

## Abstract

VIGILANTE, JR. WILLIAM JOHN. Direct-to-Consumer (DTC) Advertising of Prescription Medications on the World Wide Web: Assessing the Communication of Risks and Benefits. (Under the direction of Michael S. Wogalter, PhD)

Recently, pharmaceutical manufacturers have begun using direct-to-consumer (DTC) advertisements to convey prescription medication information directly to consumers. The current research explores several factors that may influence the communication of risk and benefit information in DTC advertisements on the World Wide Web (WWW). Specifically, this study focused on the effects of integrating and separating risk and benefit information at different levels of a DTC prescription medication advertisement web site hierarchy. The study also examined how risk/benefit information placement was affected by a user's information processing objective (IPO) or task type. IPO was manipulated by requiring participants to either perform a general browsing task or a search and find task. To extend the generalizability of the results, two prescription medication DTC advertisement web sites were used in the study.

Risk and benefit recall, recognition, time-on-task, amount of information found, web site click rates, and risk-noticability ratings were measured to compare the effects of integrating and separating the risk and benefit information on the same web page and on different web pages at different levels of a DTC medication advertisement web site, task type, and drug.

Results from the current study indicated that risk and benefit information was found faster, with less clicks, and remembered more often when it is placed higher in the

web site hierarchy, and presented in separate sections. The pattern of results for the two tasks used in the current study was similar and no significant differences were found between the two drugs. Participant ratings indicated a strong preference for risk information placed separate from other information on the home page. Finally, participants who were more experienced with surfing the web and online shopping tended to have better performance scores.

The results suggest that the current U.S. Federal regulations regarding DTC prescription medication advertisements, that require a balanced presentation of risk and benefit information, do not account for the effects of other variables such as information accessibility and placement. The lack of information placement guidelines can result in risk and benefit information placement on DTC prescription medication web sites that hinder a consumer's ability to find and read important drug information.

Finally, the study provides a list of guidelines that can be used in the development of a DTC prescription medication web site: present separate risk and benefit information sections; present risk and benefits on the top half of a drug's home page; if required, place the risks on a second level page with a prominent link placed in the top half of a drug's home page; consistently place important drug information across web site advertisements; use simple wording and grammar to describe important information; employ basic web usability techniques to evaluate the design of all prescription medication web sites to ensure that important drug information is easily noticed, read, and remembered.

**DIRECT-TO-CONSUMER (DTC) ADVERTISING OF PRESCRIPTION  
MEDICATIONS ON THE WORLD WIDE WEB:  
ASSESSING THE COMMUNICATION OF RISKS AND BENEFITS**

by

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## Biography

Dr. William J. Vigilante, Jr. currently resided in Raleigh, NC where he has lived and worked for the past seven years. Dr. Vigilante moved to Raleigh, NC from Scranton, PA where he was born and raised by his parents Mr. and Mrs. William J. Vigilante, Sr. Dr. Vigilante obtained a Bachelor of Science degree in Psychology from the University of Scranton, Scranton, PA in 1993. Dr. Vigilante then pursued his graduate studies at North Carolina State University, Raleigh, NC obtaining a Masters of Science degree in Psychology in 1998 and cumulating in a Doctoral of Philosophy degree in Psychology in 2001.

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## 1. Introduction

### 1.1. *Background*

Since the mid1980s, considerable research activity has been undertaken to investigate how warnings influence people's knowledge and cautionary behavior. Some of the factors investigated have included: warning placement (Wogalter, Godfrey, Fontenelle, Desaulniers, Rothstein, & Laughery, 1987), severity of consequences (Wogalter & Barlow, 1990), and inclusion of pictorials (Wogalter, Rashid, Clarke, & Kalsher, 1991) on people's subjective judgments, memory, and behavioral compliance (Wogalter, Allison, & McKenna, 1989). Furthermore, most research has examined warning effectiveness in the intermediate stages of human information processing, such as attention (Wogalter & Silver, 1990), perception (Wogalter, Desaulniers, & Godfrey, 1985), and comprehension (Young & Wogalter, 1990).

While there has been extensive research into a variety of risk and warning domains published, experimental research on the effectiveness of pharmaceutical warnings is relatively limited. Research has examined the use of supplemental label space to convey medication risk information (Wogalter, Magurno, Dietrich, & Scott, 1999), consumer preference for over-the-counter (OTC) drug label formatting (Vigilante & Wogalter, 1999), and the preferred ordering of OTC medication information (Vigilante & Wogalter, 1997). Other research has examined the use of supplemental pictographs on drug information sheets (Sojourner & Wogalter, 1997) and their influence on the comprehension and recall of pharmaceutical safety and warning information (Sojourner & Wogalter, 1998). Research has also examined factors that affect the communication of

risk and benefit information on direct-to-consumer (DTC) print advertisements (Wogalter et al., 1999).

Effective pharmaceutical labeling is crucial, as the general public is often unaware of the risks, side effects, and contraindications associated with many types of medications even though consumers have a growing desire for access to health related information (Wilkes, Bell, & Kravitz, 2000). The risk and warning research has also shown that consumers use product warnings as a gauge to judge the hazardousness of a product and if they do not see risk or warning information they assume that a product is not dangerous (Wogalter, Brelsford, Desaulniers, and Laughery, 1993).

Surveying the use of 72 consumer products typically found in U.S. homes, Wogalter et al. (1991), found (a) that people expect hazardous products to contain a warning, (b) that the warning should be in close proximity to the hazard, and (c) that warnings do not detract from the appearance of hazardous products. Wogalter et al. (1991) suggest that these results have several implications for consumer product manufacturers and their advertisements:

- Some people use the presence of risk and warning information as a cue to the hazardous nature of a product.
- If risk information is not apparent, a product may be viewed as less hazardous.
- Risk and warning information should be located in a place people expect them to be: as close as possible to the hazard.
- If a warning is not located where it can be seen, people may incorrectly assume that no hazards exist with the product.

Besides the information provided by physicians and other health care providers, the primary sources of prescription medication information are drug labels and advertising. However, these sources may fail to convey important information to the intended audience. For example, the print may be too small for persons with degraded vision (Vanderplas & Vanderplas, 1980; Watanabe, 1994), or the messages may not be understandable to persons who are unable to read the printed language (e.g., illiterates and non-native speakers).

The issue of effectively communicating drug risk and benefit information has become important and more complicated with the use of direct to consumer (DTC) advertisements. The purpose of DTC advertisements is to market prescription medications directly to the end users, usually the general public. Drug companies employ many different types of media in their prescription medication DTC advertisement campaigns, including: print ads, television and radio ads, and the World Wide Web (WWW). Although there are some federal regulations concerning the communication of risk and benefit information that drug manufacturers must attend to in their prescription medication DTC advertisements (e.g., print ads must provide the reader with all the risks inherent in a drug, whereas, broadcast ads only need to give the most important risks with information on how to obtain all the risk information) (FDA, 1999a), there has been little research conducted to determine the factors that facilitate (or hinder) the communication of this information. For example: should risk information be integrated with the benefit information to increase the likelihood that it is seen and read, or is it more effective to separate the risk and benefit information?

## 1.2. *DTC Statistics*

A recent FDA survey found that approximately 70% of respondents had seen or heard a DTC advertisement for a prescription medication (CDER, 2000). On average, approximately half of these respondents had seen three DTC prescription medication advertisements (CDER, 2000). This number is comparable to another survey by Wilkes et al. (2000), which showed that respondents were aware of, on average, 3.7 prescription medication advertisements. Approximately 95% of the respondents in the FDA survey had seen a DTC television advertisement, 60% had seen a magazine advertisement, 32% had seen a newspaper advertisement, 30% had heard a radio advertisement, and 10% had visited a DTC web site advertisement (CDER, 2000).

Approximately 73% of the respondents in the FDA survey reported that they would ignore the small print in a printed DTC advertisement, however approximately 71.5% of the respondents said that they would read the small print in the DTC advertisement if they were interested in the medication (CDER, 2000). Approximately 50% of the FDA survey respondents reported looking for further information for a drug once learning about it from a DTC advertisement (CDER, 2000). Of this group 18% of these respondents said they would look for further information about a particular prescription medication on the Internet (CDER, 2000). Fifty percent of all the FDA respondents reported using the WWW (CDER, 2000).

Approximately 58% of the respondents from the FDA survey (CDER, 2000) believed that prescription medication DTC advertisements do not give enough risk and side effect information, compared to roughly 41%, who believe that DTC advertisements

do not give enough benefit information. Finally, Wilkes et al. (2000) reported that 43% of their respondents believed that only “completely safe” drugs could be advertised DTC, 22% believed that prescription medications with serious side effects had been banned from DTC advertising, and 21% believed that only “extremely effective” drugs could be advertised DTC.

The data reported in these two studies (CDER, 2000; Wilkes et al., 2000) suggest that consumers are highly aware of DTC advertisement campaigns for prescription medications. Furthermore, the survey results suggest that consumers are misinformed about types of medication that can be advertised and the types of information that is required in DTC prescription medication advertisements (CDER, 2000; Wilkes et al., 2000).

### 1.3. *Introduction Layout*

The remainder of this introduction will discuss the issues surrounding prescription medication DTC advertisements. Specifically the following topics are discussed in the following order:

1. Other forms of prescription medication DTC advertisement media and the issues surrounding the presentation of risk and benefit information within these media.
2. FDA regulations concerning DTC advertisements.
3. A recent study exploring the effects of risk and benefit information placement within prescription medication DTC print advertisements.

4. Issues surrounding the presentation of risk and benefit information within DTC advertisements on the World Wide Web (WWW).
5. Research suggesting that integrating a drug's risks and benefits will increase the likelihood that the risk information is noticed, read, and remembered.
6. Contradictory research that supports the notion that a drug's risk information should be separated from its benefits to increase the likelihood that the risks are noticed, read, and remembered.
7. Usability research that has provided guidelines for the presentation of information on web sites.
8. The possibility that an interaction may exist between risk/benefit information placement and a person's information processing objective while visiting a web site.
9. The purpose of the study, the specific research questions, and the postulated hypothesis.

#### 1.4. *Direct-to-Consumer Advertisements*

In previous years, pharmaceutical companies' prescription medication marketing campaigns were almost entirely directed at physicians (Wilkes et al., 2000). It was then the physician's responsibility to communicate the relevant risk and benefit information to a patient. However, in today's world of managed health care, many physicians have less time to interact with their patients. Thus, it has become less likely that physicians will not/cannot communicate all of the relevant risk and benefit information for a particular

medication to their patients. Physicians also have less time to ensure their patients completely understand all of the potential risks and benefits in using a particular treatment medication. This can result in patients making less informed choices with respect to their prescription medication treatments and improper use.

The practice of promoting prescription medications directly to consumers gained popularity in the early 1980s (FDA, 1995; Wilkes et al., 2000). However it was not until 1997, when the FDA relaxed their rules governing DTC advertising, that drug manufacturers started spending millions of dollars to advertise their prescription medications in magazines and on television (Lee & Lee, 2000). In 1997, the FDA issued new guidelines for the advertisement of prescription medications within the broadcast media (television and radio). These guidelines allowed manufacturers to provide only a drug's name, what the drug treated, and the drug's major risks within the advertisements. However, manufacturers were also required to provide a statement explaining that other information was available from other sources (e.g., WWW, 800 number, etc.) (Wilkes et al., 2000).

DTC advertisements gave drug manufacturers the ability to market their prescription medications directly to consumers in the United States (U.S.). Manufacturers specifically targeted potential customers who were undiagnosed, untreated, or treated with a competing product (Lee & Lee, 2000). It has been estimated that drug companies spend nearly 1.7 billion dollars on drug ads in 2000, 50% more than they spent in 1999, and more than doubling what they spent in 1998 (Belkin, 2001). These figures are reflected in the increase in the number of drugs marketed DTC on

television, which more than quadrupled from 1997 (12 drugs advertised) to 2000 (50 drugs advertised) (Belkin, 2001). Using DTC advertisements, manufacturers are able to increase their products' sales in a very competitive market (Belkin, 2001; Wilkes et al., 2000).

From the FDA's point of view, DTC advertisements are an avenue by which to educate the general public about available prescription medications (Wilkes, 2000). Requiring manufacturers to inform the public about the major risks inherent in a drug along with its benefits allows consumers to make a better decision regarding the use of a particular medication. Furthermore, recent data supports the notion that DTC advertisements can assist people in making an informed decision with regard to choosing an appropriate medication (Lee & Lee, 2000; Wilkes et al., 2000).

However, some people in the medical professional industry do not share the favorable attitude towards prescription medications DTC advertisements (Wilkes et al., 2000). Some physicians have reported that DTC advertising of prescription medication promotes inappropriate prescribing of medications (DTC advertising has increased the volume of prescribed drugs) (Rubin, 2000), strains the doctor-patient relationship (patient may pressure the doctor to prescribe a particular treatment), increases the cost of care (based partially on the over treatment of patients and the associated health problems) (Rubin, 2000), and jeopardizes the physicians credibility (the doctor may not have knowledge of a medication a patient requests) (Wilkes et al., 2000).

### 1.5. *FDA Regulations*

With DTC advertisements becoming more common and consumers becoming more knowledgeable about the different types of prescription medications, patients are increasingly recommending the use of particular medications to their doctors (CDER, 2000; Lee & Lee, 2000). Some might assume, including the FDA, that increasing drug awareness can lead to an increase in informed decisions about using a particular medication (Wilkes et al., 2000). However, there lies a possibility that a manufacturer can advertise a prescription medication without providing all of the risk and side effect information, thus compromising a patient's ability to weigh all of the potential risks in using a particular prescription medication against the potential benefits. This inappropriate type of advertisement has led to the creation of rules and regulations for DTC prescription medication advertisements (FDA, 1999a).

U.S. Federal regulations require an unbiased, balanced presentation of prescription medication information in DTC (print and broadcast media) advertisements (Code of Federal Regulations, 1999).

An advertisement "fails to present a fair balance between information relating to side effects and contraindications and information relating to effectiveness of the drug in that the information relating to effectiveness is presented in greater scope, depth, or detail...and this information is not fairly balanced by a presentation of a summary of true information relating to side effects and contraindications of the drug;..."

This regulation means the manufacturer must present the consumer with a comparable amount of risk information and benefit information within the advertisement, and that the risk information must include the major risks in using a drug. The presence of both risk

and benefit information is intended to aid consumers in making an informed decision (FDA, 1999a).

U.S. Federal regulations also give general requirements for the placement, layout and presentation of drug risk information in print advertisements for prescription medications (FDA, 1999a). These requirements include:

- Print advertisements must present all of the drug's risk and side effect information.
- Side effects and contraindication information must be presented with a prominence and readability reasonably comparable with the presentation of information related to a drug's effectiveness.
- Advertisements that span two facing pages must use adequate emphasis (use of color scheme, borders, headlines) to associate side effects and contraindications that are presented on one page, and benefits on the other.
- Advertisements spanning two or more pages (spread) must contain information relating to side effects and contraindications or a prominent reference to the information's presence and location when it is presented as a distinct section of the advertisement.

However, the FDA has no specific regulations regarding where or when risk information should be presented within broadcast media (television and/or radio) or web sites. For broadcast advertisements, manufacturers are only required to present the drug's major risks, provide an equal amount of risk and benefit information, and provide guidance in obtaining complete drug information (FDA, 1999a).

The lack of specific regulations has led some manufacturers to focus their DTC broadcast media and WWW advertisements around the benefits of the product while presenting the risks as auxiliary information presented in the last few seconds of a television ad or presented on a lower level of a web site's hierarchy (Hicks, Vigilante, & Wogalter, 2001). This practice, although it may meet the U.S. Federal regulations with respect to presenting a comparable amount of both risk and benefit information, does not guarantee that consumers will be equally exposed in terms of time, space, and quality to both the risk and benefit information. Equal exposure to both the risk and benefit information is intended to provide a framework for the consumer to understand and evaluate a drug (FDA, 1995). Without adequate information consumers may be hindered in making an informed decision to use a drug resulting in inappropriate use or unfavorable results.

#### *1.6. DTC Print Advertisement Research*

A recent study examined the influence of risk placement and formatting on peoples' knowledge and comprehension of the risk and benefit information found in DTC print advertisements for six prescription medications (Wogalter, Paine, Mills, & Smith-Jackson, 1999). Wogalter et al. (1999) manipulated the placement of the risk and benefit information, distinguishability of the text, and presence of the risk information in DTC magazine advertisements for six prescription medications. The risk and benefit information was either embedded into the same block of text (integrated) or it was physically separated (separated). Risk information was either printed in the same black

font as the other information (non-distinguished) or printed in a red font to distinguish it from the rest of the print (distinguished). Another, enhanced, separated condition was also employed in the study, in which the risk information was formatted according to the ANSI Z535.4 consumer product warning label standard. This included placing a box around the risk information to physically and visually separate it, adding a yellow signal-word panel to the top of the box containing the word CAUTION, and a signal icon (triangle enclosing an exclamation point) in black print with the risk information in bold text. A final (control) condition was used in the study that contained no risk information.

Participants were given a realistic appearing magazine containing six fictitious DTC prescription drug advertisements, several other consumer product advertisements, and various articles about social and leisure activities and cultural arts in the local capital city. The drug advertisements were full-page color ads interspersed throughout the magazine and they consisted of information derived from real drug advertisements and the Physicians Desk Reference (PDR) (1999). Each drug advertisement consisted of three risks and one overall benefit. Six versions of each drug advertisement were created based on the six experimental conditions (separated-no color; separated-color; integrated-no color; integrated-color; separated-enhanced; control). Advertisements were equally rotated through all conditions, across all participants, using two Latin Squares (36 combinations: six drugs, six versions of each drug) in a repeated measures design. Each participant saw one version of each drug.

Participants were given a magazine containing the drug ads, other consumer product ads, and various articles. Participants rated each page on an attractiveness scale

anchored with: (1) not at all attractive and (9) extremely attractive. Participants were limited to 30 seconds to examine each page. After rating each page, participants completed a previously unannounced knowledge acquisition test on the risk and benefit information for each drug. Upon completion of this test, participants were shown the six versions of one drug (randomly chosen across participants) and asked to rank order the different formats on how well they conveyed the drug's uses and risks.

The results showed that significantly greater risk information was obtained when it was enhanced and placed in a separate location from the benefit information. The enhanced separated and color separated conditions were also ranked by the participants first and second for effectiveness in communicating both the risk and benefit information.

The finding that greater risk information knowledge is obtained when it is separated from other product information is consistent with findings from earlier research (Karnes & Leonard, 1986; Strawbridge, 1986). Also, the saliency findings are consistent with previous research in the area of warning highlighting (Wogalter & Leonard, 1999; Young & Wogalter, 1990; Freidman, 1988). These results suggest that DTC prescription medication print advertisements should present a highlighted risk information section that is separated from the drug's benefits and other medication information.

However, the following question now becomes relevant to DTC prescription medication print advertisements: what is the optimal separation distance between the risk and benefit information to increase the likelihood that will be noticed, read, and remembered? This question is important because past research has shown that separating warning information too far from other task relevant information can decrease

the likelihood that it is noticed and read (Wogalter, Kalsher, & Racicot, 1993). Should the risk information be presented in the same general area as the drug's benefit information on the same page or can the risks be presented in a distinct section on the same page or can the risks be presented on completely different page? Unfortunately, to date no other studies have been conducted to examine these and other factors that may influence the acquisition of risk and benefit information in prescription medication DTC print advertisements or DTC ads in other media.

### *1.7. Exploring Other DTC Advertisement Media*

The latest area of concern involving DTC advertisements is the use of the WWW to distribute prescription medication related information. In recent years, the WWW has seen tremendous growth, each year doubling the number of web sites and the people who visit the WWW. The WWW is a relatively inexpensive way to market and demonstrate products directly to consumers. As a consequence, pharmaceutical companies have begun to use the WWW to market their drugs DTC. Manufacturers have also created other drug information web sites for use by physicians and persons outside the United States of America; these other web sites are not of interest in this study. While there are general requirements for print and broadcast advertisements (FDA, 1999a), the U.S. FDA does not have any specific regulations on how to present drug information on the WWW.

Presently, prescription medication advertisements on the WWW fall under federal regulations mandated in 1969 concerning all drug advertisements. As the WWW had not been established at that time, there were no provisions pertaining specifically to Internet

prescription medication advertisements. To date, the FDA has not submitted or proposed any regulations related to the presentation of prescription medication advertisements on the web (N. Ostrove, personal communication, December 1999: Supervisory Psychologist and Branch Chief of the Division of Drug Marketing, Advertising, and Communication, Center for Drug Evaluation and Research, FDA). The FDA is currently determining whether drug information web sites should be considered labels, print advertisements, broadcast advertisements, or a distinct medium (N. Ostrove, personal communication, December 1999).

The FDA (1995) defines a medication label as all “written, printed, or graphic materials accompanying a regulated product.” The FDA (1995) does not limit this definition to only materials that accompany a product, but also includes brochures, mailing pieces, calendars, price lists, letters, motion picture films, sound recordings, and literature. The FDA (1995) defines prescription medication advertisements as information other than labeling that is sponsored by a manufacturer and is intended to supplement or explain a product. Advertisements include: “print advertisements” appearing in published journals, magazines, other periodicals, and newspapers; and “broadcast advertisements” broadcast through media such as radio, television, and telephone communication systems (FDA, 1995).

If DTC prescription medication web sites are considered labels, they must present all the drug’s information from indications and directions, to warnings and precautions, to active and inactive ingredients, and clinical research results (FDA, 1999a). If web sites are considered as print advertisements they need to present all of drug’s risk information,

adequate directions for use, and a synopsis of the other drug information (e.g., active/inactive ingredients and manufacturer's information) (FDA, 1999a). Print advertisements must also present the risk information in a manner that is reasonably comparable to the prominence and readability in which the benefit information is presented (FDA, 1999a). If web sites are considered a broadcast media they need to only present the drug's major risks, and the benefits cannot out-number the risks given (FDA, 1999a). Broadcast advertisements must also provide a brief summary of other drug information and way for interested consumers to obtain the complete label information. The complete label information can be made available through a toll free number, traditional mail, or on the WWW (FDA, 1999a). However, if web sites are not considered print advertisements, broadcast advertisements, or labels, then new or additional specifications need to be created.

Following the current Federal regulations for other advertisement media, a drug manufacturer is only required to present the drug's risks on a DTC prescription medication web site. However, unlike print advertisements, there are no specifications on where or how to present the risk information (FDA, 1999a). In a recent study, various strategies were found in the presentation of drug risk and benefit information across 20 different DTC prescription medication advertisement web sites (Hicks et al., 2001). Most of the web sites examined presented the risk and benefits on different pages, with a tendency for the risks to be placed at lower levels of the web site heirarchy compared to the benefits (Hicks et al., 2001). Within the web sites examined, scrolling was required to find the risks more often than it was required to find the benefits on a web page, and a

large proportion of the web sites viewed required the user to download a separate .pdf (Adobe Acrobat Reader®) file to view the drug's risk information (Hicks et al., 2001). The authors concluded that, without specific guidelines for the placement of risk and benefit information on the DTC prescription medication advertisement web sites, some manufacturers are apparently exploiting the current guidelines by making the accessibility of the risk information more difficult than the benefit information.

Because some pharmaceutical web sites present the risk and benefit information on the home page, while other web sites have links from the home page to second level risk and benefit pages, still other web sites present the drug's benefits on the home page with a link to a second level risks page, and in the worst case, other web sites do not link to the risk information from the home page at all (Hicks et al., 2001), consumers may find it very difficult to navigate to a drug's risk information or even know that risk and side effect information exists on the web site.

The present research seeks to determine the effects of risk and benefit information placement on DTC prescription medication advertisement web sites. Specifically, the proposed research seeks to determine the effects of integrating and separating a drug's risks and benefits on the same web page, on different web pages, and on web pages at different levels of a web site's hierarchy.

### 1.8. *Integrated Information*

Some information processing theorists (e.g., Wickens, 1992) predict that integrated information can produce a better knowledge structure because the information is

organized as a coherent whole. This structure is theorized to enable cued access to risk information from benefit information and vice versa. Conversely, separated information conditions may produce "islands" of information that do not tie together effectively the risks and benefits, and therefore, the processing of benefits may not cue the risks and vice versa. Similarly, the proximity compatibility principle suggests that integrating the risk and benefit information would facilitate risk recall when attempting to recall the benefit information, and vice versa, compared to separating the information. This principle suggests that similar information grouped together in memory would reduce retrieval difficulties (Wickens & Carswell, 1995).

It is also postulated that integrated risk and benefit information may have the desirable effect that persons interested in only the benefit information will be exposed to the risks as they read through the information. With an integrated format readers cannot avoid the risk information as they scan for benefits. Recent research from the warnings and risk literature suggest that warnings and safety information should be placed so that they are readily visible to the intended users (Frantz & Rhoades, 1993; Duffy, Kalsher, & Wogalter, 1995; Wogalter, Kalsher, & Racicot, 1993). Integrating a drug's risks and benefits assures that a user encounters the risk information while they are attempting to gather information on the drug's benefits.

1.8.1. *Warning Placement.* Past research has examined the location of a product's precautions relative to other usage instructions. Frantz (1994) hypothesized that integrating the safety information within a product's directions would increase the

likelihood that users notice, read, and comply with them. A water repellent sealer was used in this experiment containing four key precautionary statements (keep away from open flame or spark, use in a well-ventilated area, and avoid contact with eyes and skin). For the separated conditions, all the precautionary information, including the four key statements, were presented on the container's side panel while the directions for use were presented on the container's back panel. For the integrated conditions, the four key precautionary statements were integrated into the product's directions on the container's back panel; in addition all the precautionary information was also located on the container's side panel. Procedural explicitness of the precautions was also manipulated during the study.

Participants were recruited under the guise that the researchers sought to determine the effect of background music on the performance of household tasks. Participants were instructed to clean a kitchen sink using a drain cleaner (Frantz, 1992) and then apply a coat of the water sealant to a wooden plant stand (Frantz, 1994). Participants' attention was also directed to a nearby scented candle that was lighted to freshen the air. The water sealant, a pair of gloves and goggles, and a paint pan with brushes were placed under the sink for participant's use during the study. Behavioral compliance was measured by participants' use of the protective equipment (gloves and goggles), extinguishing the lighted candle, and opening the window above the kitchen sink. Post task interviews were also conducted with each participant.

The results indicated greater behavioral compliance when the precautions were integrated into the directions on the back panel of the water sealant container compared to

when the precautions were only presented on the side panel. Significantly more participants reported reading the precautionary statements when they were integrated within the directions compared to when the precautionary statements were only printed on the container's side panel. Post-task interviews also indicated that participants only looked for and read portions of the label, specifically those sections that involved instructions to perform the task. Furthermore, in the post-test interviews, participants indicated that they expected certain information to be placed in certain areas of the label and were unlikely to look for the information elsewhere.

The results found in this study were consistent with the results reported in early work by Frantz (1992), both of which yield a number of recommendations for the design of product warnings and instructions (Frantz, 1994):

- Warnings should be integrated into a product's usage instructions to provide for a complete procedure for the safe and effective use of a product;
- In addition, warnings should also be located in a separate section to accommodate users who are likely to specifically seek safety related information;
- Finally, emphasis should be placed on integrating the warning into the flow of task information during the design of product warnings.

In related research, Wogalter, Kalsher, and Racicot (1993) found that warnings integrated within the instructions for a chemistry task produced greater behavioral compliance than posting the warnings on a nearby wall. In two experiments, the placement of a set of warnings was manipulated. Either the warnings were integrated

within the instructions for a set of tasks or they were posted on a nearby wall. Participants entered the study under the guise of a chemistry experiment where they were to weigh and mix particular “unknown” chemicals. Behavioral compliance was measured as participants’ use of the protective equipment that was alluded to in the warning. The authors found greater behavioral compliance when the warnings were integrated into the task instructions compared to when the warnings were posted on a nearby wall. Wogalter et al. (1993) concluded that the integrated warnings produced greater behavioral compliance because they appeared more relevant to the task at hand compared to warnings placed away from the relevant task instructions.

Magurno and Wogalter (1994) were also able to demonstrate increased behavioral compliance to warnings that were placed within a set of task instructions. The authors used the same chemistry task paradigm as Wogalter et al. (1993) to compare a warning integrated within the task instructions against a warning posted on a nearby wall. Behavioral compliance was again measured as participants’ use of the protective equipment depicted in the warning. Results indicated greater behavioral compliance to the integrated warnings compared to the warnings posted on a nearby wall. The authors concluded that a warning should be placed where people are known to look (i.e., within the task instructions) to increase compliance to the warning (Magurno & Wogalter, 1994).

1.8.2. *Interactive Warnings.* Other research has shown that the placement of safety information is more effective when placed physically closer (spatially and temporally) to

the hazard. Frantz and Rhoades (1993) were able to demonstrate an increase in behavioral compliance to a warning as it was moved closer (spatially and temporally) to the relevant hazard. The study manipulated the placement of a file cabinet warning (warning: tip hazard, fill bottom drawer first). The warning sticker was placed in four different locations. Each location was closer to the depicted hazard in terms of spatial and temporal proximity: on the cabinet's shipping box (the current warning placement), on the bottom of the top drawer, across the outside bottom of the top drawer (preventing both drawers from opening), or placed on a cardboard bridge across the top drawer (warning was also affixed to the bottom of the top drawer). The warnings in the last two conditions (front of door and bridge) were placed to physically interfere with users' performance while they were attempting to complete the task.

Greater behavioral compliance was found when the warning was moved spatially and temporarily closer to the hazard (on cabinet warnings vs. on shipping carton). The results also indicated greater behavioral compliance when the warning directly interfered with the task at hand (bridge and front of door conditions vs. on bottom of top drawer and shipping carton). The authors concluded that a warning should be designed to account for users' cognitive and behavioral activity during their interaction with a product (Frantz & Rhoades, 1993). Furthermore, warnings should be designed to interfere with a user's task to increase the likelihood that they are noticed, read and complied with.

Duffy, Kalsher, and Wogalter (1995) found similar results using an interactive warning on an extension cord. The authors manipulated the placement of an extension cord warning using the following three conditions: no warning (control), a warning

placed on a tag 5 cm above the female receptacle, and a warning placed on the cover of the female receptacle. The warnings stated not to plug more than two items into the cord. During the experiment, participants were led to believe that the study involved the evaluation of instructional media. Not informing the participants of the true nature of the study allowed the experimenters to examine behavioral compliance to the warning.

