101	4.14	.020	1.76	.180
Pillia's Trace	2.37	.101	4.14	.020	1.76	.180
Wilks Criterion	2.37	.101	4.14	.020	1.76	.180

Relative Advantage Variables Lworth and Pollj

Multivariate Test	Cells 2 vs 3		Cells 1 vs 3		Cells 1 vs 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	1.29	.282	4.38	.016	1.57	.215
Pillia's Trace	1.29	.282	4.38	.016	1.57	.215
Wilks Criterion	1.29	.282	4.38	.016	1.57	.215

B. Univariate Results

Relative Advantage Variables Ldothing and Pollc

Ldothing

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.04	.851	1.98	.164	1.55	.217

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.487	1.10	.273
Cell 1 to Cell 2	0.568	1.285	.201
Cell 2 to Cell 3	0.081	0.184	.855

Pollc

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.03	.864	0.13	.719	0.03	.863

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	1.189	0.167	.868
Cell 1 to Cell 2	2.405	0.338	.736
Cell 2 to Cell 3	1.216	0.171	.865

Relative Advantage Variables Lleasy and Polle

Lleasy

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
2.14	.147	2.21	.141	0.00	.952

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.027	0.061	.951
Cell 1 to Cell 2	0.649	1.468	.144
Cell 2 to Cell 3	0.622	1.407	.162

Polle

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.18	.670	3.41	.069	5.29	.024

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	1 AND 3
Student Newman Keuls	1 AND 3
Scheffe Procedure	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	14.108	2.140	.034
Cell 1 to Cell 2	11.297	1.718	.089
Cell 2 to Cell 3	2.811	0.426	.671

Relative Advantage Variables Lworth and Pollj

Lworth

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.03	.519	3.08	.084	2.56	.114

Multiple Range Tests

Test	Groups Sigficantly Different at .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.676	1.532	.128
Cell 1 to Cell 2	0.757	1.715	.088
Cell 2 to Cell 3	0.081	0.184	.854

Pollj

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
2.15	.147	1.81	.182	887	.004

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	1 AND 3
Student Newman Keuls	1 AND 3
Scheffe Procedure	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	19.945	2.720	.007
Cell 1 to Cell 2	9.162	1.249	.214
Cell 2 to Cell 3	10.784	1.471	.144

This hypothesis tested three elements of perceived relative advantage using two measures each as in hypothesis one. Table 6-22 indicates that no main effect could be confirmed, nor could control effect two, (cell 1 to cell 2) be confirmed for Ldothing and Pollc. The statistical findings of Table 6-29 indicate that only the control effect of cell 1 to cell 3 was significant and only for Lleasy and Polle, and Lworth and Pollj. An examination of the univariate results indicates that the pollimeter measures were primarily responsible for the significant findings for the control effect.

Hypothesis Eight (8)

The eighth hypothesis states:

Continuous positive overt reinforcement schedule point-of-purchase activities will more positively change the respondent's perception of complexity than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis was analyzed in the same manner as hypothesis one. The results of this analysis are presented in Table 6-30.

Table 6-30

Test of Hypothesis Eight

A. Multivariate Results

Complexity Variables Lluse and Mgoperat

Multivariate Test	Cells 2 vs 3		Cells 1 vs 3		Cells 1 vs 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	1.62	.204	1.13	.328	3.94	.024
Pillia's Trace	1.62	.204	1.13	.328	3.94	.024
Wilks Criterion	1.62	.204	1.13	.328	3.94	.024

Complexity Variables Lcomplex Mgunders and Pollh

Multivariate Test	Cells 2 vs 3		Cells 1 vs 3		Cells 1 vs 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.62	.606	1.61	.195	3.90	.012
Pillia's Trace	0.62	.606	1.61	.195	3.90	.012
Wilks Criterion	0.62	.606	1.61	.195	3.90	.012

B. Univariate Results

Complexity Variables Lluse and Mgoperat

Lluse

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.07	.788	0.85	.361	1.32	.255

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.460	1.183	.240
Cell 1 to Cell 2	0.351	0.902	.368
Cell 2 to Cell 3	0.108	0.278	.782

Mgoperat

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
2.93	.091	7.99	.006	1.47	.230

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	1 AND 2
Student Neuman Kuhls	1 AND 2
Scheffe Procedure	1 AND 2

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.270	1.313	.191
Cell 1 to Cell 2	0.595	2.889	.004
Cell 2 to Cell 3	0.324	1.576	.117

Complexity Variables Lcomplex Mgunders and Pollh

Lcomplex

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.73	.396	3.63	.061	0.95	.333

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Neuman Kuhls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.405	1.025	.307
Cell 1 to Cell 2	0.730	1.844	.067
Cell 2 to Cell 3	0.324	0.820	.414

Mgunders

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.99	.323	2.13	.149	0.38	.268

Multiple Range Tests

Test	Groups Significantly Different at .05
Duncan	NONE
Student Neuman Kuhls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	0.135	0.628	.531
Cell 1 to Cell 2	0.324	1.507	.134
Cell 2 to Cell 3	0.189	0.879	.381

Pollh

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.25	.268	11.66	.001	4.94	.030

Multiple Range Tests

Test	Groups Significantly Different at .05	
Duncan	1 AND 2	1 AND 4
Student Neuman Kuhls	1 AND 2	1 AND 4
Scheffe Procedure	1 AND 2	

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	15.324	2.466	.015
Cell 1 to Cell 2	21.487	3.458	.001
Cell 2 to Cell 3	6.162	0.992	.323

This hypothesis tested two elements of perceived complexity, the first with two measures and the second with three. Table 6-22 indicates that all effects could be confirmed except the main effect of the second element of perceived complexity, Lcomplex, Mgunders, and Pollb. The statistical results indicate that the remaining main effect can't be confirmed. At the multivariate data analysis level

the first control effect cell 1 to cell 2 was significant for both sets of measures of perceived complexity. At the univariate level of analysis, the variables Mgunders and Pollh are identified as the major contributors to that finding. Pollh also is significant for the cell 1 to cell 3 control effect.

Hypothesis Nine (9)

The ninth hypothesis states:

Continuous positive overt reinforcement schedule point-of-purchase activities will more positively change the respondent's perception of compatability than will non-overt reinforced point-of-purchase activities, and each will have more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-31 reports the results of these tests.

Table 6-31

Test of Hypothesis Nine

A. Multivariate Results

Compatability Variables Llifesty Mglife Pollf

Multivariate Test	Cells 2 vs 3		Cells 1 vs 2		Cells 1 vs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.24	.867	1.06	.372	1.48	.228
Pillia's Trace	0.24	.867	1.06	.372	1.48	.228
Wilks Criterion	0.24	.867	1.06	.372	1.48	.228

B. Univariate Results

Compatability Variables Llifesty Mglife Pollf

Llifesty

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.20	.654	2.16	.146	2.38	.127

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.676	1.411	.160
Cell 1 to Cell 3	0.892	1.862	.065
Cell 2 to Cell 3	0.216	0.451	.652

Mglife

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.06	.815	0.12	.729	2.38	.127

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.081	0.336	.737
Cell 1 to Cell 3	0.135	0.561	.576
Cell 2 to Cell 3	0.054	0.224	.823

Poll f

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.05	.820	2.99	.088	2.38	.127

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	9.757	1.384	.168
Cell 1 to Cell 2	11.270	1.599	.112
Cell 2 to Cell 3	1.514	0.215	.830

This hypothesis tests perceived compatability using three measures. As indicated in Table 6-22 it is not possible to confirm the main effect of this hypothesis. The statistical results for the control effects indicate that neither of them was confirmed at the multivariate level. At the univariate level none of the items contributed toward confirmation at that level.

Hypothesis Ten (10)

The tenth hypothesis states:

Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of observability than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-32 reports the results of these tests.

Table 6-32

Test of Hypothesis Ten

A. Multivariate Results

Observability Variables Lknow Mgobser Pollb

Multivariate Test	Cells 2 vs 3		Cells 1 vs 3		Cells 1 vs 2	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.31	.084	1.96	.127	2.04	.117
Pillia's Trace	2.31	.084	1.96	.127	2.04	.117
Wilks Criterion	2.31	.084	1.96	.127	2.04	.117

B. Univariate Results

Observability Variables Lknow Mgobser Pollb

Lknow

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
3.67	.059	3.03	.086	0.05	.831

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.703	1.649	.101
Cell 1 to Cell 3	0.081	0.190	.849
Cell 2 to Cell 3	0.784	1.840	.068

Mgobser

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
4.78	.032	0.00	1.00	5.99	.017

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	2 AND 3 1 AND 3
Student Newman Keuls	2 AND 3 1 AND 3
Scheffe Procedure	2 AND 3 1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.0	0.0	1.00
Cell 1 to Cell 3	0.568	2.233	.027
Cell 2 to Cell 3	0.568	2.233	.027

Pollb

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.01	.927	0.22	.637	0.31	.580

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 3	3.946	0.557	.578
Cell 1 to Cell 2	3.297	0.465	.642
Cell 2 to Cell 3	0.649	0.092	.927

This hypothesis tests perceived observability using three measures. As noted in Table 6-22 neither the main effect, nor control effect cell 1 to cell 3 can be confirmed The statistics presented provide for no confirmation, at the multivariate level, of the second control, cell 1 versus. cell 2. At the univariate level, the significant findings for the indicant Mgobser are actually opposite of what was expected.

Hypothesis Eleven (11)

The eleventh hypothesis states:

Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's perception of trialability than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-33 reports the results of these tests.

