

EMOTIONAL RESPONSE AND THE WEB-AD SCHEMA

By

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Research on the web-ad schema, product schema and emotional response was undertaken to understand what effect if any these factors had on subjects web-navigation behavior, resulting emotional response, and eventual product choice.

Participants were asked several questions to judge their level of Internet experience and product schema complexity and then unobtrusively observed while they navigated a specially designed website to make a product choice. Subjects' emotional responses to each web page viewed were recorded with an online version of the SAM emotional response scale. Results show that using emotional response to important pages within a website can be used to predict eventual product choice.

CHAPTER 1 INTRODUCTION

Advertising on the Internet

The Internet is different than all the traditional media for advertising. Most ads in traditional media are passive ads, that are meant to attract attention and generate interest that hopefully stays with viewers until they are in a position to act on that interest. With the exception of signs outside of stores or restaurants, where acting on the interest generated by the ad is immediately possible, the only close comparison between online ads and so-called traditional ads is the type known as direct response. The purpose of many direct response ads is to get the viewer to call a phone number, so that a live salesperson can close; immediately turning attention and interest into a sale. Online ads function in a similar way. An attention-grabbing ad is more or less static (although sound and animation are increasingly common). However, clicking the ad directs the viewer to a target site. These attention grabbers (pointer ads) are really ads for the ad (Harvey, 1997). The target site has the same goal as the salesman on the other end of a 1-800 number: to close the sale.

While many of the techniques used in traditional advertising media (such as print or television) apply to pointer ads, existing analytical techniques and processing models do not easily translate to the target page. What makes web sites different from traditional advertising is interactivity. Interactivity is what makes the salesman who picks up the phone so effective at closing the sale. The salesman has the ability to listen to the callers' questions, answer accordingly, and reassure prospective customers (should they have any

doubts). Web pages of course, do not have human intelligence to listen or respond in this way. But that does not mean that a web-ad target site cannot “listen” to the customer. In fact, the Internet as an advertising medium has the most listening power of all methods of mass communication.

This concept is known as Exo-Information or “the information given off during the process of searching for information,” (Brunk, 2001 page 11). Exo-information is also called “implicit feedback” and when properly used has been shown to be as effective as explicit feedback in predicting user preference (Sakagami & Kamba, 1997). Despite its predictive power, most websites do not take full advantage of exo-information, because individual pieces of exo-information are useless without a framework in which to interpret them. To understand what visitors to a website are trying to tell the advertiser, the advertiser must understand how visitors process information online.

The Web-Ad Schema

Information processing on the web is different than in other media, because the advertiser has little or no control over the order in which information is presented (Rossiter & Bellman, 1999). Unlike linear media such as print or broadcast, visitors to a website are not passive receivers of information. They are able to select the specific information they desire to view, and the order in which it is viewed.

Rossiter & Bellman (1999 page 24) proposed that visitors to a web-ad target site possess a pre-conceived schema of what to expect. The web-ad schema is a combination of what the visitor knows about the product or product category, and the visitor’s level of experience using websites. Rossiter and Bellman (1999 page 15) describe the web-ad schema as “an idiosyncratic mental map of the website” that contains the information on the pages the user has visited as well as assumptions about the location of other

information on the site. The web-ad schema contains the visitor's accumulated category knowledge and web navigation experience. The web-ad schema embodies the user's assumptions and expectations of what is included in a web site for a particular product or category.

Web-ad schemas are similar in many ways to the brand and product schemas theorized by Mandler (1982, 1985) and others (Chase & Simon, 1973; Meyers-Levy & Tybout, 1989; Stayman, Alden & Smith, 1992; Tindall-Ford, Chandler & Sweller, 1997). Mandler (1982) defined schemas as "spatially or temporally organized structures" versus taxonomic categories. Since web ads are spatially organized links and pages that individually describe the attributes and features of a complex product (or group of products and their inter-relations), it seems that Mandler's work on product and category schemas would be relevant to the web-ad schema. The work of other researchers on Mandler's theories (Meyers-Levy & Tybout 1989; Stayman, Alden & Smith 1992) is particularly relevant, because it deals with schema congruity and confirmation or disconfirmation of schematic elements that according to Rossiter & Bellman are inherent in web ad processing.

Attention, Learning, Emotional Response, and Acceptance

According to Rossiter and Bellman, web-ad processing occurs as a visitor's pre-conceived web-ad schema is confirmed or disconfirmed (element by element) against the actual web ad. This process of schema testing is explained by the ALEA information-processing model, first introduced by Rossiter and Percy (1997). The ALEA model is not a hierarchy-of-effects model (meaning that the processing steps do not have to occur in a set order, but can occur in a diverse sequence or heterarchy). The stages of ALEA are Attention, Learning, Emotional Response, and Acceptance; and the only order

specification is that logically attention must come first and acceptance is the final stage, which allows what they describe as an “Emotional Feedback Loop” to occur while processing information (Rossiter & Percy, 1997). Essentially, when attention directs an individual toward advertising information, they read or learn the information, which provokes an emotional response. The emotional response either causes the individual to direct further attention to the stimuli, or to make an acceptance judgment on it (that is, to decide to accept or reject the new information).

For example, an individual’s pre-conceived web-ad schema may contain assumptions about what kind of content is contained in a “support” section of a product website (such as a user forum, and perhaps driver downloads). If the user clicks the link labeled “support” expecting to find these items, but instead finds a support email address and a 1-800 number, the user’s schematic assumption about the site will be disconfirmed. This disconfirmation produces an emotional response that will determine the visitor’s understanding of the website. For instance the user might be pleasantly surprised to find a toll-free support number; and accept the information as evidence that the company cares about its customers. Alternately the user could be annoyed that the desired information was not readily available on the website, and thus decide that the company did not do a good job of supporting their products.

On a website, ALEA occurs as a visitor views each page (Rossiter & Bellman, 1999). Acceptance of the information provided occurs because of accommodation or confirmation of the page with the visitor’s preconceived web-ad schema. Disconfirmation leads to rejection of the claim. Severe schema disconfirmation can lead to total rejection of the web-ad schema. In this case, schema research suggests that a

visitor will switch schemas to resolve the incongruity instead of accommodating (Stayman, Alden & Smith, 1992).

According to ALEA, emotional response controls how visitors process content in a web ad, because the emotional response to learning of schema elements determines confirmation or disconfirmation, and thus how the information is interpreted (Rossiter & Bellman, 1999). Because it is so central to the processing model and to understanding visitor interactions with web-ad content, a full featured dimensional approach to Emotional Response measurement is needed. The dimensional framework of Pleasure-Arousal-Dominance (PAD) (Mehrabian & Russell, 1974) will allow for the full specification of response that is necessary for interpretation of the visitor's reaction. Much attention in the Emotional Response research in the field of advertising has focused on the dimensions of Pleasure and Arousal, as these two dimensions are the most affected by traditional passive media. The third and often overlooked dimension of Dominance, or the degree of control over the environment, should be especially relevant to Internet studies as web site visitors exercise direct control over their environment via their navigational choices within the site. Some researchers have proposed that advertising on the Internet will affect feelings of dominance to a greater degree than ads in traditional media because the interactive nature of the web (Eroglu, Machleit & Davis, 2001).

SAM is a non-verbal instrument for measuring PAD emotional response measures that is easy to learn and quick to administer. The scale is made up of 3 sets of figures, each set of figures represents a dimension of PAD, the first row pleasure, the second Arousal, and the third Dominance. SAM has been shown to correlate highly with the verbal PAD measure (Lang, 1980) and to be valid within and advertising context (Morris

& Karrh, 1992; Morris & McMullen, 1994; Morris, Bradley & Wei, 1994; Morris, 1995; Morris, Boone, 1998; Morris, Roberts & Baker, 1999; Morris, Woo, Geason & Kim, 1992).

The Rossiter-Percy ad processing model also specifies some emotional effects that are determined by purchase motivation. According to the Emotional Shift Theory (Rossiter & Percy, 1991) informational purchase motivations are caused by a desire to neutralize a temporary negative shift in emotional state, whereas a transformational purchase motivation is the desire for an enhanced positive shift in emotional state. The implications of this are that a buyer of a utility product will be satisfied by a purchase if it results in a neutral emotional state. The buyer of a product with extra features which are not strictly utilitarian, but perhaps for vanity or style, does so out of the desire for a temporary positive boost in emotional status. According to the theory, the appropriate sequence of emotions is negative to neutral for informationally motivated buyers and is neutral to positive for transformationally motivated buyers. Evidence for the presence of these emotional sequences has been found in research (Rossiter & Percy, 1991; Baumgartner, Sujan & Padgett, 1997).