During the experimental sessions, participants were asked to “help set up the study” by plugging in the television, VCR, and video tape rewinder while the experimenter left the room to retrieve a video cassette. The experimenter returned after four minutes and recorded whether the participants complied with the warning. After watching the video, the participants were taken into another room and asked to complete two post-task questionnaires.

Significantly greater behavioral compliance, warning recall, and warning noticability was found for the interactive warning compared to the tag and control conditions. The authors concluded that interactive warnings are more likely to be noticed because they interrupt task performance by interfering with a user’s task, which results in their script (or mental schema) being broken during a highly familiar sequence of behaviors (Duffy et al. 1995).

Dingus, Wreggit, and Hathaway (1993) also found similar results with regard to interactive warnings on an industrial strength tile de-scaler spray bottle. The authors manipulated the level of participant interaction with the warning by requiring no physical interaction with the warning (warning printed on a traditional bottle label - no interaction), the one-time removal of the warning before using the product (warning

glued to the front of the nozzle and trigger - billboard), and the constant interaction with the warning while using the product (warning printed on a trigger guard that had to be moved each time the product was used - trigger guard condition).

The study involved shoppers from a nearby shopping mall who were asked to participate in a study evaluating the effectiveness of a new cleaning product. This was done to conceal the true nature of the study, which was behavioral compliance to the warning. Participants were asked to take the product home for a week, use it during the week, and then return to the mall and complete a product quality questionnaire. Cost of compliance was also manipulated during the study; participants were either given a mask and a pair of gloves to use with the product (low cost of compliance) or were given no other supplies with the product (high cost of compliance).

Upon returning to the shopping mall after using the product for a week, participants completed a questionnaire containing several questions regarding their satisfaction with the product. The questionnaire also contained questions regarding participants' perception of risk and behavior in dealing with the product. Objective data in the form of examining the gloves and masks for indications of use was also collected to determine behavioral compliance. The results from the study indicated a 90% and higher behavioral compliance rate for the interactive warnings (trigger guard and billboard conditions, respectively) within the low cost of compliance conditions compared to the warning label requiring no physical interaction. The authors concluded that the study supports the notion that consumers are more likely to comply with a

warning that they must interact with compared to warnings that do not require any interaction (Dingus et al., 1994).

Wogalter, Barlow, and Murphy (1995) found a similar pattern of results using a supplemental directive that was located to directly interfere with the user's task. In their experiment (Wogalter et al., 1995), warnings were either presented within the operating instructions with no supplemental directive or redundantly presented at the front of the manual and within the operating instructions with a supplemental directive that instructed the user to read the warnings section of the operator's manual. In the supplemental directive conditions, the directive was either placed on the front of a floppy diskette drive (blocking the disk opening), on the diskette drive's serial port cable, in a leaflet that accompanied the manual, on top of the shipping box, or on the manual's cover. During the experiment participants were asked to connect a diskette drive to a computer. Participants' compliance to the 3 steps provided in the warnings section of the manual (turn off computer, discharge static electricity, eject transport disk) was measured during the experimental sessions.

The authors found that proximal placement of the supplemental directive to the product's installation procedure significantly increased the likelihood that participants would comply with the warnings (Wogalter et al., 1995). The difference between the proximal placements was also greater for participants with more computer experience. Similar to Dingus et al. (1993), the authors of the current study suggested that the use of the supplemental directive interrupted the user's script for completing a familiar task (Wogalter et al., 1995). Once the user's script was broken by the novel interruption, the

participants were more likely to attend to the directive and read the warnings section of the operator's manual.

The studies presented in this section of the introduction suggest that integrating a warning into the procedural flow of a user's task will increase the likelihood that the warning is noticed, read, and heeded (Dingus et al., 1993; Duffy et al., 1995; Frantz & Rhoades, 1993; Wogalter et al., 1995). In regard to DTC prescription medication web site advertisements, one can infer that risk information should be integrated into the section of the web site that users will most likely attempt to find and read: the drug's indications and benefits.

1.8.3. *Research Implications.* The first step in Wogalter's human information processing model of warning effectiveness is attention to a warning (Wogalter, 1994). If a warning is not noticed in the first place, the information will not have a chance to move through the subsequent stages of processing (comprehension, beliefs/attitudes, and motivation) resulting in a failure to change behavior (Wogalter, 1994). The research cited in this section suggests that the best way to draw attention to a warning is to place the warning where people are known to look. The previous authors have argued that integrating the warnings into the instructions for a task (Frantz, 1992, 1994; Magurno & Wogalter, 1994; Wogalter et al., 1993) or placing the warnings so that they interfere with the task at hand (Dingus et al., 1993; Duffy et al., 1995; Frantz & Rhoades, 1993; Wogalter et al., 1995) will increase the likelihood that they are noticed, read, and heeded.

Even though the rhetorical situations are different, these recommendations support the conclusion that a drug's risk information should be integrated into the benefit information to increase the likelihood that the risk information is noticed, read, and understood. Information processing theorists also suggest that integrated information produces a coherent whole that may cue access to risk information from the benefit information and vice versa (Wickens, 1992) and that information retrieval difficulties can be reduced by integrating a drug's risk and benefit information (Wickens & Carswell, 1995).

Furthermore, drawing a person's attention to a drug's risk information is particularly important considering that people use the presence of a warning as a cue to the hazardous nature of a product; if a person does not see a warning they may assume that one does not exist for the product. Finally, people assume that hazards do not exist for products that do not possess a warning (Wogalter et al., 1991). If a person cannot find a drug's risk information, they may make the incorrect assumption that the drug does not contain any inherent risks or that the drug is less hazardous than it really is. These incorrect assumptions can impede a consumer's ability to make an appropriate informed decision with regard to the usage of a particular drug. Integrating a drug's risk information within the benefit information assures that a person is presented with the risk information while they are learning about the drug's benefits.

### 1.9. *Separated Information*

For many consumer products, it is not unusual to find the product warnings and precautions separated from other product information (e.g., directions, ingredients) either presented on the product label or within the product manual. Currently, the U.S. Federal Drug Administration regulations require a separate and distinct warnings/precautions section for over-the-counter medication labels (FDA, 1999a). Similarly, U.S. Environmental Protection Agency guidelines for pesticide labels require that precautionary/warning statements appear in a section separated from other product use information (EPA, 1991). Furthermore, an electrical consumer product manual must contain a separate warnings/safety information section to gain approval from Underwriter's Laboratory (UL) (UL/ANSI, 1991).

Past research has also provided some empirical support for the guidelines/regulations summarized in the previous paragraph (e.g., Strawbridge, 1986; Wogalter et al., 1999). As described earlier, Wogalter et al. (1999) was able to demonstrate that greater risk information knowledge is obtained when a drug's risk information is simultaneously made more salient and placed in a separate location from the benefit information. Risk information that was separated from benefit information was also ranked as more effective in communicating a product's risks and benefits compared to integrating the risk and benefit information. This research supports the conclusion that, under some circumstances, the best method to ensure that risk information is noticed and read is to separate the risks from other product information (e.g., benefit information). Other research has also shown that the placement of the

separated risk information relative to other information can affect the likelihood that the warnings are seen and read (Wogalter et al., 1987).

Past research has indicated that separating warning information from other product information may reduce problems associated with top-down processing, such as overlooking the information (Karnes & Leonard, 1986; Strawbridge, 1986), by allowing risk information to stand-alone. Separated risk information could also contain features that can increase its saliency and aid comprehension such as the format and style recommended by the American National Standards Institute (ANSI, 1998). Features used to increase the saliency of warnings have included: pictorials, larger font size, bold print, adding borders, and altering the color, etc. (e.g., Barlow & Wogalter, 1993; Young & Wogalter, 1990). Past research has shown that increasing the saliency of warnings can benefit safety information search, retrieval, and ultimately knowledge acquisition (Barlow & Wogalter, 1993; Young & Wogalter, 1990). Therefore, risk information that is separated and enhanced may be more likely to be noticed, read, and recalled. Warning information that is integrated within other product information maybe difficult to highlight or enhance in the same manner as if it were separated.

1.9.1. *Warning Placement.* Karnes and Leonard (1986) found that warning information that was separated from other product information was more effective in altering users to the hazards inherent in a product compared to warning information that was embedded into other product information. Karnes and Leonard (1986) manipulated the placement of warning statements within a pamphlet insert for a intrauterine device (IUD). Warning

statements related to pelvic inflammatory disease (PID) and spontaneous abortions were moved from within the precautions and adverse reactions sections of the pamphlet (original condition) to separate paragraphs within the warning's section (revised condition). Participants examined either the original or revised pamphlet insert and then completed a questionnaire designed to test their awareness of IUD safety and the probability and severity of various medical problems. The results indicated that participants in the separated-revised condition rated the overall safety of the product lower, seriousness of PID higher, and the likelihood of PID higher compared to the embedded-original condition. Thus placement of the warning statements had a significant effect on people's knowledge of and belief about the warned against hazards (Karnes and Leonard, 1986).

In similar research, Strawbridge (1986) manipulated the placement of critical warning information on the product label for a liquid adhesive. Placement of the critical warning information was manipulated by presenting it first within the warnings section or embedding it within the warnings sections preceded and followed by other less important warning information on the product's label.

Behavioral compliance was defined as participants shaking the liquid adhesive bottle before using the contents to avoid burns from the potentially hazardous acid contained within the adhesive. To conceal the true nature of the study, behavioral compliance to the warnings, participants were instructed that during the experiment they will be asked to glue together a piece of fabric and a piece of plastic material using the liquid adhesive provided. To ensure that participants examined the product label they

were first instructed to determine if the two pieces of material were capable of being glued together using the adhesive provided. The results indicated greater behavioral compliance when the critical warning information was presented first (unembedded) compared to when the critical warning information was embedded within the other less important warning information.

Strawbridge (1986) suggests that participants in the embedded condition stopped viewing the label after reading the less important information and consequently did not see the more important information. Strawbridge also concluded (1986) that placing critical warning information within a separated warning section may increase the saliency of the critical warning information and increase the likelihood that the information is read and remembered.

Wogalter et al. (1987) used a chemistry task paradigm to examine the effect of warning placement on behavioral compliance. In two experiments, a warning to use protective equipment, mix substances in proper order, perform accurate measurements, and avoid skin contact was placed before or after a set of task instructions. The instructions directed participants to measure and mix several unidentified chemicals together in specific orders. Participants' use of the available protective equipment was measured along with the proper mixing and weighing of the chemicals. The results indicated significantly greater compliance rates (use of protective equipment) when the warnings were placed before the instructions compared to when they were placed after the instructions (Wogalter et al., 1987). The authors concluded that, in order for a

warning to be effective, it has to attract attention (Wogalter et al., 1987) and that strategic placement of a warning is necessary to ensure that it is seen in other cluttering material.

In related research, Wogalter et al. (1993) demonstrated that warnings presented in a visually uncluttered environment produce greater behavioral compliance than warnings presented in a visually cluttered environment. In this research, participants were asked to mix together several disguised (nonhazardous) chemicals under the pretense of a chemistry experiment. A warning to wear protective equipment was printed on a sign and placed in either a visually cluttered or uncluttered environment. Behavioral compliance was then measured based upon participants' use of the protective equipment depicted in the warning. The results indicated significantly greater compliance when the warning was placed in a non-cluttered environment compared to a cluttered environment. The authors concluded that warning effectiveness depends on the context in which it is placed and that for warnings to attract attention they need to stand out from their environment (Wogalter et al., 1993).

1.9.2. *Enhanced Warnings.* Research in the previous section suggests that attention to warnings is dependent on the context in which it is presented. In the following section, research will be presented that suggests that attention is also dependent upon the physical distinctiveness of the warning within its environment. To allow for the use of certain types of formatting and highlighting (larger bolder type fonts and colored backgrounds) in the next two studies, it was necessary to separate the warning information from the other product information. The results from these studies taking into consideration the

constraints in stimulus design (need to separate the warnings from other product information to add the enhancing features) support the conclusion that separating the warning information is an important factor in increasing the likelihood that warnings are noticed and read.

Barlow and Wogalter (1993) found that highly conspicuous warnings in alcohol beverage magazine advertisements lead to significantly greater knowledge of the hazards depicted in the warnings compared to less conspicuous warnings. The authors manipulated warning conspicuousness by increasing print size and using a bold black print (compared to a plain black print) on a white background for the highly conspicuous warnings compared to a smaller non-bold print for the less conspicuous warnings. The warnings, in all conditions and advertisements, were placed in the largest open area of the ad separated from the other advertisement information. The experiment consisted of a realistic looking magazine containing 10 alcohol beverage advertisements that were randomly assigned to the experimental conditions and 43 advertisements for other products and services. Participants were given 30 seconds to examine and rate each advertisement in the magazine on their willingness to stop and look at the page. After completing the ratings task participants were given an announced knowledge acquisition test. The results indicated that participants viewing the highly conspicuous warnings retrieved more alcohol related warning information than participants who viewed the less conspicuous warnings (Barlow & Wogalter, 1993). The authors suggest that conspicuous warnings stand out from the surrounding pictures and text and are more likely to attract the reader's attention (Barlow & Wogalter, 1993). The research also indicates that

conspicuous warnings were more successful in drawing the reader's attention by separating them from the other advertisement information.

Young and Wogalter (1990) also demonstrated that increasing the conspicuousness of a warning increases the likelihood that it is read, recalled, and comprehended. Two experiments were conducted using different appliances to determine the effects of highlighting and accompanying pictorial icons on the comprehension and memory of warnings in product manuals. Warnings were either printed in the same font and color as the rest of the manual text or they were printed in a larger font type on an orange background. The warnings were either accompanied by an icon or presented alone. Participants were given four minutes to examine one of four experimental manuals (within each study) and told that they would be asked to operate either a gas powered generator or a natural gas oven without the manuals present. After the four minutes, participants were given a warning memory, recognition, and comprehension test.

In both studies, the use of both the conspicuous print and icons yielded greater comprehension and memory scores than either one alone or neither the use of icons or highlighting. The authors suggest that the use of highlighting and icons made the warnings more noticeable on a noisy background, thereby increasing the likelihood that they would be read, comprehended and remembered (Young & Wogalter, 1990). Similarly to Barlow and Wogalter (1993), the results of this study indicate that the use of some method of enhancement, in this study highlighting and the presence of icons, allowed the warning information to be differentiated or separated from the other

background information, thereby, increasing the likelihood that it would be noticed, read, and remembered.

1.9.3. *Research Implications.* In a literature review on the factors that influence the attention, attraction, and maintenance of warnings, Wogalter and Leonard (1999) suggest that in order to attract attention to a warning while a person is processing other stimuli (e.g., operating instructions), the warnings must be adequately conspicuous compared to their background. The authors suggest several ways of enhancing warnings to make them more noticeable, including: the use of highlighting, color contrast, larger print, and the use of borders (Wogalter and Leonard, 1999). Wogalter and Leonard (1999) also suggest that in certain contexts (e.g., product manuals) warnings that are embedded/integrated into other text may be missed or overlooked. Readers may ignore the information surrounding the warnings and therefore may never see the important safety information (Karnes & Leonard, 1986; Strawbridge, 1986). Furthermore, separating the warning information in the studies cited above allowed for the use of highlighting to attract the reader's attention, leading to an increase in the likelihood that the warnings were noticed, read, and remembered (Wogalter & Barlow, 1993; Wogalter et al. 1993).

To ensure that a warning is noticed, Wogalter and Leonard (1999) suggest that warnings should be placed (temporally and spatially) as close to a hazard as possible in a distinct location where they can easily be found when the information is needed and in enough time to avoid the hazard. This can entail the use of highlighting while separating the warning information from irrelevant information (Wogalter & Barlow, 1993;

Wogalter et al., 1993; Karnes & Leonard, 1986). These recommendations suggest that risk information should be separated from other material (including benefit information) on a drug's DTC advertisement web site and that highlighting can be used to draw readers' attention to the separated risk information.

#### 1.10. *Web Usability*

There are several resources available on how to design "user friendly" web sites (e.g., IBM, 2000a; Lynch & Horton, 1999; Neilson, 1995, 1999; Tiller & Green, 1999; Sano, 1996; Spool, Scanlon, Schroeder, & Snyder, 1999). Unfortunately, many web sites are not designed in compliance to these and other guidelines resulting in web sites that make it difficult to navigate and to find needed information. Research in the area of web site design has repeatedly shown that if information is not easily found, users can become frustrated or disoriented and leave a site without the information they needed or were looking for (Lynch & Horton, 1999; Neilson, 1995, 1999; Tiller & Green, 1999).

Daily statistics gathered during the past three years from a high traffic consumer product web site have indicated that information placed at lower levels of a web site hierarchy are less likely to be visited (Albrecht, 2000). Web site traffic activity statistics have also indicated that nearly 50% of users visiting a web site do not move to the next step of a web site's hierarchy (Albrecht, 2000). This statistic indicates that only 13% of web site visitors reach the fourth level of a web site hierarchy assuming they believe they are on the right path. Results from web site usability tests support these statistics and have shown that users begin to lose their bearings within a hierarchical structure once

they go beyond the 3rd level (IBM, 2000) at which point they are likely to give up on their search (Neilson, 1995, 1999; Tiller & Green, 1999). Other researches have even suggested that web site hierarchy should be kept to two or three levels (Tiller & Green, 1999) and that flatter web site hierarchies produce faster search times than deeper structures (Larson and Czerwinski, 1998).

More extensive analysis of web site traffic data has indicated that, on average, only 2% to 3% of the people visiting a web page will click on a particular link (Albrecht, 2000). Web site traffic data has also shown that people are more likely to click on a link that is placed in the web site's left hand navigation bar or placed in the top center of the page below the header (Albrecht, 2000).

These industry statistics and research finding have prompted the following rules of thumb for the placement of content within a web site hierarchy (IBM, 2000; Lynch & Horton, 1999; Neilson, 1995, 1999; Tiller & Green, 1999; Sano, 1996; Spool et al., 1999):

- Information that consumers need or want from a web site should be placed on the most common entrance page(s) for the web site. The entrance page is usually the web site's home page but may include other pages within a site that users are driven to by various means (e.g., promotional campaigns, popularity, or from a search engine).
- Web sites should be designed using flat hierarchical structures rather than deep hierarchical structures: breadth over depth.

- Information on a web site should be prioritized with the most important information placed at the top of the web site hierarchy.
- Related information should be presented on the same web page.
- Finally, all relevant parts of a web site should be accessible within three clicks of the home page.

Given that the majority of visitors to a web site will not make it past a web site's home page is a crucial consideration to the creation of appropriate DTC advertisement web sites for prescription medications. Knowing that information placed at lower levels of a web site's hierarchy will not be seen by many visitors should encourage drug manufacturers to design their web sites so that a drug's risk information along with the benefit information are located on the first or second level of a web site hierarchy. However, this rule of thumb is sometimes neglected during the design of prescription medication DTC advertisement web sites (Hicks et al., 2001). Hicks et al. (2001) has shown that manufacturers tend to place a drug's risks at lower levels of DTC prescription medication advertisement web sites compared to a drug's benefits and that users are more likely required to scroll to find the risk information on a web page than they are to find the benefits.

The present research is an attempt to gather empirical data to examine the effects of placing risk and benefit information on different pages and different levels of a web site's hierarchy. Potentially, the findings from the proposed research can be used to influence FDA's guidelines for the presentation of risk and benefit information on DTC advertisement prescription medications web sites.

### 1.11. *Information Processing Objective*

The final variable that might influence the likelihood that a person would find, read, and recall a prescription medication's risk information is the type of cognitive processing or strategy that is employed while visiting a web site. A person's information processing objective (or strategy) (IPO) has been shown to effect their attention to specific information, their attitude towards the information, the manner in which the information is processed, their ability to recall the information, behavioral compliance to warning information, and finally people's strategy used while visiting a web site (Chen, 2000; Chaiken, 1980, deTurck & Goldhaber, 1989; deTurck, Goldhaber, & Richetto, 1995; Petty & Cacioppo, 1984; Wyer, Srull, Gordon, & Hartwick, 1982).

In a recent study, Chen (1999) manipulated participants' search strategies while visiting a web site. Participants were either asked to search for and find specific information within the web site (item-search) or they were given no specific goal while browsing through the web site (general-browsing). Participant ratings were measured along with mean path length (mean number of clicks), identified item number, and the number of steps to find each item (number of clicks). The results of the study indicated that participants used a continuous or analytical search strategy during the general-browsing task where users planned their searches and tended to use the search engine and index system while picking specific web pages to start new path searches. However, participants tended to implement a discrete or browsing search strategy during the item-search task where users tended to be opportunistic following links provided by the current web page and using the navigation tools in consecutive steps. Results from the

study suggest that a person's IPO while visiting a web site can affect the type of information people look for and their strategy for moving through the web site.

In related research, deTurck and Goldhaber (1989) found that a person's IPO affected the amount of safety information they read, complied with and recalled. During the study participants were given two common household products to examine, an oven cleaner and cough syrup. However, before being presented with the products participants were told to either memorize as much information as they could from the label (memory-set objective) or to form an impression of the product from the label (impression-set objective – how do they feel about the product based upon its label). During the study, participants were handed the oven cleaner and instructed to take as much time as they needed to either memorize the information or make an impression. The experimenter then timed each participant as they examined the product. When the participant was finished examining the product label they were asked to use the cleaner to clean part of a gas grill. Behavioral compliance to the safety information was measured as participant's use of the gloves provided with the gas grill. After cleaning the grill participants were given the cough syrup and again given as much time as they needed to examine the product label.

Results indicated that participants given the memory-set objective devoted more time to examining the label, recalled more of the product safety information, perceived the product as safer, and were more likely to comply with the oven cleaner warning (more likely to use the gloves) compared to participants given the impression-set objective. The authors suggest that because an impression-set objective requires less

cognitive effort than a memory-set objective, consumers typically seek to form impressions of products rather than to exert the cognitive energy necessary to remember as much information as possible regarding a given product (deTurck & Goldhaber, 1989). The authors conclude that people's IPO should be examined in other product safety related research to determine if the present results generalize to other products and product specific tasks (deTurck & Goldhaber, 1989).

In a similar study, deTurck et al. (1995) were able to demonstrate that a person's IPO mediated the effects of an alcoholic beverage warning message. The study manipulated the color of the signal word (either green or red) for an alcoholic beverage warning. Participant's IPO was manipulated by asking them to memorize as much of the label information as they could (memory-set objective) or to form an impression of the product (impression-set objective). After examining the warning participants completed a questionnaire assessing recall and perception of product safety.

The results indicated that the color of the signal word and the participant's IPO jointly influenced their risk perception. Memory-set participants perceived the alcoholic beverage to be more dangerous when the signal word was presented in red, whereas impression-set participants perceived the beverage to be more dangerous when the signal word was green. Also, recall accuracy was higher for the people in the memory-set conditions compared to people in the impression-set condition. The authors conclude that simply changing the physical characteristics of a warning does not ensure that it will be more effective (deTurck et al., 1995). The authors concluded that a person's IPO

affects the degree in which a warning is processed, recalled, and complied with (deTurck et al., 1995).

Related to IPO is the concept of levels of processing (LOP). The LOP concept assumes that what a person remembers is directly related to what was attended to when the event occurred and that features that are semantically processed will be better encoded (better remembered) than features that are only subject to perceptual analysis (only noticing the physical features) (Ellis & Hunt, 1983; Roenker, Wenger, Thompson, & Watkins, 1978; Craik & Lockhart, 1972). While the LOP concept is no longer in fashion, the methodology used to examine the factors associated with it, that of using an orienting task of different types with the same set of stimuli, is still being used in various areas of research (e.g., DeTurck et al. 1995; Chen, 1999).

Although dozens of studies have been conducted examining the issues related to the LOP concept, the work of Roenker et al. (1978) will be used here to illustrate the methodology that is commonly employed in this type of research. In four experiments, Roenker et al. (1978) examined LOP on stimulus recall using an incidental learning task. Participants were given three types of questions: structural (physical characteristics), rhyme, and category and were given a response that either matched the questions (correct) or did not match the questions (incorrect response). Participants were told the task examined their ability to recognize information that was already stored in their memory. The task required participants to read each question and answer pair and either circle a yes or a no to depict whether the answer match the question. Upon completion of the task, participants were given a free recall task. In the four experiments the question

type that required the deepest level of processing (category) produced better recall scores than the questions requiring more shallow levels of processing (structural and rhyme).

1.11.1. *Research Implications.* The studies cited above suggest that a person's IPO or type of task may interact with the placement of the risk/benefit information on a prescription medication's DTC advertisement web site. In other words, the most effective method of presenting the risk and benefit information may depend on the strategies (or task type) that individuals use while browsing a web site. For example, when a person is merely browsing a web site an integrated risks/benefits section might better convey the information. Conversely, if someone is searching for specific medication information then a separate and distinct risk information section might best capture their attention.

Furthermore, the LOP model would suggest that if the person is looking for a specific item on a web site (search and find task) and does not associate a meaning to the found item they may be less likely to deeply encode the item into memory compared to a person who is browsing a web site with an intent to evaluate the content on attractiveness. In this latter scenario, the reader may attach meaning to specific pieces of information on the web site (e.g., risk/benefit information) by relating them to items stored in long-term memory resulting in a deeper encoding of the items into memory. For these reasons, the task that participants are asked to complete (task type) in this study will be simultaneously manipulated with risk/benefit information placement in order to

investigate the possibility of an interaction between risk/benefit placement and IPO (or task type).

#### 1.12. *Research Question*

Given the inconsistent and inconclusive results of previous research, the best method of communicating risk and benefit information within DTC advertisements needs to be addressed. Furthermore, no other research to date has been published recommending how to present risk and benefit information on prescription medication advertisement web sites, even though the FDA has expressed interest for research conducted in this area (N. Ostrove, personal communication, December 1999). Should risk information be integrated within a drug's benefit information to increase the likelihood that it is encountered and read by consumers (Frantz, 1992, 1994; Magurno & Wogalter, 1994; Wogalter et al., 1993) or should the risk information be separated from the benefit information allowing for the use of highlighting to attract attention (Karnes & Leonard, 1986; Strawbridge, 1986; Wogalter and Barlow, 1993; Wogalter et al., 1993)?

Related to this question is the effect of risk information placement within a web site's hierarchy on consumers' likelihood of seeing and reading the information. Does risk information need to be placed on the home page with the benefit information of a prescription medication's web site to ensure that it is seen and read (Albrecht, 2000; Tiller & Green, 1999) or can the risk information be placed on a different page, at a lower level of the web site's hierarchy and still be as likely found and read by the consumer?

Also of interest in this study is the possibility of an interaction between risk/benefit placement and the type of IPO that a person uses while visiting a web site (task type). Past research has shown that task type (general browsing or item search) can influence the strategies people use while visiting a web site (Chen, 1999). To examine this variable, participants will either be asked to search through a web site to find specific information or they will be allowed to browse through the web site with no particular goal in mind but to rate its attractiveness.

The proposed study involves the manipulation of risk and benefit information within the web sites for two prescription medications (Celebrex<sup>®</sup> and Singulair<sup>®</sup>). Either the risk and benefit information will be integrated or separated. The risk and benefit information will also be placed on the same page, on different pages at the same level of the web site's hierarchy or on different pages at different levels of the web site's hierarchy. Two different tasks, an incidental knowledge acquisition (browse) task and a search and find task will be employed to determine the effects of a person's IPO as they visit a web site (task type). Participants' subjective judgments regarding the likelihood that someone would notice the risk information on each of the web sites will also be measured. Finally, an interaction between task type and risk/benefit information placement will be explored.

Two separate experimental designs will be used to assess the effects of risk/benefit placement, task type, and drug. The first experimental design will examine the effects of separating versus integrating the risk/benefit information and placing the risks and benefits either on the home page or on 2<sup>nd</sup> level pages of a web site. The effects of task

type (IPO) on risk/benefit information placement will also be examined. The generalizability of the results across two drugs will also be examined.

### 1.13. *Hypotheses*

The hypotheses related to this experimental design include:

1. Separating compared to integrating the risk and benefit information on a drug web site will produce different knowledge acquisition scores, accuracy scores, search times, click rates, and risk noticability ratings.
2. Risk and benefit information placed on a web site's home page will be found more often and faster during the search and find task than risk and benefit information presented on a 2<sup>nd</sup> level page.
3. Participants will recall more risk and benefit information when it is placed on a web site's home page during the incidental knowledge acquisition (browse) task compared to when the risk and benefit information is presented on a 2<sup>nd</sup> level page.
4. Risk noticability ratings will be higher for the web sites that present the drug's risk information on the home page compared to the web sites that present the drug's risk information on a 2<sup>nd</sup> level page.
5. Separated risk information will be found more often and faster than the integrated risk information during the search and find task.

6. Participants will recall more risks and benefits when the information is integrated compared to when the risk and benefit information is separated during the incidental knowledge acquisition (browse) task.
7. Risk noticability ratings will be higher for the web sites that present separate drug risk and benefit sections compared to the web sites that present an integrated drug risk and benefit section.

The second experimental design will examine the effects of placing the risk information on a web site's home page compared to placing the risk information on a 2<sup>nd</sup> level page, or on a 4<sup>th</sup> level page. The effects of task type (IPO) on risk/benefit information placement will also be examined. The generalizability of the results across two drugs will also be examined. The hypotheses related to this experimental design include:

1. Risk information placed on a web site's home page will be found more often and faster during the search and find task than risk information presented on a 2<sup>nd</sup> or 4<sup>th</sup> level page.
2. Participants will recall more risk information when it is placed on a web site's home page during the incidental knowledge acquisition (browse) task compared to when the risk information is presented on a 2<sup>nd</sup> or a 4<sup>th</sup> level page.
3. Risk noticability ratings will be higher for the web sites that present the drug's risk information on the home page compared to the web sites that present the drug's risk information on a 2<sup>nd</sup> or 4<sup>th</sup> level page.