Table 6-33

Test of Hypothesis Eleven

A. Multivariate Results

Trialability Variables Letotry Mgtry Polld

Multivariate Test	Cells 2 vs 3		Cells 1 vs 2		Cells 1 vs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.70	.555	7.75	.000	3.70	.016
Pillia's Trace	0.70	.555	7.75	.000	3.70	.016
Wilks Criterion	0.70	.555	7.75	.000	3.70	.016

B. Univariate Results

Trialability Variables Letotry Mgtry Polld

Letotry

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.44	.512	10.48	.002	6.45	.013

Multiple Range Tests

Test	Groups Signficantly Different At .05	
Duncan	1 AND 2	1 AND 3
Student Newman Keuls	1 AND 2	1 AND 3
Scheffe Procedure	1 AND 2	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	1.378	3.34	.001
Cell 1 to Cell 3	1.135	2.75	.007
Cell 2 to Cell 3	0.243	0.59	.557

Mgtry

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.92	.170	21.67	.001	9.76	.003

Multiple Range Tests

Test	Groups Signficantly Different At .05	
Duncan	1 AND 2	1 AND 3
Student Newman Keuls	1 AND 2	1 AND 3
Scheffe Procedure	1 AND 2	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	1.00	4.667	.000
Cell 1 to Cell 3	0.730	3.405	.001
Cell 2 to Cell 3	0.270	1.261	.209

Polld

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.85	.359	12.36	.001	5.23	.024

Multiple Range Tests

Test	Groups Signficantly Different At .05	
Duncan	1 AND 2	1 AND 3
Student Newman Keuls	1 AND 2	1 AND 3
Scheffe Procedure	1 AND 2	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	24.784	3.385	.001
Cell 1 to Cell 3	17.892	2.444	.016
Cell 2 to Cell 3	6.892	0.941	.348

This hypothesis tests perceived trialability using three measures. As indicated in Table 6-22 the main effect could not be confirmed. The statistical findings indicate that both control effects were signficant at both the multivariate level and at the univariate level for each indicator.

Hypothesis Twelve (12)

The twelth hypothesis states:

Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondent's stated intention to buy than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis one (1). Table 6-34 reports the results of these tests.

Table 6-34

Test of Hypothesis Twelve

A. Multivariate Results

Intention to Buy Variables Lcopurch Mgintent Polla

Multivariate Test	Cells 2 vs 3		Cells 1 vs 2		Cells 1 vs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	1.23	.305	2.27	.088	4.24	.008
Pillia's Trace	1.23	.305	2.27	.088	4.24	.008
Wilks Criterion	1.23	.305	2.27	.088	4.24	.008

B. Univariate Results

Intention to Buy Variables Lcopurch Mgintent Polla

Lcopurch

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.84	.362	3.11	.082	7.48	.008

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	1 AND 3
Student Newman Keuls	1 AND 3
Scheffe Procedure	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.919	1.918	.057
Cell 1 to Cell 3	1.325	2.765	.006
Cell 2 to Cell 3	0.405	0.846	.399

Mgintent

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
3.23	.077	4.75	.033	12.37	.001

Multiple Range Tests

Test	Groups Signficantly Different At .05	
Duncan	1 AND 2	1 AND 3
Student Newman Keuls	1 AND 2	1 AND 3
Scheffe Procedure	1 AND 2	1 AND 3

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	0.541	2.41	.017
Cell 1 to Cell 3	0.865	3.856	.000
Cell 2 to Cell 3	0.324	1.446	.150

Polla

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.19	.278	0.05	.826	1.57	.214

Multiple Range Tests

Test	Groups Signficantly Different At .05
Duncan	NONE
Student Newman Keuls	NONE
Scheffe Procedure	NONE

Contrasts

Contrast	Value	T Value	T Prob
Cell 1 to Cell 2	1.973	0.227	.821
Cell 1 to Cell 3	10.622	1.221	.224
Cell 2 to Cell 3	8.649	0.994	.322

This hypothesis tests stated intention to buy using three indicants. As indicated in Table 6-22 it was possible to confirm all of the effects. At the multivariate level only the control effect of cell 1 to cell 3 was signficant. At the univariate level both Lcopurch and Mgintent contributed to this finding, while Polla did not.

Hypothesis Thirteen (13)

Hypothesis thirteen states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of happiness than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis and numbers fourteen (14) through twenty (20) will be tested somewhat differently from the previous twelve hypotheses. In this case a one-way multiple analysis

of covariance will be utilized. Since arousal seeking tendency is assumed to have an effect on arousal this variable will be covaried in the analysis to cancel out this effect. Both multivariate and univariate results will be reported. Table 6-35 reports the results for hypothesis thirteen.

Table 6-35

Hypothesis Thirteen

A. Multivariate Results MANCOVA

Happiness Variables Delight Joyful by Atensco

Multivariate Test	Cells 2 vs 4		Cells 1 vs 2		Cells 1 vs 4	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.32	.129	1.56	.238	0.30	.749
Pillia's Trace	2.32	.129	1.56	.238	0.30	.749
Wilks Criterion	2.32	.129	1.56	.238	0.30	.749

B. Univariate Results

Delight

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.99	.054	1.42	.204	1.31	.307

Joyful

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.28	.287	0.87	.612	2.09	.072

This hypothesis examines changes in the variable happiness over manipulations and covaried by the respondents arousal seeking tendency score using two measures of happiness and one of arousal seeking tendency. As indicated in Table 6-22 only the main effect could be confirmed. An exmaination of the statistical results in Table 6-35 indicates the hypothesis was not confirmed.

Hypothesis Fourteen (14)

The fourteenth hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of attention than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis is tested in the same manner as hypothesis thirteen (13). Table 6-36 reports the results.

Table 6-36

Hypothesis Fourteen

A. Multivariate Results MANCOVA

Attention Variables Attent Concentr Alert by Atensco

Multivariate Test	Cells 2 vs 4		Cells 1 vs 2		Cells 1 vs 4	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.39	.106	1.01	.342	0.36	.782
Pillia's Trace	2.39	.106	1.01	.342	0.36	.782
Wilks Criterion	2.39	.106	1.01	.342	0.36	.782

B. Univariate Results

Attent

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.78	.762	1.00	.527	0.74	.792

Concentr

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.72	.102	0.79	.759	0.91	.627

Alert

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.79	.087	4.20	.001	2.55	.033

This hypothesis examines changes in the variable attention over manipulations and covaried by the respondents arousal seeking tendency score using three measures of attention and one of arousal seeking tendency. As indicated in Table 6-22 it was not possible to confirm any of the effects of the hypothesis at the multivariate level. However, the signficant effects at the univariate level shown for the variable alert in both control effects are as hypothesized.

Hypothesis Fifteen (15)

The fifteenth hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of surprise than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis thirteen (13). Table 6-37 reports the results.

Table 6-37

Hypothesis Fifteen

A. Multivariate Results MANCOVA

Surprise Variables Surprise Amazed Astonish by Atensco

Multivariate Test	Cells 2 vs 4		Cells 1 vs 2		Cells 1 vs 4	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.09	.142	1.35	.293	0.95	.424
Pillia's Trace	2.09	.142	1.35	.293	0.95	.424
Wilks Criterion	2.09	.142	1.35	.293	0.95	.424

B. Univariate Results

Surprise

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.38	.230	0.70	.851	1.04	.500

Amazed

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.72	.102	1.24	.312	1.40	.257

Astonish

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.40	.220	2.99	.005	1.37	.274

This hypothesis examines the changes in surprise over the manipulations as covaried by arousal seeking tendency. As Table 6-22 indicates it was only possible to confirm the main effect and the cell 1 to cell 4 control effect. The statistical results indicate that no part of the hypothesis could be confirmed at the multivariate level. At the univariate level, the indicant astonish for cells 1 and 2 is as predicted.

Hypothesis Sixteen (16)

The sixteenth hypothesis states:

Overt reinforced interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of skepticism than will non-interactive point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis thirteen (13). Table 6-38 reports the results.

Table 6-38

Hypothesis Sixteen

A. Multivariate Results MANCOVA

Skepticism Variables Skeptcal Suspics Dubious by Atensco

Multivariate Test	Cells 2 vs 4		Cells 1 vs 2		Cells 1 vs 4	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	4.34	.020	3.23	.049	1.84	.199
Pillia's Trace	4.34	.020	3.23	.049	1.84	.199
Wilks Criterion	4.34	.020	3.23	.049	1.49	.199

B. Univariate Results

Skeptcal

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
2.92	.007	1.11	.417	0.99	.549

Suspics

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
3.40	.003	2.77	.008	2.38	.043

Dubious

Analysis of Variance

Cells 2 and 4		Cells 1 and 2		Cells 1 and 4	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.94	.061	1.09	.436	1.71	.143

This hypothesis examines the changes in skepticism over manipulations as covaried by the arousal seeking tendency of the respondent. As indicated in Table 6-22 the only effects that could be confirmed were the control effects. The statistical findings at the multivariate level only support the first control effect. At the univariate level only the indicant suspics is supported, but for both contol effects. The findings of significance at the multivariate level for both the main effect and the univariate findings suggest that the indicants skeptcal and suspics are primarily responsible for the multivariate findings which are opposite to what was hypothesized.

Hypothesis Seventeen (17)

Hypothesis Seventeen states:

Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of happiness than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be analyzed in the same manner as hypothesis thirteen (13). Table 6-39 reports the results.

Table 6-39

Hypothesis Seventeen

A. Multivariate Results MANCOVA

Happiness Variables Delight Joyful by Atensco

Multivariate Test	Cells 2 vrs 3		Cells 1 vrs 2		Cells 1 vrs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.79	.467	1.56	.238	2.22	.134
Pillia's Trace	0.79	.467	1.56	.238	2.22	.134
Wilks Criterion	0.79	.467	1.56	.238	2.22	.134

B. Univariate Results

Delight

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.14	.379	1.42	.204	1.80	.066

Joyful

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.96	.562	0.87	.612	2.28	.019

This hypothesis tests changes in happiness over manipulations as covaried by arousal seeking tendency. As indicated in Table 6-22 only the main effect could be confirmed. The statistical findings do not support

confirmation of the main effect hypothesis at either the multivariate level, or for any of the indicants. The univariate significance of joyful is the opposite of the hypothesized findings.

Hypothesis Eighteen (18)

The eighteenth hypothesis states:

Continuous positive overt reinforcement scheduled interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of attention than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis is tested in the same manner as hypothesis thirteen (13). Table 6-40 reports the results.