Schema theory also specifies effects on emotions, notably the 'process induced affect' theorized by Mandler (1982). Evidence that schematic processing does produce emotional effects has been found (Garbarino & Edell, 1997). This and other studies point to the idea that moderate schematic incongruity leads to more attention being paid to the stimulus and positive emotional effects upon eventual accommodation, either within the initially cued schema or a more appropriate schema if switching occurs (Stayman, Alden

& Smith, 1992). If incongruity cannot be explained the subject is likely to have a negative evaluation not only of the stimulus, but also of the cued schema.

Need for the Present Research

Schema theory applied to the Internet as proposed by Rossiter and Bellman's concept of the Web-ad Schema has not yet been tested in the literature. It has been suggested that dimensional emotional response, particularly the dimension of dominance will related to the online experience, but to date the relationship has not been explored. The relationship between schema complexity and emotional response has only begun to be tested in the literature (Ferris, 2003). The current study will apply emotional response to the concept of the web-ad schema within the framework of ALEA to explain online shopping and purchase behavior. ALEA will be used as a backdrop for understanding emotional responses to a web-ad stimulus. While it is difficult to directly record learning or attention to a specific stimulus, instruments such as SAM allow emotional response to be measured. Using analytical frameworks such as AdSAM (Morris, 1995) the recorded emotional responses can be interpreted in a meaningful way to explain user behavior. If learned information is either accepted or rejected based on the emotional response that it triggers, there may be meaningful dimensions to this response which could explain behavior. For instance, a visitor may accept new information from the web-ad as "true", but the difference between suspicion, disappointment and boredom will likely change the way that "accepted" information is acted on (if indeed it prompts action at all). Rossiter and Bellman's (1999) concept of the web-ad schema explains how the new or old information fits into already known information. Information that is familiar may provoke different emotions than information that is new, even though the responses may be similar on one or two of the emotional dimensions.

Purpose of the Study

The purpose of this study is to examine how emotional response to web-ad stimuli relates to product choice. By measuring schema levels, emotional response and product selection it is hoped that a relationship between them will be evident and that this will explain online consumer behavior. Schema complexity levels will be measured at both the product and web-experience level, as these are both likely factors that affect web navigation behavior (Rossiter & Bellman, 1999). The main focus of the study is to measure emotional response, as per the ALEA processing model, emotion explains how visitors to a web site act on learned information. It is intended that the dimensions of emotional response will be used to understand subjects' web navigation behavior and product selection.

Research Questions

Question 1: Do emotional response and schema complexity covary?

Question 2: Can emotional response and schema complexity predict product choice?

Outline of Following Chapters

Chapter 2 presents a thorough review of the literature relating to the present research. It begins by outlining the stages of the Rossiter-Bellman Model for Explaining Web-Ad Effectiveness and the ALEA information processing model. The relationship between prior research on schema-congruity theory and the web-ad schema proposed by Rossiter and Bellman is also examined. Emotional response is explained in detail, with special attention given to the evolution of the SAM non-verbal measurement instrument. Emotion-Shift Theory is also explained along with the expected sequences for the present

study. Chapter 2 concludes with the hypotheses of the study and operational definitions of all the relevant variables.

Chapter 3 describes the methodology employed in the current study. It explains the computer system used to measure the relevant variables and the general research design. Details on the sample size and exact procedures used are also provided.

Chapter 4 reports the statistical analysis of the collected data. Significance tests of the numerical data are presented.

Chapter 5 states the findings of the study and discussion of the results. Limitations of present study are noted as well as areas for future research.

CHAPTER 2 LITERATURE REVIEW

The Rossiter Bellman Model for Explaining and Measuring Web Advertising

The Rossiter Bellman Model provides a framework for measuring web-ad content and reactions to web-ad content. The model specifies 4 stages of a visitor's experience with a web ad and introduces the concept of the Web-ad Schema (Rossiter & Bellman, 1999). The first stage is Exposure to the web ad and its structure. The second stage is Ad Processing and Schema Formation. The third stage, Communication Effects about the information in the web ad and the brand advertised, are the result of ad-processing and schema formation. The fourth and final stage of the model is Action. A visitor's desired action could be to purchase, try, request more information, bookmark, do nothing, visit another site, etc.

Exposure to the Ad and Ad-Structure

During the first stage of interaction with a web ad, a visitor is exposed to the content of the ad and the organizational structure that the content is presented within. It is necessary to examine the structure of web ads because they have no evident or automatic sequence like traditional advertising (Rossiter & Bellman, 1999). Several factors are identified within the model as affecting a visitor's perception of the web ad and its structure. These factors are web navigation ability, category need, category expertise, and situational factors. For the purposes of this study we will only examine the factors of navigation ability and category expertise. Navigation ability and category expertise are the two elements which most affect the complexity of the web-ad schema.

In general, a higher level of web navigation ability and category expertise will result in a larger and more complex web-ad schema.

Web Navigation Ability

Rossiter and Bellman (1999) suggest that a user's web navigation ability is comprised of two variables: experience with web navigation and spatial ability. It is suggested to measure experience by time spent on the Internet. While spatial ability may be an important factor in first learning to navigate the web, at the present level of web penetration it can be assumed that users have mastered the basic concepts and will only increase in ability with time and experience. Rossiter and Bellman propose that users with a high level of web navigation ability will navigate the site in a logical path that correlates to their level of category need and expertise. Individuals who have a low level of web navigation ability will navigate the site in a path that appears to lack focus and purpose (Rossiter & Bellman, 1999). For the purposes of this study, two measures will be used to calculate web navigation ability: the number of years since a user first encountered the Internet, and the number of hours spent per week using the Internet. These two factors should have a compounding effect on familiarity with the Internet and use of the media. Long-term experience with the Internet will provide a user with an evolutionary perspective on the media, while the number of hours spent online per week will gauge their familiarity with current practices of design and organization. In addition to these two measures, the subject's experience with online commerce and product research is judged with the questions "Have you ever shopped for products online?" and "Have you ever purchased products online?"

Category Expertise

Rossiter and Bellman propose that users with high level category expertise will perceive a web ad differently as they possess a more detailed understanding of the category attributes and expectations of what to expect from products within a category. Expertise determines the product element of the web-ad schema. In the present study, category expertise is measured with several questions. The first determines if they own a product within the category, which in this case is computer printers. Their main use of the printer is also a factor, as users who print text mostly will have different understanding of the category than those who print photos mostly. Also a factor is the amount that they use the printer, those subjects who use their printers more frequently are more likely to understand the limitations of particular printers and will likely have preconceptions of what a printer should be capable of. Also of importance is whether the printer they own was purchased separately or bundled with a computer purchase. Printers bought separately indicate that the subject is likely familiar with the variety of printers available, assuming they shopped for the printer themselves. A final question determines the number of available technologies within the category that an individual is familiar with. The technologies range from generally available consumer technologies to increasingly obscure technologies used by professionals for specific tasks. The technologies represent two levels of schema complexity, the first is a simple, consumer level schema, the second is a complex, professional level schema. Printers in the first group (Inkjet, Bubble jet and Laser) are available at consumer retail outlets and can generally be used for both text and photo printing. Printers from the second group are characterized by their exclusive distribution through a professional sales force selling to

commercial operations. Generally these printers are for printing high volumes or printing on surfaces other than paper.

Category Expertise: Effect on Navigational Path

Category expertise is a pre-condition that visitors bring to a site that affects how they process the site content and what their expectations of the content are. Experts will have relatively complex schemas with conditions and classes; these complex organizational structures will be capable of accommodating most information processed. Additionally experts will recognize important diagnostic information when they encounter it. Experts are expected to have shorter search paths because their information search will be specific and directed.

Novices will have relatively simple schemas, but will gain expertise with each node of new information. They will have longer search paths because they will not engage in directed search. Their inability to judge the importance of new information will result in a seemingly directionless path through the site (Joher, Jedidi & Jacoby, 1997). Thus, in order to shape the search path of novice visitors, an advertiser must make nodes seem important.