## 2. Method

### 2.1. *Experimental Design*

The present experiment consists of three between subject variables (risk/benefit placement, drug, task type). The first variable, risk/benefit placement, was comprised of seven levels. The risk/benefit placement variable was used to determine the effects of separating versus integrating the risk/benefit information and locating the risk and benefit information on the same versus different pages and levels within a web site. The seven conditions that comprised the risk/benefit placement factor, include:

1. Control: no risk or benefit information was given on the web site.
2. Integrated-home page: The risk and benefit information was presented in the same paragraph on the drug's home page.
3. Separated-home page: the risk information was presented separately from the benefit information on the drug's home page.
4. Separated mixed level pages: the risk information was presented on a secondary level page of the drug's web site. The benefit information was presented on the drug's home page. A link to "risks" was placed in the left hand navigation bar.
5. Separated-second level pages: the risk and benefit information was presented on two separate secondary pages on the drug's web site. Two salient links labeled "Benefits" and "Risks" were prominently placed next to each other in the left hand navigation bar.

6. Integrated-second level page: the risk information was presented with the benefit information on a secondary page of the drug's web site. A salient "Benefit and Risk Information" link was prominently placed in the left hand navigation bar.
7. Separated-fourth level page: the risk information was presented on a fourth level page of the drug's web site. The benefit information was presented on the drug's home page. A link to "risks" was located on a third level page of the drug's web site.

The next variable was used to determine the effect of task type (i.e., IPO) on participants' recall of and search times for risk and benefit information (task type). The two levels that comprised the task-type factor, include:

- Search and find task
- Browse task (incidental learning task)

The final variable was used to determine the generalizability of the results across two drugs. The two levels that comprised the drug factor, include:

- Drug A (Celebrex)
- Drug B (Singulair)

The first experimental design consisted of a 2 (web site level) X 2 (separate-integrated) X 2 (drug) X 2 (task type) between subjects factorial design that was intended to determine the effects of separating compared to integrating the risk and benefit information and the effects of locating the risk/benefit information either on the home page or 2<sup>nd</sup> level pages within a web site. The five levels of the risk/benefit factor for this

experimental design included: (1) Integrated-home page; (2) Integrated-second level page; (3) Separated-home page; (4) Separated-second level pages.

A second experimental design consisted of a 3 (risk and benefit placement) X 2 (drug) X 2 (task type) between subjects factorial design that was intended to determine the effects of locating the risk information at different levels of a web site's hierarchy. The four levels of the risk/benefit factor for this experimental design included: (1) Separated-home page; (2) Separated mixed level pages; (3) Separated fourth level page.

Participants were randomly assigned to each condition, an equal number of participants were assigned to each of the experimental conditions (r/b placement X drug X task type).

The experiment also included a within subjects variable used to examine participants subjective beliefs regarding the manner in which the different experimental conditions present the risk information. Participants were asked to rate the noticability of the risk information on each of the different versions of one of the drug's web sites.

## *2.2. Dependent Variables*

Knowledge acquisition during the incidental-learning (browse) task was measured using a post examination free recall test and a recognition task. Time-on-task, accuracy, and number of clicks was measured during the search and find task. Post task risk noticability ratings were also recorded for each of the experimental web site versions. Participants were asked to rate each version of the web site based on how likely they were to notice the risk information.

### 2.3. *Participants*

The study consisted of 24 participants for each of the 7-risk/benefit placement conditions (12 participants in each risk/benefit placement X task type and drug condition) for a total of 164 participants. Participants were recruited from Introduction to Psychology courses at North Carolina State University and were given course credits for participating. Sixty-five percent of the sample was males.

### 2.4. *Materials*

2.4.1. *Web Sites.* Two DTC prescription drug advertisement web sites were created based on two different existing pharmaceutical web sites (allowable under fair doctrine of copyright law) and other drug information materials (e.g., *Physician's Desk Reference*, 1998). Two existing drugs were chosen for the study: Celebrex<sup>®</sup> (arthritis relief) and Singulair<sup>®</sup> (asthma relief).

Different versions of each of the drugs' web sites were created corresponding to the seven experimental conditions outlined above. Each version of the drug's web site contained exactly the same content (e.g., directions for use, active/inactive ingredients, risk and benefit information, etc.) although placement of the content was different between the versions according to the experimental design. The web sites were developed to look realistic and function as complete and real product web sites. To better control wait times and keep users in the appropriate web domains, all of the web sites were stored and accessed from a computer's hard drive. Each web site was titled with the drug's name and a version number (versions A through G) in the title bar at the top of the

browser. The version number represented the experimental version of each web site and was used to track the different versions during the study.

A representation of the web site pages used in each version of the experimental web sites for both drugs are given in Appendix A through Appendix G. Table 1 presents a summary of the web site pages given in Appendices A to G.

**TABLE 1. Web Site Pages Presented in Appendices A to G.**

Experimental Condition	Web page (s)	Appendix #
Control	home page	Appendix A
Integrated-home page	home page	Appendix B
Separated-home page	home page	Appendix C
Separated-mixed level pages	risk and benefit pages	Appendix D
Separated-second level page	home page and risk page	Appendix E
Integrated-second level page	risk and benefit page	Appendix F
Separated-fourth level page	third level risk link page	Appendix G

Six other product (non-drug) web sites (distractor sites), comparable in size to the experimental drug sites, were downloaded and saved on a computer's hard drive for use during the browse task. These sites were used to distract participants from the true focus of the incidental learning task (browse task). The six distractor sites included: Ivory<sup>®</sup>, Tilex<sup>®</sup>, MasterCopy<sup>®</sup>, Angel City Brewery<sup>®</sup>, Casa Carbone<sup>®</sup>, and BlueLine<sup>®</sup> Art Supplies. These sites were chosen to represent a wide range of consumer products. The specific products used included: soap, kitchen/bath cleaner, photocopying service, beverage distributor, a restaurant, and art supplies.

2.4.2. *Software.* The ErgoBrowser® (developed by ErgoSoft Laboratories® Austin TX) software package was used to view the web sites in the search and find task. The ErgoBrowser uses a generic browser with the basic functions required to effectively surf the web: ability to enter an URL, search a site, move forward and back through a site, stop the page download, and history of links chosen. IBM usability professionals are currently using ErgoBrowser during the development and testing of various web site designs. The software can be programmed to record time-on-task, the paths followed, and the links clicked during a task. ErgoBrowser also allows the experimenter to designate the starting point for each task and measures the exact starting and stop times of a task.

Microsoft's® Internet Explorer® version 4.0 was used to view the web sites during the browse task and the ratings task.

2.4.3. *Hardware.* A dedicated computer system was used to host the web sites used in the study and to run the experimental sessions. The computer used in the study was an IBM® 300-GL personal computer with an Intel® Pentium I 200 MHz processor, an 8 GB hard drive, and 64 MBRAM running the Windows® 98 operating system. A 17-inch (15.9 inch viewable diagonal) IBM P-70 monitor was used to view the web sites during the study. The monitor resolution was set to 1024 X 768 (pixels) and 16 bit high color. A cooking timer with an audible buzzer alarm was used to limit participants' task time during the browse task.

2.4.4. *Consent form.* A consent form was developed and used to obtain each participant's informed consent. The consent form indicated that participants were recruited to participate in a study that was examining the attractiveness of web sites. However, the consent form did not mention any memorization task or the use of multiple versions of the drugs' web sites. This was done to conceal the incidental knowledge acquisition portion of the browse task and the evaluation of different versions of the drugs' web sites. See Appendix H for the Consent form.

2.4.5. *Demographics form.* A demographics questionnaire was developed and included questions about participants: age, gender, educational level, ethnicity, and the number of medications that have been prescribed to them by their doctor in the past two years. See Appendix I for complete demographic questionnaire.

The demographics questionnaire also contained several questions used to assess participants' familiarity with prescription medication DTC advertisements. Participants were asked to indicate their experience with the following types of DTC advertisements using a 5-point Likert-type scale verbally anchored with 1 = not at all familiar, 3 = moderately familiar, and 5 = extremely familiar:

- How familiar are you with prescription medication advertisements in magazines or newspapers?
- How familiar are you with prescription medication advertisements on television or radio?

- How familiar are you with prescription medication advertisements on the World Wide Web?

The questionnaire also contained questions to assess participants' computer and web surfing experience. Participants were asked to indicate their experience with the following activities using a 5-point Likert-type scale verbally anchored with 1 = no experience, 4 = moderately experienced, and 5 = extremely experienced:

- How experienced are you with using computers?
- How experienced are you with surfing the web?
- How experienced are you with shopping for consumer products on the web?

The final question on the demographics questionnaire assessed participants' web surfing activity. Participants were asked to indicate how often they surf the web: (1) never surfed the web; (2) a few times a year; (3) a few times a month; (4) a few times a week; (5) a few times a day.

2.4.6. *Free Recall form.* A free recall form was used to allow participants to record the number of risks and benefits that they could recall from the drug web site they rated in the browse task. The free recall form was divided in half with one half of the form used to report the drug's risks and the other half to record the drug's benefits that the participant could recall. Both sides of the free recall form contained the same number of blank lines to allow participants to record the recalled items. See Appendix J.

2.4.7. *Recognition form.* Recognition task forms were developed to test participants' acquired knowledge during the browse task. Two risks recognition task forms were developed (one for each web site) and two benefit recognition task forms were developed (one for each web site). The risk recognition task forms consisted of 36 items: 12 risks that were presented on the drug web sites and 24 distractor items. The Singulair benefit recognition task form consisted of 16 items, 4 benefits that were presented on the drug web sites and 12 distractor items. The Celebrex benefit recognition task form consisted of 18 items, 6 benefits that were presented on the drug web sites and 12 distractor items. See Appendix K for Singulair recognition forms and Appendix L for Celebrex recognition forms.

2.4.8. *Attractiveness Rating form.* An attractiveness rating form was developed for each of the web sites used in the Browse task (Celebrex, Singulair, Angel City Brewery, Blueline Art Supplies, Casa Carbone, Ivory, MasterCopy, and Tilex). See Appendix M for the complete Attractiveness Rating forms. The attractiveness rating forms consisted of the following three questions:

- Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the product advertised on that web site using the following scale: (1) Not at all Useful to (7) Extremely Useful.
- Please rate the **Attractiveness** of the web site you just viewed using the following scale (1) Not at all Attractive to (7) Extremely Attractive.
- Please rate the **Likelihood** that you would **buy or use** the product advertised on the web site you just viewed using the following scale (1) Not at all Likely to (7) Extremely Likely.

2.4.9. *Search and Find forms.* Two different sets of six tasks were developed for use with the Celebrex and Singulair web sites. Each set consisted of one task that required the participant to search for and record the drug web site's risks. Each set also contained one task that required the participants to search for and record the drug web site's benefit information. Four distractor tasks were included in each set. The distractor tasks were customized for each web site. During the study, participants were given one task to complete at a time. The tasks were randomly presented to each participant. See Appendix N for Singulair search and find task forms and Appendix O for Celebrex search and find task forms.

2.4.10. *Ratings form.* Two rating sheets were developed, one for each experimental drug, for use during the posttest risk noticability ratings task. The following question was printed at the top of both rating sheets: "Please rate how likely you are to notice the risk information on each of the 7 different versions of the drug web site using the following scale:" The rating were made using a 7-point Likert-type scale numerically and verbally anchored with 1= extremely unlikely to 7= extremely likely. The forms listed the seven different versions of the web sites (drug name and version number). A blank line was placed next to each version number for participants' ratings. See Appendix Q for the Post Task Rating forms.

## 2.5. Procedure

Upon entering the study, participants were asked to read and sign the consent form. After completing the consent form, participants were asked a series of questions to assess their experience with surfing the web. Participants were asked if they had ever surfed the web and if so, approximately how many times. If participants never surfed the web before or if they had done so less than a dozen times they were excused from the study. None of the participants were excused from the study for this reason.

Upon entering the study participants were randomly assigned to either the browse task or the search and find task. Upon completion of either the browse task or the search and find task, participants completed the post task risk noticability ratings task. After completing the ratings task, participants were asked to complete the demographics questionnaire. Participants were then debriefed as to the study's purpose, thanked for their time, and released. Members of the research staff were available after each session to answer any questions that participants had.

The following three sections describe the procedures used in the browse task, the search and find task, and the risk noticability ratings task.

2.5.1. *Browse Task.* The browse task was based on an incidental-learning paradigm similar to the one used by Wogalter et al. (1999) in which participants rated each page of a fictitious magazine containing several manipulated drug ads. To conceal the true purpose of the study, participants were informed that they were taking part in a marketing study funded by a local advertisement agency to examine people's attitudes toward

several product web sites. Participants were not told about the pending memory tasks to create a more natural browsing strategy without any apparent need to intentionally memorize the information. Methods similar to this have been used to assess printed warnings in alcohol beverage advertisements (Barlow & Wogalter, 1993) and to assess formatting factors of DTC printed magazine advertisements for prescription medications (Wogalter et al., 1999).

Participants were instructed that the advertisement agency was interested in determining people's perception of the attractiveness and their willingness to buy from different types of product advertisements on the WWW. Participants were instructed that they would be required to browse through and evaluate seven different product web sites and that they were to rate each web site on the usefulness of the information found on the web site, its general aesthetic appearance, and their willingness to buy the product based upon the web site. The usefulness ratings were made using a 7-point Likert-type scale numerically and verbally anchored from 1=not at all useful to 7=extremely useful. The attractiveness ratings were made using a 7-point Likert-type scale numerically and verbally anchored from 1=very attractive to 7=very unattractive. The willingness to buy ratings were made on a similar 7-point Likert-type scale numerically and verbally anchored from 1=will definitely not buy to 7=will definitely buy. See Appendix F for rating sheets.

Participants were then randomly assigned to one of the experimental drug web site conditions and encouraged to ask the experimenter any questions that they may have during the course of the study. The drug web site and the six distractor web sites were

then randomly presented to each participant. See Appendix R for random number sheet. Before participants began rating each of the web sites, the experimenter demonstrated the task by rating a sample web site that was not used during the study. After the demonstration, participants were told that they would have a three-minute time limit in which to browse each web site. Participants were also instructed that after three minutes the cooking timer would buzz signaling when they should stop browsing the web site and make their ratings.

Participants were then asked if they had any further questions. Once all of their questions were answered, the experimenter set the timer and placed it in a position viewable by the participant and then allowed the participant to browse through the first web site. After three minutes, the buzzer sounded and the participant made their ratings. The experimenter then brought up the next web site based upon a predetermined randomization and reset the timer. This procedure was continued until the participant rated each of the six-distractor web sites and the experimental drug web site.

After rating each of the web sites, participants were given an unannounced knowledge test. Participants were given the free recall form and encouraged to recall as many risks and benefits that could be associated with the particular drug that they previously viewed. Participants were instructed to record any risk that they could recall in the left column and any of the benefits that they could recall in the right. There was no time limit imposed on this task. When the participant stated that they were finished recalling all of the risks and benefits that they could remember, the experimenter removed the free recall form.

Upon removal of the free recall form, participants were asked to complete the recognition task forms. Participants were first given the risk recognition form to complete. Participants were asked to place a check mark next to the risks associated with drug advertised in the web site that they previously browsed. After completing the recognition task for the risks, participants were given the benefit recognition form to complete. Participants were asked to place a check mark next to the benefits associated with drug advertised in the web site that they previously browsed. There was no time limit imposed on either of these tasks. Afterwards, the experimenter removed the recognition forms.

The recall task was always given before the recognition task. Generally, recall is measured before recognition to prevent any carryover contamination from a reversed presentation of the tasks (recognition before recall).

2.5.2. *Search Task.* The search and find task was comprised of six subtasks requiring participants to search through a predetermined version of one of the experimental drug's web sites for particular pieces of information. The tasks used were customized for both drugs and listed on six separate search and find task sheets. One of the tasks required participants to search for and record the drug's risks, while a second task required the participants to search for and record the drug's benefits. Before completing the tasks on the experimental drug web site, participants completed three practice tasks using one of the other product web sites. See Appendix P for the practice tasks.

Upon entering the study, participants were instructed that they were taking part in a usability study concerning the predetermined drug's web site. Participants were also instructed that the usability study was being performed to examine how to improve the web site's layout and design. The drug and web site version were randomly chosen before the participant arrived. See Appendix S for the random number table

The experimenter informed each participant that they would be given a series of tasks to complete using the drug's web site. Participants were then instructed that the tasks would require them to search through the drug's web site for particular pieces of information, that once they found the correct information they should record the answer in the space provided on the search and find task sheet provided. Participants were also informed that they would first be given three practice tasks to perform to familiarize themselves with the browser and the task procedures.

The experimenter then informed the participants that they would be using a web tracking software product called ErgoBrowser to automatically record their time-on-task, the links they clicked while completing the tasks, and the total number of clicks they used within each task. The experimenter then demonstrated and explained how to use the ErgoBrowser software. The experimenter explained and demonstrated how to use the home, forward, back, stop loading, and refresh buttons using the practice-product's web site.

The experimenter then instructed each participant that before they began each task they were required to click the "start task" button and that when they had found the appropriate information to click the "stop task" button before they record their answer.

Participants were also informed that each task would automatically start from the drug's home page once they click the "start task" button. Participants were then informed that some of the information on the web site might be easier and faster to find than other information. Participants were also instructed that if they could not find the information they were looking for and wished to give up on a task they may do so by clicking the "stop task" button and recording "could not find the information or I give up" in the space provided on the search and find task sheet. This provision was implemented to account for the lack of risk and benefit information on the control condition web sites and was used to estimate the average amount of time participants would spend looking for information that was difficult to find before giving up.

As part of the "usability study" guise, the experimenter then explained to the participant that they would be observed as they completed the tasks. Participants were also instructed that the experimenter was not evaluating their performance but interested in how they went about looking for the information. Participants were assured that the research was intended to evaluate the web site's design and layout, not their ability or skill to search through a web site.

The experimenter then asked the participant if they had any questions on how to use the browser or how to complete the tasks. After all of the participant's questions were answered, participants were given the three search and find tasks for the practice web site and asked to begin. The experimenter observed each participant as they performed the three tasks to ensure that they were appropriately carrying out the tasks.

Specifically the experimenter was looking to see if the participant correctly used the “start task” and “stop task” buttons.

After completing the practice tasks the participants were randomly given one of the search and find tasks for the experimental drug’s web site and asked to begin. The experimenter observed each participant as they completed each of the six tasks to ensure they were correctly using the “start task” and “stop task” buttons. After the participant completed the first task they were given the second task to complete and so forth until all six tasks were completed.

*2.5.3. Risk Noticability Rating Task.* After completing either the browse task or the search and find task, participants were presented with all seven versions of the drug’s web site that they previously viewed. Each version of the web site was opened in a separate browser. The order in which the web sites were opened onto the computer’s desktop was randomly chosen for each participant. Participants were instructed to look through or browse each web site and then rate the seven versions on how likely they were to notice the risk information on each web site.

Before beginning the task, participants were instructed and shown where each web site’s version number was located. Participants were instructed to record a rating for each version of the web site next to the appropriate field on the rating sheet. There was no time limit imposed on the participants while they completed this task. Also, participants were allowed to browse through each web site as many times as they liked and were allowed to toggle between the browsers to compare the different sites.

### 2.6. *Pilot Testing*

Several pilot participants were run through each of the experimental tasks to determine if the instructions and stimuli used during the experiment were clear and if the participants were able to correctly complete the tasks. Improvements to the methodology were made when necessary.

## 3. Results

### 3.1. *Demographic Data*

A total of 168 participants reported ages ranging from 17-36 years old with an average age of 19 years old ( $SD = 2$  yrs.). The majority of the participants reported being Caucasian males (65% male, 35% female). The majority of the participants also reported being either freshman or sophomores in college. See Table 2 for a break down of the demographic data.

Ninety-one percent of the participants reported not having asthma (9% reported having asthma), while 99% of the participants reported not having arthritis. Fifty-seven percent of the participants reported being prescribed no medications in the last two years, while 30% of the sample reported being prescribed 1-2 medications, 9% of the sample reported being prescribed 3-4 medications, and 4% of the participants reported being prescribed 5 or more medications in the last two years ( $M = 1.02$  medications,  $SD = 1.65$ ). Thus 43% of the participants reported being prescribed one or more medications in the last two years.

**TABLE 2. Demographic Data.**

Ethnic Background	Percentage of Participants
African-American	11%
Asian	6%
Caucasian	74%
Hispanic	3%
Middle Eastern	1%
Native American	1%
Other	4%

Year in School	Percentage of Participants
Freshman	52%
Sophomore	30%
Junior	9%
Senior	7%
Graduate Student	1%
Other	1%

Sixty-three percent of the participants reported surfing the web a few times a day. Thirty percent of the participants reported surfing the web a few times a week. Six percent of the participants reported surfing the web a few times a month. One participant reported surfing the web only a few times a year. None of the participants reported never surfing the web. Thus all participants had some experience surfing the web with 93% reported surfing the web at least a few times a week.

Most of the participants reported being relatively familiar with DTC advertisements in magazines and on television but being less familiar with DTC advertisements on the WWW (See Table 3). The majority of the participants also reported being relatively unfamiliar with the drugs Celebrex and Singulair (See Table 4).

Finally, most of the participants reported being relatively experienced with using computers, surfing the web, and shopping online (see Table 5).

**TABLE 3. Participants' DTC Advertisement Familiarity Ratings.**

Rating	Magazines	Television	WWW
Not at all familiar	11%	5%	38%
Not very familiar	34%	24%	49%
Moderately familiar	42%	42%	11%
Very familiar	11%	23%	1%
Extremely familiar	2%	6%	1%

**TABLE 4. Participants' Celebrex and Singulair Familiarity Ratings.**

Rating	Celebrex	Singulair
Not at all familiar	63%	68%
Not very familiar	22%	20%
Moderately familiar	10%	5%
Very familiar	4%	4%
Extremely familiar	1%	3%

**TABLE 5. Participants' Technology Experience Ratings.**

Rating	Computers	WWW	Online Shop
Not experienced	0%	0%	8%
Not very experienced	1%	1%	25%
Moderately experienced	35%	30%	38%
Very experienced	48%	43%	18%
Extremely experienced	16%	26%	11%

### 3.2. Scoring

3.2.1. *Recall Task.* For the recall task, each risk was worth one point totaling 12 points (for both drugs), while each benefit was worth one point totaling 9 points (for both drugs). Participants were given a single point for each risk and benefit that they correctly

recalled and were then given a total risk and benefit recall score by summing each of the points. The total score for each participant was then transformed into a percentage based upon the total possible number of points (12 for the risks and 9 for the benefits, for both drugs). Participants' scores were transformed into percentages and used in the data analysis to allow comparisons of scores on the same scales across the different recall and recognition measures. Scoring was considered lenient in the sense that the exact wording for each risk and benefit was not necessary to earn a point, although the answer needed to be synonymous with the correct answer to receive credit. Table 6 lists the risks that were given credit for both of the drugs. The same set of risks was used for both drugs to control any effects of prior experience with the drug and the complexity or the risks associated with each drug (real risks associated with the drug Celebrex were more complicated than the real risks associated with the drug Singulair). Table 7 lists the benefits that were given credit for the drug Celebrex and Singulair.

**TABLE 6. Recalled Items Given Credit in the Risks Recall Task Scoring.**

---

(1) diarrhea	(5) heartburn	(9) numbness in arms or legs
(2) dizziness	(6) liver disease	(10) pancreatic cancer
(3) fever	(7) nightmares	(11) tiredness
(4) hair loss	(8) nose bleeds	(12) vivid dreams

---

**TABLE 7. Recalled Items Given Credit in the Benefit Recall Task Scoring.**

## Celebrex

- 
- (1) Helps/reduces/stops pain (1 point total)
  - (2) Helps/reduces/stops inflammation (1 point total)
  - (3) Helps/reduces/stops stiffness (1 point total)
  - (4) Helps arthritis or relieves arthritis (1 point total)
  - (5) Helps/reduces/stops symptoms of or stops osteoarthritis (1 point total)
  - (6) Helps/reduces/stops symptoms of or stops adult rheumatoid arthritis (1 point total)
  - (7) Helps you exercise, walk, stand, or climb stairs (1 point total - not 1 point for each)
  - (8) Helps you through your day (1 point total - not 1 point for each)
  - (9) Helps through your night or sleep or sit or lie in bed (1 point total - not 1 point for each)
- 

## Singulair

- 
- (1) Reduces/stops coughing (1 point total)
  - (2) Reduces/stops wheezing (1 point total)
  - (3) Reduces/stops chest tightness (1 point total)
  - (4) Relieves/helps narrowed airways or opens airways or helps airways (1 point total)
  - (5) Relieves/helps inflamed airways (1 point total)
  - (6) Relieves/helps sensitive airways (1 point total)
  - (7) Relieves symptoms or helps asthma (1 point total)
  - (8) Relieves/helps chronic asthma in adults
  - (9) Relieves/helps chronic asthma in children or small children or children older than 2 (not babies)
- 

3.2.2. *Inter-Rater Reliability.* Two judges, both graduate students in the Department of Psychology at NCSU, were used to score the participants' responses for the risk and benefit recall tasks. Both judges were blind to the participants' experimental conditions. Using the methods described above, both judges produced a total risk and benefit recall score for each participant.

The inter-rater reliability was determined by correlating the sets of total scores for each task (risk and benefit recall task) and drug for both judges. The inter-rater reliability coefficients were high for the risk recall task for both Celebrex and Singulair,  $r = .91$  and  $r = .99$ , respectively, ( $Ns = 42$ ,  $ps < .0001$ ) (see Appendix T). The inter-rater reliability

coefficients were also high for the benefit recall task for both Celebrex and Singulair,  $r = .96$  and  $r = .85$ , respectively, ( $Ns = 42$ ,  $ps < .0001$ ) (see Appendix T). Since the two judges produced highly similar scores only the scores produced by the first judge were used in the analysis while the scores produced from the second judge were eliminated.

3.2.3. *Recognition Task.* For the risks portion of the recognition task, each risk was worth one point totaling 12 points (for both drugs). Participants were given a single point for each risk they correctly recognized and were then given a total recognition score by summing each of the points. The total score for each participant was then transformed into a percentage based upon the total possible number of points (12 points for both drugs). Participants' risk recognition scores were transformed into percentages for use in the data analysis to allow comparisons of scores on the same scales across the different recall and recognition measures. See Table 6 for risks used in the recognition task for both drugs.

For the benefits portion of the Celebrex recognition task, each benefit was worth one point totaling six points. For the benefits portion of the Singulair recognition task, each benefit was worth one point totaling four points. Not all of the benefits that were presented on the web site were given in the recognition task. Benefits that would cue the participant to other targets and other obvious benefits (e.g., "relives asthma" for the drug Singulair or "relives arthritis symptoms" for the drug Celebrex) were not used in the recognition task. For example, in the Celebrex task, the benefits "helps you through your day" and "helps you through your night" were not used in the recognition task because

they were too general; in the Singulair task "relieves sensitive airways" and "relieves inflamed airways" were combined into "relieves sensitive and inflamed airways" because they both described a person's airway; and the benefits "relieves asthma in adults/children" were not given but it was believed the use of the term asthma in any of the items would cue the participants to the purpose of the drug, making it easier to guess the other items. Table 8 lists the benefits used for both the Celebrex and Singulair recognition task. Scoring for the benefits recognition task was carried out in the same manner that was used to score the risks recognition task. However, the total number of points used to transform the participants' score into percentages for the Celebrex task was six, whereas the total number points used to transform the participants' score into percentages for the Singulair task was four.

**TABLE 8. Benefits Used in Celebrex and Singulair Recognition Task.**

Celebrex

---

- (1) Helps you walk
  - (2) Pain relief
  - (3) Relieves inflammation
  - (4) Relieves stiffness
  - (5) Relieves symptoms of osteoarthritis
  - (6) Relieves symptoms of rheumatoid arthritis in adults
- 

Singulair

---

- (1) Reduces coughing
  - (2) Reduces wheezing
  - (3) Reduces chest tightness
  - (4) Relieves sensitive and inflamed airways
-

3.2.4. *Search and Find Task.* Task success (correct or incorrect), time-on-task, and number of clicks for both the risk and benefit search and find tasks were used in the data analysis. Time-on-task (measured in seconds) was transformed into  $\text{Log}_{10}$  scores for use in the MANOVA and ANOVA models because of the substantial variability in these data. Mean and standard deviation in  $\text{Log}_{10}$  seconds are therefore shown in the data summaries.

### 3.3. *Analyses Used*

Multivariate analyses of variance (MANOVAs) were conducted to control for the effects of Type I error (finding a significant difference when one does not exist). The use of these analyses was believed necessary because of the large number of dependent variables. MANOVAs were first conducted with the independent variable interaction models. If the interaction model was not significant, separate MANOVAs were conducted with the main effect models.

Analyses of variance (ANOVAs) were then used following the statistically significant MANOVA models. Significant ANOVAs were followed by post hoc tests. Fisher's Least Significant Difference (LSD) test was used to determine if the means differed significantly from one another for all significant main effects and interactions using a two-tailed alpha level of .05. Fisher's LSD test, together with the preliminary  $F$  test with an alpha level set at .05, has been found to provide a desirable balance between the sensitivity of detecting true differences between the treatment means and Type I error rates in Monte Carlo type studies (Carmer and Swanson, 1973). Fisher's LSD test has also been found more desirable than other post hoc test because of its dependence on the

significance of the critical  $F$  value of the observed analysis compared to a dependence on the number of treatments in the experiment (Carmer and Swanson, 1973). Simple effects tests were conducted on all significant two and three-way interactions. A sub set of the significant ANOVA analyses were followed by Dunnett's T-tests to determine if the control conditions were significantly different from the six experimental conditions using a two-tailed alpha level of .05. The number of participants within each experimental condition is listed in Table 9.