Table 6-40

Hypothesis Eighteen

A. Multivariate Results MANCOVA

Attention Variables Attent Concentr Alert by Atensco

Multivariate Test	Cells 2 vs 3		Cells 1 vs 2		Cells 1 vs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	2.18	.121	1.01	.342	2.16	.124
Pillia's Trace	2.18	.121	1.01	.342	2.16	.124
Wilks Criterion	2.18	.121	1.01	.342	2.16	.124

B. Univariate Results

Attent

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.95	.569	1.00	.527	0.97	.549

Concentr

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.86	.682	0.79	.759	0.84	.709

Alert

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
3.47	.001	4.20	.001	2.02	.037

This hypothesis examines surprise over manipulations as covaried by arousal seeking tendency. As indicated in Table 6-22 the only effect that could be confirmed was the main effect. The statistical findings at the multivariate level indicate that this main effect can not be confirmed. At the univariate level of analysis, the effect is confirmed for the indicant alert. The statistical significance for this

indicant for both control effects is also confirmed as their means are in the correct direction.

Hypothesis Nineteen (19)

The nineteenth hypothesis states:

Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of surprise than will non-overt reinforced point-of-purchase activities, and each will have a more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis thirteen (13). Table 6-41 reports the results.

Table 6-41

Hypothesis Nineteen

A. Multivariate Results MANCOVA

Surprise Variables Surprise Amazed Astonish by Atensco

Multivariate Test	Cells 2 vs 3		Cells 1 vs 2		Cells 1 vs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	1.78	.182	1.35	.293	0.48	.703
Pillia's Trace	1.78	.182	1.35	.293	0.48	.703
Wilks Criterion	1.78	.182	1.35	.293	0.48	.703

B. Univariate Results

Surprise

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.02	.494	0.70	.851	0.83	.720

Amazed

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.26	.277	1.24	.312	1.21	.317

Astonish

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.91	.619	2.99	.005	0.82	.724

This hypothesis examines changes in surprise over manipulations as covaried by arousal seeking tendency. As indicated in Table 6-22 it was not possible to confirm any of the effects. At the univariate level the statistical significance of cell 1 to cell 2 control effect for the indicant astonish is a confirmation of that control effect at that level.

Hypothesis Twenty (20)

The twentieth hypothesis states:

Continuous positive overt reinforcement schedule interactive point-of-purchase activities will more positively change the respondents degree of emotional arousal, modified by arousal seeking tendency, in terms of skepticism than will non-overt reinforced point-of-purchase activities, and either will have more positive effect than no activity.

This hypothesis will be tested in the same manner as hypothesis thirteen (13). Table 6-42 reports the results.

Table 6-42

Hypothesis Twenty

A. Multivariate Results MANCOVA

Skepticism Variables Skeptcal Suspics Dubious by Atensco

Multivariate Test	Cells 2 vs 3		Cells 1 vs 2		Cells 1 vs 3	
	F Value	PR>F	F Value	PR>F	F Value	PR>F
Hotelling-Lawley	0.57	.641	2.23	.149	1.13	.362
Pillia's Trace	0.57	.641	2.23	.149	1.13	.362
Wilks Criterion	0.57	.641	2.23	.149	1.13	.362

B. Univariate Results

Skeptcal

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
0.91	.624	1.11	.417	0.63	.913

Suspics

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.69	.086	2.77	.008	2.54	.010

Dubious

Analysis of Variance

Cells 2 and 3		Cells 1 and 2		Cells 1 and 3	
F Value	PR>F	F Value	PR>F	F Value	PR>F
1.08	.434	1.09	.436	1.01	.511

This hypothesis examines changes in skepticism over manipulations covaried with arousal seeking tendency. As Table 6-22 indicates it was not possible to confirm any of the effects. At the multivariate level there is no significance. At the univariate level the indicant Suspics is significant. As in hypothesis sixteen (16) this is an indication of a effect opposite of that hypothesized.

Hypothesis Twenty-one (21)

Hypothesis twenty-one states:

Respondents with a high level of arousal seeking tendency will have a greater tendency to respond to point-of-purchase offers than will respondents with lower levels of arousal seeking tendency.

This hypothesis was tested using regression analysis with arousal seeking tendency as the independant variable and response to a point of purchase offer as the dependent variable. Two specific tests were done, one for each type of point-of-purchase response, sign or salesperson. The results are indicated in Table 6-43.

Table 6-43

Hypothesis Twenty-One

Regression Results

Atensco vrs Trlessa

F Value	PR>F	Parameter	T Value	PR>T
4.82	.030	Intercept	21.52	.000
		Trlessa	2.20	.030

Atensco vrs Trlessb

F Value	PR>F	Parameter	T Value	PR>T
1.55	.216	Intercept	20.93	.000
		Trelessb	1.24	.216

The statistical results above indicate that the hypothesis can only be confirmed for the sign only generated point-of-purchase trial, Trlessa. For Trlessb, the salesperson generated point-of-purchase trial, the direction is correct, but not significant at the .05 level.

Hypotheses Twenty-two (22)

The twenty-second hypothesis states:

Respondents will have a greater tendency to respond to salesperson point-of-purchase requests than sign point-of-purchase requests.

This hypothesis was tested using a t-test to differentiate between the mean responses of Trlessa and Trlessb. Table 6-44 reports the results.

Table 6-44

Hypothesis Twenty-two (22)

Mean Trlessa	Mean Trlessb	T Value	PR>T
4.446	3.980	3.41	.001

An examination of the statistical results indicates that this hypothesis is confirmed as people are less likely to try point-of-purchase with a sign only request.

This concludes the results chapter of this dissertation. Chapter 7 will summarize the results, draw conclusions, discuss the weaknesses of the research and suggest future research directions.

CHAPTER 7

SUMMARY, CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

This chapter will begin with a summary of the findings of this research as presented in chapter six. Following this summary a number of conclusions will be developed, both from a practitioner and a researcher perspective, and implications, from a managerial perspective will be drawn. Finally a number of possible research directions will be suggested.

Summary

Summary of Objectives

This study sought to test, as its primary objective, the notion that learning theory can contribute to the development of point-of-purchase activities. In addition the study sought to examine the impact of particular types of

point-of-purchase activities on emotion. Finally the study also sought to test, within the type of product class, how best to attract the person to a point-of-purchase activity, and what might be the relation of tendency to participate in a point-of-purchase trial and the need for emotional stimulation.

Summary of Methodology and Design

In Chapter 2 the basic model was introduced as a means of organizing the literature that was the focus of this study. Figure 2-1 notes the relationship of the various components of this study. It was suggested that point-of-purchase provided a learning activity for the consumer. It was also suggested that emotional involvement was developed. Product familiarity was an important moderator of learning while it was suggested that a person's arousal seeking tendency was a moderator of emotional involvement.

The various appropriate literatures were reviewed in Chapter 3. In all areas both the conceptual and empirical work relevant to this dissertation was reviewed. This research departs from previous work in a number of areas, but most importantly in its choice of the product class for study, and in its consideration of emotional involvement.

Chapter 4 integrates the literature and defines the various constructs that were to be tested. Learning was

operationalized using the diffusion of innovations paradigm by measuring the persons perception of the attributes of the product using generalized constructs developed in that literature.

Emotional involvement was operationalized using the Izard et al. (1974) scale based on the Izard (1977) theory of differential emotions. From this a series of twenty two hypotheses were developed. They dealt with the issues of interactive and non-interactive point-of-purchase, overt reinforced interactive and non-overt interactive activities, and the effects upon perception of the attributes of the innovation and the emotional involvement of the individual. In addition, two hypotheses dealt with how to draw a person to point-of-purchase, and the relationship of arousal seeking tendency to the participation in point-of-purchase activities.

A field experiment, after only with control group design was developed to test the various hypotheses. Four groups, control group, overt reinforced interactive point-of-purchase activity, non-overt interactive point-of-purchase activity, and non-interactive point-of-purchase activity comprised the manipulations. The sample consisted of 148 shoppers in a regional mall anchor store with a leased computer department in Monmouth County New Jersey. The subjects were randomly

selected from the store population and randomly assigned to a group. Summaries of the respondents are given in Table 6-1 A-G.

Summary of Scale Analysis

The scales, contained in the various questionnaires, were analyzed or reformulated in order to be better utilized in this study. Where applicable, factor analysis, and reliability and validity analysis was utilized in this process.

The arousal tendency scale was analyzed in the same manner as the original construction. The factor analysis indicated a very poor fit with the original structure. An analysis of the mean and standard deviation as compared to the original indicated that the results were consistent, but lower in average than the original. Given the difference between the respondents this was plausible. A test to determine if age might be a factor, identified a significant correlation of age to arousal seeking tendency, indicating that this was a possibility.

The emotional involvement measure utilized the Izard, et al. (1974) scale. This was analyzed in the same manner as the original. Factor analysis indicated some problems with the scale. Using LISREL in the confirmatory factor analytic mode indicated problems with the happiness dimension which

required the dropping of an indicant.

Using LISREL to examine the measures of perceptions of the innovation indicated that one indicant of relative advantage and one indicant of the first element of perceived complexity had to be dropped from the analysis because they were not reliable.

Summary of Manipulation Check Results

A series of four manipulation checks were used. These were developed, but could not be tested prior to the experiment because of the limitation of not being able to have an adequate pre-test in the store. In general, the manipulation checks were mixed and weak. It did appear that a manipulation occurred between the overt interactive and non-interactive, but that a weak at best manipulation occurred between the two interactive groups. One ramification of the weak manipulation check measures is that the LISREL program can not be used for hypotheses testing.

Summary of Hypotheses Testing

Table 7-1 is a summary of the hypothesis testing that was examined in chapter 6 of this dissertation. Each hypothesis is reported at the multivariate level and each indicant is reported at the univariate level. Only hypotheses one

through twenty are summarized in this table.