Web-Ad Schema

Rossiter and Bellman propose the concept of a web-ad schema to explain a visitor's selection of content. The web-ad schema is an "idiosyncratic mental map of the website" (Rossiter & Bellman, 1999). The concept is similar to a brand schema in that each page of the website is an association between the brand and the attribute or benefit claim featured on each page. The links between the pages represent the relationship between the brand attributes and the relationship between different models.

The Rossiter Bellman web-ad processing model proposes the existence of a pre-conceived web-ad schema as distinct from the advertiser intended schema. The pre-conceived schema represents what the visitor expects from both the product category and from a web ad. The advertiser's intended schema is the actual layout and content of the web ad. When a visitor is exposed to the advertiser's intended schema it is tested against the visitor's preconceived schema.

Web-ad schemas have many similarities to brand and product schemas. Rossiter and Bellman refer to the web-ad schema as "learned combinations elements that help to store and retrieve complex information to and from long term memory" (Rossiter & Bellman, 1999). Mandler (1982) defined schemas as "spatially or temporally organized structures" versus taxonomic categories. Schemas allow individuals to store and retrieve complex knowledge structures as a single element (Tindall-Ford, Chandler & Sweller, 1997). The web-ad schema represents a brand or product and contains a spatial organization of the relevant information, such as attribute and benefit claims, that distinguish the product or websites from similar items.

Web-ad schemas will differ in degrees of complexity and accuracy (Rossiter & Bellman, 1999). These elements will be affected by an individual's web navigation ability, category need and expertise, as well as situational variables such as time pressure or distraction. Research has suggested that experts have more complex schema (Chase & Simon, 1973). The more complex a person's schema, the more information it will contain and thus the more new information it will be able to accommodate.

Rossiter and Bellman propose that users who are very experienced on the Internet will have pre-conceived web-ad schemas or 'mental prototypes' of what to expect from

different kinds of web sites. For instance, many experienced Internet users would expect to have some sort of 'shopping cart' and check-out system at a site offering direct sales or news and multimedia material on a site that is promoting a movie.

These pre-conceived web-ad schemas can be based on other similar sites the user has visited (such as other sites in the same product category, or other sites with the same purpose, i.e. sales, promotions, community, etc) but they can also be affected by a users understanding of the product category and brand. If the user knows that a company makes a lot of products, they might be prepared to deal with a large corporate site that goes into specific details about the products, their brand knowledge has increased the complexity of their schema. A different user visiting the same site who has never heard of the brand will have a different schema (likely one that is relatively simple) and thus different expectations for the website.

As users navigate the website, assumptions about the location of content within the site will be tested against the actual content of the site. These guesses are confirmation and disconfirmation trials. If a users guess about a location is confirmed, then their experienced web-ad schema and pre-conceived web-ad schema are congruent with the advertiser intended schema, this provokes an emotional response, which serves to accepts or reject the schematic element. Depending on the emotional response a user may reject the claim, may reject the cued schema, or may alter their schema (Meyers-Levy & Tybout, 1989; Stayman, Alden & Smith, 1992).

Experts are expected to have shorter search paths on a site due to the increased accuracy of their schemas (Rossiter & Bellman, 1999). An expert will know which pieces of information are diagnostic, and what other information it would be related to

(and thus located near) on the site. Novices are expected to have longer search paths as their search for and processing of information will be less directed, and they will look at more information because they will not know what information is important (Rossiter & Bellman, 1999). The web-ad schema will be operationalized as a combination of Internet experience and category knowledge.

Processing and Schema Formation

Web-ad processing is explained by the ALEA information processing sub-model. Under ALEA, content which receive attention is learned and then provokes an emotional response, the emotional response leads to either acceptance or rejection of the information (accommodation into the self-structured schema) or it directs further attention to the content. Further attention provides the opportunity for more learning and greater certainty of the learned content (Rossiter & Bellman, 1999). Each stage of ALEA is described further below.

The ALEA Processing Model

The acronym ALEA stands for the stages Attention, Learning, Emotional Response, and Acceptance. ALEA is not a hierarchy of effects processing model, but a heterarchy or 'diverse sequence' as there is no set order specified for each stage of the model (Rossiter & Percy, 1997). Learning of content is mediated by emotional responses to the content; acceptance or rejection of the claims then determines communication effects of the ad (Rossiter & Bellman, 1999).

Attention

Conscious noticing of web-ad content is what distinguishes attention from mere exposure. Attention to content contained in an ad is affected by all of the traditional attention getting devices such as size and color but is also affected by the category need

and expertise of the visitor (Rossiter & Percy, 1997). Category need will add 'subjective enhancement' to content that is relevant to the need. Expertise will affect the size and complexity of the visitor's web-ad schema thus will affect their expectations and evaluations of the site (Rossiter & Bellman, 1999). Rossiter and Bellman suggest that attention to content be measured by time spent viewing a particular web page. Other research has used viewing time to measure attention to television ads (Olney, Holbrook & Batra, 1991).

Learning

The goal of any advertising campaign is learning. Advertisers desire to teach consumers about brand attributes and benefits, their goal is to provide reasons for choosing a brand (Rossiter & Percy, 1997). Rossiter and Bellman propose that learning requires the visitor to construct the micro structural molecule in short term memory, essentially they must add the new information to their self-structured schema and evaluate the strength of each connection (i.e. accept or reject it) (Rossiter & Bellman, 1999). Rossiter and Percy specified that learning is merely acknowledging a claim, but it is the emotional response to the claim that determines acceptance or rejection.

Emotional Response

Emotional Responses during short term processing of ad content directly affects attention paid to the ad content, which indirectly affects learning and determines acceptance or rejection of the claims (Rossiter & Percy, 1997). The intensity of emotional response is what mediates attention to given to the content. If the emotional response is intense enough, and is either positively or negatively reinforcing the viewer will direct more attention to the content nodes in order to prolong or improve upon the emotional response (Rossiter & Bellman, 1999). Short term processing of the ad content

continues as long as the viewer remains in a reinforcing emotion-attention loop. Attention focuses learning which prompts an emotional response directing further attention to the ad content. Acceptance of the ad claims, and incorporation into a self-structured schema may occur after each emotional response (Rossiter & Percy, 1997). Other researchers have linked the dimensions of pleasure and arousal to time spent viewing (and attention paid towards) television ads (Olney, Holbrook & Batra, 1991). The emotional feedback loop occurs because the emotional response is reinforcing, meaning that it provides the emotional amplification or relief that appeals to the visitor. Because the visitor desires the emotional response, they continue to direct attention towards the ad content in the pursuit of emotional satiation.

Acceptance

Acceptance is the result of learning an association and the emotional response to the knowledge of the association (Rossiter & Percy, 1997). Acceptance of attribute and benefit claims is a necessary prerequisite for all of the predicted communication effects except brand awareness. Merely learning an attribute or brand claim does not constitute 'personal agreement' with the claims. Personal agreement requires personal investment in the claim; the absence of which indicated irrelevance. For example, if a claim does not provoke an emotional response, it is because the claim does not have any personal relevance to the subject. It is the personal involvement, which causes evaluation of the claims to be necessary (Rossiter & Percy, 1997).

Communication Effects

Processing and accepting ad content results in communication effects. Each of the communication effects represents content elements that the advertiser has tried to communicate to the web-ad visitor. The 6 communication effects are: category need,

brand awareness, brand attribute beliefs, brand attitude, brand intention, and brand purchase facilitation (Rossiter & Bellman, 1999).

Action

The communication effects that occurred during processing of the ad content determine what action the visitor to the web ad takes. Rossiter and Bellman propose that the first 5 communication effects must be realized in order for a brand inquiry to occur, purchase obviously can only occur if there is a means of purchase facilitation and the visitor is aware of it. They also propose that a visitor's path through a website should predict what communication effects were achieved (Rossiter & Bellman, 1999).

Emotional Response: "Evaluative Intensity"

Perhaps because they were especially concerned with the effect of emotional response on attention, Rossiter and Bellman propose to measure evaluative intensity of the response instead of a dimensional measure (Rossiter & Bellman, 1999). Evaluative intensity only indicates a direction of the feeling (either positive or negative) and a measure of intensity, a concept that combines a direction of feeling and arousal. This measure is enough to predict increased attention but not to explain the complex process that leads to acceptance. Evaluative intensity only measures the ability of a stimulus to attract attention, but attention and learning are not directly related to acceptance (Rossiter & Percy, 1997), and thus a linear (vs. dimensional) approach to emotional measurement will not explain acceptance.