**TABLE 9. Number of Participants per Experimental Condition.**

Web Site Version	Drug	Task	Number of Participants*
Control	Celebrex	Search and find	6
Control	Celebrex	Browse	6
Control	Singulair	Search and find	6
Control	Singulair	Browse	6
Integrated-home page	Celebrex	Search and find	6
Integrated-home page	Celebrex	Browse	6
Integrated-home page	Singulair	Search and find	6
Integrated-home page	Singulair	Browse	6
Separated-home page	Celebrex	Search and find	6
Separated-home page	Celebrex	Browse	6
Separated-home page	Singulair	Search and find	6
Separated-home page	Singulair	Browse	6
Separated-mixed level pages	Celebrex	Search and find	6
Separated-mixed level pages	Celebrex	Browse	6
Separated-mixed level pages	Singulair	Search and find	6
Separated-mixed level pages	Singulair	Browse	6
Separate-second level pages	Celebrex	Search and find	6
Separate-second level pages	Celebrex	Browse	6
Separate-second level pages	Singulair	Search and find	6
Separate-second level pages	Singulair	Browse	6
Integrated-second level page	Celebrex	Search and find	6
Integrated-second level page	Celebrex	Browse	6
Integrated-second level page	Singulair	Search and find	6
Integrated-second level page	Singulair	Browse	6
Separated 4 <sup>th</sup> level page	Celebrex	Search and find	6
Separated 4 <sup>th</sup> level page	Celebrex	Browse	6
Separated 4 <sup>th</sup> level page	Singulair	Search and find	6
Separated 4 <sup>th</sup> level page	Singulair	Browse	6

\* Total of 168 participants

### 3.4. Organization of Results

The purpose of this section of the Results is to guide the reader through the extensive sets of analyses that were conducted to examine the data. The complexity of the Results section is primarily due to the different web site condition combinations that were used in

the analyses because of the overlap in risk information placement between the experimental conditions. The analyses that used several web site combinations included: Experiment 1 Hypotheses 2 -7 and Experiment 2 Hypotheses 1-3.

3.4.1. *Differences Between the Web Site Versions.* Sections 3.5.1., 3.5.2., and 3.5.3. of the Results describe the three sets of MANOVA models conducted for Experiment 1 Hypothesis 1. Hypothesis 1 predicted that there would be differences between the experimental conditions on the dependent variables.

The first two sets of MANOVAs were conducted on the one-way web site version and drug models and the two-way web site version X drug model on the search and find task scores (risk task success, risk time-on-task, number of clicks to find the risks, benefit task success, benefit time-on-task, and number of clicks to find the benefits), and the browse task scores (risks recall score, risk recognition score, benefit recall score, and the benefit recognition score). The last set of MANOVAs in this section were conducted on the one, two, and three-way web site version, drug, and task models on the risk noticability ratings. Dunnett's T-tests were conducted on the significant main effect means to determine if the control conditions were significantly different than the experimental conditions. Fisher's LSD tests were then conducted to determine if the experimental web site conditions differed significantly from the control conditions and each other.

3.4.2. *Home-page versus Second-level Analyses.* Sections 3.6., 3.7., and 3.8. of the Results describe the one-way web site version and two-way web site version by drug MANOVA models conducted for Experiment 1 Hypotheses, 2, 3, and 4. Hypothesis 2 predicted that risk and benefit information presented on the home page would be found more often, faster, and in less clicks than risk and benefit information placed on second level pages. Hypothesis 3 predicted that risk and benefit information presented on the home page would be recalled and recognized more often than risk and benefit information placed on 2<sup>nd</sup> level pages. Hypothesis 4 predicted that risk information presented on the home page would be rated as more noticeable than risk and benefit information placed on second level pages. The following analyses were conducted with respect to these hypotheses:

1. Integrated and separated home page conditions versus the integrated-second level page and separated second level and mixed level page conditions.
2. Integrated-home page condition versus the integrated-second level page condition.
3. Separated-home page condition versus the separated second level and mixed level page conditions.
4. Separated-home page condition versus the separated-second level page condition.
5. Separated-home page condition versus the separated-mixed level page condition.

3.4.3. *Integrated versus Separated Analyses.* Sections 3.9., 3.10., and 3.11. of the Results describe the one-way web site version and two-way web site version by drug MANOVA models conducted for Experiment 1 Hypotheses, 5, 6, and 7. Hypothesis 5 predicted that separated risk and benefit information would be found more often, faster, and in less clicks than integrated risk and benefit information. Hypothesis 6 predicted that integrated risk and benefit information would be recalled and recognized more often than the separated risk and benefit information. Hypothesis 7 predicted that the separated risk and benefit information would be rated as more noticeable than the integrated risk and benefit information. The following analyses were conducted with respect to these hypotheses:

1. Integrated-home and second level page conditions versus the separated-home and separated second and mixed level page conditions.
2. Integrated-home page condition versus the separated-home page condition.
3. Integrated-second level page condition versus the separated second and mixed level page conditions.
4. Integrated-second level page condition versus the separated-second level page condition.
5. Integrated-second level page condition versus the separated-mixed level page condition.

3.4.4. *Integrated Risks versus Separated Risks Analyses.* Sections 3.12., 3.13., and 3.14. of the Results describe the one-way web site version and two-way web site version by

drug MANOVA models conducted for Experiment 2 Hypotheses, 1, 2, and 3.

Hypothesis 1 predicted that risk information presented on the home page would be found more often, faster, and in less clicks than risk information placed on the second level pages and on a fourth level page. Hypothesis 2 predicted that risk information presented on the home page would be recalled and recognized more often than risk information placed on the second level pages and on a fourth level page. Hypothesis 3 predicted that risk information presented on the home page would be rated as more noticeable than risk information placed on the second level pages and on a fourth level page. The following analyses were conducted with respect to these hypotheses:

1. Separated-home page condition versus separated second and mixed level page conditions versus separated-fourth level page condition.
2. Separated-home page condition versus separated-second level page condition versus separated-fourth level page condition.
3. Separated-home page condition versus separated-mixed level page condition versus separated-fourth level page condition.

3.4.5. *Exploratory Analyses.* Sections 3.15.1., 3.15.2., and 3.15.3. of the Results describe the MANOVA models conducted to explore the web site level (home versus second level page) and information placement (integrated versus separated) interaction effects on the three sets of dependent variables. These analyses were conducted independent of a specific hypothesis. MANOVAs were conducted with the one-way web site level and information placement models; the two-way web site level X information

placement, web site level X drug, and information placement X drug models; and the three-way web site level X information placement X drug model on the search and find task scores, browse task scores, and noticability ratings. Individual ANOVAs were then conducted on the search and find task scores, browse task scores, and risk noticability ratings, followed by Fisher's LSD tests on the main effect means.

3.4.6. *Familiarity Analysis.* Sections 3.16.1., 3.16.2., and 3.16.3. of the Results describes the one-way familiarity rating, the two-way familiarity rating by web site version and familiarity rating by drug, and the three-way familiarity rating by web site version by drug MANOVA models conducted on the search and find task, browse task, and risk noticability ratings task scores. The following familiarity ratings were examined in these MANOVA models: familiarity with DTC advertisements (ads) in magazines, on the WWW, and on television; familiarity with the drugs Celebrex and Singulair; experience with computers, web surfing, and online shopping; and the amount of time spent surfing.

Three new familiarity variables (magazine familiarity extremes, TV-familiarity extremes, and surf-experience extremes) were created and used in the MANOVAs by categorizing participants as either low (less than 3) or high (greater than 3) familiarity on the following scales: magazine and TV DTC ad familiarity and amount of time spent surfing. All of the other familiarity and experience variables were greatly skewed to either the low end of the rating scale (because of a floor effect) or the high end of the rating scale (because of a ceiling effect) producing very unequal cell sizes for the low and high familiarity/experience categories; these variables were not used in the analyses.

Tables 9 through 27 lists all of the MANOVA models that were conducted. The tables also include the ANOVAs that were conducted on the significant MANOVA models. Because of the extensive amount of analyses involved and to describe the results more concisely, only the MANOVA and ANOVA models that produced statistically significant effects are described ( $p < .05$ ) in the text. Therefore, not all of the independent and dependent variable combinations will be described in the text. The complete set of significant analyses, including: MANOVA and ANOVA tables,  $F$ -values, mean squared errors, main effects, and interactions are presented in Appendices U through KK.

### 3.5. Experiment 1 Hypothesis 1

**TABLE 10. Experiment 1 Hypothesis 1: Search and Find Task MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Dunnett's T	
Web site version	yes
Risk task success	yes
Risk time-on-task	yes
Risk number of clicks	yes
Benefit task success	yes
Benefit time-on-task	yes
Benefit number of clicks	yes
Fisher's LSD	
Web site version	yes
Risk task success	yes
Risk time-on-task	yes
Risk number of clicks	yes
Benefit task success	yes
Benefit time-on-task	yes
Benefit number of clicks	yes
Drug	no
Web site version X Drug	no

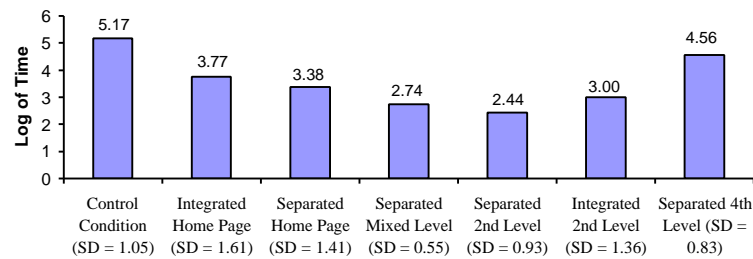
\* Significant MANOVA and ANOVA tables given in Appendix U.

3.5.1. *Search and Find Task.* The 7 (version) by 2 (drug) MANOVA on the search and find scores was not significant: Wilks Lambda = 0.74,  $F(36, 288) < 1.0$ . The one-way drug MANOVA on the search and find scores was not significant either: Wilks Lambda = 0.87,  $F(6, 65) = 1.62$ ,  $p > .05$ . However, the one-way web site version MANOVA on the search and find scores was significant: Wilks Lambda = 0.17,  $F(36, 319) = 4.40$ ,  $p < .0001$ .

The following one-way web site version ANOVAs were significant: amount of time to find the risks:  $F(6, 77) = 8.77$ ,  $p < .0001$ ; number of clicks to find the risks:  $F(6, 77) = 4.65$ ,  $p < .001$ ; risk task success:  $F(6, 77) = 8.49$ ,  $p < .0001$ ; amount of time to find the benefits:  $F(6, 77) = 9.33$ ,  $p < .0001$ ; number of clicks to find the benefits:  $F(6, 77) = 11.70$ ,  $p < .0001$ ; and benefit task success:  $F(6, 77) = 10.20$ ,  $p < .0001$ .

Figure 1 presents the average amount of time transformed into  $\log_{10}$  required to find the risk information for each of the experimental web site conditions (Table 11. presents the mean raw task times in seconds). Post hoc comparisons among the experimental web site condition means and the control condition means using Dunnett's T-test ( $ps < .05$ ) indicated the participants in the experimental conditions, except the participants in the separated-fourth level page condition, found the risks significantly faster than participants in the control condition. Post hoc comparisons among the means using Fisher's LSD test ( $ps < .05$ ) indicated that participants found the risks significantly faster in the home (integrated and separated) and second level page (separated-second and mixed level page and integrated-second) conditions compared to participants in the separated-fourth level page condition. Participants in the separated second and mixed

level page conditions found the risks significantly faster than participants in the integrated-home page condition.



**Figure 1. Mean  $\log_{10}$  Time Required to find the Risks for the Experimental Web Site Conditions ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

**TABLE 11. Mean Time in Seconds Required to Find the Risks for the Experimental Web Site Conditions ( $N = 168$ ).**

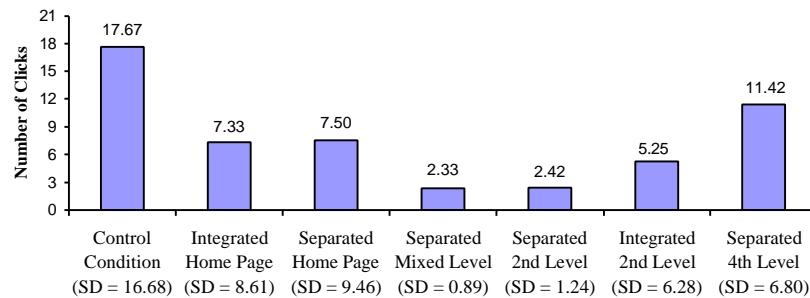
Web Site Condition	Mean	SD*	Pdiff**
Control	260.80	202.64	a
Integrated-Home page	120.37	151.65	b
Separated-Home page	69.67	86.52	cb
Separated-Second level	18.43	14.99	c
Separated-Mixed level	19.49	26.04	c
Integrated-Second level	59.62	105.62	cb
Separated-Fourth level	126.59	90.67	b

\* Standard Deviation.

\*\* Means with different letters are significantly different at an alpha level of .05.

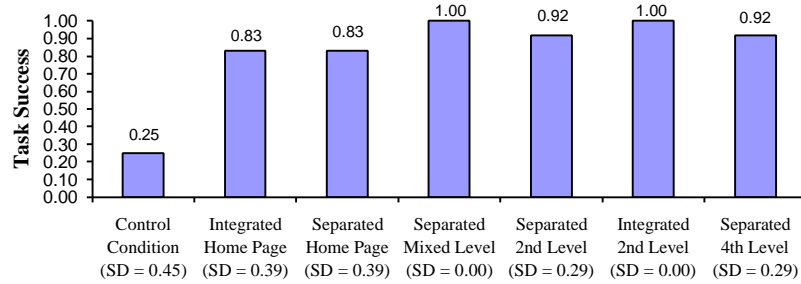
Figure 2 presents the mean number of clicks required to find the risk information for each of the experimental web site conditions. Dunnett's T-test ( $p_s < .05$ ) indicated the participants in all of the experimental conditions, except the separated-fourth level page condition, found the risks in significantly fewer clicks than participants in the

control condition. Fisher's LSD test ( $p < .05$ ) indicated that participants in the separated second and mixed level page conditions found the risks in significantly fewer clicks than participants in the separated-fourth level page condition.



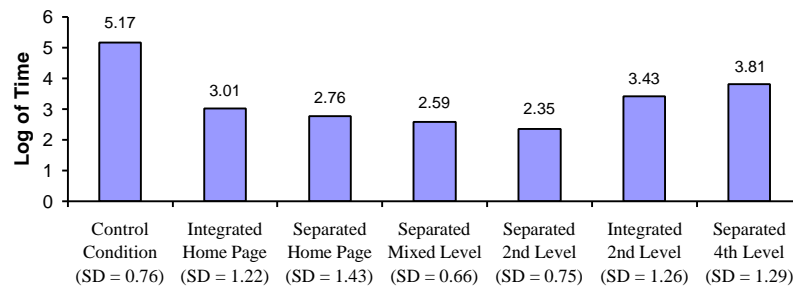
**Figure 2. Mean Number of Clicks required to find the Risks for the Experimental Web Site Conditions ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

Figure 3 presents the mean risk task success rate for each of the experimental web site conditions. Dunnett's T-test ( $p < .05$ ) indicated that participants found the risks significantly more often in all of the experimental web site conditions compared to participants in the control condition. Fisher's LSD test ( $p < .05$ ) indicated that there were no significant differences among the experimental conditions most likely due to the high scores found for each of experimental conditions (ceiling effect) and the lack of variability between the experimental condition scores.



**Figure 3. Risk Task Success Score for the Experimental Web Site Conditions ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

Figure 4 presents the average amount of time transformed into  $\log_{10}$  required to find the benefit information for each of the experimental web site conditions (Table 12. presents the mean raw task times in seconds). Dunnett's T-test ( $p < .05$ ) indicated that participants in the experimental web site conditions found the benefits significantly faster than participants in the control conditions. Fisher's LSD test ( $p < .05$ ) indicated that participants in the separated (home, second, and mixed level page) conditions found the benefits significantly faster than participants in the separated-fourth level page conditions. Also, participants in the separated-second level page conditions found the benefits significantly faster than participants in the integrated-second level page conditions.



**Figure 4. Mean  $\log_{10}$  Time Required to find the Benefits for the Experimental Web Site Conditions ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

**TABLE 12. Mean Time in Seconds Required to find the Benefits for the Experimental Web Site Conditions ( $N = 168$ ).**

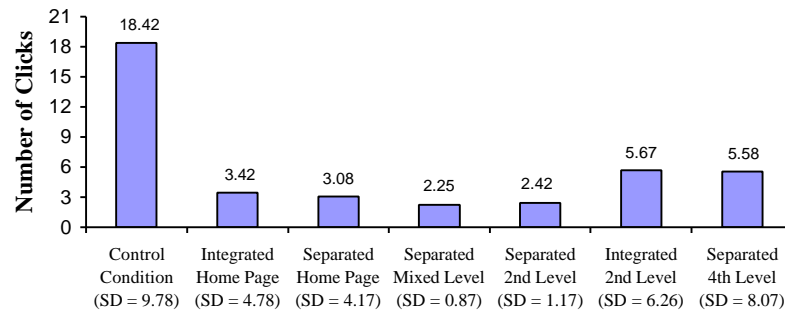
Web Site Condition	Mean	SD*	Pdiff**
Control	216.31	120.68	a
Integrated-Home page	39.61	48.98	b
Separated-Home page	67.60	175.23	b
Separated-Second level	16.61	14.15	b
Separated-Mixed level	13.95	13.04	b
Integrated-Second level	66.03	93.43	b
Separated-Fourth level	84.61	84.14	b

\* Standard Deviation.

\*\* Means with different letters are significantly different at an alpha level of .05.

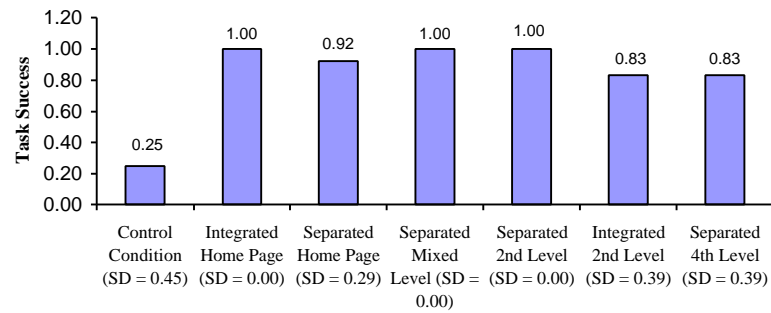
Figure 5 presents the mean number of clicks required to find the benefit information for each of the experimental web site conditions. Dunnett's T-test ( $ps < .05$ ) indicated that participants in the experimental web site conditions found the benefits in significantly fewer clicks than participants in the control condition. Fisher's LSD test ( $ps < .05$ ) indicated that participants in the separated second and mixed level page conditions

and the home page conditions found the benefits in significantly fewer clicks than participants in the separated-fourth level page condition.



**Figure 5. Mean Number of Clicks required to find the Benefits for the Experimental Web Site Conditions ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

Figure 6 presents the mean benefit task success rate for each of the experimental web site conditions. Dunnett's T-test ( $ps < .05$ ) indicated that participants found the benefits significantly more often in the experimental web site conditions compared to participants in the control condition. Fisher's LSD test ( $ps < .05$ ) indicated that there were no significant differences among the experimental conditions most likely due to the high scores found for each of experimental conditions (ceiling effect) and the lack of variability between the experimental condition scores.



**Figure 6. Benefit Task Success Score for the Experimental Web Site Conditions (N = 168).** Standard deviations are shown in parenthesis under the condition labels.

**TABLE 13. Experiment 1 Hypothesis 1: Browse Task MANOVAs.**

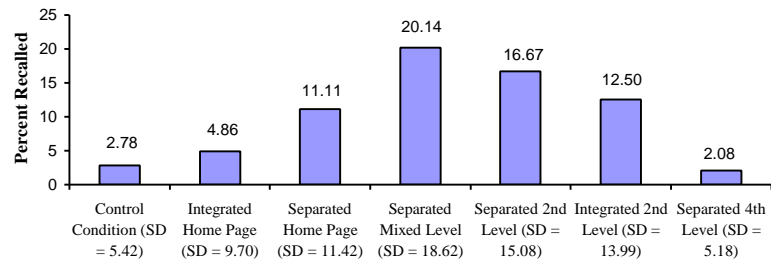
MANOVA Models*	ANOVA Models	Significant
Dunnett's T		
	Web site version	yes
	Risk recalled	yes
	Benefits recalled	no
	Risks recognized	yes
	Benefits recognized	yes
Fisher's LSD		
	Web site version	yes
	Risk recalled	yes
	Benefits recalled	no
	Risks recognized	yes
	Benefits recognized	yes
	Drug	yes
	Risk recalled	no
	Benefits recalled	yes
	Risks recognized	no
	Benefits recognized	no
	Web site version X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix V.

3.5.2. *Browse Scores.* The 7 (version) by 2 (drug) MANOVA on the browse task scores was not significant: Wilkes Lambda = 0.85,  $F(24, 235) < 1.0$ . The one-way drug MANOVA on the browse task scores was significant: Wilks' Lambda = 0.72,  $F(4, 79) = 7.71$ ,  $p < .0001$ . The one-way web site version MANOVA on the browse task scores was also significant: Wilks' Lambda = 0.57,  $F(24, 259) = 1.92$ ,  $p < .01$ .

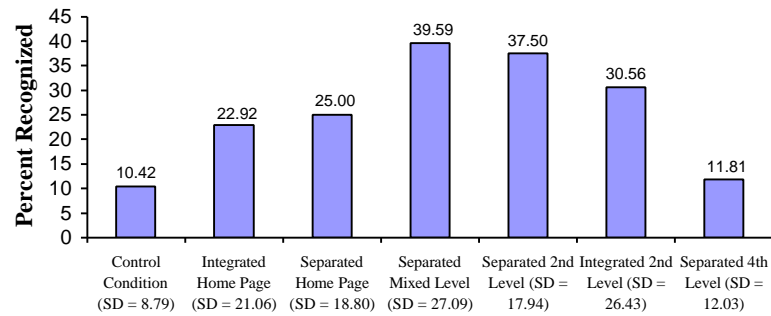
The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(6, 77) = 3.94$ ,  $p < .01$ ; percentage of risks recognized:  $F(6, 77) = 3.99$ ,  $p < .01$ ; and percentage of benefits recognized:  $F(6, 77) = 2.81$ ,  $p < .05$ .

Figure 7 presents the percentage of risks recalled for each of the experimental conditions. Post hoc comparisons among the experimental web site condition means and the control condition means using Dunnett's T-test ( $ps < .05$ ) indicated that participants in the separated second and mixed level page conditions recalled significantly more risks than participants in the control condition. Post hoc comparisons among the means using Fisher's LSD test ( $ps < .05$ ) indicated that participants in the separated second and mixed level page conditions recalled significantly more risks than participants in the integrated-home page and separated-fourth level page conditions. Participants in the integrated-second level page condition recalled significantly more risks than participants in the separated-fourth level page condition.



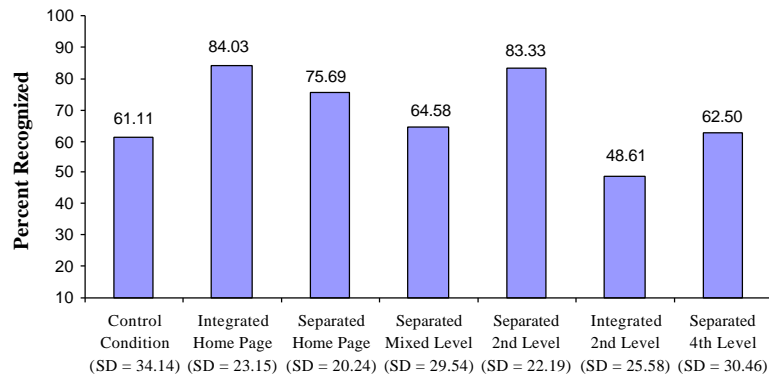
**Figure 7. Percentage of Risks Recalled for the Experimental Web Site Conditions** ( $N = 168$ ). Standard deviations are shown in parenthesis under the condition labels.

Figure 8 presents the percentage of risks recognized for each of the experimental conditions. Dunnett's T-test ( $p < .05$ ) indicated that participants in the separated second and mixed level page conditions recognized significantly more risks than participants in the control conditions. Fisher's LSD test ( $p < .05$ ) indicated that participants in the separated-mixed level page condition recognized significantly more risks than participants in the integrated-home page and separated-fourth level page conditions. Participants in the integrated and separated second level page conditions recognized significantly more risks than participants in the separated-fourth level page condition.



**Figure 8. Percentage of Risks Recognized for the Experimental Web Site Conditions** ( $N = 168$ ). Standard deviations are shown in parenthesis under the condition labels.

Figure 9 presents the percentage of benefits recognized for each of the experimental conditions. Dunnett's T-test ( $p < .05$ ) did not show any significant difference among the experimental conditions and the control condition. Fisher's LSD test ( $p < .05$ ) indicated that participants in the integrated and separated home page conditions and the separated second-level page condition recognized significantly more benefits than participants in the integrated-second level page condition.



**Figure 9. Percentage of Benefits Recognized for the Experimental Web Site Conditions ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

The one-way drug ANOVA on the percentage of benefits recalled was significant:  $F(1, 82) = 13.95, p < .001$ . The results indicated that participants exposed to the Celebrex web sites ( $M = 17.73\%$ ,  $SD = 12.25$ ) recalled significantly more benefits than participants exposed to the Singulair web site ( $M = 9.54\%$ ,  $SD = 7.19$ ).

**TABLE 14. Experiment 1 Hypothesis 1: Risk-Noticability Rating MANOVAs.**

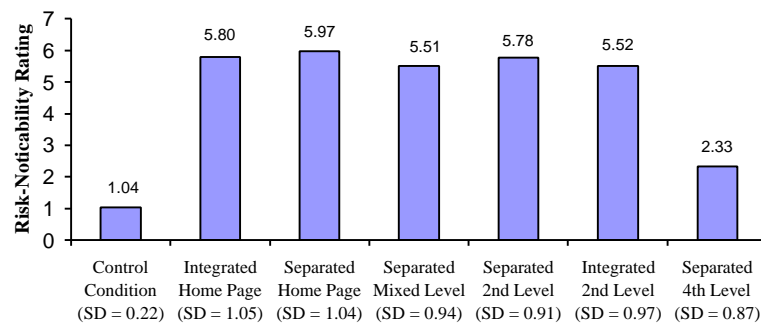
MANOVA Models* ANOVA Models	Significant
Dunnett's T	
Web site version	yes
Fisher's LSD	
Drug	no
Task	yes
Web site version	yes
Web site version X Drug	no
Web site version X Task	no
Drug X Task	no
Web site version X Drug X Task	no

\* Significant MANOVA and ANOVA tables given in Appendix W.

3.5.3. *Risk-Noticability Ratings.* The 7 (version) by 2 (drug) by 2 (task) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 1168) < .01$ . The 7 (version) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 1172) = 1.13, p > .05$ . The 7 (version) by 2 (task) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 1172) < .01$ . The 2 (drug) by 2 (task) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 1172) < 1.0$ . The one-way drug MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 1174) < .01$ . However, the one-way web site version and task MANOVAs on the risk-noticability ratings was significant: Wilkes Lambda = .19 and .99,  $F(6, 1169) = 845.61$  and  $F(1, 1174) = 8.44, ps < .0001$  and .01, respectively.

The one-way web site version ANOVA was significant for the risk-noticability ratings,  $F(6, 1169) = 845.61, p < .0001$ . Risk noticability ratings were made on a 7-point

Likert type scale anchored by (1) extremely unlikely, (2) very unlikely, (3) unlikely, (4) neutral, (5) likely, (6) very likely, and (7) extremely likely. Figure 10 presents the mean risk-noticeability ratings for each of the experimental web site conditions. Post hoc comparisons among the means using Dunnett's T-test ( $p < .05$ ) indicated that the risks in the experimental web site conditions were rated significantly more noticeable than the risks in the control condition. Post hoc comparisons among the means using Fisher's LSD test ( $p < .05$ ) indicated that both home page conditions (separated and integrated) and the separated-second level page conditions were rated significantly higher on the risk-noticeability scale than all the other conditions. Also, the separated-mixed level page and integrated-second level page conditions were rated significantly higher on the risk-noticeability scale than the separated-fourth level page condition.



**Figure 10. Mean Risk-Noticeability Ratings for the Experimental Web Site Conditions** ( $N = 168$ ). Standard deviations are shown in parenthesis under the condition labels.

The one-way task ANOVA was significant for the risk-noticeability ratings,  $F(1, 1174) = 8.44$ ,  $p < .01$ . The results indicated that participants in the search and find task

conditions ( $\underline{M}$ = 4.74,  $\underline{SD}$  = 2.11) tended to give significantly higher risk-noticability ratings than participants in the browse task conditions ( $\underline{M}$ = 4.39,  $\underline{SD}$  = 2.00).

**TABLE 15. Experiment 1 Hypothesis 2: Search and Find Task MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Level: 1 - Home (Integrated-home, Separated-home) 2 - Second ( Separated-second, Separated-mixed, Integrated-second)	
Web site level	no
Web site level X Drug	no
Level: 1 - Home (Integrated-home) 2 - Second (Integrated-second)	
Web site level	no
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 - Second (Separated-second, Separated-mixed)	
Web site level	yes
Web site level = Risk task success	no
Web site level = Risk time-on-task	yes
Web site level = Risk number of clicks	yes
Web site level = Benefit task success	no
Web site level = Benefit time-on-task	no
Web site level = Benefits number of clicks	no
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 - Second (Separated-second)	
Web site level	no
Web site level X Drug	no
Level: 1 - Home (Separated -home) 2 - Second (Separated -mixed)	
Web site level	no
Web site level X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix X.

### 3.6. Experiment 1 Hypothesis 2

The following analysis compared the separated-home page condition versus the collapsed separated second and mixed level page conditions on the search and find task scores. The

other combinations of web site versions (with the risk information on the home page versus the second level pages using the search and find task scores) were not significant. The 2 (web site version) by 2 (drug) MANOVA on the search and find task scores was not significant: Wilkes Lambda = .91,  $F(6, 27) < .01$ . However, the one-way web site version MANOVA on the search and find task scores was significant: Wilkes Lambda = 0.61,  $F(6, 29) = 3.07$ ,  $p < 0.05$ .

The following one-way web site version ANOVAs were significant: amount of time to find the risks:  $F(1, 34) = 4.86$ ,  $p < .05$ ; and number of clicks to find risks:  $F(1, 34) = 7.07$ ,  $p < .05$ .