Table 7-1

Summary of Hypotheses Tested

Hypothesis Number and Indicant	Main Effect 2 vs. 4	Main Effect 2 vs. 3	Control Effect 1 vs. 2	Control Effect 1 vs. 3	Control Effect 1 vs. 4
1A	NS		NS		NS
Ldothing	NS		NS		NS
Pollc	NS		NS		NS
1B	NS		NS		NS
Leasy	NS		NS		NS
Polle	NS		NS		NS
1C	NS		NS		SIG
Lworth	NS		NS		NS
Pollj	NS		NS		SIG
2A	NS		SIG		NS
Lluse	NS		NS		NS
Mgoperat	NS		SIG		NS
2B	NS		SIG		NS
Lcomplex	NS		NS		NS
Mgunders	NS		NS		NS
Pollh	NS		SIG		SIG
3	NS		NS		NS
Llifesty	NS		NS		NS
Mglife	NS		NS		NS
Pollf	NS		NS		SIG
4	NS		NS		NS
Lknow	NS		NS		NS
Mgobser	NS		NS		NS
Pollb	NS		NS		NS
5	NS		SIG		SIG
Letotry	NS		SIG		SIG
Mgtry	NS		SIG		SIG
Polld	NS		SIG		SIG

Hypothesis Number and Indicant	Main Effect 2 vs. 4	Main Effect 2 vs. 3	Control Effect 1 vs. 2	Control Effect 1 vs. 3	Control Effect 1 vs. 4
6	NS		NS		OPP
Lcopurch	NS		NS		NS
Mgintent	NS		SIG		OPP
Polla	NS		NS		NS
7A		NS	NS	NS	
Ldothing		NS	NS	NS	
Pollc		NS	NS	NS	
7B		NS	NS	SIG	
Leasy		NS	NS	NS	
Polle		NS	NS	SIG	
7C		NS	NS	SIG	
Lworth		NS	NS	NS	
Pollj		NS	NS	SIG	
8A		NS	SIG	NS	
Lluse		NS	NS	NS	
Mgoperat		NS	SIG	NS	
8B		NS	SIG	NS	
Lcomplex		NS	NS	NS	
Mgunders		NS	NS	NS	
Pollh		NS	SIG	NS	
9		NS	NS	NS	
Llifesty		NS	NS	NS	
Mglife		NS	NS	NS	
Pollf		NS	NS	NS	
10		NS	NS	NS	
Lknow		NS	NS	NS	
Mgobser		SIG	NS	SIG	
Pollb		NS	NS	NS	
11		NS	SIG	SIG	
Letotry		NS	SIG	SIG	
Mgtry		NS	SIG	SIG	
Polld		NS	SIG	SIG	
12		NS	NS	SIG	
Lcopurch		NS	NS	SIG	
Mgintent		NS	NS	SIG	
Polla		NS	NS	NS	

Hypothesis Number and Indicant	Main Effect 2 vs. 4	Main Effect 2 vs. 3	Control Effect 1 vs. 2	Control Effect 1 vs. 3	Control Effect 1 vs. 4
13	NS		NS		NS
Delight	NS		NS		NS
Joyful	NS		NS		NS
14	NS		NS		NS
Attent	NS		NS		NS
Concentr	NS		NS		NS
Alert	NS		SIG		SIG
15	NS		NS		NS
Surprise	NS		NS		NS
Amazed	NS		NS		NS
Astonish	NS		SIG		NS
16	OPP		SIG		NS
Skeptcal	OPP		NS		NS
Suspics	OPP		SIG		SIG
Dubious	NS		NS		NS
17		NS	NS	NS	
Delight		NS	NS	OPP	
Joyful		NS	NS	NS	
18		NS	NS	NS	
Attent		NS	NS	NS	
Concentr		NS	NS	NS	
Alert		SIG	SIG	SIG	
19		NS	NS	NS	
Surprise		NS	NS	NS	
Amazed		NS	NS	NS	
Astonish		NS	SIG	NS	
20		NS	NS	NS	
Skeptcal		NS	NS	NS	
Suspics		NS	SIG	SIG	
Dubious		NS	NS	NS	

Table 7-2 provides some insight into the larger perspective of the research by computing summary statistics regarding the hypotheses that were tested. This table refers to all twenty-two hypotheses.

Table 7-2

Statistical Summary of Hypotheses Tested

Number of Multivariate Hypotheses Tested (1-22)	63
Multivariate Significance at .05 Confirmed	13
Multivariate Significance at .10 Confirmed	15
Statistical Significance at .05 Opposite Findings	2
Number of Univariate Hypotheses Tested (1-20)	204
Univariate Significance at .05 Confirmed	37
Univariate Significance at .10 Confirmed	52
Statistical Significance at .05 Opposite Findings	4

Examining the totality of the findings it appears that main effects can not be confirmed, at least for the hypotheses relating to learning effects. It does appear, however, that salesperson generated point-of-purchase requests are going to engender more response than just sign generated requests. It also appears that the level of a persons arousal stimulus seeking has an effect on their tendency to try a point-of-purchase exercise.

For hypotheses one through twenty it appears that cognitive effects are stronger than emotional effects. This is, of course a function of the manipulation. The cognitive effects that appear to be strongest are those relating to the control function. The obvious conclusion of this finding is essentially that doing something is better than nothing, but

that it does not matter much what you do. Of the cognitive perceptions measured, trialability appears to be the strongest, not surprising since the respondents had just taken a trial, even though it was disguised.

Hypotheses twenty-one and twenty-two had confirmation of main effects. Hypothesis twenty one indicates that the tendency to participate in a point-of-purchase activity is affected by the person's arousal seeking tendency for sign generated requests, but not for salesperson requests. Thus the main effect for this hypothesis was not completely supported, but examination of this finding makes intuitive sense. Clearly, an active salesperson generated attempt will effect more people, than an inactive sign generated attempt.

Hypothesis twenty-two indicates that salesperson generated point-of-purchase requests are more likely to elicit an affirmative response than sign generated requests. This, of course, is in line with the findings of hypothesis twenty-one.

Caveats and Limitations

Every study has its limitations. While the theoretical underpinnings of the empirical work can not be confirmed, based on the results of this dissertation, it is useful to examine some of the reasons that possibly explain this, all of which are related. These effectively become the

limitations of this study.

One major reason is the nature of the research design, the field experiment. In this research the attempt was made to duplicate what might happen in the actual environment, within the constraints of disguising the intent of the research. This limits control, thus making a test of the pure theory difficult at best. Thus the research has traded off internal validity in an attempt to gain external validity. This, of course, is an inherent problem in every research decision, given the fundamental tradeoffs of validity considerations.

Also, the fact that this study was a field experiment, being run within a specific time frame, limited the amount of pretesting that could be done in the field. Major pretesting was done in a classroom using students but, as was noted in the short pretest that was done, this proved to be inadequate.

A second related issue is the problem of the manipulations as manifest in the manipulation checks. It is apparent that the manipulations were weak, at best. The research design, the choice to run the experiment within the field conditions and to attempt to approximate the point-of-purchase activities as nearly as possible in the field setting, contributed to the weak manipulations. But,

the manipulations themselves may be weak, in that the learning time frame was very short. In addition, even though every attempt was made to disquise the nature of the study, the fact that it was obtrusive in nature contributes to the overall problems of both general validity and manipulation strength.

The theory itself has been tested in laboratory conditions. The operant learning theoretical perspective is based on multiple trials with reward or punishment after each trial. As noted previously, this manipulation was a single continuous trial broken up into twenty specific responses with reinforcement after each response. The theory is based on a slightly different perspective and has been tested, for the most part, in different conditions. While there is no inherent reason to believe that this change in perspective should change the direction of the conclutions, or their strength of association, it could very well have contributed to the weak findings. That, of course, is speculation and requires further operationalization and testing.

Conclusions and Implications

This dissertation suggests a number of conclusions and implications for both retailers and for researchers interested in point-of-purchase. These conclusions and implications will be outlined in terms of practitioners and researchers.

Practitioner Conclusions and Implications

For practitioners involved in retailing computers to the general public, it appears that it probably does not matter what kind of point-of-purchase activity is used. The activities tested in this dissertation were interactive and non-interactive and used the equipment itself. The findings indicate that some activity is preferable to no activity, but what it is does not matter, at least within the context of this study. Thus having some sort of point-of-purchase activity makes sense. This, of course, was not by any means a conclusive finding, but appears to be supported by the number of control related hypotheses that were confirmed. Thus while learning theory has not predicted the outcomes in this research as expected, the value of point-of-purchase in this product class has been weakly demonstrated.

However, based on the limitations of the research the practitioner has a number of possible directions. If the practitioner assumes that the theory is accurate then the direction is clearly to attempt to develop point-of-purchase activities which as nearly as possible approach a laboratory situation. This would involve having a separate area with machines used for trial which is set up in such a way as to minimize the distractions of the user. Some retailers do approach this problem in that manner by having a specific

room set aside for just trials and classroom training. If the practitioner does not feel the theory is accurate and does not provide training on the retail site, then having a separate room does not appear a viable alternative. If, however, the practitioner feels that it is impossible to approximate a laboratory setting and/or the theory is not accurate, then it does not matter how the point-of-purchase function is operationalized, at least in terms of using the equipment.

The results of hypotheses twenty-one and twenty-two have much clearer implications. If the retailer feels that point-of-purchase using the equipment is a viable activity, then more point-of-purchase activity is going to be developed by using the salespeople to entice potential cutomers to use the machines. While signs may entice some people, it is clear that most people are more likely to respond to the salesperson. Only those people who require more emotional stimulation are likely to respond to sign-generated point-of-purchase requests.

Another related area is the implications to computer manufacturers as a result of this research. Clearly, they parallel that of the retailer and depend on the assumptions about the effect of the limitations of this study. If manuufacturers feel that product oriented point-of-purchase

is important, they should be considering the development of point-of-purchase programs to be included in the dealer kits. They should also consider incorporating into their training program the use of point-of-purchase. The logic behind the use of point-of-purchase to do more than remind buyers is difficult to ignore.

Academic Research Conclusions and Implications

There are a number of interesting conclusions and implications for researchers in both the field of marketing and related fields. In general, the findings of the research are mixed and do not provide a particularly strong confirmation of the theory, but at the same time do not disprove it either. The research again demonstrates the difficulty of taking concepts from the laboratory and applying them to practical matters.

The scales used in this research, especially the arousal tendency scale and the emotion scale have application in many related areas. The arousal tendency scale has proven to be useful in this context and while it did not factor out in the same manner as in previous administrations it does appear to be reliable and valid as it has been used.

The emotion scale as developed by Izard et al. (1974) was not as reliable as was hoped. This was the first time that

the LISREL technique of confirmatory factor analysis was used and one of the items in the scale had to be dropped from the analysis. In general the scale appears to be a relatively easy to administer and short measure of specific emotions, and may be usable in a number of other research contexts. Care must be taken, however, in analyzing the scale prior to using it to test specific research hypotheses. And, of course, as the literature review indicated, the assumption of single pole emotions is required to use this theoretical posture.