Emotional Response: Learning and Acceptance

In order to understand how emotional response affects learning and acceptance a more full specified model of emotion is needed. A Dimensional approach such as PAD (Mehrabian & Russell, 1974) with independent measures for each dimension will allow

examination of what type of emotional response occurs when information is accepted. While information that is 'intense' is likely to generate further attention, 'intensity' alone does not predict acceptability. Thus a full featured model that independently tracks levels of pleasure, arousal and dominance felt in response to a stimulus is needed.

PAD

Much research on emotional response to advertising has used the PAD framework to explain emotion. The original verbal measure of PAD consisted of 34 adjective pairs that when scored by a subject placed them in a three-dimensional space, coordinates indicating individual levels of pleasure, arousal and dominance (Mehrabian, 1998). The dimensions of pleasure and arousal have been shown to affect attitude towards the ad and attitude towards the brand (Holbrook & Batra, 1987).

The Case for Dominance

Much of the attention given to the PAD framework has centered on the importance of the dimensions pleasure and arousal. This is because most advertising primarily affects these dimensions. PAD was originally developed in the context of environmental psychology, and was intended as a description of the emotional response to a physical environment, situation or experience (Mehrabian & Russell, 1974). Mehrabian and Russell defined the third dimension of dominance as the degree to which an individual was "free to act in a variety of ways" without restriction. Dominance is a measure of an individual's control over the environment, essentially their dominance over the environment.

Other researchers had proposed a third dimension to emotion but called it by other names. Osgood, Suci, and Tannenbaum called it 'interpersonal potency' in the context of group dynamics (Osgood, Suci & Tannenbaum, 1957). The observed dimension was

very similar to the environmental term dominance, but in reference to other group members instead to towards the broader environment. Research on emotional response to television advertising has not found a significant effect for Dominance (Holbrook & Batra, 1987) but this is due to the passive nature of the broadcast media. Because viewing television does not require effort, the role of dominance is less relevant (as the participant has all but given up control). Some researchers have argued that advertising on the web will affect feelings of dominance to a greater degree than traditional ads because of the interactive nature of the web (Eroglu, Machleit & Davis, 2001).

The opportunity to arrange and select brand information gives visitors control over their online environment, with the feeling of control comes an evaluation of the degree of control (the level of dominance over the environment along with expectations of ability). If the visitor's perceived level of control is incongruent with their expected level of control this will provoke an emotional response at the brand, the website, and the interface, which in turn will affect information processing. Rossiter and Bellman (1999) suggest that emotional responses directed at the interface (such as frustration with a difficult or inconvenient navigation aid) can lead to a break down in ALEA, though without a measure of dominance the same response could be misunderstood for displeasure with content.

SAM: The Self Assessment Manikin

SAM is a non-verbal instrument for taking PAD emotional response measures. The scale is made up of 3 sets of figures. Each graphic figure represents a gradient of one of the emotional dimensions, pleasure, arousal, and dominance. SAM was developed by Lang (1980) so that PAD measures could be administered to patients who had difficulty speaking. SAM has been shown to strongly correlate with the verbal measure of PAD

(Pleasure +.937, Arousal +.938, Dominance +.660) (Lang, 1980; Miller et al. 1987; Greenwald et al. 1987; Bradley 1994; Morris 1995; Morris et al. 1999). SAM has been shown to be valid in an advertising context (Morris & Karrh, 1992; Morris & McMullen, 1994; Morris, 1995; Morris & Boone, 1998; Morris, Roberts & Baker, 1999; Morris, Woo, Geason & Kim, 2002).

Using SAM to take emotional response measures to web-ad content has several advantages. First, SAM measures take only 15 seconds or less to administer, thus emotional response measures can be taken with only minimal task distraction (and emotional distortion). Second, SAM's fast measure time will allow multiple measures to be taken over the course of a web-ad session with minimal task distraction or fatigue. Third, SAM contains a direct measure of dominance, which is hypothesized to reflect control over the navigational system.

Emotions and Motivations: Emotion Shift Theory

The Rossiter-Percy advertising model specifies two kind of buying motivations, informational and transformational. Buying motivations are caused by temporary shifts away from emotional equilibrium (Rossiter & Percy, 1991). Negative shifts (from neutrality) will motivate an individual to seek relief from the negative stimulus. The desire for positive shifts from neutrality will motivate an individual to seek rewarding emotional state. Informational motivators are those that involve negative shifts from equilibrium, individuals seek information in order to remove or relieve the negative stimulus. Transformational motivations involve positive shifts and desire for rewarding emotional payoffs.

Emotions figure into the buying motivations scheme as “the executors of motivation systems” (Rossiter & Percy, 1997), meaning that without significant

emotional involvement a motivation would not be personally relevant enough to act. The basic emotional shift theory states that there is an appropriate sequence of emotional responses for each purchase motivation. Informational motivations represent an individuals desire to shift their emotional state from a negative position to one of neutrality. Transformational motivations represent the desire to shift from neutrality to and enhanced or positive emotional state. Support for the presence of the expected emotional sequence for informational ads was found in a several studies (Rossiter & Percy, 1991; Baumgartner, Sujan & Padgett, 1997).

Schema Congruity

Schema incongruity occurs when the “total configuration of a products attributes is not represented in the activated schema” (Meyers-Levy & Tybout, 1989). Extremity of schema incongruity has been measured by the ease with which an incongruity can be addressed within the hierarchy. The assumption was that individuals sequentially access levels of the schematic hierarchy to test the stimulus for accommodation, and the more ‘steps’ are required to fit an object into the schema, the more cognitive effort the accommodation requires.

Schema congruity has been shown to affect product expectations and evaluations, it seems likely that it should also affect online product evaluations and expectations. Some studies have found incongruity to cause negative evaluations, and also that disconfirmation judgments and post-trial evaluation may occur at a product category schema instead of at the attribute level (Stayman, Alden & Smith, 1992).

Incongruent attributes in a product description (prior to trial) can cause individuals to switch schemas when forming pre-trial expectations. Schema switching was more likely to occur in response to pre-trial attribute inconsistencies, during and after trial the

cued schema appeared to serve as a basis for evaluation (Stayman, Alden & Smith, 1992).

Some research has found support for the idea that moderate amounts of incongruity are beneficial for several reasons. Moderate incongruity has been shown to draw attention to a stimulus (Stayman, Alden & Smith, 1992). Also, moderate levels of schema incongruity have been shown to produce positive affect, such that it was often ranked more favorable than congruity or extreme incongruity (Meyers-Levy & Tybout, 1989).

Extreme incongruity led to limited information search (due to lack of interest) and negative evaluations (Stayman, Alden & Smith, 1992). The interpretation is that extreme schema incongruity either causes a viewer to feel that the object is not what they were searching for (i.e. it does not fit the schema) or to evaluate the object unfavorably because it fails to meet the expectations that fit the schema.

CHAPTER 3 METHODOLOGY

A specially designed web site was set up for the purpose of conducting this study. Students were recruited from classrooms in the Mass Communications program at a large Southeastern university during March and April 2004. At the time of recruitment, students were given an instruction sheet and a password for accessing the website to participate in the study. Actual participation in the study occurred outside of the classroom on the students own time. Of the nearly 300 recruits for the study, only 162 subjects completed the study. The study consisted of three main parts: a preliminary questionnaire, a web navigation and product selection exercise and a follow-up questionnaire.

Stimulus Design

A website for a fictional brand of computer printers was created for the purpose of the study. The web page consisted of 4 fictional products with ratings and descriptions on 5 attributes. The site also included general information about digital printing, printer technology, product warranty and a fictitious support forum. The site was designed to have many of the feature that a real website for a line of computer printers would have. In addition to the product, attribute and general information pages of the site, there was also a page for “purchase inquiry” where subjects could indicate the model which “best fit” their needs as a means of completing the task.