Participants in the collapsed separated second and mixed level page condition ( $\log_{10}$ :  $\underline{M} = 2.59$ ,  $\underline{SD} = 0.76$ ; seconds:  $\underline{M} = 18.96$ ,  $\underline{SD} = 20.79$ ) found the risks significantly faster than participants in the separated-home page condition ( $\log_{10}$ :  $\underline{M} = 3.38$ ,  $\underline{SD} = 1.41$ ; seconds:  $\underline{M} = 69.67$ ,  $\underline{SD} = 86.52$ ). Participants in the collapsed separated second and mixed level page condition ( $\underline{M} = 2.38$ ,  $\underline{SD} = 1.06$ ) also found the risks in significantly fewer clicks than participants in the separated-home page condition ( $\underline{M} = 7.50$ ,  $\underline{SD} = 9.46$ ).

**TABLE 16. Experiment 1 Hypothesis 3: Browse Task MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Level: 1 - Home (Integrated-home, Separated-home) 2 - Second (Separated-second, Separated-mixed, Integrated-second)	
Web site level	yes
Web site level = Risk recalled	yes
Web site level = Benefits recalled	no
Web site level = Risks recognized	yes
Web site level = Benefits recognized	yes
Web site level X Drug	no
Level: 1 - Home (Integrated-home) 2 - Second (Integrated-second)	
Web site level	yes
Web site level = Risk recalled	no
Web site level = Benefits recalled	no
Web site level = Risks recognized	no
Web site level = Benefits recognized	yes
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 - Second (Separated-second, Separated-mixed)	
Web site level	no
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 - Second (Separated-second)	
Web site level	no
Web site level X Drug	no
Level: 1 - Home (Separated -home) 2 - Second (Separated -mixed)	
Web site level	no
Web site level X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix Y.

### 3.7. Experiment 1 Hypothesis 3

3.7.1. *Home pages versus all second level pages.* The following analysis compared the integrated and separated home page conditions versus the collapsed integrated-second level page and separated second and mixed level page condition on the browse task

scores. The 2 (web site version) by 2 (drug) MANOVA on the browse task scores was not significant: Wilkes Lambda = .96,  $F(4, 53) < .01$ . However, the one-way web site version MANOVA on the browse task scores was significant: Wilkes Lambda = 0.81,  $F(4, 55) = 3.26$ ,  $p < 0.05$ .

The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(1, 58) = 5.17$ ,  $p < .05$ ; percentage of risks recognized:  $F(1, 58) = 4.15$ ,  $p < .05$ ; and percentage of benefits recognized:  $F(1, 58) = 4.27$ ,  $p < .05$ .

Participants in the collapsed second level page condition ( $M = 16.44\%$ ,  $SD = 15.87$ ) recalled more risks than participants in the collapsed home page condition ( $M = 7.99\%$ ,  $SD = 10.85$ ). Participants in the collapsed second level page condition ( $M = 35.89\%$ ,  $SD = 23.81$ ) also recognized significantly more risks than participants in the collapsed home page condition ( $M = 23.96\%$ ,  $SD = 19.55$ ). However, participants in the collapsed home page condition ( $M = 79.86\%$ ,  $SD = 21.69$ ) recognized significantly more benefits than participants in the collapsed second level page condition ( $M = 65.51\%$ ,  $SD = 29.02$ ).

*3.7.2. Integrated-home versus integrated-second level.* The following analysis compares the integrated-home page condition versus the integrated-second level page condition on the browse task scores. The 2 (web site version) by 2 (drug) MANOVA on the browse task scores was not significant: Wilkes Lambda = .82,  $F(4, 17) < .01$ . However, the one-way web site version MANOVA on the browse task scores was significant: Wilkes Lambda = 0.54,  $F(4, 19) = 4.03$ ,  $p < 0.05$ .

The one-way web site version ANOVA was significant for the percentage of benefits recognized:  $F(1, 22) = 12.64, p < .01$ . Participants in the integrated-home page condition ( $M = 84.03\%$ ,  $SD = 23.15$ ) recognized significantly more benefits than participants in the integrated-second level page condition ( $M = 48.61\%$ ,  $SD = 25.58$ ).

**TABLE 17. Experiment 1 Hypothesis 4: Risk-Noticability Rating MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Level: 1 - Home (Integrated-home, Separated-home) 2 - Second ( Separated-second, Separated-mixed, Integrated-second)	
Web site level X Drug	yes
Web site level	yes
Drug	no
Web site level X Drug	yes
Drug = 1	
Web site level	yes
Drug = 2	
Web site level	no
Level: 1 - Home (Integrated-home) 2 - Second (Integrated-second)	
Web site level X Drug	yes
Web site level	yes
Drug	no
Web site level X Drug	yes
Drug = 1	
Web site level	yes
Drug = 2	
Web site level	no
Level: 1 - Home (Separated-home) 2 - Second (Separated-second, Separated-mixed)	
Web site level	yes
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 - Second (Separated-second)	
Web site level	no
Web site level X Drug	no
Level: 1 - Home (Separated -home) 2 - Second (Separated -mixed)	
Web site level	yes
Web site level X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix Z.

### 3.8. Experiment 1 Hypothesis 4

3.8.1. *Home pages versus all of the second level pages.* The following analysis compared the collapsed integrated and separated home page condition versus the

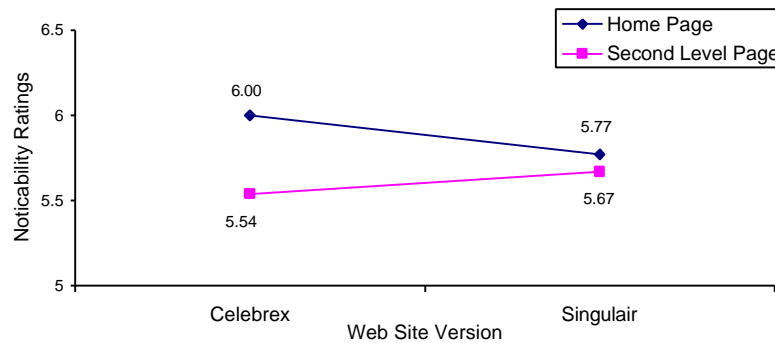
collapsed integrated-second level page and separated second and mixed level page condition on the risk-noticability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticability ratings was significant: Wilkes Lambda = .99,  $F(1, 836) = 6.65$ ,  $p < .01$ . The corresponding 2 (web site version) X 2 (drug) ANOVA on the risk-noticability ratings was also significant:  $F(3, 836) = 7.90$ ,  $p < .0001$ . Type III sums of squares indicated a significant main effect of web site version,  $F(1, 836) = 17.03$ ,  $p < .0001$ , but not of drug. The analysis also yielded a significant web site version X drug interaction,  $F(1, 836) = 6.65$ ,  $p < .05$ .

The collapsed home page condition ( $M = 5.89$ ,  $SD = 1.05$ ) was rated significantly higher on the risk-noticability scale than the collapsed second level page condition ( $M = 5.60$ ,  $SD = 0.95$ ).

3.8.1.1. *Simple effects.* The web site version X drug interaction is presented in Figure 11. The one-way web site version ANOVA for the Singulair conditions on the risk-noticability ratings was not significant:  $F(1, 418) = 1.18$ ,  $p > .05$ . However the one-way web site version ANOVA for the Celebrex conditions on the risk-noticability ratings was significant:  $F(1, 418) = 22.78$ ,  $p < .0001$ .

Participants in the Celebrex drug condition rated the collapsed home page condition ( $M = 6.00$ ,  $SD = 1.02$ ) significantly higher on the risk-noticability scale than the collapsed second level page condition ( $M = 5.54$ ,  $SD = 0.95$ ). However, participants in the Singulair drug condition did not rate the collapsed home page condition ( $M = 5.77$ ,

$\underline{SD} = 1.07$ ) significantly higher on the risk-noticability scale than the collapsed second level page condition ( $\underline{M} = 5.67$ ,  $\underline{SD} = 0.94$ ).



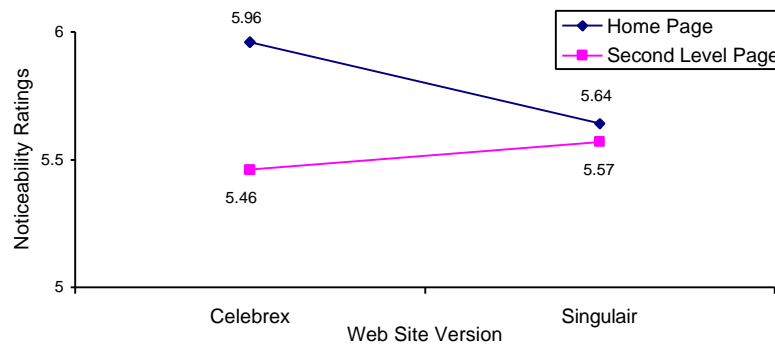
**Figure 11. Web Site Level X Drug on the Risk-Noticability Ratings ( $N = 120$ ).**

3.8.2. *Integrated-home versus integrated-second level.* The following analysis compared the integrated-home page condition versus the integrated-second level page condition on the risk-noticability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticability ratings was significant: Wilkes Lambda = .99,  $\underline{F}(1, 332) = 3.84$ ,  $\underline{p} = .05$ . The corresponding 2 (web site version) X 2 (drug) ANOVA on the risk-noticability ratings was significant:  $\underline{F}(3, 332) = 3.87$ ,  $\underline{p} < .01$ . Type I sums of squares indicated a significant main effect of web site version,  $\underline{F}(1, 332) = 6.82$ ,  $\underline{p} < .01$ , but not of drug. The analysis also produced a significant web site version X drug interaction,  $\underline{F}(1, 332) = 3.84$ ,  $\underline{p} < .05$ .

The integrated-home page condition ( $\underline{M} = 5.80$ ,  $\underline{SD} = 1.05$ ) was rated significantly higher on the risk-noticability scale than the integrated-second level page condition ( $\underline{M} = 5.52$ ,  $\underline{SD} = 0.97$ ).

3.8.2.1. *Simple effects.* The web site version X drug interaction is presented in Figure 12. The one-way web site version ANOVA for the Singulair conditions on the risk-noticeability ratings was not significant:  $F(1, 116) < 1.0$ . However the one-way web site version ANOVA for the Celebrex conditions on the risk-noticeability ratings was significant:  $F(1, 166) = 11.19, p < .01$ .

Participants in the Celebrex drug condition rated the integrated-home page condition ( $M = 5.96, SD = 0.95$ ) significantly higher on the risk-noticeability scale than the integrated-second level page condition ( $M = 5.46, SD = 0.88$ ). However, participants in the Singulair drug condition did not rate the integrated-home page condition ( $M = 5.64, SD = 1.12$ ) significantly higher on the risk-noticeability scale than the integrated-second level page condition ( $M = 5.57, SD = 0.95$ ).



**Figure 12. Web Site Level X Drug on the Noticeability Ratings ( $N = 24$ ).**

3.8.3. *Separated-home versus separated second and mixed level.* The following analysis compared the separate-home page condition versus the collapsed separated second and

mixed level page condition on the risk-noticeability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticeability ratings was not significant: Wilkes Lambda = .99,  $F(1, 500) = 2.24$ ,  $p > .05$ . However, the one-way web site version MANOVA on the risk-noticeability ratings was significant: Wilkes Lambda = 0.98,  $F(1, 502) = 12.77$ ,  $p < 0.001$ .

The one-way web site version ANOVA on the risk-noticeability ratings was significant:  $F(1, 502) = 12.77$ ,  $p < .001$ . The separated-home page condition ( $M = 5.97$ ,  $SD = 1.04$ ) was rated significantly higher on the risk-noticeability scale than the collapsed separated second and mixed level page condition ( $M = 5.64$ ,  $SD = 0.93$ ).

3.8.4. *Separated-home versus separated-mixed level.* The following analysis compared the separate-home page condition versus the separated-mixed level page condition on the risk-noticeability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticeability ratings was not significant: Wilkes Lambda = .99,  $F(1, 332) = 3.51$ ,  $p > .05$ . However, the one-way web site version MANOVA on the risk-noticeability ratings was significant: Wilkes Lambda = 0.95,  $F(1, 334) = 18.39$ ,  $p < .0001$ .

The one-way web site version ANOVA on the risk-noticeability ratings was significant:  $F(1, 334) = 18.30$ ,  $p < .0001$ . The separated-home page condition ( $M = 5.97$ ,  $SD = 1.04$ ) was rated significantly higher on the risk-noticeability scale than the separated-mixed level page condition ( $M = 5.51$ ,  $SD = 0.94$ ).

**TABLE 18. Experiment 1 Hypothesis 5: Search and Find Task MANOVAs.**

MANOVA Models	ANOVA Models	Significant
Level:	1 - Integrated (Integrated-home, Integrated-second)	
	2 - Separated (Separated-home, Separated-second, Separated-mixed)	
	Web site level	no
	Web site level X Drug	no
Level:	1 - Integrated (Integrated-home)	
	2 - Separated (Separated-home)	
	Web site level	no
	Web site level X Drug	no
Level:	1 - Integrated (Integrated-second)	
	2 - Separated (Separated-second, Separated-mixed)	
	Web site level	no
	Web site level X Drug	no
Level:	1 - Integrated (Integrated-second)	
	2 - Separated (Separated-second)	
	Web site level	no
	Web site level X Drug	no
Level:	1 - Integrated (Integrated-second)	
	2 - Separated (Separated-mixed)	
	Web site level	no
	Web site level X Drug	no

### 3.9. Experiment 1 Hypothesis 5

None of the analyses comparing the integrated (home and second page) conditions to the separated (home page and second and mixed level) conditions on the search and find task scores were significant.

**TABLE 19. Experiment 1 Hypothesis 6: Browse Task MANOVAs.**

MANOVA Models*	ANOVA Models	Significant
Level: 1 - Integrated (Integrated-home, Integrated -second) 2 - Separated (Separated-home, Separated-second, Separated-mixed)	Web site level	no
	Web site level X Drug	no
Level: 1 - Integrated (Integrated-home) 2 - Separated (Separated-home)	Web site level	no
	Web site level X Drug	no
Level: 1 - Integrated (Integrated -second) 2 - Separated (Separated-second, Separated-mixed)	Web site level	no
	Web site level X Drug	no
Level: 1 - Integrated (Integrated -second) 2 - Separated (Separated-second)	Web site level	yes
	Web site level = Risk recalled	no
	Web site level = Benefits recalled	no
	Web site level = Risks recognized	no
	Web site level = Benefits recognized	yes
	Web site level X Drug	no
Level: 1 - Integrated (Integrated -second) 2 - Separated (Separated-mixed)	Web site level	no
	Web site level X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix AA.

### 3.10. Experiment 1 Hypothesis 6

The following analysis compares the integrated-second level page condition versus the separated-second level page condition on the browse task scores. The 2 (web site version) by 2 (drug) MANOVA on the browse task scores was not significant: Wilkes Lambda = .98,  $F(4, 17) < .01$ . However, the one-way web site version MANOVA on the browse task scores was significant: Wilkes Lambda = 0.62,  $F(4, 19) = 2.92$ ,  $p < 0.05$ .

The one-way web site version ANOVA on the percentage of benefits recognized was significant:  $F(1, 22) = 12.61, p < .01$ . Participants in the separated-second level page condition ( $M = 83.33\%$ ,  $SD = 23.15$ ) recognized significantly more benefits than participants in the integrated-second level page condition ( $M = 48.61\%$ ,  $SD = 25.58$ ).

None of the other analyses comparing the integrated (home and second page) conditions to the separated (home page and second and mixed level) conditions on the browse task scores were significant.

**TABLE 20. Experiment 1 Hypothesis 7: Risk-Noticability Ratings MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Level: 1 - Integrated (Integrated-home, Integrated -second) 2 - Separated (Separated-home, Separated-second, Separated-mixed)	
Web site level	no
Web site level X Drug	no
Level: 1 - Integrated (Integrated-home) 2 - Separated (Separated-home)	
Web site level	no
Web site level X Drug	no
Level: 1 - Integrated (Integrated -second) 2 - Separated (Separated-second, Separated-mixed)	
Web site level	no
Web site level X Drug	no
Level: 1 - Integrated (Integrated -second) 2 - Separated (Separated-second)	
Web site level	yes
Web site level X Drug	no
Level: 1 - Integrated (Integrated -second) 2 - Separated (Separated-mixed)	
Web site level	no
Web site level X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix BB.

### 3.11. *Experiment 1 Hypothesis 7*

The following analysis compared the integrated-second level page condition versus the separated-second level page condition on the risk-noticability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticability ratings was not significant:

Wilkes Lambda = .99,  $F(1, 332) < .01$ . However, the one-way web site version MANOVA on the risk-noticability ratings was significant: Wilkes Lambda = 0.98,  $F(1, 334) = 6.57$ ,  $p = 0.01$ .

The one-way web site version ANOVA on the risk-noticability ratings was significant:  $F(1, 334) = 6.57$ ,  $p < .01$ . The separated-second level page condition ( $M = 5.97$ ,  $SD = 1.04$ ) was rated significantly higher on the risk-noticability scale than the integrated-second level page condition ( $M = 5.64$ ,  $SD = 0.93$ ).

None of the other analyses comparing the integrated (home and second page) conditions to the separated (home page and second and mixed level) conditions on the risk-noticability ratings were significant.

**TABLE 21. Experiment 2 Hypothesis 1: Search and Find Task MANOVAs.**

MANOVA Models*	ANOVA Models	Significant
Level:	1 - Home (Separated-home)	
	2 - Second (Separated-second, Separated-mixed)	
	3 - Fourth (Separated-fourth)	
	Web site level	yes
	Risk task success	no
	Risk time-on-task	yes
	Risk number of clicks	yes
	Benefit task success	no
	Benefit time-on-task	yes
	Risk number of clicks	yes
Web site level X Drug	no	
Level:	1 - Home (Separated-home)	
	2 - Second (Separated-second)	
	3 - Fourth (Separated-fourth)	
	Web site level	yes
	Risk task success	no
	Risk time-on-task	yes
	Risk number of clicks	yes
	Benefit task success	no
	Benefit time-on-task	yes
	Risk number of clicks	yes
Web site level X Drug	no	
Level:	1 - Home (Separated-home)	
	2 - Second (Separated-mixed)	
	3 - Fourth (Separated-fourth)	
	Web site level	yes
	Risk task success	no
	Risk time-on-task	yes
	Risk number of clicks	yes
	Benefit task success	no
	Benefit time-on-task	no
	Risk number of clicks	yes
Web site level X Drug	no	

\* Significant MANOVA and ANOVA tables given in Appendix CC.

### 3.12. Experiment 2 Hypothesis 1

3.12.1. *Separated home versus second and mixed versus fourth.* The following analysis compared the separated-home page condition versus the collapsed separated second and mixed level page condition versus the separated-fourth level page condition on the search

and find task scores. The 2 (web site version) by 2 (drug) MANOVA on the search and find task scores was not significant: Wilks Lambda = 0.65,  $F(12, 74) = 1.47$ ,  $p > .05$ . However, the one-way web site version MANOVA on the search and find task scores was significant: Wilks Lambda = 0.36,  $F(12, 80) = 4.44$ ,  $p < .0001$ .

The following one-way web site version ANOVAs were significant: amount of time to find the risks:  $F(2, 45) = 16.36$ ,  $p < .0001$ ; the number of clicks to find the risks:  $F(2, 45) = 10.28$ ,  $p < .001$ ; amount of time to find the benefits:  $F(2, 45) = 6.31$ ,  $p < .01$ ; and the number of clicks to find the benefits:  $F(2, 45) = 7.94$ ,  $p < .001$ .

Fisher's LSD post hoc comparisons indicated that participants in the collapsed separated second and mixed level page condition ( $\log_{10}$ :  $M = 2.59$ ,  $SD = 0.76$ ; seconds:  $M = 18.96$ ,  $SD = 20.79$ ) found the risks significantly faster than participants in the separated-home page condition ( $\log_{10}$ :  $M = 3.38$ ,  $SD = 1.41$ ; seconds:  $M = 69.67$ ,  $SD = 86.52$ ) and participants in the separated-fourth level page condition ( $\log_{10}$ :  $M = 4.56$ ,  $SD = 0.83$ ; seconds:  $M = 126.59$ ,  $SD = 90.67$ ). Participants in the collapsed separated second and mixed level page condition ( $M = 2.38$ ,  $SD = 1.06$ ) also found the risks in significantly fewer clicks than participants in the separated-fourth level page condition ( $M = 11.42$ ,  $SD = 6.80$ ). The number of clicks to find the risks score for participants in the separated-home page condition ( $M = 7.50$ ,  $SD = 9.46$ ) were intermediate and not significantly different than the other two conditions.

Participants in the collapsed separated second and mixed level page ( $\log_{10}$ :  $M = 2.47$ ,  $SD = 0.70$ ; seconds:  $M = 15.28$ ,  $SD = 13.38$ ) and separated-home page ( $\log_{10}$ :  $M = 2.76$ ,  $SD = 1.43$ ; seconds:  $M = 67.60$ ,  $SD = 175.23$ ) conditions found the benefits

significantly faster than participants in the separated-fourth level page condition ( $\log_{10}$ :  $\underline{M}$  = 3.81,  $\underline{SD}$  = 1.29; seconds:  $\underline{M}$  = 84.61,  $\underline{SD}$  = 84.14). Participants in the collapsed separated second and mixed level page ( $\underline{M}$  = 2.33,  $\underline{SD}$  = 1.01) and separated-home page ( $\underline{M}$  = 3.08,  $\underline{SD}$  = 4.17) conditions also found the benefits in significantly fewer clicks than participants in the separated-fourth level page condition ( $\underline{M}$  = 8.58,  $\underline{SD}$  = 8.07).

3.12.2. *Separated home versus second versus fourth.* The following analysis compared the separated-home page condition versus the separated-second level page condition versus the separated-fourth level page condition on the search and find task scores. The 2 (web site version) by 2 (drug) MANOVA on the search and find task scores was not significant: Wilks Lambda = 0.61,  $\underline{F}$  (12, 50) = 1.17,  $\underline{p}$  > .05. However, the one-way web site version MANOVA on the search and find task scores was significant: Wilks Lambda = 0.36,  $\underline{F}$  (12, 56) = 3.11,  $\underline{p}$  < .01.

The following one-way web site version ANOVAs were significant: amount of time to find the risks:  $\underline{F}$  (2, 33) = 11.41,  $\underline{p}$  < .001; the number of clicks to find the risks:  $\underline{F}$  (2, 33) = 5.34,  $\underline{p}$  < .01; amount of time to find the benefits:  $\underline{F}$  (2, 33) = 4.80,  $\underline{p}$  < .05; and the number of clicks to find the benefits:  $\underline{F}$  (2, 33) = 4.92,  $\underline{p}$  < .01;

Fisher's LSD post hoc comparisons indicated that participants in the separated-second level page condition ( $\log_{10}$ :  $\underline{M}$  = 2.44,  $\underline{SD}$  = 0.93; seconds:  $\underline{M}$  = 19.49,  $\underline{SD}$  = 26.04) found the risks significantly faster than participants in the separated-home page ( $\log_{10}$ :  $\underline{M}$  = 3.38,  $\underline{SD}$  = 1.41; seconds:  $\underline{M}$  = 69.67,  $\underline{SD}$  = 86.52) and the separated-fourth level page ( $\log_{10}$ :  $\underline{M}$  = 4.56,  $\underline{SD}$  = 0.83; seconds:  $\underline{M}$  = 126.59,  $\underline{SD}$  = 90.67) conditions. Participants

in the separated-second level page condition ( $\underline{M} = 2.41$ ,  $\underline{SD} = 1.24$ ) also found the risks in significantly fewer clicks than participants in the separated-fourth level page condition ( $\underline{M} = 11.42$ ,  $\underline{SD} = 6.80$ ). The number of clicks to find the risks score for participants in the separated-home page condition ( $\underline{M} = 7.50$ ,  $\underline{SD} = 9.46$ ) were intermediate and not significantly different than the other two conditions.

Participants in the separated-second level page ( $\log_{10}$ :  $\underline{M} = 2.34$ ,  $\underline{SD} = 0.75$ ; seconds:  $\underline{M} = 13.95$ ,  $\underline{SD} = 13.04$ ) and separated-home page ( $\log_{10}$ :  $\underline{M} = 2.76$ ,  $\underline{SD} = 1.43$ ; seconds:  $\underline{M} = 67.60$ ,  $\underline{SD} = 175.23$ ) conditions found the benefits significantly faster than participants in the separated-fourth level page condition ( $\log_{10}$ :  $\underline{M} = 3.81$ ,  $\underline{SD} = 1.29$ ; seconds:  $\underline{M} = 84.61$ ,  $\underline{SD} = 84.14$ ). Participants in the separated-second level page ( $\underline{M} = 2.42$ ,  $\underline{SD} = 1.17$ ) and separated-home page ( $\underline{M} = 3.08$ ,  $\underline{SD} = 4.17$ ) conditions also found the benefits in significantly fewer clicks than participants in the separated-fourth level page condition ( $\underline{M} = 8.58$ ,  $\underline{SD} = 8.07$ ).

3.12.3. *Separated home versus mixed versus fourth.* The following analysis compared the separated-home page condition versus the separated-mixed level page condition versus the separated-fourth level page condition on the search and find task scores. The 2 (web site version) by 2 (drug) MANOVA on the search and find task scores was not significant: Wilks Lambda = 0.68,  $\underline{F}(12, 50) < 1.0$ . However, the one-way web site version MANOVA on the search and find task was significant: Wilks Lambda = 0.38,  $\underline{F}(12, 56) = 2.86$ ,  $\underline{p} < .01$ .

The following one-way web site version ANOVAs were significant: amount of time to find the risks:  $F(2, 33) = 10.30, p < .001$ ; the number of clicks to find the risks:  $F(2, 33) = 5.47, p < .01$ ; amount of time to find the benefits:  $F(2, 33) = 3.80, p < .05$ ; and the number of clicks to find the benefits:  $F(2, 33) = 5.12, p < .05$ .

Fisher's LSD post hoc comparisons indicated that participants in the separated-second level page condition ( $\log_{10}$ :  $M = 2.74, SD = 0.55$ ; seconds:  $M = 18.43, SD = 14.99$ ) found the risks significantly faster than participants in the separated-home page ( $\log_{10}$ :  $M = 3.38, SD = 1.41$ ; seconds:  $M = 69.67, SD = 86.52$ ) and the separated-fourth level page ( $\log_{10}$ :  $M = 4.56, SD = 0.83$ ; seconds:  $M = 126.59, SD = 90.67$ ) conditions. Participants in the separated-second level page condition ( $M = 2.33, SD = 0.89$ ) also found the risks in significantly fewer clicks compared to the separated-fourth level page condition ( $M = 11.42, SD = 6.80$ ). The number of clicks to find the risks score for participants in the separated-home page condition ( $M = 7.50, SD = 9.46$ ) were intermediate and not significantly different than the other two conditions.

Participants in the separated-second level page ( $\log_{10}$ :  $M = 2.58, SD = 0.66$ ; seconds:  $M = 16.61, SD = 14.15$ ) and separated-home page ( $\log_{10}$ :  $M = 2.76, SD = 1.43$ ; seconds:  $M = 67.60, SD = 175.23$ ) conditions found the benefits significantly faster than participants in the separated-fourth level page condition ( $\log_{10}$ :  $M = 3.81, SD = 1.29$ ; seconds:  $M = 84.61, SD = 84.14$ ). Participants in the separated-second level page ( $M = 2.25, SD = 0.87$ ) and separated-home page ( $M = 3.08, SD = 4.17$ ) conditions also found the benefits in significantly fewer clicks than participants in the separated-fourth level page condition ( $M = 8.58, SD = 8.07$ ).

**TABLE 22. Experiment 2 Hypothesis 2: Browse Task MANOVAs.**

MANOVA Models*	ANOVA Models	Significant	
Level: 1 - Home (Separated-home) 2 -Second (Separated-second, Separated-mixed) 3 - Fourth (Separated-fourth)	Web site level	yes	
	Web site level = Risk recalled	yes	
	Web site level = Benefits recalled	no	
	Web site level = Risks recognized	yes	
	Web site level = Benefits recognized	no	
	Web site level X Drug	no	
	Level: 1 - Home (Separated-home) 2 -Second (Separated-second) 3 - Fourth (Separated-fourth)	Web site level	no
Web site level X Drug		no	
Level: 1 - Home (Separated-home) 2 -Second (Separated-second) 3 - Fourth (Separated-fourth)		Web site level	yes
		Web site level = Risk recalled	yes
	Web site level = Benefits recalled	no	
	Web site level = Risks recognized	yes	
	Web site level = Benefits recognized	no	
Web site level X Drug	no		

\* Significant MANOVA and ANOVA tables given in Appendix DD.

### 3.13. Experiment 2 Hypothesis 2

3.13.1. *Separated home versus second and mixed versus fourth.* The following analysis compared the separated-home page condition versus the collapsed separated second and mixed level page condition versus the separated-fourth level page condition on the browse task scores. The 2 (web site version) by 2 (drug) MANOVA on the browse task scores was not significant: Wilks Lambda = 0.88,  $F(8, 78) < 1.0$ . However, the one-way

web site version MANOVA nearly reached the conventional significance level of .05: Wilks Lambda = 0.71,  $F(8, 84) = 1.96$ ,  $p = .06$ .

The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(2, 45) = 5.99$ ,  $p < .01$ ; and percentage of risks recognized:  $F(2, 45) = 7.77$ ,  $p < .01$ . Fisher's LSD post hoc comparisons indicated that participants recalled ( $M = 18.40\%$ ,  $SD = 16.66$ ) and recognized ( $M = 38.54\%$ ,  $SD = 22.50$ ) significantly more risks in the collapsed separated second and mixed level page condition compared to participants in the separated-fourth level page condition ( $M = 2.08\%$ ,  $SD = 5.18$  and  $M = 11.81\%$ ,  $SD = 12.03$ , respectively). The recall ( $M = 11.11\%$ ,  $SD = 11.42$ ) and recognition ( $M = 25.00\%$ ,  $SD = 18.80$ ) scores for participants in the separated-home page condition were intermediate and not significantly different than the other two conditions.

3.13.2. *Separated home versus mixed versus fourth.* The following analysis compared the separated-home page condition versus the separated-mixed level page condition versus the separated-fourth level page condition on the browse task scores. The 2 (web site version) by 2 (drug) MANOVA on the browse task scores was not significant: Wilks Lambda = 0.85,  $F(8, 54) < 1.0$ . However, the one-way web site version MANOVA almost reached the conventional significance level of .05: Wilks Lambda = 0.63,  $F(8, 60) = 1.92$ ,  $p < .07$ .