The other scales were especially constructed for this dissertation. In general they were, with a few exceptions reliable. The Pollimeter was again shown to be an effective alternative measuring device.

Recommendations for Future Research

Future research in this area can take a number of different possible directions depending on the interests of the researchers. Only a few will be mentioned. This research was unique in the area of point-of-purchase for several reasons. It looked at a product category that has not been researched before. It introduced the notion of emotion into this research area and while it did not attempt to determine the contribution of emotional activity to choice

or intentions, it acknowledged the potential of point-of-purchase to engender emotional activity.

One potential direction is to bring this research back into a laboratory situation where there is no outside interference and a better examination of the theoretical issues can be undertaken.

A second direction would be to strengthen the experimental manipulations by provoking more emotional activity and/or cognitive activity though the manipulation itself. The manipulations in this experiment did not provide for the effect that was predicted. Perhaps stronger, longer-lasting manipulations might be more successful, especially in a retail setting.

An additional direction would be to explore the interaction of the cognitive and emotive constructs that have been examined. Almost all research in consumer behavior has dealt with the choice decision in cognitive terms. The relationship of emotion on cognitive activities and/or choice is not an issue that has been explored at any great length. This research setting is but one possible avenue that could be used to explore this relationship.

Scale development, especially scales dealing with the construct of emotion need to be extensively tested. The Izard, et al. (1974) scale did not perform according to

expectations. A number of previous research efforts have used this scale, but none have used confirmatory factor analysis to examine validity and none have reported the problem that this study reported.

There are many other potential avenues that could be explored. It is hoped that this dissertation will encourage others to examine point-of-purchase activities and improve our knowledge of their effect. In addition more generalized theories of consumer behavior and response functions for marketing activity are potentially available within the framework suggested here.

APPENDIX A

PRELIMINARY COMPUTER TEACHING RESEARCH QUESTIONNAIRE RESP#___

Dear Respondent:

Thank you for agreeing to participate in our study. The first part of the study asks you to answer some questions about yourself. Please do not put your name on this sheet of paper as this is confidential. The number in the upper right hand corner is only being used to compare this data to additional data you will give us later on. No one, including the researchers, will have access to your identity.

I. ON A SCALE OF (1) TO (7) PLEASE CIRCLE THE APPROPRIATE NUMBER TO INDICATE YOUR CHOICE FOR EACH QUESTION.

1. Please indicate how familiar you are with personal computers:

very familiar 1 2 3 4 5 6 7 not familiar at all

2. You are walking through a store that sells personal computers and you see a sign that invites you to step over to the counter and get a free trial lesson. What is the likelihood of your taking a free trial lesson?

very likely 1 2 3 4 5 6 7 very unlikely

II. PLEASE RESPOND TO THE FOLLOWING QUESTIONS BY CIRCLING THE APPROPRIATE ANSWER, EITHER T FOR TRUE, F FOR FALSE, OR DON'T KNOW. <u>PLEASE DO NOT GUESS, IF YOU ARE NOT AT LEAST 75% SURE OF YOUR ANSWER, CIRCLE DON'T KNOW</u>

1. One byte of information is approximately equal to 1000 bits.

T F DON'T KNOW

2. Personal computers are the same thing as minicomputers.

T F DON'T KNOW

3. Multimate is a software product that allows the user to analyze business and financial data through a spreadsheet.

T F DON'T KNOW

III. PLEASE USE THE FOLLOWING SCALE
O INDICATE THE DEGREE OF YOUR "AGREEMENT" OF "DISAGREEMENT" WITH EACH OF THE STATEMENTS THAT FOLLOW BELOW. RECORD YOUR ANSWERS IN THE SPACE PROVIDED BELOW:

+4 = very strong agreement
+3 = strong agreement
+2 = moderate agreement
+1 = slight agreement
0 = neither agreement or disagreement
-1 = slight disagreement
-2 = moderate disagreement
-3 = strong disagreement
-4 = very strong disagreement

1._____ Designs or patterns should be bold and exciting

2._____ I feel best when I am safe and secure

3._____ I would like the job of a foreign correspondent for a newspaper

4._____ I don't pay much attention to my surroundings

5._____ I don't like the feeling of wind in my hair

6._____ I prefer an unpredictable life that is full of change to a more routine one

7._____ I wouldn't like to try the new group-therapy techniques involving strange body sensations

8._____ Sometimes I really stir up excitement

9._____ I never notice textures

10.____ I like surprises

11.____ My ideal home would be peaceful and quiet

12.____ I eat the same kind of food most of the time

13.____ As a child I often imagined leaving home, just to explore the world

14.____ I don't like to have lots of activity around me

15.____ I am interested only in what I need to know

16.____ I like meeting people who give me new ideas

17.____ I would be content to live in the same town for the rest of my life

18.____ I like continually changing activities

19.____ I like a job that offers change, variety, and travel, even if it involves some danger

20.____ I avoid busy, noisy places

21.____ I like to look at pictures that are puzzling in some way

22.____ I wouldn't enjoy dangerous sports such as mountain climbing, airplane flying, or sky diving

23.____ I like to experience novelty and change in my daily routine

24.____ Shops with thousands of exotic herbs and fragrances fascinate me

25.____ I much prefer familiar people and places

26.____ When things get boring, I like to find some new and unfamiliar experience

27.____ I like to touch and feel a sculpture

28.____ I don't enjoy doing daring, foolhardy things just for fun

29.____ I prefer a routine way of life to an unpredictable one full of change

30.____ I like to go somewhere different nearly every day

31.____ I seldom change the decor and furniture arrangement at my place

32.____ People view me as a quite unpredictable person

33.____ I like to run through heaps of fallen leaves

34.____ I sometimes like to do things that are a little frightening

35.____ I prefer friends who are reliable and predictable to those who are excitingly unpredictable

36.____ I am interested in new and varied interpretations of different art forms

37.____ I seldom change the pictures on my walls

38.____ I am not interested in poetry

39.____ It's unpleasant seeing people in strange, weird clothes

40.____ I am continually seeking new ideas and experiences

IV. PLEASE READ AND ANSWER TO EACH OF THE FOLLOWING QUESTIONS

1. My marital status is (circle)

A. now married
B. never married
C. now separated
D. now widowed
E. now divorced

2. My occupation is most accurately categorized as (circle)

A. professional and technical
B. student
C. manager or proprietor
D. clerical
E. homemaker
F. service worker
G. farmer
H. laborer
I. retired
J. other

3. I live in a dwelling I (circle)

A. own
B. rent

4. My formal education can be described as (circle)

   A. attended school for 9 years or less
   B. attended high school, but did not graduate
   C. graduated high school
   D. attended college or technical school
   E. graduated with 2 year or technical degree
   F. graduated with 4 year undergraduate degree
   G. attended graduate school

5. My age in years at my last birthday_____ (write in)

6. My total family income is approximately (circle)

   A. under $10,000
   B. $10,000 to $19,999
   C. $20,000 to $29,999
   D. $30,000 to $39,999
   E. $40,000 to $59,999
   F. over $60,000

7. You are walking through a computer store and a sales-person comes up to you and invites you to sit down at a personal computer and try an exercise for about 10 minutes. What is the likelihood of your taking a free trial lesson. (circle the best response)

   very likely 1 2 3 4 5 6 7 very unlikely

8. My knowledge of personal computers is (circle)

   A. I have none
   B. I have very little
   C. I am somewhat knowledgeable
   D. I am very knowledgeable
   E. I am an expert

THANK YOU VERY MUCH, PLEASE TELL THE RESEARCH ASSISTANT YOU ARE DONE.

APPENDIX B

COMPUTER EDUCATION FEELINGS SCALE MA

This scale consists of words or phrases which describe feelings. Please indicate how much each word describes the way you feel right now by circling the appropriate number. Presented below is the scale which shows what each number represents.

1	2	3	4	5
very slightly or not at all	slightly	moderately	considerably	very strongly

In deciding on your answer, think about the feeling described by that word. Then, if you feel that way very slightly or not at all circle a 1. Circle a 3 if you feel that way to a moderate degree, and if you feel that way very strongly circle a 5 and so forth.

REMEMBER you are asked to respond on the basis of the way you feel right now. Work at a good pace. It is not necessary to ponder, your first reaction is usually the most accurate.

1.	repentant	1	2	3	4	5
2.	delighted	1	2	3	4	5
3.	feeling of distaste	1	2	3	4	5
4.	downhearted	1	2	3	4	5
5.	surprised	1	2	3	4	5
6.	contemptuous	1	2	3	4	5
7.	sheepish	1	2	3	4	5
8.	attentive	1	2	3	4	5

9. scared	1	2	3	4	5
10. enraged	1	2	3	4	5
11. happy	1	2	3	4	5
12. scornful	1	2	3	4	5
13. skeptical	1	2	3	4	5
14. concentrating	1	2	3	4	5
15. amazed	1	2	3	4	5
16. fearful	1	2	3	4	5
17. angry	1	2	3	4	5
18. sad	1	2	3	4	5
19. guilty	1	2	3	4	5
20. suspicious	1	2	3	4	5
21. bashful	1	2	3	4	5
22. disgusted	1	2	3	4	5
23. joyful	1	2	3	4	5
24. feeling of revulsion	1	2	3	4	5
25. disdainful	1	2	3	4	5
26. blameworthy	1	2	3	4	5
27. astonished	1	2	3	4	5
28. alert	1	2	3	4	5
29. mad	1	2	3	4	5
30. discouraged	1	2	3	4	5
31. shy	1	2	3	4	5

32. afraid 1 2 3 4 5

33. dubious 1 2 3 4 5

NOW PLEASE RESPOND TO THESE (4) QUESTIONS BY CIRCLING T FOR TRUE, F FOR FALSE, OR NOT SURE:

1. The animal that popped up on the screen was a frog.

T F NOT SURE

2. This animal has a name, David Shaw.

T F NOT SURE

3. This animal had no legs.

T F NOT SURE

4. This animal was completely colored in.

T F NOT SURE

THANK YOU, PLEASE TELL THE RESEARCH ASSISTANT YOU ARE FINISHED.

COMPUTER EDUCATION FEELINGS SCALE NM

This scale consists of words or phrases which describe feelings. Please indicate how much each word describes the way you feel right now by circling the appropriate number. Presented below is the scale which shows what each number represents.