The site was designed so that most of the pages were accessible from anywhere within the site. The pages that were immediately accessible were each of the model

pages, each of the attribute pages, each of the general information pages and the purchase page. The ‘compare all’ page which was only accessible from an attribute or product page and individual forum posts were only accessible from the ‘support’ page. The contents of each page are as follows:

Model Pages

Each model page featured a description of the model and summary of its benefits in a short paragraph. The models rating on each of the 5 attributes was listed and an extra link to the ‘compare all’ page was available. The available models and their primary benefits were:

Printer 1 – Basic Black and White, fast text printing, does not print color

Printer 2 – Basic Color, not as fast as Printer 1 but prints both pictures and text, but does neither especially well.

Printer 3 – Photo printer, Slower but better color reproduction, ability to handle special papers, can print pictures and text well.

Printer 4 – Professional Style Printer – Very fast, good photo reproduction, many options and features, prints on rolls of paper 18 inches wide. Not for printing text.

Attribute Pages

Each attribute page featured a short paragraph describing how each of the attributes affected printing output and listed each of the models ranking on the attribute. The attributes were speed, resolution, ink, paper and accessories. Each model ranked slightly differently on each of the attributes, each had benefits and limitations which were subjective depending on the printing task. If you were printing mostly text, the first printer was the best, if you printed photos Printer 3 was good, if you needed to print poster size photos you would need Printer 4. Printer 4 ranked the best on all of the

attributes except for one, it was not designed to print text at all and could not print on letter size paper; this was similar to printers found in professional print shops or sign making businesses.

Compare All Page

The ‘compare all page’ had no explanatory text, it merely presents a grid with each of the printers attribute values arranged for direct comparison. The text describing each attribute was identical to that found on each of the respective product and attribute pages, this page merely showed all of the attributes together and gave no descriptive explanation.

About Page

The ‘about page’ featured a short paragraph about digital printing and the many things you could do with it. It featured ideas for printing t-shirts, mouse pads and other imprintable items. There was no diagnostic information on this page.

Technology Page

The ‘print technology page’ provided a simplified explanation of how inkjet style printers work. It also explained why the different models had trade-offs in benefits. The page explained that each model featured the same inkjet technology but in different configurations so as to optimize the printer for a specific purpose. There was no diagnostic information on this page, the information related to all of the models.

Warranty Page

This page gave a brief description of the fictional companies warranty agreement. All of the products featured a limited lifetime warranty against manufacturing defects or damage during shipping. Printer 4 could be additionally protected under a 5 year manufacturers service plan for an unspecified price.

Support Page

The support page was filled with several short messages taken from actual printer support pages. Individuals had various problems such as streaking, paper jams, incorrect drivers and software issues. Most of the problems were unsolved and there was no “staff response” in the forum, only advice from other printer owners. There were no driver downloads and no support numbers.

Purchase Inquiry Page

The ‘purchase inquiry page’ featured a short paragraph asking the subject to select the model they “wanted more information on” and 4 buttons, one corresponding to each of the models. When a subject clicked on a button they were asked to confirm or cancel their decision. Confirmation of the decision directed them to the follow-up questionnaire page of the site.

Emotional Response Measure

Upon clicking a link within the site subjects were required to record an emotional response to the page they had just viewed. Consequently, there is an SAM measure corresponding to each page viewed on the website, along with the time each measure was entered. When the SAM scale appeared, all buttons on the website were disabled. Users had to enter values on each of the SAM dimensions by clicking a radio button under the appropriate SAM figure in order to proceed. After a rating had been made on each dimension a submit button appeared which when clicked would execute the link they had selected. A SAM rating was also taken when the subject confirmed their final product choice, this was interpreted as the ‘chosen product emotional response’.

Preliminary Questionnaire

Subjects were asked several preliminary questions to gather demographic information, their level of Internet experience, knowledge of and beliefs towards the computer printer category. Demographic information was limited to age and sex. Internet experience was determined with four questions. Subjects were asked the year in which they first used the Internet (four digit year), the number of hours per week spent on the Internet (number of hours), whether they had ever shopped for products online (yes/no) and whether they had ever purchased products online (yes/no).

Category knowledge was judged with several questions. Subjects were asked if they owned a computer printer (yes/no), whether it printed color or black and white (color/b&w), used to print mainly photos or text (text/photos), how often it was used (multiple times daily, daily, weekly, less) and if it was bundled with a computer or bought separately (bundled/bought separately). More sophisticated knowledge of printer technology was judged by the subject's familiarity with various professional printer technologies. Subjects were instructed to check all of the technologies that they had ever heard of. The list consisted of several popular consumer technologies (Inkjet, Bubble jet, Laser) as well as some very specialized professional print technologies (Dye Sublimation, Thermal Wax, Solid Ink). Subjects were considered to have advanced category knowledge if they checked any of the professional print technology boxes. All other users were considered to have basic category knowledge (all subjects had heard of at least one print technology).

Finally subjects were asked what the first and second most important attributes were when choosing a computer printer. The list of attributes was: speed, resolution,

color, print technology, brand, warranty, and accessories. Subjects were allowed to select one attribute as the most important and one attribute as the second most important.

Upon completing the questionnaire, subjects were directed to a page with instructions for using the SAM (Morris,1995) emotional response scale and a description of how it would be employed throughout the exercise. Subjects were also instructed that the purpose of the exercise was to ‘surf’ the website until they had enough information to choose the product appropriate to their needs. The product selection sequence was described in detail. After reading the instruction page subjects were directed to the web navigation and product selection exercise, the following is a description of the stimulus web site.

Follow-up Questionnaire

The follow-up questionnaire consisted of two short questions and the six item Attitude towards the Site scale (Chen and Wells, 1999). Subjects were asked if they had learned anything from the exercise of navigating the website (yes/no) and again the most important attribute when choosing a computer printer (speed/resolution/color/print technology/brand/warranty/accessories). This question was used to ascertain whether the information on the site had changed their mind at all. Finally subjects were asked to complete the Attitude Towards the Site scale (Chen & Wells, 1999). Post exercise data also included the product choice subjects indicated during the web site navigation and product selection exercise. The four products were divided into two groups, simple and complex products. The simple products were printers 1 and 2, as they satisfied basic needs of average consumers. Printers 3 and 4 represented printer models with ‘expert features’ that would require more complex understanding of the product category to appreciate, hence these models were considered ‘complex’.

Data Collection and Storage

The stimulus web page and related surveys were created with Flash 7.1 by Macromedia. Flash was chosen for building the web site because it allowed the entire website to be contained within a single file which controlled for server lag, in addition Flash has excellent database support and unlike html it behaves and looks the much same on most browsers. Once the Flash file had been downloaded to the end users browser cache, only small amounts of data needed to be sent back to the server. Since the Flash file contained the entire web page in a single file, information about the users location within the site and their respective SAM ratings were sent back to the web server as raw variables that were stored in a relational database.

Web page navigation data was collected via a specially created database that recorded information about each subject on each page. The database was created with the open source database package PostgreSQL operating on a Red Hat Linux web server. Users were tracked using PHP session id tags embedded in session cookies. Each time a user submitted a SAM rating, information containing the page they were viewing, their unique session id, their SAM rating, and the time (accurate to a fraction of a second) was sent to the database via a PHP handler file located on the server. Questionnaire data was sent in the same manner.

Subjects

Subjects were recruited from undergraduate mass communications classes at a large Southeastern university in exchange for extra credit points as determined by the instructor. At the time of recruitment, subjects were asked to sign the required Informed Consent form and given an instruction sheet with a unique username and password that allowed access to the server where the experimental site was located. Subjects were then

told to complete the study on their own time from a computer connected to the Internet. Out of nearly 300 students signed up, 162 total followed through with the entire treatment. Partial completions were removed from the data set.