The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(2, 33) = 5.82$ ,  $p < .01$ ; and percentage of risks recognized:  $F(2, 33) = 5.64$ ,  $p < .01$ . Fisher's LSD post hoc comparisons indicated that participants recalled ( $M$

= 20.14%,  $SD = 18.62$ ) and recognized ( $M = 39.58\%$ ,  $SD = 27.09$ ) significantly more risks in the collapsed separated second and mixed level page condition compared to participants in the separated-fourth level page condition ( $M = 2.08\%$ ,  $SD = 5.18$  and  $M = 11.81\%$ ,  $SD = 12.03$ , respectively). The recall ( $M = 11.11$ ,  $SD = 11.42$ ) and recognition ( $M = 25.00\%$ ,  $SD = 18.80$ ) scores for participants in the separated-home page condition were intermediate and not significantly different than the other two conditions.

**TABLE 23. Experiment 2 Hypothesis 3: Risk-Noticability Rating MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Level: 1 - Home (Separated-home) 2 -Second (Separated-second, Separated-mixed) 3 - Fourth (Separated-fourth)	
Web site level	yes
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 -Second (Separated-second) 3 - Fourth (Separated-fourth)	
Web site level	yes
Web site level X Drug	no
Level: 1 - Home (Separated-home) 2 -Second (Separated-mixed) 3 - Fourth (Separated-fourth)	
Web site level	yes
Web site level X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix EE.

### 3.14. Experiment 2 Hypothesis 3

3.14.1. *Separated home versus second and mixed versus fourth.* The following analysis compared the separated-home page condition versus the collapsed separated second and mixed level page condition versus the separated-fourth level page condition on the risk-

noticability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilks Lambda = 0.99,  $F(2, 666) = 1.96$ ,  $p > .05$ . However, the one-way web site version MANOVA was significant: Wilks Lambda = 0.29,  $F(2, 669) = 831.36$ ,  $p < .0001$ .

The one-way web site version ANOVA on the risk-noticability ratings was significant:  $F(2, 669) = 831.36$ ,  $p < .0001$ . Fisher's LSD post hoc comparisons indicated that the separated-home page condition ( $M = 5.97$ ,  $SD = 1.04$ ) was rated significantly higher on the risk-noticability scale than the collapsed separated second and mixed level page condition ( $M = 5.64$ ,  $SD = 0.93$ ) and the separated-fourth level page condition ( $M = 2.33$ ,  $SD = 0.87$ ). The collapsed separated second and mixed level page condition was rated significantly higher on the noticability scale than the separated-fourth level page condition.

3.14.2. *Separated home versus second versus fourth.* The following analysis compared the separated-home page condition versus the separated-second level page condition versus the separated-fourth level page condition on the risk-noticability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilks Lambda = 0.99,  $F(2, 498) = 1.88$ ,  $p > .05$ . However, the one-way web site version MANOVA was significant: Wilks Lambda = 0.24,  $F(2, 501) = 796.06$ ,  $p < .0001$ .

The one-way web site version ANOVA on the risk-noticability ratings was significant:  $F(2, 501) = 796.06$ ,  $p < .0001$ . Fisher's LSD post hoc comparisons indicated

that the separated-home page condition ( $\underline{M} = 5.97$ ,  $\underline{SD} = 1.04$ ) was rated significantly higher on the risk-noticability scale than the separated-second level page condition ( $\underline{M} = 5.78$ ,  $\underline{SD} = 0.91$ ) and the separated-fourth level page condition ( $\underline{M} = 2.33$ ,  $\underline{SD} = 0.87$ ). The separated-second level page condition was rated significantly higher on the risk-noticability scale than the separated-fourth level page condition.

3.14.3. *Separated home versus mixed versus fourth.* The following analysis compared the separated-home page condition versus the separated-mixed level page condition versus the separated-fourth level page condition on the risk-noticability ratings. The 2 (web site version) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilks Lambda = 0.99,  $\underline{F}(2, 498) = 2.48$ ,  $\underline{p} > .05$ . However, the one-way web site version MANOVA was significant: Wilks Lambda = 0.26,  $\underline{F}(2, 501) = 726.09$ ,  $\underline{p} < .0001$ .

The one-way web site version ANOVA on the risk-noticability ratings was significant:  $\underline{F}(2, 501) = 726.09$ ,  $\underline{p} < .0001$ . Fisher's LSD post hoc comparisons indicated that the separated-home page condition ( $\underline{M} = 5.97$ ,  $\underline{SD} = 1.04$ ) was rated significantly higher on the risk-noticability scale than the separated-mixed level page condition ( $\underline{M} = 5.51$ ,  $\underline{SD} = 0.94$ ) and the separated-fourth level page condition ( $\underline{M} = 2.33$ ,  $\underline{SD} = 0.87$ ). The separated-mixed level page condition was rated significantly higher on the risk-noticability scale than the separated-fourth level page condition.

3.15. *Exploratory Analyses***TABLE 24. Exploratory Analyses: Search and Find Task Scores MANOVAs.**

MANOVA Models ANOVA Models	Significant
Web site level: Home (Integrated-home, Separated-home) Second (Integrated-second, Separated-second)	
Information- Integrated (Integrated-home, Integrated-second)	
Placement Separated (Separated-home, Separated-second)	
Web site level	no
Integrated	no
Web site level X Integrated	no
Web site level X Drug	no
Integrated X Drug	no
Web site level X Integrated X Drug	no

3.15.1. *Exploratory analyses on the search and find task.*

None of the analyses comparing the web site level (home and second page) and information-placement (integrated versus separate) main effects and the web site level by information placement interaction on the search and find task scores were significant.

**TABLE 25. Exploratory Analyses: Browse Task Scores MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Web site level: Home (Integrated-home, Separated-home) Second (Integrated-second, Separated-second)	
Information- Placement: Integrated (Integrated-home, Integrated-second) Separated (Separated-home, Separated-second)	
Web site level	no
Integrated	no
Web site level X Integrated	yes
Risk Recalled	no
Benefits Recalled	no
Risks Recognized	no
Benefits Recognized	yes
Web site level	yes
Integrated	yes
Web site level X Integrated	yes
Web site level = 1	
Integrated	no
Web site level = 2	
Integrated	yes
Web site level X Drug	no
Integrated X Drug	no
Web site level X Integrated X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix FF.

### 3.15.2. Exploratory analyses on the browse task scores

The following analysis were used to examine the web site level (home and second page) and information-placement (integrated versus separate) main effects and the web site level by information-placement interaction on the browse task scores. The 2 (web site level) by 2 (information-placement) by 2 (drug) MANOVA on the browse task scores was not significant: Wilks Lambda = 0.89,  $F(4, 37) = 1.09$ ,  $p > .05$ . The 7 (web site level) by 2 (drug) MANOVA on the browse task scores was not significant: Wilkes Lambda = .93,  $F(4, 41) < 1.0$ . The 2 (information-placement) by 2 (drug) MANOVA on the browse task scores was not significant: Wilkes Lambda = .96,  $F(4, 41) < 1.0$ . The

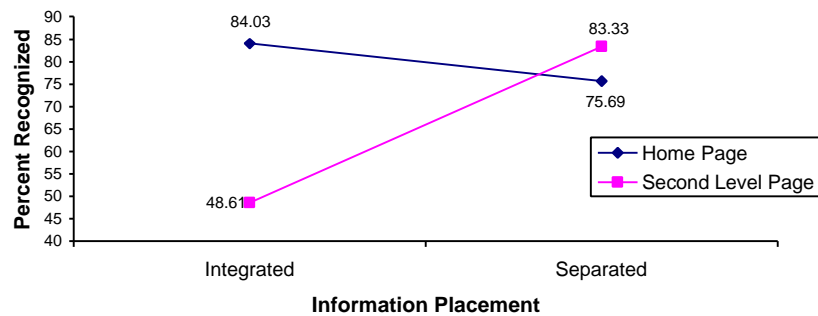
one-way web site level MANOVA on the browse task scores was not significant: Wilks Lambda = 0.84,  $F(4, 43) = 2.03$ ,  $p > .05$ . Also, the one-way information-placement MANOVA on the browse task scores was not significant: Wilks Lambda = 0.88,  $F(4, 43) = 1.51$ ,  $p > 0.05$ . However, the 2 (web site level) by 2 (information-placement) MANOVA on the browse task scores was significant: Wilks Lambda = .79,  $F(4, 41) = 2.67$ ,  $p < .05$ .

The corresponding 2 (web site level) X 2 (information-placement) ANOVA on the percentage of benefits recognized was significant:  $F(3, 44) = 6.35$ ,  $p < .01$ . Type I sums of squares indicated a significant web site level main effect:  $F(1, 44) = 4.42$ ,  $p < .05$ , a significant information-placement main effect:  $F(1, 44) = 3.99$ ,  $p = .05$ , and a significant web site level by information-placement interaction:  $F(1, 44) = 10.63$ ,  $p < .01$ .

The web site level by information-placement interaction is presented in Figure 14. Post hoc comparisons indicated that participants in the collapsed home page condition ( $M = 79.86\%$ ,  $SD = 21.69$ ) recognized significantly more benefits than participants in the collapsed second level page condition ( $M = 65.97\%$ ,  $SD = 29.37$ ). However, participants in the collapsed integrated condition ( $M = 66.32\%$ ,  $SD = 29.94$ ) did not recognize significantly more benefits than participants in the collapsed separated condition ( $M = 79.51\%$ ,  $SD = 21.14$ ).

3.15.2.1. *Simple effects.* The one-way information-placement ANOVA on the percentage of benefits recognized for the second level page conditions was significant,  $F$

(1, 22) = 12.61,  $p < .01$ . The participants in the separated-second level page condition ( $M = 83.33\%$ ,  $SD = 22.19$ ) recognized significantly more benefits than participants in the integrated-second level page condition ( $M = 48.61\%$ ,  $SD = 25.58$ ). However, the one-way information-placement ANOVA on the percentage of benefits recognized for the home page conditions was not significant. Participants in the integrated-home page condition ( $M = 84.03\%$ ,  $SD = 23.15$ ) did not recognize significantly more benefits than participants in the separated-home page condition ( $75.69\%$ ,  $SD = 20.24$ ).



**FIGURE 13. Web Site Level X Information-Placement on the Percentage of Benefits Recognized ( $N = 96$ ).**

**TABLE 26. Exploratory Analyses: Risk-Noticability Ratings MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Web site level: Home (Integrated-home, Separated-home) Second (Integrated-second, Separated-second)	
Information- Integrated (Integrated-home, Integrated-second)	
Placement: Separated (Separated-home, Separated-second)	
Web site level	yes
Ratings	yes
Integrated	yes
Ratings	yes
Web site level X Integrated	no
Web site level X Drug	no
Integrated X Drug	no
Web site level X Integrated X Drug	no

\* Significant MANOVA and ANOVA tables given in Appendix GG.

### 3.15.3. Exploratory analyses on the risk-noticability ratings

The following analysis were used to examine the web site level (home and second page) and information-placement (integrated versus separate) main effects and the web site level by information-placement interaction on the risk-noticability ratings. The 2 (web site level) by 2 (information-placement) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilks Lambda = 0.99,  $F(1, 664) < 1.0$ . The 2 (web site level) by 2 (information-placement) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 668) < 1.0$ . The 7 (web site level) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 668) = 3.47, p > .05$ . The 2 (information-placement) by 2 (drug) MANOVA on the risk-noticability ratings was not significant: Wilkes Lambda = .99,  $F(1, 668) < 1.0$ . However, the one-way web site level MANOVA on the risk-noticability ratings was significant: Wilks Lambda = 0.99  $F(1, 670) = 9.61, p < .01$ . Also, the one-way

information-placement MANOVA on the risk-noticability ratings was significant: Wilks Lambda = 0.98,  $F(1, 670) = 7.76$ ,  $p < .01$ .

The corresponding one-way web site level ANOVA was significant for the risk-noticability ratings,  $F(1, 670) = 9.61$ ,  $p < .01$ . The corresponding one-way information-placement ANOVA was also significant for the risk-noticability ratings,  $F(1, 670) = 7.76$ ,  $p < .01$ .

The collapsed home page condition (separated-home and integrated-home) ( $M = 5.89$ ,  $SD = 1.05$ ) was rated significantly higher on the risk-noticability scale than the collapsed second level page conditions (separated-second and integrated-second) ( $M = 5.65$ ,  $SD = 0.94$ ). Also, the collapsed separated web site conditions (separated-home and separated-second level page) ( $M = 5.88$ ,  $SD = 0.98$ ) was rated significantly higher on the risk-noticability scale than the collapsed integrated web site conditions (integrated-home and integrated-second level page) ( $M = 5.66$ ,  $SD = 1.02$ ).

3.16. *Familiarity and Experience Ratings***TABLE 27. Results from the Familiarity Ratings.**

Familiarity Scales	Magazine Ad Familiarity	Television Ad Familiarity	WWW Ad Familiarity
(1) Not at all	18	9	64
(2) Not very	57	40	83
(3) Moderately	71	71	18
(4) Very	19	38	2
(5) Extremely	3	10	1
Mean (SD)	2.60 (0.89)	3.00 (0.96)	1.77 (0.73)
* N = 168			
Familiarity Scale	Familiarity with Celebrex	Familiarity with Singulair	
(1) Not at all	106	114	
(2) Not very	37	33	
(3) Moderately	17	9	
(4) Very	6	7	
(5) Extremely	2	5	
Mean (SD)	1.58 (0.90)	1.55 (0.99)	
* N = 168			
Experience Rating Scale	Computer Experience	Surfing Experience	Online Shop Experience
(1) None	0	0	14
(2) Not very	1	2	42
(3) Moderately	59	50	63
(4) Very	81	73	31
(5) Extremely	27	43	18
Mean (SD)	3.79 (0.71)	3.93 (0.78)	2.98 (1.10)
* N = 168			
Experience Rating Scale	Time Spent Surfing		
(1) Never	0		
(2) Once per month	1		
(3) Once a week	10		
(4) Once a day	51		
(5) Few time per day	106		
Mean (SD)	4.56 (0.64)		
* N = 168			

**TABLE 28. Familiarity Ratings: Search and Find Task Scores MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Amount of time spent surfing	yes
Risk task success	yes
Risk time-on-task	yes
Risk number of clicks	no
Benefit task success	yes
Benefit time-on-task	yes
Benefit number of clicks	no
Web site version X Surfing time	no
Drug X Surfing time	no
Web site version X Drug X Surfing time	no
TV-extremes familiarity	no
Risk task success	yes
Risk time-on-task	no
Risk number of clicks	no
Benefit task success	no
Benefit time-on-task	no
Benefit number of clicks	no
Web site version X TV-extremes familiarity	no
Drug X TV-extremes familiarity	no
Web site version X Drug X TV-extremes familiarity	no
TV familiarity	no
Magazine familiarity	no
Magazine-extremes familiarity	no
WWW familiarity	no
Celebrex familiarity	no
Celebrex conditions only Celebrex familiarity	no
Singulair familiarity	no
Singulair conditions only Singulair familiarity	no
Computer experience	no
Web surfing experience	no
Online shopping experience	no
Online shopping experience extremes	no

\* Significant MANOVA and ANOVA tables given in Appendix HH.

### 3.16.1. Familiarity ratings on the search and find task scores.

3.16.1.1. *Amount of time spent surfing.* The following analyses included the factor of reported amount of time spent surfing on the search and find task scores with respect to

some of the other experimental factors. The 7 (web site version) by 2 (drug) by 3 (amount of time spent surfing) MANOVA on the search and find task scores was not significant: Wilks Lambda = 0.46,  $F(30, 198) = 1.43$ ,  $p > .05$ . The 7 (web site version) by 3 (amount of time spent surfing) MANOVA on the search and find task scores was not significant: Wilks Lambda = .49,  $F(42, 298) = 1.19$ ,  $p > .05$ . The 2 (drug) by 3 (amount of time spent surfing) MANOVA on the search and find task scores was not significant: Wilks Lambda = .90,  $F(12, 146) < 1.0$ . However, the one-way amount of time spent surfing MANOVA on the search and find task scores was significant: Wilks Lambda = 0.75,  $F(12, 152) = 1.96$ ,  $p < .05$ .

The following one-way web site version ANOVAs were significant: risk task success:  $F(2, 81) = 8.11$ ,  $p < .001$ ; amount of time to find the risks:  $F(2, 81) = 4.05$ ,  $p < .05$ ; benefit task success:  $F(2, 81) = 4.53$ ,  $p < .05$ ; and amount of time to find the benefits:  $F(2, 81) = 4.39$ ,  $p < .05$ .

Post hoc comparisons indicated that participants who reported surfing the web a few times per day ( $M = 0.87$ ,  $SD = 0.35$ ) and participants who reported surfing the web a few times per week ( $M = 0.85$ ,  $SD = 0.36$ ) successfully found the risks more often than participants who reported surfing the web only a few times a month ( $M = 0.20$ ,  $SD = 0.45$ ).

Participants who reported surfing the web a few times per day ( $\log_{10}$ :  $M = 3.56$ ,  $SD = 1.40$ ; seconds:  $M = 86.41$ ,  $SD = 110.44$ ) and participants who reported surfing the web a few times per week ( $\log_{10}$ :  $M = 3.32$ ,  $SD = 1.41$ ; seconds:  $M = 77.59$ ,  $SD = 125.01$ )

found the risks significantly faster than participants who reported surfing the web only a few times a month ( $\log_{10}$ :  $\underline{M} = 5.25$ ,  $\underline{SD} = 1.23$ , seconds:  $\underline{M} = 302.24$ ,  $\underline{SD} = 257.89$ ).

Participants who reported surfing the web a few times per day ( $\underline{M} = 0.83$ ,  $\underline{SD} = 0.38$ ) and participants who reported surfing the web a few times per week ( $\underline{M} = 0.93$ ,  $\underline{SD} = 0.27$ ) successfully found the benefits significantly more often than participants who reported surfing the web only a few times a month ( $\underline{M} = 0.40$ ,  $\underline{SD} = 0.55$ ).

Participants who reported surfing the web a few times per day ( $\log_{10}$ :  $\underline{M} = 3.28$ ,  $\underline{SD} = 1.39$ ; seconds:  $\underline{M} = 73.65$ ,  $\underline{SD} = 122.88$ ) and participants who reported surfing the web a few times per week ( $\log_{10}$ :  $\underline{M} = 3.04$ ,  $\underline{SD} = 1.27$ ; seconds:  $\underline{M} = 50.19$ ,  $\underline{SD} = 81.09$ ) found the benefits significantly faster than participants who reported surfing the web only a few times a month ( $\log_{10}$ :  $\underline{M} = 4.95$ ,  $\underline{SD} = 0.83$ ; seconds:  $\underline{M} = 174.34$ ,  $\underline{SD} = 97.79$ ).

3.16.1.2. *DTC TV ad familiarity extremes.* The following analyses included the factor of DTC prescription medication television ad familiarity extremes (described in section 3.4.6) on the search and find task scores with respect to some of the other experimental factors. The 7 (web site version) by 2 (drug) by 2 (television familiarity extremes) MANOVA on the search and find task scores was not significant: Wilks Lambda = 0.26,  $\underline{F}(24, 67) = 1.32$ ,  $\underline{p} > .05$ . The 7 (web site version) by 2 (television familiarity extremes) MANOVA on the search and find task scores was not significant: Wilks Lambda = .36,  $\underline{F}(36, 138) = 1.01$ ,  $\underline{p} > .05$ . The 2 (drug) by 2 (television familiarity extremes) MANOVA on the search and find task scores was not significant: Wilks Lambda = .77,  $\underline{F}(6, 41) = 2.01$ ,  $\underline{p} > .05$ . However, the one-way television familiarity extremes MANOVA

on the search and find task scores was significant: Wilks Lambda = 0.76,  $F(6, 43) = 2.32$ ,  $p < .05$ .

The following one-way web site version ANOVA was significant: risk task success:  $F(1, 48) = 6.19$ ,  $p < .05$ . Participants who reported being extremely or very familiar with DTC prescription medication TV ads ( $M = 0.92$ ,  $SD = 0.28$ ) successfully found the risks significantly more often than participants who reported being not very or not at all familiar with DTC drug TV ads ( $M = 0.64$ ,  $SD = 0.49$ ).

**TABLE 29. Familiarity Ratings: Browse Task Scores MANOVAs.**

MANOVA Models* ANOVA Models	Significant
Magazine familiarity	yes
Risks recalled	yes
Benefits recalled	yes
Risks recognized	yes
Benefits recognized	no
Web site version X Magazine familiarity	no
Drug X Magazine familiarity	no
Web site version X Drug X Magazine familiarity	no
Magazine-extremes familiarity	yes
Risks recalled	yes
Benefits recalled	yes
Risks recognized	yes
Benefits recognized	no
Web site version X Magazine-extremes familiarity	no
Drug X Magazine-extremes familiarity	no
Web site version X Drug X Magazine-extremes familiarity	no
Online shopping experience extremes	yes
Risks recalled	yes
Benefits recalled	no
Risks recognized	no
Benefits recognized	no
Web site version X Online shopping experience extremes	no
Drug X Online shopping experience extremes	no
Web site version X Drug X Online shopping experience extremes	no
WWW familiarity	no
TV familiarity	no
TV-extremes familiarity	no
Celebrex familiarity	no
Celebrex conditions only Celebrex familiarity	no
Singulair familiarity	no
Singulair conditions only Singulair familiarity	no
Computer experience	no
Web surfing experience	no
Online shopping experience	no

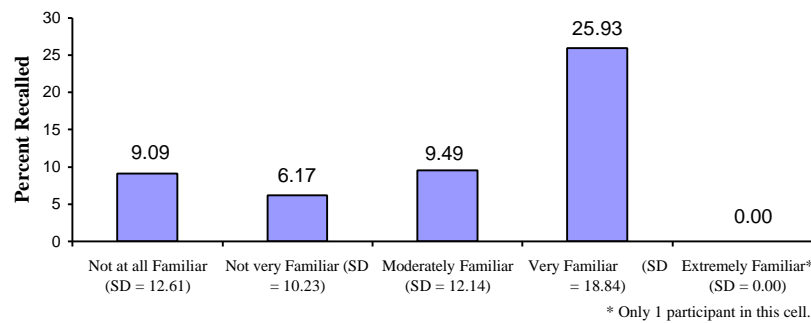
\* Significant MANOVA and ANOVA tables given in Appendix II.

### 3.16.2. *Familiarity ratings on the browse task scores.*

3.16.2.1. *Magazine familiarity.* The following analyses included the factor of DTC prescription medication magazines ad familiarity on the browse task scores with respect to some of the other experimental factors. The 7 (web site version) by 2 (drug) by 5 (magazine familiarity) MANOVA on the browse task scores was not significant: Wilks Lambda = 0.43,  $F(28, 142) = 1.30$ ,  $p > .05$ . The 7 (web site version) by 5 (magazine familiarity) MANOVA on the browse task scores was not significant: Wilks Lambda = .31,  $F(56, 220) = 1.36$ ,  $p > .05$ . The 2 (drug) by 5 (magazine familiarity) MANOVA on the browse task scores was not significant: Wilks Lambda = .90,  $F(12, 191) < 1.0$ . However, the one-way magazine familiarity MANOVA on the browse task scores was significant: Wilks Lambda = 0.62,  $F(16, 233) = 2.43$ ,  $p < .01$ .

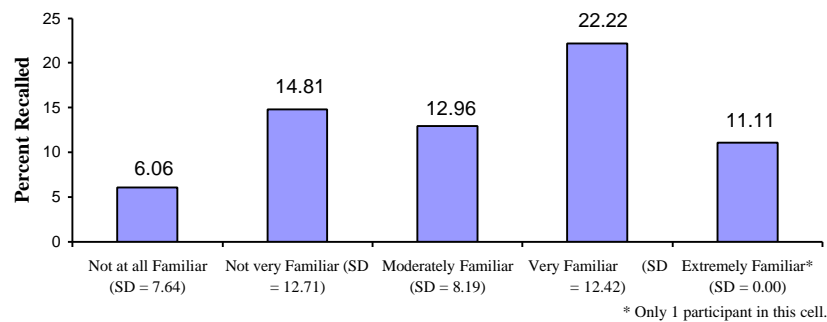
The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(4, 79) = 4.49$ ,  $p < .01$ ,  $p < .05$ ; percentage of risks recognized:  $F(4, 79) = 3.20$ ,  $p < .05$ ; and percentage of benefits recalled:  $F(4, 79) = 3.20$ .

Fisher's LSD post hoc comparisons indicated that participants who reported being very familiar with DTC drug magazine ads recalled significantly more risks than participants who reported being moderately familiar, not very familiar, and not at all familiar with DTC drug magazines ads. Participants who reported being extremely familiar with DTC drug magazine ads risk recall scores were not significantly different than the other participant groups.



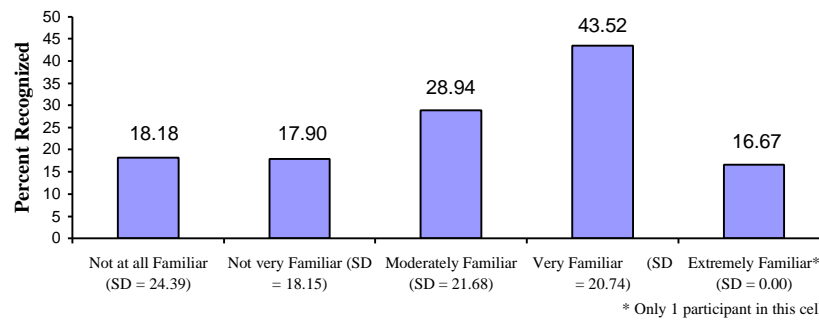
**Figure 14. Magazine Familiarity: Percentage of Risks Recalled (N = 168).** Standard deviations are shown in parenthesis under the condition labels.

Participants who reported being very familiar with DTC drug magazine ads recalled significantly more benefits than participants who reported being not at all familiar with DTC drug magazine ads. Participants who reported being extremely familiar, moderately familiar, and not very familiar with DTC drug magazine ads did not recall significantly more benefits than the other participants.



**Figure 15. Magazine Familiarity: Percentage of Benefits Recalled (N = 168).** Standard deviations are shown in parenthesis under the condition labels.

Participants who reported being very familiar with DTC drug magazine ads recognized significantly more risks than participants who reported not being very familiar with DTC drug magazine ads. Participants who reported being extremely familiar, moderately familiar, and not at all familiar with DTC drug magazine ads did not recognize significantly more risks than the other participants.



**Figure 16. Magazine Familiarity: Percentage of Risks Recognized ( $N = 168$ ).** Standard deviations are shown in parenthesis under the condition labels.

3.16.2.2. *Magazine familiarity extremes.* The following analyses included the factor of DTC prescription medication magazine ad familiarity extremes (described in section 3.4.6) on the browse task scores with respect to some of the other experimental factors. The 7 (web site version) by 2 (drug) by 2 (magazine familiarity) MANOVA on the browse task scores was not run due to empty cells. The 7 (web site version) by 2 (magazine familiarity) MANOVA on the browse task scores was not significant: Wilks Lambda = .51,  $F(16, 101) = 1.53$ ,  $p > .05$ . The 2 (drug) by 2 (magazine familiarity) MANOVA on the browse task scores was not significant: Wilks Lambda = .97,  $F(4, 41)$

< 1.0. However, the one-way magazine familiarity MANOVA on the browse task scores was significant: Wilks Lambda = 0.77,  $F(4, 43) = 3.26$ ,  $p < .05$ .

The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(1, 46) = 12.39$ ,  $p < .01$ ; percentage of risks recognized:  $F(1, 46) = 10.22$ ,  $p < .01$ ; and percentage of benefits recalled:  $F(1, 46) = 4.22$ ,  $p < .05$ .

Participants who reported being very familiar with DTC drug magazine ads recalled ( $M = 23.33\%$ ,  $SD = 19.56$ ) and recognized ( $M = 40.83\%$ ,  $SD = 21.32$ ) significantly more risks than participants who reported not being very familiar with DTC drug magazines ads ( $M = 7.02\%$ ,  $SD = 10.88$  and  $M = 17.98\%$ ,  $SD = 19.81$ , respectively). Participants who reported being very familiar with DTC drug magazine ads ( $M = 21.11\%$ ,  $SD = 12.23$ ) recalled significantly more benefits than participants who reported not being very familiar with DTC drug magazine ads ( $M = 12.28\%$ ,  $SD = 12.06$ ).

3.16.2.3. *Online shopping familiarity extremes.* The following analyses included the factor of online shopping familiarity extremes (described in section 3.4.6) on the browse task scores with respect to some of the other experimental factors. The 7 (web site version) by 2 (drug) by 2 (online shopping experience) MANOVA on the browse task scores was not significant: Wilks Lambda = 0.88,  $F(8, 52) < 1.0$ . The 7 (web site version) by 2 (online shopping experience) MANOVA on the browse task scores was not significant: Wilkes Lambda = .58,  $F(24, 126) < 1.0$ . The 2 (drug) by 2 (online shopping experience) MANOVA on the browse task scores was not significant: Wilks Lambda =

.95,  $F(4, 46) < 1.0$ . However, the one-way online shopping experience MANOVA on the browse task scores was significant: Wilks Lambda = 0.81,  $F(4, 48) = 2.77$ ,  $p < .05$ .

The following one-way web site version ANOVAs were significant: percentage of risks recalled:  $F(1, 51) = 4.23$ ,  $p < .05$ . Participants who reported being very experienced with online shopping ( $M = 15.06\%$ ,  $SD = 16.50$ ) recalled significantly more risks than participants who reported not being very experienced with online shopping ( $M = 7.41\%$ ,  $SD = 9.90$ ).

**TABLE 30. Familiarity Ratings: Risk-Noticability Ratings MANOVAs.**

MANOVA Models ANOVA Models	Significant
Magazine familiarity	yes
Magazine-extremes familiarity	yes
WWW familiarity	no
TV familiarity	no
TV-extremes familiarity	no
Celebrex familiarity	no
Celebrex conditions only Celebrex familiarity	no
Singulair familiarity	no
Singulair conditions only Singulair familiarity	no
Computer experience	no
Web surfing experience	no
Online shopping experience	no
Online shopping-extremes experience	no

### 3.16.3. Familiarity ratings on the noticability of risks ratings.

None of the one-way MANOVA analyses using the familiarity ratings were significant with respect to the risk-noticability ratings.