1	2	3	4	5
very slightly or not at all	slightly	moderately	considerably	very strongly

In deciding on your answer, think about the feeling described by that word. Then, if you feel that way very slightly or not at all circle a 1. Circle a 3 if you feel that way to a moderate degree, and if you feel that way very strongly circle a 5 and so forth.

REMEMBER you are asked to respond on the basis of the way you feel right now. Work at a good pace. It is not necessary to ponder, your first reaction is usually the most accurate.

1.	repentant	1	2	3	4	5
2.	delighted	1	2	3	4	5
3.	feeling of distaste	1	2	3	4	5
4.	downhearted	1	2	3	4	5
5.	surprised	1	2	3	4	5
6.	contemptuous	1	2	3	4	5
7.	sheepish	1	2	3	4	5
8.	attentive	1	2	3	4	5
9.	scared	1	2	3	4	5
10.	enraged	1	2	3	4	5
11.	happy	1	2	3	4	5

12. scornful	1	2	3	4	5
13. skeptical	1	2	3	4	5
14. concentrating	1	2	3	4	5
15. amazed	1	2	3	4	5
16. fearful	1	2	3	4	5
17. angry	1	2	3	4	5
18. sad	1	2	3	4	5
19. guilty	1	2	3	4	5
20. suspicious	1	2	3	4	5
21. bashful	1	2	3	4	5
22. disgusted	1	2	3	4	5
23. joyful	1	2	3	4	5
24. feeling of revulsion	1	2	3	4	5
25. disdainful	1	2	3	4	5
26. blameworthy	1	2	3	4	5
27. astonished	1	2	3	4	5
28. alert	1	2	3	4	5
29. mad	1	2	3	4	5
30. discouraged	1	2	3	4	5
31. shy	1	2	3	4	5
32. afraid	1	2	3	4	5
33. dubious	1	2	3	4	5

THANK YOU, PLEASE TELL THE RESEARCH ASSISTANT YOU ARE FINISHED.

APPENDIX C

UNIVERSITY COMPUTER TEACHING QUESTIONNAIRE MA

Respond to the following statements by circling the appropriate number on the one (1) to seven (7) scale. A one means you completely agree with the statement and a seven means you completely disagree. Responses of 2 through 6 are differing degrees of agreement or disagreement. The exact scale is below

1. Completely agree
2. Mostly agree
3. Slightly agree
4. Neither agree or disagree
5. Slightly disagree
6. Mostly disagree
7. Completely disagree

PLEASE READ EACH STATEMENT CAREFULLY BEFORE RESPONDING

(1) The likelihood of my purchasing a personal computer during the next year is very high.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(2) My friends would know if I bought a personal computer.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(3) Personal computers allow me to do things I could not do without them.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(4) Personal computers are easy to try out before buying.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(5) Owning a personal computer would fit in with my lifestyle.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(6) Most people would be attentive to the computer exercise I took.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(7) The average person would find it difficult to learn how to use a personal computer.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(8) Owning a personal computer would <u>not</u> make my life easier.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(9) Personal computers are too complex for the average consumer to understand.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(10) I think I would get my money's worth out of owning a personal computer.

(11) The computer exercise I just took really held my interest.

Completely agree 1 2 3 4 5 6 7 Completely disagree

THANK YOU VERY MUCH. PLEASE TELL THE RESEARCH ASSISTANT YOU ARE DONE.

UNIVERSITY COMPUTER TEACHING QUESTIONNAIRE NM

Respond to the following statements by circling the appropriate number on the one (1) to seven (7) scale. A one means you completely agree with the statement and a seven means you completely disagree. Responses of 2 through 6 are differing degrees of agreement or disagreement. The exact scale is below

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4. Neither agree or disagree
5. Slightly disagree
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7. Completely disagree

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Completely agree 1 2 3 4 5 6 7 Completely disagree

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Completely agree 1 2 3 4 5 6 7 Completely disagree

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Completely agree 1 2 3 4 5 6 7 Completely disagree

(4) Personal computers are easy to try out before buying.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(5) Owning a personal computer would fit in with my lifestyle.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(6) The average person would find it difficult to learn how to use a personal computer.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(7) Owning a personal computer would <u>not</u> make my life easier.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(8) Personal computers are too complex for the average consumer to understand.

Completely agree 1 2 3 4 5 6 7 Completely disagree

(9) I think I would get my money's worth out of owning a personal computer.

THANK YOU VERY MUCH. PLEASE TELL THE RESEARCH ASSISTANT YOU ARE DONE.

APPENDIX D

UNIVERSITY COMPUTER TEACHING QUESTIONNAIRE MA

THE FOLLOWING QUESTIONS PUT YOU INTO A SITUATION. PLEASE READ EACH SITUATION VERY CAREFULLY. CIRCLE THE RESPONSE WHICH BEST FITS HOW YOU WOULD REACT TO THIS SITUATION. IF THERE IS NO RESPONSE THAT EXACTLY FITS HOW YOU WOULD REACT SELECT THE CLOSEST.

(1) You walk into a department store which sells personal computers and walk past the computer department. A salesperson asks you when you are likely to purchase a personal computer. You reply

A. I will never buy a computer
B. I might buy a computer in the next three years
C. I might buy a computer in the next year
D. I might buy a computer in the next 6 months
E. I want to buy a computer within the next month.

(2) A friend asks you about using personal computers at home. This person specifically wants to know what you think about using them for household tasks. You say to this person.

A. I think computers are a great time saving device and make your household more efficient
B. I think using a computer is better than not using one for many tasks in the household
C. I don't really think it matters whether you have a computer or not
D. I would think a computer would complicate your tasks more than help you
E. I doubt a computer would be any help at all and would greatly complicate your life

(3) You are sitting at home working at your personal computer. First you balance your checkbook. Then you hook up the computer to a telephone and get the latest news and stock quotes. Then you use the computer to purchase clothing which will be mailed to you.. Which response best fits your preferred way of life?

A. This is never likely to be me
B. This may be me, but probably not
C. This might be me in the future
D. This will probably be me in the future
E. This will definitely be me in the future

(4) A neighbor asks you what you think about personal computers, specifically whether they are too difficult to understand. You reply;

A. It is very difficult to understand a personal personal computer
B. It is difficult to understand a personal computer
C. It is somewhat difficult to understand a personal computer
D. No it is only a little difficult to understand a personal computer
E. No it is not difficult to understand a personal computer

(5) Your neighbor asks you whether or not you think a personal computer is difficult to operate. You reply;

A. Yes it is very difficult
B. Yes it is difficult
C. Yes it is somewhat difficult
D. No it is only a little difficult
E. No I don't think it is difficult at all

(6) If a good friend bought a personal computer, how soon would you know?

A. Almost immediately
B. Within 24 hours
C. Within 7 days
D. Within 30 days
E. Over 30 days

(7) A friend asks you about buying a personal computer and wants to know about trying the product before buying it. You reply;

A. It is probably very easy to try out
B. It is probably easy to try out
C. You might be able to try it out
D. It is probably difficult to try out
E. You probably can't try it out.

(8) While doing the computer exercise I was probably

A. Not involved or attentive at all
B. A little involved or attentive
C. Moderately involved or attentive
D. Very involved or attentive
E. Totally engrossed in the exercise

THANK YOU PLEASE TELL THE RESEARCH ASSISTANT YOU ARE DONE

UNIVERSITY COMPUTER TEACHING QUESTIONNAIRE NM

THE FOLLOWING QUESTIONS PUT YOU INTO A SITUATION. PLEASE READ EACH SITUATION VERY CAREFULLY. CIRCLE THE RESPONSE WHICH BEST FITS HOW YOU WOULD REACT TO THIS SITUATION. IF THERE IS NO RESPONSE THAT EXACTLY FITS HOW YOU WOULD REACT SELECT THE CLOSEST.

(1) You walk into a department store which sells personal computers and walk past the computer department. A salesperson asks you when you are likely to purchase a personal computer. You reply

A. I will never buy a computer
B. I might buy a computer in the next three years
C. I might buy a computer in the next year
D. I might buy a computer in the next 6 months
E. I want to buy a computer within the next month.

(2) A friend asks you about using personal computers at home. This person specifically wants to know what you think about using them for household tasks. You say to this person.

A. I think computers are a great time saving device and make your household more efficient
B. I think using a computer is better than not using one for many tasks in the household
C. I don't really think it matters whether you have a computer or not
D. I would think a computer would complicate your tasks more than help you
E. I doubt a computer would be any help at all and would greatly complicate your life

(3) You are sitting at home working at your personal computer. First you balance your checkbook. Then you hook up the computer to a telephone and get the latest news and stock quotes. Then you use the computer to purchase clothing which will be mailed to you. Which response best fits your preferred way of life?

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B. This may be me, but probably not
C. This might be me in the future
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D. No it is only a little difficult to understand a personal computer
E. No it is not difficult to understand a personal computer

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A. It is probably very easy to try out
B. It is probably easy to try out
C. You might be able to try it out
D. It is probably difficult to try out
E. You probably can't try it out.

THANK YOU PLEASE TELL THE RESEARCH ASSISTANT YOU ARE DONE

APPENDIX E

POLLIMETER SCALING DEVICE MA

DIRECTIONS:

Show the Pollimeter to the respondent. Demonstrate how the device works by moving the bar back and forth to show more or less black and white. Have them hold the device up in front of their eyes so that they can see the scale on the back. Explain to the respondent the following:

I am going to read to you a series of statements. After you hear the statement, react to it by positioning the device as follows; The color black indicates that you do not agree with the statement. The color white indicates that you agree with the statement. Various degrees of black and white indicate degrees of agreement and disagreement. Thus if you completely disagree with the statement you would indicate all black and if you completely agree with the statement you would indicate all white. You may position your responses anywhere on the scale you wish to indicate you agreement or disagreement with the statement. Let's try a practice question.