CHAPTER 4 RESULTS

Descriptive Statistics

Of 84 valid cases, the average age was 20.8, the average year of first Internet use was 1995, and the average time spent online per week was 18.8 hours. 67.9% (57) of the sample was female and 32.1% (27) was male. 81 (96.4%) of the sample had experience shopping for products online and 71 (84.5%) had experience purchasing products online. 81 (96.4%) owned a computer printer, of those 79 (97.5%) owned a color printer. 82 (97.6%) of the total sample indicated that their primary printing task was to print text. 28 (33.3%) printed daily while 56 (66.7%) printed weekly or less. Only 19 (22.6%) of printer owning subjects bought their printer bundled with a computer, the remaining 65 (77.4%) having purchased their printer separately. 15(17.9%) of subjects viewed 6 or fewer pages on the site during the exercise. 51 (60.7%) viewed between 7 and 13 pages. 12 (14.3%) viewed between 14 and 18 pages. 6 (7.1%) viewed more than 20 pages. 55 (65.5%) of the sample indicated a simple level of pre-existing product schema complexity, 29 (34.5%) indicated a complex product schema. 60 (71.4%) of subjects chose a simple product at the end of the exercise, 24 (28.6%) chose one of the complex models. Prior to exposure to the web site, 41 (48.8%) of subjects reported that resolution was the most important attribute when choosing a printer, 25 (29.7%) reported that speed was most important. Print Technology and Brand were the next most popular key attributes with 6 (7.1%) and 7 (8.3%) subjects respectively. Post web site exposure, 24

(28.5%) of subjects listed speed as the most important attribute, 31 (36.9%) resolution, 9 (10.7%) color, 15 (17.8%) print technology, 4 (4.8%) brand, 1 (1.2%) warranty.

The mean SAM scores for the home page by schema complexity were: Pleasure 5.95 (simple), 5.97 (complex), Arousal 4.58 (simple), 4.28 (complex), and Dominance 5.55 (simple), 5.14 (complex). The mean SAM scores for the chosen product by schema complexity were: Pleasure 5.98 (simple), 6.34 (complex), Arousal 5.05 (simple), 5.55 (complex), and Dominance 6.15 (simple), 5.69 (complex). The overall mean SAM scores for both home page and chosen product were Pleasure 6.03, Arousal 4.85, and Dominance 5.70.

Table 1. Mean SAM scores for Home Page and Chosen Product (Std. Deviation)

Schema Complexity	Pleasure		Arousal		Dominance		N
	Home Page	Chosen Product	Home Page	Chosen Product	Home Page	Chosen Product	
Simple	5.95(1.90)	5.98(2.27)	4.58(1.96)	5.05(2.45)	5.55(2.00)	6.15(2.11)	55
Complex	5.97(1.70)	6.34(2.13)	4.28(2.14)	5.55(2.08)	5.14(1.83)	5.69(2.30)	29
Total	6.03(1.62)		4.85(1.73)		5.70(1.68)		84

Research Question Testing

Research Question 1: Emotional change by schema complexity was tested with a multivariate analysis of covariance (MANCOVA). Chosen product emotional response rated on the three composite dimensions, Pleasure, Arousal and Dominance were the dependent variables, pre-existing schema complexity (simple/complex) was the independent variable, and the three dimensions of home page emotional response were covariates. A significant effect ($p < .05$) was found for home page Dominance (Wilk's λ .826, $F(3, 77) = 5.404$, $p = .002$). Schema complexity was not found to have a significant main effect (Wilk's λ .978, $F(3, 77) = .581$, $p = .629$). Prior to the main analysis, underlying MANCOVA assumptions were checked. The equality of covariance matrices assumption was satisfied (Box's $M = 6.091 \sim F = .969$, $df1 = 6$, $df2 =$

21300.689, $p = .445$). Homogeneity of variance across all level combinations of the between-subjects factors was satisfied, chosen product Pleasure (Levene's Test $F = 2.087$, $df1 = 1$, $df2 = 82$, $p = .152$), chosen product Arousal (Levene's Test $F = 3.255$, $df1 = 1$, $df2 = 82$, $p = .075$), chosen product Dominance (Levene's Test $F = .036$, $df1 = 1$, $df2 = 82$, $p = .850$). The between subjects effects of schema complexity on chosen product emotional response are as follows: Pleasure $F = .685$ ($p = .410$), Arousal $F = .790$ ($p = .377$), and Dominance $F = .416$ ($p = .521$). Therefore, hypothesis 1 cannot be supported, as a significant covariance was not found.

Table 2. MANCOVA Analysis of Schema Complexity and Home Page Emotional Response on Chosen Product Emotional Response

Dependent Variable	Independent Variable	Wilk's λ	df1	df2	F	p
Chosen Product Emotion	Schema Complexity	0.978	3	77	0.581	0.629
	Home Page Pleasure	0.937	3	77	1.730	0.168
	Home Page Arousal	0.959	3	77	1.097	0.355
	Home Page Dominance	0.826	3	77	5.404	0.002

The results of MANCOVA does have one interesting indication despite no significant effect schema complexity. The F value of Dominance is high (5.404) compared to the other dimensions, thus we can infer that Dominance is an influential emotional component for the relationship between home page emotion and chosen product emotion. This supports the proposal that dominance will affect advertising on the Internet to a greater degree than traditional ads because of interactivity (Eroglu, Machleit & Davis, 2001).

Research Question 2: The effect of the indicator variables on chosen product complexity was examined using Discriminant Analysis and Independent Sample t-tests to examine mean score differences. Analysis was initially run with SAM scores for each

visited page; a test of equality of group means was used to choose variables to keep in the discriminant function. Variables with significant effects were Pleasure response to Printer 3 page (Wilk's λ .927, $F(1, 82) = 6.440$, $p = .013$), Dominance response to Printer 3 page (Wilk's λ .893, $F(1, 82) = 9.807$, $p = .002$), Pleasure response to Printer 4 page (Wilk's λ .921, $F(1, 82) = 6.999$, $p = .010$), Arousal response to Printer 4 page (Wilk's λ .939, $F(1, 82) = 5.292$, $p = .024$) and Arousal response to Technology page (Wilk's λ .940, $F(1, 82) = 5.202$, $p = .025$). Schema complexity was left out of the function having failed the test of equality of group means. All non-significant indicator variables were removed from the final analysis. The equal variance assumption failed (Box's $M = 54.955 \sim F$ Approx. = 3.343, $df1 = 15$, $df2 = 8034.678$, $p = .000$), but this is expected because the discriminant function does not correctly predict 100% of the classifications.

$$-0.195 (\text{Pleasure}_{\text{Printer 3}}) + 0.365 (\text{Dominance}_{\text{Printer 3}}) + 0.361 (\text{Pleasure}_{\text{Printer 4}}) - 0.193 (\text{Arousal}_{\text{Printer 4}}) + 0.231 (\text{Arousal}_{\text{Technology page}}) - 0.919 (\text{constant}) = \text{Chosen Product Complexity}$$

Figure 1. Discriminant Function

The overall fit of the discriminant function was good (Wilk's λ .823, $\chi^2 = 15.476$, $df. = 5$, $p = .009$) with the actual correct classification rate being 72.6%. Relative impact size of the indicator variables as determined by the standardized canonical discriminant function coefficients was Dominance response to Printer 3 (greatest impact), Pleasure response to Printer 4, Arousal response to Print Technology page, Pleasure response to Printer 3, and Arousal response to Printer 4 (least impact). Group Centroids for the dependent variable, Chosen Product Complexity, Simple = -.290, Complex = .724. Using the centroids to calculate the cut point = -.000285 = approx. 0. Thus, cases which yield a positive outcome when the indicator variables are entered into the classification

function are predicted to choose a complex product (either printer 3 or 4), cases with negative outcomes should pick a simple product (printer 1 or 2).

Table 3. Mean (Std. Deviation) of non-zero indicator variables of Predicted Discriminant Group of Chosen Product Complexity

Indicators Groups	Dominance response to Printer 3	Pleasure response to Printer 4	Arousal response to Print Technology page	Pleasure response to Printer 3	Arousal response to Printer 4
Simple	5.68 (1.734)	5.67 (1.718)	4.60 (2.088)	5.58 (1.261)	4.80 (2.077)
Complex	4.57 (1.512)	5.50 (1.643)	4.50 (1.784)	6.86 (1.069)	5.50 (1.378)

Evaluating the discriminant function coefficients in regards to the cut points, several implications of the discriminant function become evident. In order to be classified for a complex product selection, the summed products of the emotional dimensions and the function coefficients must exceed the constant of -.919. Examining the same page coefficients (Pleasure_{Printer 3} and Dominance_{Printer 3}) and (Pleasure_{Printer 4} and Arousal_{Printer 4}) an interesting relationship emerges. For example, in order to result in a positive outcome (a complex product choice) a Pleasure score of 6 on printer 3 requires a Dominance score of at least 4, a Pleasure score of 9 requires a Dominance score of at least 5. In real terms, no matter how pleasurable the subject finds the features of Printer 3, without a degree of control (this could be interpreted as a desire for more control over the printers features that the more complex product offers – such as a special ink system) they would select a simple model. Similarly, no matter how aroused the subject is by the features of Printer 4, a pleasure score of at least 5 (no negative emotional response) will result in a positive score, and tip the scales towards a complex printer. An Arousal response greater than 4 to the technology page will surpass the negative influence of the function constant.