## 4. Discussion

This section is organized such that a general discussion of the demographic data is given first, followed by discussion of the results that were found in the other analyses. Results will be discussed with particular emphasis on the original hypotheses and past research.

### 4.1. *Demographic Data*

The demographic data indicated that participants were relatively unfamiliar with the two drugs used in the study, and with DTC prescription medication web site advertisements. However, the participants were relatively experienced with using computers and even more experienced with surfing the web. Further analyses of the demographic data suggest that the main experimental findings obtained in the study were not related to prior experience with either of the two drugs or web surfing experience.

### 4.2. *Control Condition Comparisons*

The first set of results indicated that risk and benefit information was found more often in the experimental web site conditions and were found faster and with less clicks in the experimental web site conditions, except the separated 4th level page, compared to the control condition during the search and find task. Participants also rated the experimental web sites higher on the risk-noticability ratings compared to the control condition web sites. These results were expected and suggest that consumers find risk and benefit information when they are presented on a DTC prescription medication web site. By

placing risk information on DTC prescription medication web sites, manufacturers can potentially educate the consumer about potential risks and side effects.

However, the results also reflect the difficulty people have in finding risk information when it is placed lower in the web site hierarchy. Time and number of clicks to find the risks in the 4th level page condition did not differ from the control condition, which suggests that placing the risks three clicks away from the home page is equivalent to placing no risk information on the web site.

The results were not as straightforward for the browse task measures. Risk recall and recognition was higher only for the experimental web site conditions that placed the risk information on a separate second level page compared to the control condition. It was expected that risk and benefit recall and recognition would have been greater for all of the experimental conditions, but perhaps less so for the condition which placed the drug risk information on a fourth level page, compared to the control condition. This finding does, however, support the notion that the manner in which manufacturers present risk and benefit information on their web sites can affect the likelihood that important risk and benefit information is noticed, read, and remembered.

#### *4.3. Differences between Experimental Conditions*

Experiment 1 Hypothesis 1 predicted that there would be a difference in the dependent measures across the experimental web site conditions. The hypothesis was supported by data analyses that showed differences among the experimental web site conditions for the dependent measures of the search and find task, the browse task, and the noticability of

the risks ratings. These results indicate that the methodology and measures that were used in the study were sensitive enough to discern the differences between the web site conditions. Furthermore, the results suggest that information placement can affect the likelihood that risk and benefit information is noticed, read, and remembered.

#### 4.4. *Home vs. Second Level for the Search and Find Task*

Experiment 1 Hypothesis 2 predicted that risk and benefit information presented on the home page would be found more often, faster, and in less clicks than risk and benefit information placed on a second level page. The data did not support this hypothesis. In fact, the results indicated the opposite: the risk information was found faster, and in less clicks, when it was placed on a second level page compared to when it was placed on the home page. This finding is consistent with those obtained in Experiment 1 Hypothesis 1 which showed that risk information presented on a separate second level page was found faster than it was when integrated with benefit information on the home page.

One reason for the unexpected results may be the placement of the risk information on the home page compared to the placement of the link to the risk information in the navigation bar. When the risk information was placed on a second level page, a "risks" link was visible on the home page in the left navigation bar, either as the second or the third item. However, when the risk information was presented on the home page, it was placed below the benefit information and located below the left navigation links. Web usability research has shown that information located further down on a web page is less likely to be seen than information located at the top of a web

page (Lynch & Horton, 1999; Neilson, 1999; Ruffini, 2001; Spool, 1999). This, combined with the visibility of the home page link, probably led to the significant difference in the ease of finding the risk information on the home page vs. a second level page.

With respect to searching for and finding the benefits, no significant difference were found for Experiment 1 Hypothesis 2. However, the results from Experiment 1 Hypothesis 1 indicated that risk information placement had an effect on the ease of finding the benefit information. For instance, benefits were more easily found when they were presented on the home page with the risks and when both the benefits and the risks were presented on two different second level pages, compared to when the risks were presented on a fourth level page with the benefits presented on the home page. These findings may be attributed to the ordering of the individual search and find tasks. If participants were given the risk search task before the benefit search task, and the risks were located on a fourth level page, they may have assumed that the benefits were presented on a lower level page; consequently the participants might not have immediately searched for the benefit information on the home page. These results suggest that risk information placement and search order can affect ease of finding the benefit information on a DTC drug ad web site.

#### *4.5. Home vs. Second Level for the Browse Task*

Experiment 1 Hypothesis 3 predicted that risk and benefit information presented on the home page would be recalled and recognized more often than risk and benefit

information placed on a second level page. The data did not completely support the hypothesis but did indicate the opposite, more risk information was remembered when it was placed on a second level page compared to when it was placed on the home page. These results were consistent with the results obtained from Experiment 1 Hypothesis 1 and 2.

However, the analyses did indicate that more benefit information was remembered when it was presented on the home page than when it was presented on a second level page. This expected result is consistent with the results from Experiment 1 Hypothesis 1, and it may be associated with the placement of the benefit information on the home page. When the benefits were placed on the home page, they were located higher on the page than the risk information and, therefore, should have been more noticeable than the risk information that was lower on the page (Lynch & Horton, 1999; Neilson, 1999; Ruffini, 2001; Spool, 1999).

The results from Experiment 1 Hypothesis 3 suggest that benefit information is more likely to be seen and remembered if it is presented on the drug's home page, whereas the risk information is more likely to be seen and remembered if is placed separately on a second level page. As was the case with the results from Experiment 1 Hypothesis 2, the risks recall and recognition results may be due to the position of the risk information on the drug's home page. If the risk information was placed higher on the home page, different results may have been found.

#### 4.6. *Home vs. Second Level for the Risk-Noticability Ratings*

Experiment 1 Hypothesis 4 predicted that risk and benefit information presented on the home page would be rated as more noticeable than risk and benefit information placed on a second level page. This hypothesis was supported and suggested that participants believed that risk information is more noticeable on the home page than on a second level page.

For comparisons involving the integrated web site conditions, a drug by web site version interaction was found. The interaction indicated that the risks on the Celebrex web sites were rated more noticeable when they were presented on the home page rather than a second level page with a link in the navigation bar. However, no differences were found for the Singulair web sites. The interaction was found only in the comparisons using the integrated web site conditions and may be the result of a ceiling effect. Participants tended to give relatively high risk noticability ratings to all of the experimental web site conditions, except the control and fourth level conditions. Also, the same pattern of results was found between the two drugs; however, the differences in ratings were slightly larger for the Celebrex web sites compared to the Singulair web sites.

The presence of a graphic on the Singulair home page may have also contributed to the interaction. On the Celebrex home pages, the risk information had to compete with the other text on the home page to be noticed. However, on the Singulair home pages the risks had to compete with the other text and a graphic that was positioned in the top center of the page. The original Singulair home page contained a graphic so it was

included on the Singulair experimental home pages. The original Celebrex home page did not contain a graphic.

The results from this hypothesis are consistent with those found in Experiment 1 Hypothesis 1 which found that risk information was rated more noticeable when it was presented on the home page or on a separate second level page. However, the risk noticability ratings did not support performance data that failed to show an advantage to placing the risk information on the home page.

One way to interpret the current results is to assume that the participants are correct in their belief that the risks are more noticeable on the home page. This assumption fits previous web usability research that suggests important information should be placed on the most common entrance pages for a web site (i.e., the home page) (Lynch & Horton, 1999; Neilson, 1995; Spool et al., 1999). Also supporting data has shown that the farther down a web site's hierarchy that information is placed, the less likely people are to find the information (Albrecht, 2000; Lynch & Horton, 1999).

The discrepancy in the findings between the performance tasks and the subjective ratings may be related to the amount of attention the risk information was given during the tasks. During the browse task and, to a lesser extent, the search and find task, participants' attention was not specifically directed toward the risk information. However, during the ratings task, participants were specifically instructed about the placement of the risk information on each of the web sites; this may have focused the participants' attention on the risk information. For this reason, participants may have based their ratings on previous experiences with surfing the web and their preferred

placement of important information on web sites, which in most cases is the home page (Lynch and Horton, 1999), rather than on the noticability of the risks.

Thus, the performance and subjective data do not exactly conform. This is not an uncommon finding in warnings and web usability research. While participants may prefer a particular condition or design, their performance may be better with another condition or design. When attempting to balance the design of a web site between maximizing performance and meeting the end users' preference, the designer needs to balance the importance of the design options with their end users' satisfaction. If the end users value performance, a web site should be designed to provide the best performance at the cost of preference. However, if a particular feature of a web site is more important than overall performance to the end user, a web site should be designed to highlight that feature at the cost of performance to a degree. Furthermore, design decisions may be decided without regard to end-user preference because the web site owner or a regulatory agency may have specific requirements for the web site.

#### *4.7. Integrated vs. Separated for the Search and Find Task*

Experiment 1 Hypothesis 5 predicted that the risks and benefits would be found faster and easier during the search and find task when they were presented in separate sections. No significant differences were obtained in these analyses; therefore, the hypothesis was not supported.

However, the data from Experiment 1 Hypothesis 1 did produce two patterns that supported Hypothesis 5. The data indicated that participants were able to find the risks

faster when they were presented on a separate second level page compared to when they were integrated with the benefits on the drug's home page. Also, the benefits were found significantly faster when the risks and benefits were placed on separate second level pages compared to when they were integrated on the same second level page.

The importance of these two findings are highlighted when one considers the first step in Wogalter's human information processing model of warning effectiveness: attention to a warning (Wogalter, 1994). If risk or warning information is not noticed or difficult to find in the first place, the information will not have a chance to move through the subsequent stages of processing (comprehension, beliefs/attitudes, and motivation) resulting in a failure to change behavior (Wogalter, 1994).

To ensure that a warning is noticed, Wogalter and Leonard (1999) suggest that warning information should be placed (temporally and spatially) as close to a hazard as possible in a separate and distinct location where they can easily be found when the information is needed. This can entail the use of highlighting while separating the warning information from irrelevant information (Wogalter & Barlow, 1993; Wogalter et al., 1993; Karnes & Leonard, 1986), although the risk information should not be too distant from the other product information (Magurno and Wogalter, 1994; Wogalter, et al., 1993). Taking into consideration the findings from past research, the current results suggest that risk information should be separated from other material (including benefit information) on a drug's DTC advertisement web site and that highlighting can be used to draw readers' attention to the separated risk information.

#### 4.8. *Integrated vs. Separated for the Browse Task*

Experiment 1 Hypothesis 6 predicted that participants would recall and recognize more risks and benefits when the information is integrated. The results were contrary to the hypothesis, and indicate that, with respect to second level pages, more benefits were remembered when the benefits and risks were presented in separate sections compared to when they were integrated in the same paragraph. However, these results are consistent with the results obtained from Experiment 1 Hypothesis 1 and suggest that risk and benefit information be presented in separate sections, rather than integrated into the same section.

The results are also contrary to the predictions of some information processing theories. For example, Wickens (1992) information processing theory would predict that integrating risk and benefit information would produce a better knowledge structure because the information would be organized as a coherent whole and that this structure would have enabled cued access to the risk information from the benefit information and vice versa. Similarly, the proximity compatibility principle would have suggested that similar information grouped together in memory would reduce retrieval difficulties (Wickens & Carswell, 1995) and would facilitate risk recall when attempting to recall the benefit information and vice versa.

However, the current results are consistent with other research that indicate that separating warning information from other product information reduces the problems associated with top-down processing, such as over looking the information (Karnes & Leonard, 1986; Strawbridge, 1986), by allowing risk information to stand-alone and the

use of highlighting to increase the saliency of the information. The current findings are also consistent with past research using DTC prescription medication magazines ads that demonstrated greater risk information acquisition when the risks were separated and highlighted from the other ad information (Wogalter et al., 1999).

#### 4.9. *Integrated vs. Separated for the Risk-Noticability Ratings*

Experiment 1 Hypothesis 7 predicted that separate risk and benefit information would be rated as more noticeable than integrated risk and benefit information. The data supported this hypothesis. Participants rated the risks as more noticeable when they were separated from the benefits compared to when they were integrated in the same section. This result is consistent with those found in Experiment 1 Hypothesis 1, which showed higher risk-noticability ratings when the risks and benefits were presented in separated second level pages. These results are also consistent with previous research that shows that risk information is rated as more noticeable when it is separated from other information and highlighted (Karnes & Leonard, 1986; Strawbridge, 1986; Wogalter and Leonard, 1999; Wogalter et al, 1999).

In a literature review on the factors that influence the attention, attraction, and maintenance of warnings, Wogalter and Leonard (1999) suggest that in order to attract attention to a warning while a person is processing other stimuli (e.g., operating instructions or benefit information), the warnings must be adequately conspicuous compared to their background. Features used to increase the saliency of warnings have included: separating the warning or risk information from other label or product

information, using pictorials and larger font size, bold print, adding borders, and altering the color, etc. (e.g., Wogalter et al., 1999; Barlow & Wogalter, 1993; Young & Wogalter, 1990). Furthermore, past research has consistently shown that increasing the saliency of warnings can benefit safety information search, retrieval, and ultimately knowledge acquisition (Barlow & Wogalter, 1993; Young & Wogalter, 1990). Together, these recommendations and the current findings suggest that risk information should not only be separated from other material (including benefit information) on DTC web sites but manufacturers should employ other types of highlighting to increase the likelihood that they are noticed, read, and recalled.

Another facet of information presentation that has been found to affect the likelihood and the amount of risk information that people will read is the presentation ordering of the individual risks or warnings within a list of safety information. Using the safety information section from a power tool manual, Vigilante (1998) was able to demonstrate that the ordering of the individual warnings affected the amount of information that was read and remembered. The results from that study suggested that when a list of warnings needs to be presented, it should be ordered with the least obvious information first (Vigilante, 1998). Otherwise if well-known or obvious information is given before the less obvious, a reader may assume that the remainder of the warnings are also obvious or consist of already known information. If so, they may stop reading the information, thereby missing important and unknown warning information located later in the list. With respect to the current topic, the research by Vigilante (1998) suggests that manufacturers should analyze the content of the risk information on DTC

prescription medication web site ads and order the information to maximize the likelihood that consumers will read through most or all of the warnings.

#### 4.10. *Home vs. Second vs. Fourth Level for the Search and Find Task*

Experiment 2 Hypothesis 1 predicted that risk information presented on the home page would be found more often, faster, and in less clicks than risk information placed on a second level page and on a fourth level page of the web site. The results partially support the hypothesis, and they are consistent with the findings from Experiment 1 Hypothesis 1 and 3. The risks were found faster when they were presented on a separate second level page compared to when they were presented separately on the home page and when they were presented on a fourth level page. Also, when presented on a separated second level page, the risks were found in fewer clicks compared to when they were presented on a fourth level page. The results also indicated that risk information placement affected the ease of finding the benefit information. The benefit information was found faster and in less clicks when the risks were presented separately on the home page or a second level page compared to placement on a fourth level page.

As explained in earlier sections, the risk information findings from the current results can be explained by the placement of the relative position of risk information on the home page and the prominence of the link to the risk information in the navigation bar. However, what should be noted from the current results is the significant increase in task time and number of clicks to find the risk information when it is placed on a fourth level page, without a link on the home page. Participants required, on average, six times

as long with four times as many clicks to find the risks when they were presented on a fourth level page instead of a separate second level page. Also, when the risks were presented on a fourth level page, the participants required, on average, five times longer and four times as many clicks to find the benefits than when they were presented on a separate second level page.

These results highlight the difficulty of finding information that is farther down the hierarchical structure of a web site. In support of Experiment 1 Hypothesis 1 and 2, these findings also suggest that risk information placement can affect the ease of finding the benefit information on a DTC drug ad web site.

#### 4.11. *Home vs. Second vs. Fourth Level for the Browse Task*

Experiment 2 Hypothesis 2 predicted that risk information presented on the home page would be recalled and recognized more often than risk information placed on a second level page and on a fourth level page of the web site. The results from the current analyses partially support this hypothesis, and are consistent with the findings from Experiment 1 Hypotheses 1 and 4. The results indicated that eight times as much risk information was recalled, and three times as much risk information was recognized, when the risks were presented on a separated second level page compared to when they were presented on a fourth level page. No benefit effects were found. Similar to the previous discussion, these results highlight the difficulty in finding information farther down the hierarchical structure of a web site.

#### 4.12. *Home vs. Second vs. Fourth Level for the Risk Noticability Ratings*

Experiment 2 Hypotheses 3 predicted that risk information presented on the home page would be rated as more noticeable than risk information placed on a second level page and on a fourth level page. The results from the current analyses support the hypothesis, and are consistent with the findings from Experiment 1 Hypothesis 1 and 5. As discussed in section 4.6, participants judged the risk information to be more noticeable when it was placed in higher levels of the web site hierarchy.

#### 4.13. *Exploratory Analysis on the Browse Task Scores*

The exploratory analysis on the browse task score examined the collapsed web site level (home versus second level) by information placement (integrated versus separated) interaction. The results are consistent with those found in Experiment 1 Hypothesis 3, and indicate, that presenting risks and benefits on the home page facilitated recognition of more benefit information compared to when the risks and benefits were presented on a second level page.

A significant web site level by information placement interaction was also found and indicated that more benefits were recognized when they were presented on a separate second level page compared to when they were integrated with the risks on a second level page. The interaction results are consistent with the results from Experiment 1 Hypothesis 6 and indicate that benefit information is more likely to be found and read if they are presented in a separate section either on the home page or on a separate second level page compared to when they are integrated with the risk information.

#### 4.14. *Exploratory Analysis on the Risk Noticability Ratings*

The exploratory analysis on the risk noticability ratings examined the collapsed web site level (home versus second level) by information placement (integrated versus separated) interaction. The exploratory analysis did not show a significant interaction; however, it did produce two significant main effects. These effects indicated that the risks were rated as more noticeable (a) when presented on the home page rather than a second level page, and (b) when presented separately rather than integrated. These two results confirm the results found for Experiment 1 Hypothesis 1, 4, and 7 and Experiment 2 Hypothesis 3.

#### 4.15. *Information Balance*

The next part of the discussion concerns the balance of risk and benefit information in DTC advertisements required by U.S. Federal regulations. The data indicated that even though the sites outlined more risks than benefits, participants tended to remember a comparable amount of both risk and benefit information.

Furthermore, if the web site provided neither the risks nor the benefits, participants tended to remember more benefit information than risk information. This suggests that the participants successfully guessed or determined the benefits based on the other information presented in the web site advertisement. This is not surprising, considering that most advertisements present their drugs in a context that demonstrates the symptoms the drug is supposed to alleviate. In contrast, only a small portion of the advertisement is aimed at providing the drug's risks, which may not have an apparent

relationship with the purpose of the drug (e.g., Celebrex relieves symptoms of osteoarthritis but may cause liver disease).

Also, the data indicated that, if the risks were more difficult to find than the benefits, more benefit information tended to be remembered than risk information (e.g., the home page conditions and separated-fourth level page condition). However, if the risks were easier, or as easy, to find as the benefits, more risk information tended to be remembered than benefit information (e.g., the integrated and separated second level page conditions). The current data suggest that an equal balance of drug risk and benefit information is not completely determined by the total amount of information given, but it may be affected by other factors, such as the ease of finding the information.

#### 4.16. *Drug and Task Type Interactions*

The generalizability of the results across two different drugs was examined in the current study. An arthritis medication and an asthma medication were used in the study and their results were compared to determine if the effects of information placement was the same across the dependent measures. The results from the search and find task and the risk-noticeability ratings were indeed comparable between the two drugs, supporting confidence that the current results can generalize to other medications.

However, comparison of the recall and recognition scores between the two drugs indicated that the benefits were easier to remember for the Celebrex medication compared to the Singulair medication. This finding suggests that consumers may have more difficulty remembering specific risks and benefits for some medications compared

to others. The results also suggest that consumers' memory of important risk and benefit information should be facilitated by using simple words to describe the drug's risks and benefits, highlighting the information (Barlow & Wogalter, 1993; Young & Wogalter, 1990; Wogalter et al., 1999), and presenting the risk and benefit information in a list format (Frase & Schwartz, 1979) on the drug's web site. Web site usability research has also found that consumers prefer product information to be presented in a list format on web pages rather than lengthy sentences (Tilson, Dong, Martin, & Kieke, 1998).

Participants' information processing objective (IPO) or task type was also examined in the current study to determine how it was affected by information placement. Participants' task goal was either directed at finding specific information (search and find task) or freely browsing with no specific information acquisition goal in mind (browse task). The results were comparable between the two IPOs (task types) and suggest that DTC prescription medication advertisement web sites can be designed to increase the likelihood that important drug risk information is noticed, read, and remembered by persons specifically searching for the risk information and by persons visiting the web site, who are not specifically looking for the risks.

However, task type did influence participants' ratings of the noticability of the risk information. Participants in the search and find task tended to assign slightly higher ratings than participants in the browse task, although the rating pattern was the same across task type. A good reason for this finding is not clear from the experimental method used.

#### 4.17. *Familiarity Analyses*

Participant's familiarity with DTC drugs ads, the drugs used in the study, and their web surfing and computer experience were also examined in the current study. The results suggest that familiarity with other forms of DTC drug advertisement media can have an affect on a person's ability to find and remember risk and benefit information in DTC drug advertisements on the WWW. This data trend suggests that, as people become more familiar with DTC drug advertisement campaigns, they may learn what information is important and how to go about finding that information.

Related to the topic of DTC drug ad familiarity is the consistent placement of important drug related information across DTC prescription medication web sites. Past research has demonstrated that a consistent mapping of information leads to automatic, less effortful human information processing (Schneider and Shiffrin, 1977). A consistent mapping of information can also produce faster search times than varied-mapping of information, which involves more effortful serial processing (Schneider and Shiffrin, 1977).

This line of research suggests that consistently placing important drug information across all DTC prescription medication web sites could facilitate a consumer's ability to find that information. As consumers become more experienced with DTC drug advertisement web sites and if important information is consistently placed across all drug web sites, they may learn where important drug information is located and will be able to find that information easier and faster. Consistency in the placement of drug information has also been argued for OTC medication labeling (e.g., Vigilante and

Wogalter, 1997) and has resulted in the FDA including provisions for the consistent placement and layout of important drug information in the US Federal Regulation for OTC medication labeling (FDA, 1999b).

Finally, the results from the familiarity ratings indicated that web surfing and online shopping experience was related to a consumer's ability to find risk and benefit information in DTC drug advertisements on the WWW. This conclusion suggests that manufacturers should design their web sites in a manner that facilitates locating important information (risks and benefits) by the least experienced users of the web site. If a web site is designed to facilitate finding important information by novice users, the same information should also be more accessible to more advanced users, as well.

#### 4.18. *Limitations*

There are several limitations to the current study that should be considered. First, because of financial and time constraints, only undergraduate students were represented in the experiments. Previous research with the use of prescription medications has shown congruent general patterns of results among undergraduates and other populations, such as adults from the community and senior citizens (Vigilante and Wogalter, 1997, 1999). However, future research should be conducted with other groups from the general population, such as senior citizens and potential end-users.

A related limitation concerns the concepts of familiarity and relevance. Over 90% of the participants were relatively unfamiliar with the two drugs. An even smaller number reported having a medical condition that would warrant the use of either of the

two drugs. Also, the participants tended to be relatively experienced with using computers and web surfing. Thus, the sample consisted mainly of people outside the target consumer groups for the two drugs, and relatively experienced with web surfing. Future research in the area of information presentation on the DTC prescription medication web site should attempt to sample participants who experience a medical condition or care for a person with a medical condition that is relevant to the drug advertised in the web site of interest. Future research should also attempt to use participants with a wider range of computer and web surfing experience. Furthermore, manufacturers should recruit people from their target consumer base with differing web surfing experience levels to participate in usability testing involving their DTC prescription medication advertisement web site.

A third limitation of the current study involves the placement of risk information on the web sites. When the risks were placed on the drug's home page, they were placed after the drug's benefits in the bottom half of the web page. Although the participants were not required to scroll to see the full list of risks, they had to search through the majority of the information on the home page, including the drug's benefits, before seeing the risk information. This placement strategy was used to better represent the manner in which drug risk information is usually presented on current DTC prescription medication web sites; it is typically placed after the benefit information (Hicks et al., 2001). Future research should further manipulate the location of the risk information on the home page. Risk information placed at the top of the home page, as suggested in the

recommendations, should be compared with risks placed in the middle of the page, at the bottom of the page, and before and after the benefit information.

A fourth limitation of the current study involves the web site designs used in the study. Both of the web sites used in the current study utilized a left hand navigation scheme. Future research should examine the effects of information placement on web sites that use other navigation schemes, such as: right-hand, top, center, and none. Depending on the navigation scheme used, the advantage of placing the risks on the home page may be greater than it was in the current study.

Future research in the area of risk presentation on DTC prescription medication web sites should also examine other features to increase the saliency of the risk information, including the use of: highlighting, colored borders, larger fonts, and a signal icon. Past warnings research has shown these features are capable of increasing the saliency of risk information on consumer products, warnings, and DTC prescription medication print advertisements (Wogalter et al., 1999; Wogalter & Leonard, 1999; Young & Wogalter, 1990; Friedman, 1988).

## 5. Conclusions

The results of the current study reflect the varying effects of information placement and task type on consumers' ability to find and remember risk and benefit information on DTC prescription medication web sites.

Findings from the current study highlight the problems people have finding risk information at lower levels of a web site hierarchy. If risk information is placed three or

more clicks from the home page many people may not be able to see or find the risk information. The results also indicate that the placement of the risk information can affect the likelihood that the benefit information is noticed, read, and remembered. These results suggest that information placement guidelines should be developed to facilitate the finding of important risk and benefit information.

The current results suggest that drug risk information should be placed on a separate second level page with a prominent link at the top of the navigation bar while the benefits should be presented on the home page. However, this finding might have been influenced to some unknown degree by the placement of the risk information on the home page. The risks were placed lower on the home page than the benefits and other drug information. Had the risk information been presented higher on the home page, and before the other drug information, it may have been easier to notice and find.

The importance of the current findings are highlighted by a recently conducted study that found that drug risk information tends to be less accessible on DTC prescription medication web sites than benefit information (Hicks et al., 2001). Using actual DTC drug ad web sites, Hicks et al. (2001) found that users are more often required to scroll down a web page to find risk information than they are to find benefit information, regardless of which level within the hierarchy contains the information. Web site usability research has also repeatedly demonstrated that, when information is not easily and quickly found, users become frustrated and leave a web site without the information (Lynch & Horton, 1999; Neilson, 1995, 1999; Tiller & Green, 1999).

Together, the findings from previous web usability research, the results of Hicks et al. (2001), and the data from the present study, suggest that DTC web sites should place benefit information on the home page and place risk information in the top half of the home page separated from other web site information or provide a prominent link to the risk information at the top of the home page. If a link to the risk information is used, it should be placed in an area of the web page that consumers tend to notice: the top of the left navigation bar or the top center of the page (Albrecht, 2001; Lim & Wogalter, 2000; Lynch & Horton, 1999; Neilson, 1999; Spool, 1999; Ruffini, 2001).

Lastly, a few comments concerning the U.S. Federal regulations that require an unbiased, balanced presentation of prescription medication information in DTC advertisements (FDA, 1999a). This regulation tells manufacturers who advertise prescription drugs that they must provide the consumer with a comparable amount of risk and benefit information within the advertisement, and that the risk information must include all the major risks associated with a drug. This rule is intended to aid consumers in making an informed decision with regard to drug use (FDA, 1999a).

However, the regulations do not account for the effects of information placement and accessibility on the balance of the information presented. Presenting the same number of risks as benefits on a DTC prescription medication web site advertisement (or any DTC drug advertisement) does not guarantee that the end-users will notice, retain, or base their decision upon a balanced amount of risk and benefit information.

The data from the present study suggests that the amount of remembered risk information relative to remembered benefit information (balance of information) was

related to the ease of finding the risk information. Both measures were affected by the placement of risk information on a web page and within the web site hierarchy. The current results suggest that DTC prescription medication web site guidelines should be designed to facilitate access to important risk and benefit information rather than simply requiring the manufacturer to present the same number of risks and benefits without regard to where and how the information is presented on the web site.

Table 31 provides a set of recommendations, based on the current research; previous web site usability research (Lynch & Horton, 1999; Neilson, 1995; Spool et al., 1999); and warnings research (Barlow & Wogalter, 1993; Frase & Schwartz, 1979; Tilson, et al., 1998; Vigilante & Wogalter, 1997; Young & Wogalter, 1990; Wogalter et al., 1999), that should be considered during the design of DTC prescription medication web sites, as well as web sites for other kinds of consumer products that contain risks.

**TABLE 31. Guidelines for the development of DTC Prescription Medication Web Sites.**

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1. Risk (warning) and benefit (use) information should be presented in separate sections, as opposed to integrated in one section.
  2. Risk (warning) and benefit (use) information should be accessible from the home page.
    - If important risk and benefit information is placed on the drug's home page it should be placed in the top half of the home page and accessible without scrolling.
    - If there is no room on the drug's home page or the lists of risks or benefits does not fit on the home page, the risk and benefit information should be placed on a second level page and linked from the home page.
    - The link to the risk and benefit information should be prominently placed in the top half of the drug's home page, preferably as one of the first items in the navigation bar, or placed prominently in the top-center area of the home page.
    - The links should be explicitly and prominently labeled "Risk and Side Effects" and "Benefits."
  3. Present important (e.g., risks and benefits) drug information in consistent locations on DTC prescription medication web sites.
  4. DTC prescription medication web sites should be designed to facilitate finding of important information (risks and benefits) by the least experienced users of the web site.
  5. Important drug information should be highlighted on the home page.
    - Risk information can be highlighted using pictorials, signal icons, larger font size, bold print, adding borders, or altering the color.
  6. Risk and benefit information should be presented in a list format rather than a paragraph format.
  7. The simplest text possible should be used to describe important drug information on a DTC prescription medication web site.
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The guidelines given above should not be considered a complete list. Other guidelines for the development of easy-to-use web sites are readily available and should also be consulted when designing web sites (e.g., Lynch & Horton, 1999; Neilson, 1999; Ruffini, 2001; Sano, 1996; Spool et al., 1999; Tiller & Green, 1999; Tilson et al., 1998). It should also be noted that, even if all of the above recommendations are followed, a drug manufacturer cannot assume that important drug risk information will be easily accessible to their end-users.