(1A) I think that A&S is a pleasant place to shop._____

EXPLAIN THEIR ANSWER TO THEM AND THEN SAY;

OK LETS BEGIN

(1) The likelihood of my purchasing a personal computer during the next year is very <u>low</u>.___

(2) My friends would know if I bought a personal computer.___

(3) Personal computers allow me to do things I could not do without them. ___

(4) Personal computers are difficult to try out before buying them. ___

(5) Owning a personal computer would make my life easier.___

(6) Owning a personal computer would fit in with my lifestyle. ___

(7) During the computer exercise I was not very attentive.___

(8) The average person would find it difficult to learn how to use a personal computer. ___

(9) Personal computers are too complex for the average person to understand.___

(10) I think I would get my money's worth out of owning a personal computer. ___

(11) The computer exercise I just took really held my interest. ___

THANK THE PERSON AND GO ON TO THE NEXT QUESTIONNAIRE OR IF COMPLETING THE EXERCISE THANK THE RESPONDENT FOR PARTICIPATING AND HAVE THEM FILL OUT A CARD FOR THE GIFT CERTIFICATE DRAWING.

POLLIMETER SCALING DEVICE MA

DIRECTIONS:

Show the Pollimeter to the respondent. Demonstrate how the device works by moving the bar back and forth to show more or less black and white. Have them hold the device up in front of their eyes so that they can see the scale on the back. Explain to the respondent the following:

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EXPLAIN THEIR ANSWER TO THEM AND THEN SAY;

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(4) Personal computers are difficult to try out before buying them. ___

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(7) During the computer exercise I was not very attentive.___

(8) The average person would find it difficult to learn how to use a personal computer. ___

(9) Personal computers are too complex for the average person to understand.___

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(11) The computer exercise I just took really held my interest. ___

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APPENDIX F

Full Overt Reinforcement Manipulation (Cell 2)

Each page as listed is a separate screen.

Hello, thank you for turning me on.
I am an Apple IIC computer.

During the next 10 minutes you will see
how easy I am to use!

>HIT ANY KEY<

NAME:
STREET ADDRESS:
TOWN & STATE:

That's great, Now let's assume you wish to write a friend's address in an electronic notebook. Why don't you think of a friend or better yet, make one up.

The blinking light is called a CURSOR
It is situated at the point where you will begin typing.

Write a person's name, be creative, and do not use more than 30 characters.
If you make a typing error, don't worry. We will show you how to correct it later. Now type in the name and hit the key marked 'return'.

NAME:
STREET ADDRESS:
TOWN & STATE:

Great! The cursor has moved down to the next line.

Now let's type in a street address (you can make one up).

When you are finished, hit return.

NAME:
STREET ADDRESS:
TOWN & STATE:

Isn't that easy? Now you are ready to type in a town and state.

Go ahead and type in a town and state of your choice.

Then hit return.

NAME:
STREET ADDRESS:
TOWN & STATE:

Super! So the name of your friend is

xxxxxxxxxxxxxxxxxxxxxxxxxxxx

and he/she lives at

xxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxx

Now let's print that out for your address book.

Hold down the control button on the left side of your keyboard and at the same time hit the letter P.

Good. Now you are in the print mode of a typical word processing program.

Hit the letters N and P in that order on your keyboard, and then hit return.

Now you are a pro at doing addresses.
Let's see how easy it is to use the
Apple IIC to type a perfect letter.

Pretend that you purchased a new car and
you had a problem with it.
You took it to the dealer who fixed it
on the first try and now the car works
fine.

The letter comes out like this:

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

My goodness, we have a few errors! You wouldn't sent a letter out like this. Let's look at the mistakes.

>HIT ANY KEY<

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good. Now we see this letter has the following errors:

(1) It's missing the r in manager in the first line of the address

Hit any key to see the next error.

NOTE: CAPITALS INDICATE BLINKING LETTERS HIGHLIGHTING ERRORS

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(2) It has a capital O in company in the second line

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(3) It has a capital E in New in the fourth line

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(4) Tank should be thank in the first line of the body of the letter

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(5) There should be no space between Hush and mobile

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(6) Idling is the correct spelling, not ideling

But we know you can correct all of them

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

OK, Notice the arrow keys on the right bottom row of your keyboard. These allow you to move the cursor to any place you like

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good. Notice we have the letter above with the blinking cursor. Practice moving the cursor around with the arrow keys.

When you are done, hit the return key

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good, now let's start correcting. Move the cursor up to the spot just after the e in Manage and strike the r key

Press the RIGHT arrow 23 times

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good. Move the cursor up to the spot just after the e in Manage and strike the r key

Now press the UP arrow 22 times

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now press the R key
(Don't worry it won't give you a capital by accident)

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Great. Now move the cursor one space past the O in COmpany, hit the delete key and then the o key.

Press the RIGHT arrow 14 times

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Great.

Press the UP arrow key 21 times

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

OK Hit the DELETE key

Customer Service Manager
Anytown Car Cmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good. Now hit the letter O

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Great. Now move the cursor one space past the E in NEw, hit the delete key and then the e key.

Press the RIGHT arrow 11 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Great.

Press the UP arrow key 19 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, Nw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good. Now hit the E key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

You're really getting good at this. Now move the cursor over the a in tank and hit the h key, then move the cursor over to the m in mobile and hit the delete key Press the RIGHT arrow 11 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

You're really getting good at this.
Press the UP arrow key 16 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Good Now hit the h key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

OK Hit the DOWN arrow once

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Looks Good Hit the RIGHT arrow 22 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

OK Now hit the DELETE key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

You're almost perfect. Now the last correction. Move the cursor to the 1 in ideling and hit the delete key

Hit the RIGHT arrow key 12 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

OK Now hit the UP arrow key 12 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

YES Now hit the DELETE key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the idling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Wow!! You now have a perfect letter. Hold the control key down and hit the P key.

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the idling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Great!! Now hit N P and then return to print out your perfect letter.

Now that you are an accomplished word processor, let's look at the other gremlin in your life - your checkbook.

Let's pretend you are J.P. Customer and you just wrote a check to the grocery store for $36.50

>HIT ANY KEY<

David
Shaw

THIS IS A REPRESENTATION OF THE WORM THAT WAS A
MANIPULATION CHECK IN THE PROGRAM

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$641.75	

Looks like your check for $36.50 is
going to be OK. You must be a good
money manager. Let's see

Type in 105 and hit return

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105			

Great, Now Type in Grocery and hit return

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105	Grocery		

Looks good.

Now type in 36.50

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105	Grocery	$ 36.50	
	BALANCE:	$ 605.25	

Great. You still have $605.25 in the bank. Since you are such a great money manager how about taking a computer to lunch?

>HIT ANY KEY<

No? Well, anyway it's been a blast! We go well together and we can do so many other things. Hope to see you again, Bye.

Please let the research assistant know you are done.

APPENDIX G

Non-overt Reinforcement Manipulation (Cell 3)

Each page as listed is a separate screen.

Hello, thank you for turning me on.
I am an Apple IIC computer.

During the next 10 minutes you will see
how easy I am to use!

>HIT ANY KEY<

NAME:
STREET ADDRESS:
TOWN & STATE:

Now let's assume you wish
to write a friend's address in an
electronic notebook. Why don't you
think of a friend or better yet, make
one up.

The blinking light is called a CURSOR
It is situated at the point where you
will begin typing.

Write a person's name, be creative, and
do not use more than 30 characters.
If you make a typing error, don't worry.
We will show you how to correct it
later. Now type in the name and hit the
key marked 'return'.

NAME:
STREET ADDRESS:
TOWN & STATE:

The cursor has moved down to the next line.

Now let's type in a street address (you can make one up).

When you are finished, hit return.

NAME:
STREET ADDRESS:
TOWN & STATE:

Now you are ready to
type in a town and state.

Go ahead and type in a town and state of
your choice.

Then hit return.

NAME:
STREET ADDRESS:
TOWN & STATE:

So the name of your friend is
xxxxxxxxxxxxxxxxxxxxxxxxxxxx

and he/she lives at
xxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxx

Now let's print that out for your address book.

Hold down the control button on the left side of your keyboard and at the same time hit the letter P.

Now you are in the print mode of a
typical word processing program.

Hit the letters N and P in that order on
your keyboard, and then hit return.

Let's see how easy it is to use the
Apple IIC to type a perfect letter.

Pretend that you purchased a newcar and
you had a problem with it.
You took it to the dealer who fixed it
on the first try and now the car works
fine.

The letter comes out like this:

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

My goodness, we have a few errors! You wouldn't sent a letter out like this. Let's look at the mistakes.

>HIT ANY KEY<

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now we see this letter has the following errors:

(1) It's missing the r in manager in the first line of the address

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(2) It has a capital O in company in the second line

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(3) It has a capital E in New in the fourth line

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(4) Tank should be thank in the first line of the body of the letter

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(5) There should be no space between Hush and mobile

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(6) Idling is the correct spelling, not ideling

But we know you can correct all of them

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Notice the arrow keys on the right bottom row of your keyboard. These allow you to move the cursor to any place you like

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Notice we have the letter above with the blinking cursor. Practice moving the cursor around with the arrow keys.

When you are done, hit the return key

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now let's start correcting. Move the cursor up to the spot just after the e in Manage and strike the r key

Press the RIGHT arrow 23 times

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now press the UP arrow 22 times

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now press the R key
(Don't worry it won't give you a capital by accident)

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now move the cursor one space past the O in COmpany, hit the delete key and then the o key.

Press the RIGHT arrow 14 times

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Press the UP arrow key 21 times

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hit the DELETE key

Customer Service Manager
Anytown Car Cmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the letter O

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now move the cursor one space past the E in NEw, hit the delete key and then the e key.

Press the RIGHT arrow 11 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Press the UP arrow key 19 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, Nw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the E key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now move the cursor over the a in tank and hit the h key, then move the cursor over to the m in mobile and hit the delete key Press the RIGHT arrow 11 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Press the UP arrow key 16 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the h key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hit the DOWN arrow once

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hit the RIGHT arrow 22 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the DELETE key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now the last correction. Move the cursor to the 1 in ideling and hit the delete key

Hit the RIGHT arrow key 12 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the UP arrow key 12 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the DELETE key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the idling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hold the control key down and hit the P key.

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the idling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit NP and return to print out your perfect letter.

Let's look at the other
gremlin in your life - your checkbook.