This of course speaks volumes about the stimulus web site. The majority of subjects chose a simple product (the function predicted 45 out of an actual 60 simple product choices) meaning that in some combination, either the technology page was not arousing (boring), printer 4 was not arousing, or printer 3 seemed too complex. A more clearer view of these function coefficients is available when mean scores are examined with the aid of AdSAM (Morris, 1995) descriptive adjectives for the SAM scale.

An Independent Samples t-test shows the means of the 5 indicator variables Printer 3 Pleasure and Printer 4 Pleasure scores are significantly different between the simple and complex product choice groups. From the emotional response mean scores for each of the product choice groups several conclusions can be drawn. Those choosing the complex product over the simple product showed a pronounced difference in the level of dominance reported towards printer 3. Pleasure towards printer 3 was not as large of a difference (though it was significant). A significant and pronounced difference in pleasure towards printer 4 (combined with a non-significant but observed increase in arousal) suggests that higher levels of pleasure and arousal with a product group (in this case complex) are associated with choosing a product from that group.

Table 4. Emotional response score mean difference independent samples t-test

	Simple Product Choice N = 60	Complex Product Choice N = 24	t	Mean Difference (Std. Error)	p
	Mean (Std Deviation)				
Printer 3 Pleasure	5.79 (0.979)	6.08 (1.676)	-0.563*	-0.30 (.528)	0.578
Printer 3 Dominance	4.79 (1.528)	6.08 (1.730)	-2.031	-1.30(.639)	0.053
Printer 4 Pleasure	5.18 (1.940)	6.10 (1.197)	-1.289**	-0.92 (.713)	0.205
Printer 4 Arousal	4.82 (2.040)	5.20 (1.814)	-0.451	-0.38 (.846)	0.657
Technology Arousal	4.26 (1.558)	5.00(2.415)	-1.052	-0.74 (.701)	0.301