Let's pretend you are J.P. Customer and
you just wrote a check to the grocery
store for $36.50

>HIT ANY KEY<

David
Shaw

THIS IS THE MANIPUATION CHECK WITHIN THE PROGRAM

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$641.75	

Looks like your check for $36.50 is
going to be OK. Let's see

Type in 105 and hit return

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105			

Type in Grocery and hit return

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105	Grocery		

Now type in 36.50

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105	Grocery	$ 36.50	
	BALANCE:	$ 605.25	

You still have $605.25 in the bank. Since you are such a great money manager how about taking a computer to lunch?

>HIT ANY KEY<

No? Well, anyway it's been a blast! We go well together and we can do so many other things. Hope to see you again, Bye.

Please let the research assistant know you are done.

APPENDIX H

Non-Interactive Manipulation (Cell 4)

Each page as listed is a separate screen.

Hello, thank you for turning me on.
I am an Apple IIC computer.

During the next 7 minutes you will see
how easy I am to use!

JUST WATCH THE SCREEN THE COMPUTER WILL DO ALL THE WORK

>HIT ANY KEY<

NAME:
STREET ADDRESS:
TOWN & STATE:

That's great, Now let's assume you wish to write a friend's address in an electronic notebook. Why don't you think of a friend or better yet, make one up.

The blinking light is called a CURSOR

It is situated at the point where you will begin typing.

Write a person's name, be creative, and do not use more than 30 characters. If you make a typing error, don't worry. We will show you how to correct it later. Now type in the name and hit the key marked 'return'.

NAME: John Q. Smith
STREET ADDRESS:
TOWN & STATE:

See, the cursor has moved down to the next line.

Now let's type in a street address (you can make one up).

When you are finished, hit return.

```
NAME:John Q. Smith
STREET ADDRESS: 47 Watchee Avenue
TOWN & STATE:

Now you are ready to type in a town and
state.

Go ahead and type in a town and state of
your choice.

Then hit return.
```

NAME: John Q. Smith
STREET ADDRESS:47 Watchee Avenue
TOWN & STATE:Qubec Maine 01234

So the name of your friend is John Q. Smith

and he/she lives at 47 Watchee Avenue
Qubec Maine 01234

Now let's print that out for your address book.

Hold down the control button on the left side of your keyboard and at the same time hit the letter P.

Now you are in the print mode of a
typical word processing program.

Hit the letters N and P in that order on
your keyboard, and then hit return.

As you can see and hear you
have just printed out the address

>HIT ANY KEY<

Let's use the Apple IIC
to type a perfect letter.

Pretend that you purchased a new car and
you had a problem with it.
You took it to the dealer who fixed it
on the first try and now the car works
fine.

The letter comes out like this:

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

My goodness, we have a few errors! You wouldn't send a letter out like this. Let's look at the mistakes.

>HIT ANY KEY<

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now we see this letter has the following errors:

(1) It's missing the r in manager in the first line of the address

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(2) It has a capital O in company in the second line

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(3) It has a capital E in New in the fourth line

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(4) Tank should be thank in the first line of the body of the letter

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(5) There should be no space between Hush and mobile

Hit any key to see the next error.

Customer Service MANAGE
Anytown Car COMPANY
Rt 999
Anytown, NEW Jersey 00000

Dear Customer Service Manager,

I wish to TANK you for the fine job your mechanics did on my new HUSH MOBILE Turbo 4. I really did not expect you to cure the IDELING problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

(6) Idling is the correct spelling, not ideling

But we know you can correct all of them

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Notice the arrow keys on the right bottom row of your keyboard. These allow you to move the cursor to any place you like

>HIT ANY KEY<

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Notice we have the letter above with the blinking cursor. Practice moving the cursor around with the arrow keys.

When you are done, hit the return key

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now let's start correcting. Move the cursor up to the spot just after the e in Manage and strike the r key

Press the RIGHT arrow 23 times

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now press the UP arrow 22 times

Customer Service Manage
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now press the R key
(Don't worry it won't give you a capital by accident)

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now move the cursor one space past the O in COmpany, hit the delete key and then the o key.

Press the RIGHT arrow 14 times

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Press the UP arrow key 21 times

Customer Service Manager
Anytown Car COmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hit the DELETE key

Customer Service Manager
Anytown Car Cmpany
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the letter O

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now move the cursor one space past the E in NEw, hit the delete key and then the e key.

Press the RIGHT arrow 11 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, NEw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Press the UP arrow key 19 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, Nw Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the E key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now move the cursor over the a in tank and hit the h key, then move the cursor over to the m in mobile and hit the delete key
Press the RIGHT arrow 11 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Press the UP arrow key 16 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to tank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the h key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hit the DOWN arrow once

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Hit the RIGHT arrow 22 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hush mobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the DELETE key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now the last correction. Move the cursor to the l in ideling and hit the delete key

Hit the RIGHT arrow key 12 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the UP arrow key 12 times

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the ideling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit the DELETE key

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the idling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

You now have a perfect letter.
Hold the control key down and hit the P key.

Customer Service Manager
Anytown Car Company
Rt 999
Anytown, New Jersey 00000

Dear Customer Service Manager,

I wish to thank you for the fine job your mechanics did on my new Hushmobile Turbo 4. I really did not expect you to cure the idling problem so quickly. Please accept my sincere thanks for a job well done.

Sincerely,
J. P. Customer

Now hit NP and return to print out your perfect letter.

Now that you are an accomplished word processor, let's look at the other gremlin in your life - your checkbook.

Let's pretend you are J.P. Customer and you just wrote a check to the grocery store for $36.50

>HIT ANY KEY<

David
Shaw

THIS REPRESENTS THE ON SCREEN MANIPULATION CHECK

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$641.75	

Looks like your check for $36.50 is
going to be OK. Let's see

Type in 105 and hit return

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	

Type in Grocery and hit return

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105	Grocery		

Now type in 36.50

Electronic Checkbook
J.P. Customer Account #786453/212
Midstream Financial Bank

Check #	To Whom	Amount	Deposit
			$1000.00
	BALANCE:	$1000.00	
101	Rent	$500.00	----
	BALANCE:	$ 500.00	
102	Gas Bill	$ 23.25	----
	BALANCE:	$ 476.75	
103	Car Payment	$235.00	----
	BALANCE:	$ 241.76	
104	Dentist	$100.00	$ 500.00
	BALANCE:	$ 641.75	
105	Grocery	$ 36.50	
	BALANCE:	$ 605.25	

You still have $605.25 in the bank. Since you are such a great money manager how about taking a computer to lunch?

>HIT ANY KEY<

No? Well, anyway it's been a blast! We go well together and we can do so many other things. Hope to see you again, Bye.

Please let the research assistant know you are done.

APPENDIX I

Statistical Means Overall and By Cell
Variables Used in Hypothesis Testing

Variable	Overall Mean N=148	Cell 1 N=37	Cell 2 N=37	Cell 3 N=37	Cell 4 N=37
Ldothing	3.216	2.730	3.297	3.216	3.622
Pollc	56.001	58.757	56.351	57.568	51.351
Lleasy	4.710	4.973	4.324	4.946	4.595
Polle	53.034	61.838	50.541	47.730	52.027
Lworth	3.608	3.135	3.892	3.811	3.595
Pollj	51.385	64.460	55.297	44.514	41.270
Lluse	4.770	4.487	4.838	4.946	4.811
Mgoperat	3.899	3.622	4.216	3.892	3.865
Lcomplex	4.912	4.487	5.216	4.892	5.054
Mgunders	3.723	3.595	3.919	3.730	3.649
Pollh	29.054	41.946	20.460	26.622	27.189
Llifesty	3.480	2.865	3.541	3.757	3.757
Mglife	2.811	2.973	2.892	2.838	2.541
Pollf	55.432	64.730	53.460	54.973	48.568
Letotry	2.655	3.514	2.135	2.378	2.595
Mgtry	2.081	2.703	1.703	1.973	1.946
Polld	31.399	47.081	22.297	29.189	27.027
Lknow	2.453	2.730	2.838	2.054	2.784
Mgobser	2.581	2.656	2.676	2.108	2.865
Pollb	79.912	77.514	80.810	81.460	79.865
Lcopurch	4.696	3.946	4.865	5.270	4.703
Mgintent	2.358	2.892	2.351	2.027	2.162
Polla	61.993	60.081	62.054	70.703	55.135

Delight	3.000	3.081	3.027	3.000	2.892
Joyful	2.730	2.649	2.946	2.378	2.946
Attent	3.419	3.541	3.487	3.027	3.622
Concentr	3.311	3.405	3.243	3.108	3.487
Alert	3.318	3.351	3.297	3.027	3.595
Surprise	2.500	2.487	2.676	2.514	2.324
Amazed	2.426	2.162	2.676	2.351	2.514
Astonish	1.993	1.621	2.405	1.946	2.000
Skeptcal	1.892	1.784	2.162	1.784	1.838
Suspics	1.642	1.676	1.595	1.595	1.703
Dubious	1.547	1.514	1.432	1.514	1.730
Arousal Seeking Tendency	27.304	38.351	20.919	25.595	24.351
Trlessa	4.446	3.703	5.027	4.703	4.351
Trlessb	3.980	3.487	4.054	4.378	4.000

NOTE: Cell 1 is the control group and had no manipulation.
Cell 2 was interactive overt reinforced.
Cell 3 was interactive with no overt reinforcement.
Cell 4 was non-interactive.

Appendix J

Correlation of Four Emotional Constructs

	1	2	3	4	5	6	7	8	9	10	11
Delight (1)	1.0										
Joyful (2)	.62	1.0									
Attent (3)	.50	.43	1.0								
Concentr (4)	.49	.41	.65	1.0							
Alert (5)	.38	.48	.56	.58	1.0						
Surprise (6)	.47	.34	.29	.31	.25	1.0					
Amazed (7)	.50	.40	.29	.42	.29	.61	1.0				
Astonish (8)	.40	.35	.12	.32	.32	.60	.73	1.0			
Skeptcal (9)	.03 (-)	.03 (-)	.03 (-)	.06 (-)	.05 (-)	.23	.23	.33	1.0		
Suspics (10)	.10 (-)	.10 (-)	.15 (-)	.07 (-)	.11 (-)	.27	.22	.23	.42	1.0	
Dubious (11)	.02	.02	.03	.04	.04 (-)	.22	.12	.17	.37	.45	1.0

(-) indicates a negative correlation

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