*Levene's Test F = 7.106, p = .014

**Levene's Test F = 4.447, p = .048

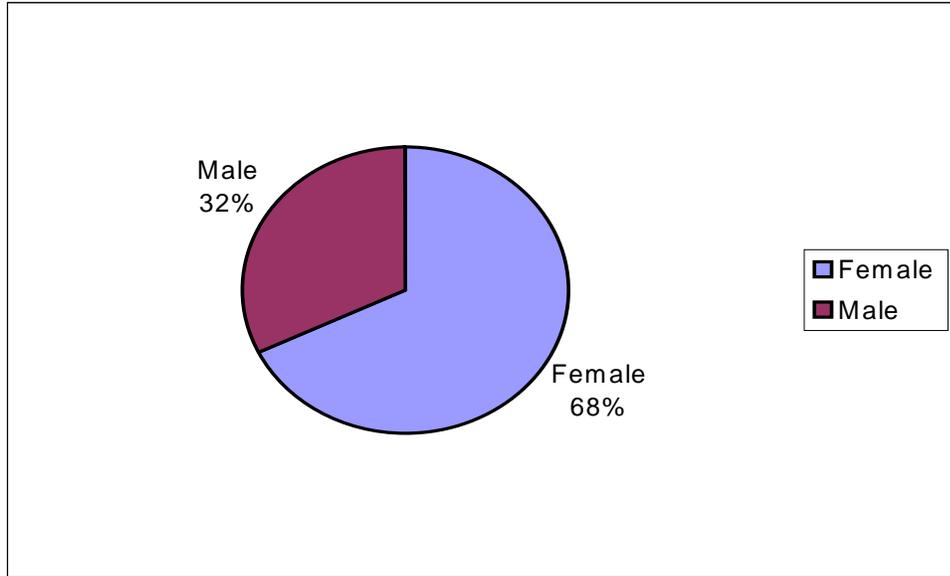


Figure 2. Sex of Subjects

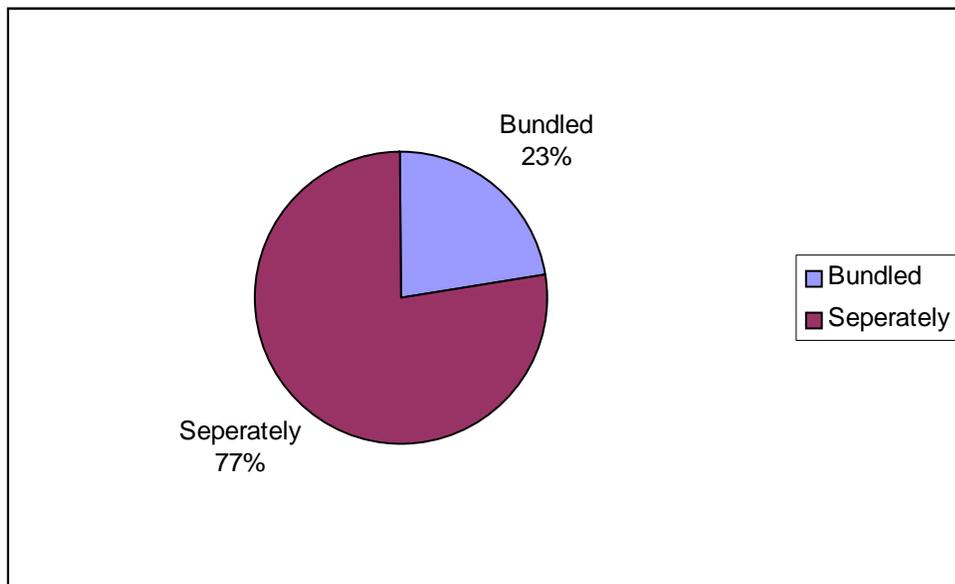


Figure 3. Printer Bundled or Separate

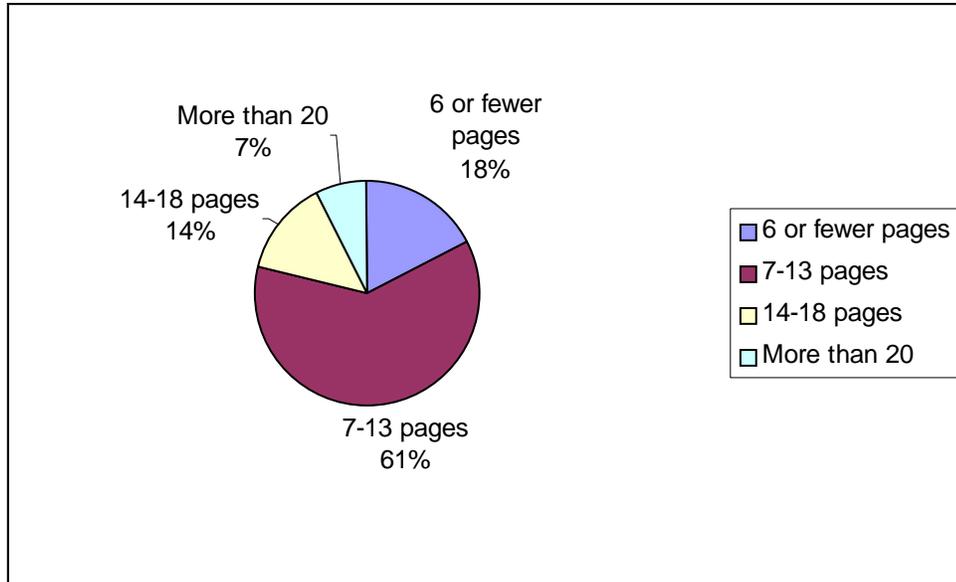


Figure 4. Number of Pages Viewed

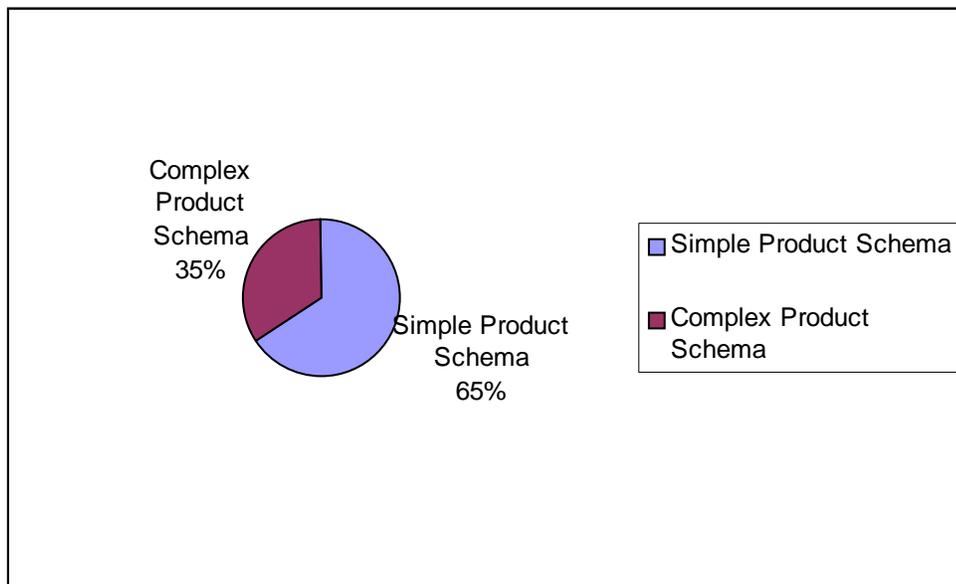


Figure 5. Pre-existing Product Schema Complexity

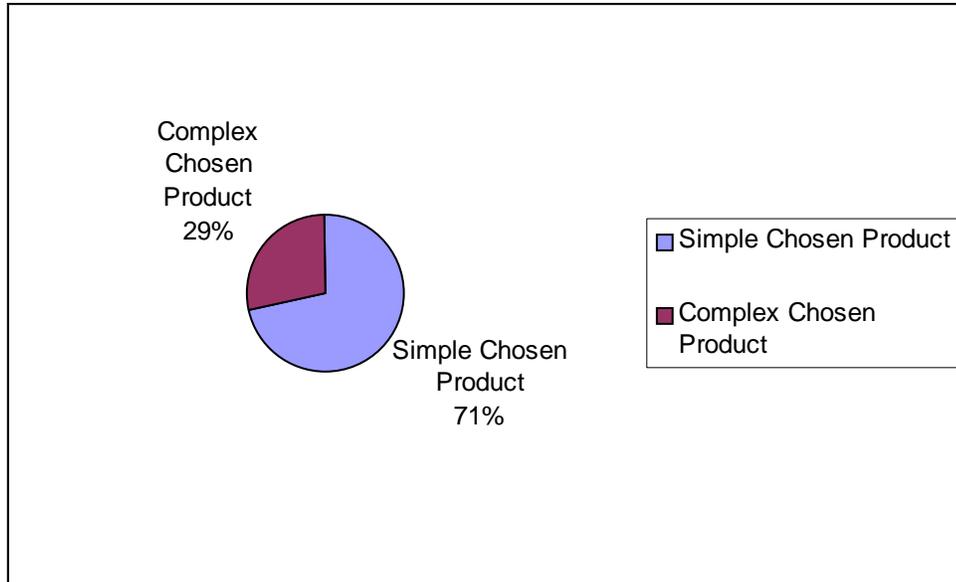


Figure 6. Chosen Product Schema Complexity

CHAPTER 5 SUMMARY AND CONCLUSION

The figures which describe the sample for this study explain a great deal. 96.4% shopped online, 84.5% bought online, 96.4% owned a printer, 97.6% primarily printed text. In summary, this sample was more or less homogeneous in terms of product and web-site schema. This could be one of the confounding factors which produced the non-significant effect of schema complexity on product choice or on emotional response. Another possible confounding factor was the unequal sizes of the schema complexity groups. Only 34.5% of the total sample tested at a high level of product schema.

Additionally, the total valid sample size was very small. This is partly do to a server error which erased some of the follow-up surveys (and in the process invalidating those cases) but mostly due to subject drop out. Many subject signed up to participate in the study, but since it was conducted at their leisure failed to participate. In total, more than 300 informed consent forms were signed and as many instruction sheets were distributed, but a little more than half of recruits actually participated in the study. In addition, many subjects initiated the study but failed to finish for one or another. Many students waited until very late in the semester to participate, which resulted in last minute calls and emails regarding lost passwords and instruction sheets. Thus it can be suggested that for future studies involving a controlled online experience, set times in a reserved computer lab would facilitate more completions and fewer technical problems resulting in data loss.

Another factor which would have improved the validity of the study would have been to more effectively control for schema complexity. Computer printers are a low involvement purchase for many people because they would rather not think about it. If it prints clear text at a reasonable price, why bother? Deliberately recruiting subjects from majors that valued precision photo printing (such as photo journalism, or graphic design) would have increased the number of subjects with a complex product schema who would be more likely to have a stronger emotional response to the stimulus.

The similarity among subjects on the key schema complexity variables is likely to blame for the non-significant results of the MANCOVA analysis. Sample size was also a likely confounding factor, as more subjects (and more subjects with a complex product schema) may have shown a more significant result. MANCOVA did yield one significant factor, and that is the importance of Dominance as an emotional dimension affected by interactivity. This supports the theory by Eroglu, Machleit & Davis who proposed that Dominance would have a more noticeable affect on responses to online stimuli because of interactivity.

One possible limitation to the Dominance findings relates to the measurement process. Subjects were required to enter a SAM rating after viewing each page. This was accomplished by displaying the SAM scale each time a subject clicked a link on the site. While this process was intended to create a predictable work flow, it is possible that some subjects viewed the pop up of the SAM scale as a loss of control and this affected their Dominance ratings.

The most important finding from this study comes from testing hypothesis 2. The specifics of the findings do not really matter, the pages and emotions which were found

significant were unique to this stimulus, and indeed do point to obvious faults in the stimulus. The real importance of testing hypothesis 2 is that Discriminant Analysis can be used to determine emotionally significant pages within a website, and these significant emotions can be used to predict final product selection. By combining Discriminant Analysis and ANOVA (in the present study Independent t-tests were used due to sample size) researchers could not only predict product choice but understand how emotional response to web-ad stimulus affects product choice. ALEA states that the emotional response to a learned item determines acceptance and thus action upon that information. By using a more robust tool for understanding SAM measures, such as AdSAM researchers would be better prepared to predict subjects product choice. Perhaps even more important, the understanding of emotional response to web-ad content would allow effective copy testing of web ads to maximize the optimal product choices, even purchase.

There are several managerial implications of this study. First, Dominance and a feeling of control are important dimensions visitor's experience of a website. Different levels of Dominance are appropriate for different situations, product categories and websites. Second, it is beneficial to copy test individual pages within a website as emotional responses to important pages can be predictors of product selections and thus site effectiveness. Discriminant analysis of the emotional response ratings can be used to determine which pages are 'emotionally important' to different product choices. Also, using the ALEA framework combined with more robust emotional response measures such as AdSAM (Morris, 1995) emotional responses to individual pages can be used to determine and explain acceptance or rejection of schematic elements. Third, copy testing

by this method represents one way of segmenting visitors to a web site. Since emotional responses to individual pages explain and indicate acceptance or rejection of information can be used to predict schema complexity and product choice, it follows that emotionally important pages will have useful and meaningful 'emotional segments' of viewers. Thus, marketers could segment visitors to their web site by their emotional responses to the important indicator pages. Fourth, these findings show that within an appropriate framework exo-information can be understood and used to the advantage of the online marketer. As this concept spreads it will affect web site design driving marketers to create sites which function as better listening devices.

Discriminant Analysis, ANOVA and emotional response testing represent one way of understanding online behavior and information processing. Only with further study using larger and more diverse samples will these variables and their relationships begin to be understood.

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BIOGRAPHICAL SKETCH

Ross Macon Ford was born in Pepperell, Massachusetts in 1978. From the ages of 3 to 9 he lived in Indiana, Pennsylvania, before relocating to Hollis, New Hampshire until the age of 14. After that he lived in Marshall, Minnesota, for two years. He graduated high school from Saint Paul Central in 1996. He received a B.A. in liberal arts from Hampshire College in Amherst, Massachusetts, in the spring of 2000. In the fall of 2002, he enrolled in the Master of Advertising program at the University of Florida. Upon completion of the degree, he plans to pursue a career in advertising or marketing..