For this reason, drug manufacturers should employ usability techniques that focus on iterative testing of the web site during the design cycle (e.g., Conzola, Vigilante, &

Wogalter, 2000; Neilson, 1992). Conducting iterative usability tests during the development of the web site can help ensure that important drug (and other product) information is easily accessible. Furthermore, the intended user audience should always be consulted during the initial requirements gathering and final validation testing of the web site.

In conclusion, the results of the current study have shown that the placement of risk information within DTC prescription medication advertisement web sites can affect the likelihood that consumers will find and read the important safety information. Recommendations are given for manufacturers in the design of DTC prescription medication web sites and the FDA for the development of information placement guidelines for DTC prescription medication web sites. Finally, it is suggested that drug manufacturers should always evaluate the placement of important medication information on their web sites (using iterative usability techniques) to ensure the information is seen and read by the consumer, thereby facilitating the communication of important drug information.

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**Appendix A**

Web Site Home Pages for the Control Conditions

Singulair home page for the Control Condition:

SINGULAIR  
An important medicine to help effectively control asthma.

Welcome to the **Singulair** Web site, your online source of information about the #1 selling brand of prescription asthma medication: **Singulair**.

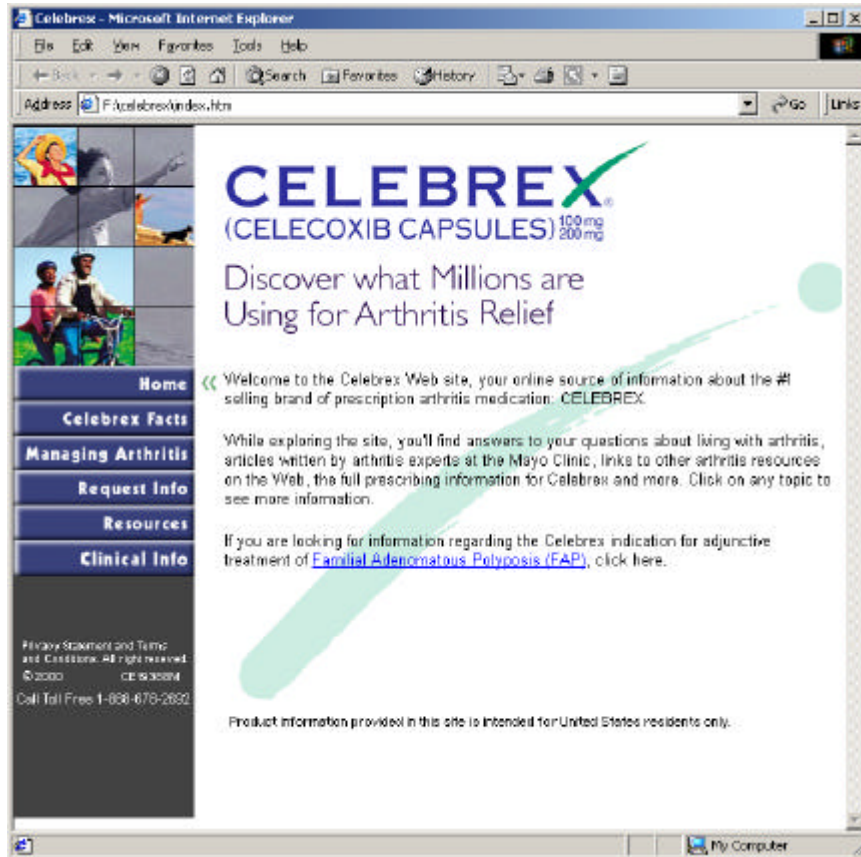
While exploring the site, you'll find answers to your questions about living with asthma, articles written by asthma experts at the Mayo Clinic, links to other asthma resources on the Web, the full prescribing information for Singulair and more. Click on any topic to see more information.

**Singulair** is a new class of asthma medicines called leukotriene blockers. **Singulair** is the first developed for both adults and children as young as 6 years old, and the first and only developed for daily use.

Home  
Singulair Facts  
Managing Asthma  
Request Info  
Resources  
Clinical Info

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Call Toll Free 1-888-673-2892

Celebrex home page for the Control Condition:



**CELEBREX**  
(CELECOXIB CAPSULES) 100mg/200mg

Discover what Millions are Using for Arthritis Relief

Home  
Celebrex Facts  
Managing Arthritis  
Request Info  
Resources  
Clinical Info

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Call Toll Free 1-888-678-2832

Welcome to the Celebrex Web site, your online source of information about the # selling brand of prescription arthritis medication, CELEBREX.

While exploring the site, you'll find answers to your questions about living with arthritis, articles written by arthritis experts at the Mayo Clinic, links to other arthritis resources on the Web, the full prescribing information for Celebrex and more. Click on any topic to see more information.

If you are looking for information regarding the Celebrex indication for adjunctive treatment of [Familial Adenomatous Polyposis \(FAP\)](#), click here.

Product information provided in this site is intended for United States residents only.

**Appendix B**

Web Site Home Pages for the Integrated-Home Page Conditions

Singulair home page for the integrated-home page condition:

**SINGULAIR**  
An important medicine to help effectively control asthma.

Welcome to the Singulair Web site, your online source of information about the #1 selling brand of prescription asthma medication: Singulair.

While exploring the site, you'll find answers to your questions about living with asthma, articles written by asthma experts at the Mayo Clinic, links to other asthma resources on the Web, the full prescribing information for Singulair and more. Click on any topic to see more information.

**Benefits and Risks :**

SINGULAIR effectively reduces the coughing, wheezing, and chest tightness caused by the narrowed, inflamed, and sensitive airways associated with asthma. SINGULAIR can be used for the chronic treatment of asthma in adults and pediatric patients 2 years of age and older. The following side effects and increased risks have been associated with the use of SINGULAIR: dizziness, diarrhea, heartburn, nose bleed, fever, headache, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.

**Singulair is a new class of asthma medicines called leukotriene blockers. Singulair is the first developed for both adults and children as young as 6 years old, and the first and only developed for daily use.**

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Call Toll Free 1-888-678-2692

Celebrex home page for the integrated-home page condition:

**CELEBREX**  
(CELECOXIB CAPSULES) 100 mg / 200 mg

Discover what Millions are Using for Arthritis Relief

**Home** | **Celebrex Facts** | **Managing Arthritis** | **Request Info** | **Resources** | **Clinical Info**

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Welcome to the Celebrex Web site, your online source of information about the #1 selling brand of prescription arthritis medication: CELEBREX.

While exploring the site, you'll find answers to your questions about living with arthritis, articles written by arthritis experts at the Mayo Clinic, links to other arthritis resources on the Web, the full prescribing information for Celebrex and more. Click on any topic to see more information.

**Benefits and Risks**

CELEBREX effectively reduces the pain, inflammation, and stiffness caused by Osteoarthritis (OA) and Adult Rheumatoid Arthritis (RA), helping you through the day with activities like standing, walking or climbing stairs, and through the night while sitting or lying in bed. The following side effects and increased risks have been associated with the use of CELEBREX: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.

If you are looking for information regarding the Celebrex indication for adjunctive treatment of [Familial Adenomatous Polyposis \(FAP\)](#), click here.

**Appendix C**

Web Site Home Pages for the Separated-Home Page Conditions

Singulair home page for the separated-home page condition:

**SINGULAIR**  
An important medicine to help effectively control asthma.

Welcome to the **Singulair** Web site, your online source of information about the #1 selling brand of prescription asthma medication: **Singulair**.

While exploring the site, you'll find answers to your questions about living with asthma, articles written by asthma experts at the Mayo Clinic, links to other asthma resources on the Web, the full prescribing information for Singulair and more. Click on any topic to see more information.

**Benefits and Indications:**

SINGULAIR effectively reduces the coughing, wheezing, and chest tightness caused by the narrowed, inflamed, and sensitive airways associated with asthma. SINGULAIR can be used for the chronic treatment of asthma in adults and pediatric patients 2 years of age and older.

**Risks and Side Effects:**

The following side effects and increased risks have been associated with the use of SINGULAIR: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.

**Singulair** is a new class of asthma medicines called leukotriene blockers. **Singulair** is the first developed for both adults and children as young as 6 years old, and the first and only developed for daily use.

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Call Toll Free 1-888-678-2692

Celebrex home page for the separated-home page condition:

**CELEBREX**  
(CELECOXIB CAPSULES) 100 mg / 200 mg

Discover what Millions are Using for Arthritis Relief

**Home** «  
**Celebrex Facts**  
**Managing Arthritis**  
**Request Info**  
**Resources**  
**Clinical Info**

Privacy Statement and Terms and Conditions. All rights reserved. ©2000. CEI000004. Call Toll Free: 1-888-878-2632

Welcome to the Celebrex Web site, your online source of information about the #1 selling brand of prescription arthritis medication: CELEBREX.

While exploring the site, you'll find answers to your questions about living with arthritis, articles written by arthritis experts at the Mayo Clinic, links to other arthritis resources on the Web, the full prescribing information for Celebrex and more. Click on any topic to see more information.

**Benefits and Indications:**

CELEBREX effectively reduces the pain, inflammation, and stiffness caused by Osteoarthritis (OA) and Adult Rheumatoid Arthritis (RA), helping you through the day with activities like standing, walking or climbing stairs, and through the night while sitting or lying in bed.

**Risks and Side Effects:**

The following side effects and increased risks have been associated with the use of CELEBREX: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.

If you are looking for information regarding the Celebrex indication for adjunctive treatment of **Familial Adenomatous Polyposis (FAP)**, click [here](#).

**Appendix D**

Web Site Benefit and Risk Pages for the Separated-Mixed Level Page Conditions

Singulair home page for the separated-mixed level page condition:

**SINGULAIR**  
An important medicine to help effectively control asthma.

Welcome to the **Singulair** Web site, your online source of information about the #1 selling brand of prescription asthma medication: **Singulair**.

While exploring the site, you'll find answers to your questions about living with asthma, articles written by asthma experts at the Mayo Clinic, links to other asthma resources on the Web, the full prescribing information for Singulair and more. Click on any topic to see more information.

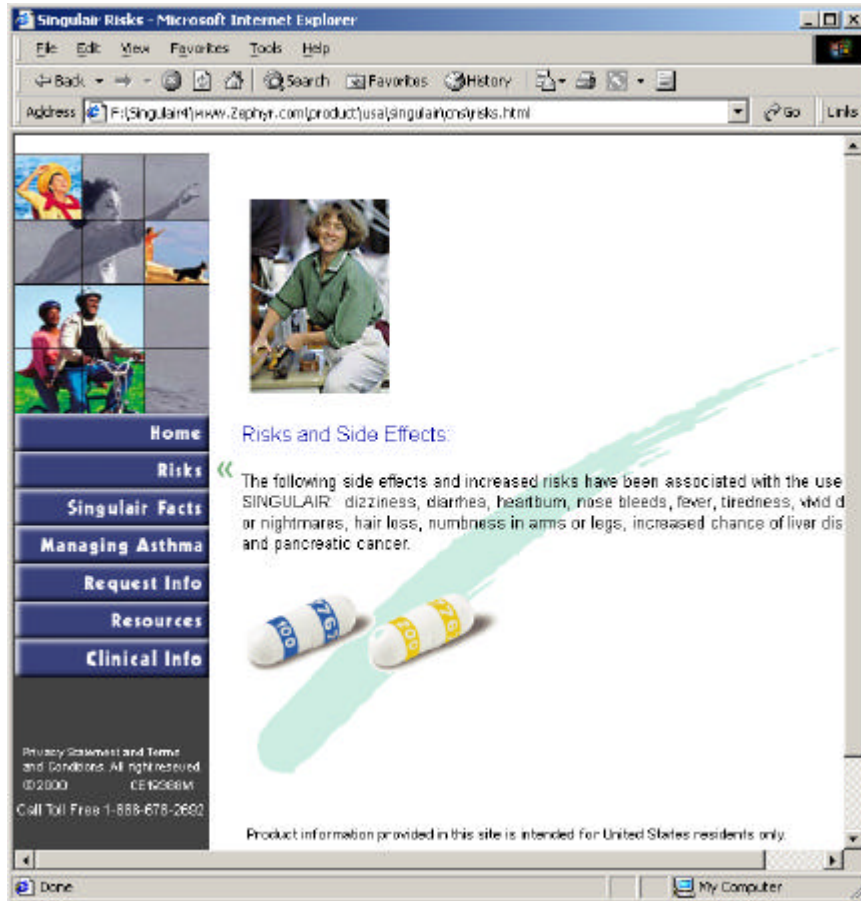
**Benefits and Indications:**

**SINGULAIR** effectively reduces the coughing, wheezing, and chest tightness caused by the narrowed, inflamed, and sensitive airways associated with asthma. **SINGULAIR** can be used for the chronic treatment of asthma in adults and pediatric patients 2 years of age and older.

**Singulair** is a new class of asthma medicines called leukotriene blockers. **Singulair** is the first developed for both adults and children as young as 6 years old, and the first and only developed for daily use.

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Call Toll Free 1-888-678-2602

Singular risks page for the separated-mixed level page condition:




Singular Risks - Microsoft Internet Explorer

File Edit View Favorites Tools Help


Back Forward Stop Home Search Favorites History Print Refresh

Address [F:\Singular\www.zephyr.com\product\usa\singular\onstysks.html](http://F:\Singular\www.zephyr.com\product\usa\singular\onstysks.html) Go Links




**Home**  
**Risks**  
**Singulair Facts**  
**Managing Asthma**  
**Request Info**  
**Resources**  
**Clinical Info**

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**Risks and Side Effects:**

« The following side effects and increased risks have been associated with the use SINGULAIR: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid d or nightmares, hair loss, numbness in arms or legs, increased chance of liver dis and pancreatic cancer.



Product information provided in this site is intended for United States residents only.

Done My Computer

Celebrex home page for the separated-mixed level page condition:

**CELEBREX**  
(CELECOXIB CAPSULES) 100 mg / 200 mg

Discover what Millions are Using for Arthritis Relief

**Home** << Welcome to the Celebrex Web site, your online source of information about the #1 selling brand of prescription arthritis medication, CELEBREX.

**Risks**

**Celebrex Facts**

**Managing Arthritis**

**Request Info**

**Resources**

**Clinical Info**

While exploring the site, you'll find answers to your questions about living with arthritis, articles written by arthritis experts at the Mayo Clinic, links to other arthritis resources on the Web, the full prescribing information for Celebrex and more. Click on any topic to see more information.

[Benefits and Indications](#)

CELEBREX effectively reduces the pain, inflammation, and stiffness caused by Osteoarthritis (OA) and Adult Rheumatoid Arthritis (RA), helping you through the day with activities like standing, walking or climbing stairs, and through the night while sitting or lying in bed.

If you are looking for information regarding the Celebrex indication for adjunctive treatment of [Familial Adenomatous Polyposis \(FAP\)](#), click here.

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Celebrex risks page for the separated-mixed level page condition:

Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <F:\celebrex\celebrex risks.html> Go Links

- Home
- Risks**
- Celebrex Facts
- Managing Arthritis
- Request Info
- Resources
- Clinical Info

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# CELEBREX<sup>®</sup>

(CELECOXIB CAPSULES) 100 mg  
200 mg

## Risks and Side Effects

The following side effects and increased risks have been associated with the use of CELEBREX: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.

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**Appendix E**

Web Site Benefit Pages for the Separated-Second Level Page Conditions

Singular benefits page for the separated-second level page condition:

Singular Benefits - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print Copy Paste

Address F:\Singular5\www.zephyr.com\product\usa\singular\cms\benefits.html Go Links

Home  
Benefits  
Risks  
Singular Facts  
Managing Asthma  
Request Info  
Resources  
Clinical Info

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Call Toll Free 1-888-678-2692

Benefits and Indications:

« SINGLAIR effectively reduces the coughing, wheezing, and chest tightness caused by the narrowed, inflamed, and sensitive airways associated with asthma. SINGLAIR can be used for the chronic treatment of asthma in adults and pediatric patients 2 years of age and older.

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Done My Computer

Celebrex benefits page for the separated-second level page condition:

CELEBREX  
(CELECOXIB CAPSULES) 100 mg 200 mg

**Home**  
**Benefits** <<  
**Risks**  
**Celebrex Facts**  
**Managing Arthritis**  
**Request Info**  
**Resources**  
**Clinical Info**

**Benefits and Indications**

CELEBREX effectively reduces the pain, inflammation, and stiffness caused by Osteoarthritis (OA) and Adult Rheumatoid Arthritis (RA), helping you through the day with activities like standing, walking or climbing stairs, and through the night while sitting or lying in bed.

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**Appendix F**

Web Site Benefit and Risk Page for the Integrated-Second Level Page Conditions

Singular benefits and risks page for the integrated-second level page condition:

Benefits and Risks - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites History Print

Address <http://www.Zephyr.com/product/usa/singular/contrendb.html> Go Links

Home

Benefits and Risks

Singular Facts


Managing Asthma

Request Info

Resources


Clinical Info

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Benefits and Risks

SINGULAIR effectively reduces the coughing, wheezing, and chest tightness caused by the narrowed, inflamed, and sensitive airways associated with asthma. SINGULAIR can be used for the chronic treatment of asthma in adults and pediatric patients 2 years of age and older. The following side effects and increased risks have been associated with the use of SINGULAIR: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.



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Celebrex benefits and risks page for the integrated-second level page condition:

**CELEBREX**  
(CELECOXIB CAPSULES) 100 mg / 200 mg

**Benefits and Risks:**

CELEBREX effectively reduces the pain, inflammation, and stiffness caused by Osteoarthritis (OA) and Adult Rheumatoid Arthritis (RA), helping you through the day with activities like standing, walking or climbing stairs, and through the night while sitting or lying in bed. The following side effects and increased risks have been associated with the use of CELEBREX: dizziness, diarrhea, heartburn, nose bleeds, fever, tiredness, vivid dreams or nightmares, hair loss, numbness in arms or legs, increased chance of liver disease and pancreatic cancer.

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**Appendix G**

Web Site Pages that Contained the Link to the Risk Page  
for the Separated-Fourth Level Page Conditions

Singular link to the risks page for the separated-fourth level page condition:

What should I know while taking SINGULAIR? - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites History Print

Address [F:\Singular7\www.Zephyr.com\product\usa\singular\one\patient\\_info\whatavoid.html](http://F:\Singular7\www.Zephyr.com\product\usa\singular\one\patient_info\whatavoid.html) Go Links

**What should I avoid while taking SINGULAIR?**

- If your asthma is made worse by aspirin, you should continue to avoid aspirin or other non-steroidal anti-inflammatory drugs, such as ibuprofen and naproxen.
- [Risks and Side Effects](#)

Please choose a topic for further information:

Zephyr B. CO., INC.  
Millsboro Station, NJ 08003, USA

Issued March 2000

**HOME**

010300104-04-SN6

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Celebrex link to the risks page for the separated-fourth level page condition:

Has Celebrex been extensively and widely used? - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [P:\celebrex7\celebrex\usa.htm](http://P:\celebrex7\celebrex\usa.htm) Go Links

**CELEBREX**  
(CELECOXIB CAPSULES) 100 mg / 200 mg

Discover CELEBREX - The #1 Selling Brand of Prescription Arthritis Medicine.

**Has CELEBREX been extensively tested and widely used?**

Celebrex was tested in over 50 clinical trials involving more than 13,000 study participants. Study participants ranged in age from 18 to 93 years old.

And since its introduction, more than 17 million prescriptions for Celebrex have been written. That represents an average of over 55,000 prescriptions per day - making it the #1 selling brand of arthritis prescription medication.

[Risks and Side Effects associated with Celebrex](#)

[Return to Commonly Asked Questions](#)

[US Prescribing Information](#)

Product information provided in this site is intended for United States residents only.

Home  
Celebrex Facts  
Managing Arthritis  
Request Info  
Resources  
Clinical Info

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Done My Computer

**Appendix H**

Consent Form

**INFORMED CONSENT FOR HUMAN  
PARTICIPANTS IN A RESEARCH PROJECT**

**Project Title:** Web site evaluation study.

**Principle Investigators:** William J Vigilante Jr. MS and Michael S. Wogalter Ph.D.  
(Associate Professor of Psychology), Phone: (919) 486-2125

I voluntarily agree to participate in this study. I understand that I can terminate my participation at any point without penalty and without jeopardy.

The investigator, who has answered all my questions, has described the experiment to me. I understand that I will be asked to perform tasks with several different web sites. Before performing these tasks, the experimenter will provide me with the information that I need to browse the web sites of interest. I also understand that if I have any further questions I can contact Mr. Vigilante or Dr. Wogalter at the number listed above.

In addition, I understand the following:

1. Adequate safeguards will be taken to maintain privacy, and my responses will be kept confidential at all times.
2. My name will not be attached to any surveys. Code numbers/letters will be used.
3. Individual responses will not be reported. The information collected in this study will be aggregated into group scores, and reported only as averages across many participants.

\_\_\_\_\_  
(Participant's signature)

\_\_\_\_\_  
(Date)

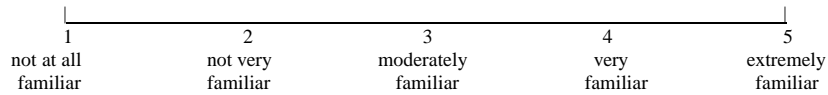
**Appendix I**

Demographic Questionnaire

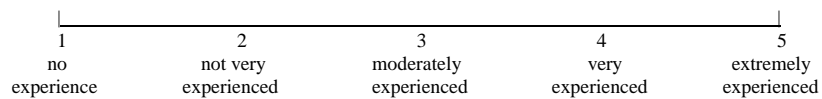
**Participant Survey****Participant #:** \_\_\_\_\_**Thank you for participating in our survey. The information collected will be kept confidential.****Please answer the following questions.**

1. What is your gender?     Male     Female
  
2. What is your age?    \_\_\_\_\_ Years old
  
3. What is your ethnic/racial background? (Check one)
  - African-American
  - Asian
  - Caucasian
  - Hispanic
  - Middle Eastern
  - Native American
  - Pacific Islander
  - Multi-racial (please specify) \_\_\_\_\_
  
4. In what year of college are you currently enrolled?
  - Freshmen
  - Sophomore
  - Junior
  - Senior
  - Graduate
  - Other: \_\_\_\_\_
  
5. Please list the types of medications that have been prescribed to you by a doctor in the last 2 years:
  - Asthma medication
  - Arthritis medication
  - Other (how many): \_\_\_\_\_

### Ratings



1. How familiar are you with prescription medication advertisements in magazines or newspapers? \_\_\_\_\_
2. How familiar are you with prescription medication advertisements on the television or radio? \_\_\_\_\_
3. How familiar are you with prescription medication advertisements on the World Wide Web (prescription medication web sites)? \_\_\_\_\_
4. How familiar were you with the prescription medication Celebrex? \_\_\_\_\_
5. How familiar were you with the prescription medication Singulair? \_\_\_\_\_



1. How experienced are you with using computers? \_\_\_\_\_
2. How experienced are you with surfing the web? \_\_\_\_\_
3. How experienced are you with shopping for consumer products on the web? \_\_\_\_\_
4. How often do you surf the web?

I Never surfed the web: \_\_\_\_\_  
 A few times a year: \_\_\_\_\_  
 A few times a month: \_\_\_\_\_  
 A few times a week: \_\_\_\_\_  
 A few times a day: \_\_\_\_\_

**Appendix J**

Recall Sheets

Celebrex Recall Sheet

Participant # \_\_\_\_\_

Please, attempt to recall/remember all of the "Risks and Side Effects" and "Benefits" associated with the prescription medication "Celebrex" advertised in the web site that you previously browsed. Record all of the "Risks and Side Effects" that you can remember in the left-hand column labeled "Risks and Side Effects" and record the "Benefits" in the right-hand column labeled "Benefits".

Risks and Side Effects	Benefits
1. _____ _____	1. _____ _____
2. _____ _____	2. _____ _____
3. _____ _____	3. _____ _____
4. _____ _____	4. _____ _____
5. _____ _____	5. _____ _____
6. _____ _____	6. _____ _____
7. _____ _____	7. _____ _____
8. _____ _____	8. _____ _____
9. _____ _____	9. _____ _____
10. _____ _____	10. _____ _____
11. _____ _____	11. _____ _____

**Singulair Recall Sheet****Participant # \_\_\_\_\_**

Please, attempt to recall/remember all of the "Risks and Side Effects" and "Benefits" associated with the prescription medication "Singulair" advertised in the web site that you previously browsed. Record all of the "Risks and Side Effects" that you can remember in the left-hand column labeled "Risks and Side Effects" and record the "Benefits" in the right-hand column labeled "Benefits".

**Risks and Side Effects**

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_
6. \_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_  
\_\_\_\_\_
8. \_\_\_\_\_  
\_\_\_\_\_
9. \_\_\_\_\_  
\_\_\_\_\_
10. \_\_\_\_\_  
\_\_\_\_\_
11. \_\_\_\_\_  
\_\_\_\_\_

**Benefits**

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_
6. \_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_  
\_\_\_\_\_
8. \_\_\_\_\_  
\_\_\_\_\_
9. \_\_\_\_\_  
\_\_\_\_\_
10. \_\_\_\_\_  
\_\_\_\_\_
11. \_\_\_\_\_  
\_\_\_\_\_

**Appendix K**

Singulair Recognition Forms

**Participant #:** \_\_\_\_\_

**Singular Risks and Side Effects Recognition Form**

Please, place a check mark next to each potential risk and/or side effect that you can remember seeing on the Singular web site.

Abdominal bleeding	_____	Kidney disease	_____
Blurred Vision	_____	Liver disease	_____
Bone Cancer	_____	Memory loss	_____
Chest Pain	_____	Nervous Tremors	_____
Dementia	_____	Nightmares	_____
Diarrhea	_____	Nose Bleeds	_____
Difficulty Urinating	_____	Numbness in Arms or Legs	_____
Dizziness	_____	Pancreatic Cancer	_____
Dry Mouth	_____	Sore Throat	_____
Ear Ache	_____	Stroke	_____
Fever	_____	Stuffy Nose	_____
Gas	_____	Swelling of Hands or Feet	_____
Hair Loss	_____	Swelling of Face	_____
Heartburn	_____	Thyroid cancer	_____
Hives	_____	Tiredness	_____
Hyperactivity	_____	Ulcers	_____
Infertility	_____	Vivid Dreams	_____
Insomnia	_____	Weight Gain	_____

**Participant #:** \_\_\_\_\_

**Singulair Benefits Recognition Form**

Please, place a check mark next to each potential **benefit** that you can remember seeing on the Singulair web site.

Prevents hair loss	_____	Reduces wheezing	_____
Relieves hypertension	_____	Helps you think	_____
Reduces coughing	_____	Reduces cholesterol	_____
Migraine relief	_____	Prevents pimples	_____
Pain relief	_____	Reduces swelling	_____
Reduces chest tightness	_____	Relieves Tendonitis	_____
Prevents skin cancer	_____	Relieves stiffness	_____
Reduces cholesterol	_____		
Relieves sensitive and inflamed airways	_____		

**Appendix L**

Celebrex Recognition Forms

Participant #: \_\_\_\_\_

**Celebrex Risks and Side Effects Recognition Form**

Please, place a check mark next to each potential **risk and/or side effect** that you can remember seeing on the Celebrex web site.

Abdominal Bleeding	_____	Kidney disease	_____
Blurred Vision	_____	Liver disease	_____
Bone Cancer	_____	Memory loss	_____
Chest Pain	_____	Nervous Tremors	_____
Dementia	_____	Nightmares	_____
Diarrhea	_____	Nose Bleeds	_____
Difficulty Urinating	_____	Numbness in Arms or Legs	_____
Dizziness	_____	Pancreatic Cancer	_____
Dry Mouth	_____	Sore Throat	_____
Ear Ache	_____	Stroke	_____
Fever	_____	Stuffy Nose	_____
Gas	_____	Swelling of Hands or Feet	_____
Hair Loss	_____	Swelling of Face	_____
Heartburn	_____	Thyroid cancer	_____
Hives	_____	Tiredness	_____
Hyperactivity	_____	Ulcers	_____
Infertility	_____	Vivid Dreams	_____
Insomnia	_____	Weight Gain	_____

**Participant #:** \_\_\_\_\_

**Celebrex Benefits Recognition Form**

Please, place a check mark next to each potential **benefit** that you can remember seeing on the Celebrex web site.

Athletes Foot Relief	_____	Prevents Colon Cancer	_____
Blister Relief	_____	Prevents Skin Cancer	_____
Helps you Walk	_____	Reduces Cholesterol	_____
Hypertension Relief	_____	Relieves Inflammation	_____
Itch Relief	_____	Relieves Stiffness	_____
Migraine Relief	_____	Relieves Tendonitis	_____
Pain Relief	_____	Strengths Bones	_____
Relieves Symptoms of Osteoporosis	_____		_____
Relieves Symptoms of Osteoarthritis	_____		_____
Relieves Symptoms of Rheumatoid arthritis in Adults	_____		_____
Relieves Symptoms of Rheumatoid arthritis in Children	_____		_____

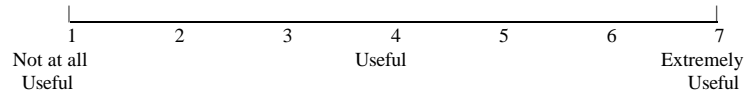
**Appendix M**

Browse Task Attractiveness Ratings

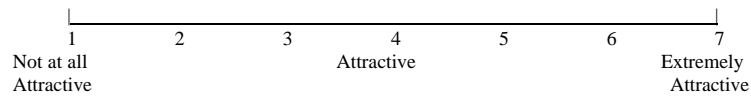
Participant #: \_\_\_\_\_

### Singular Ratings

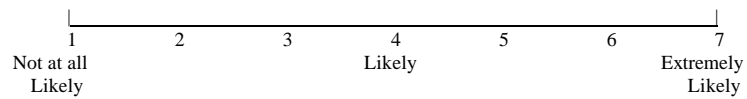
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the product advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



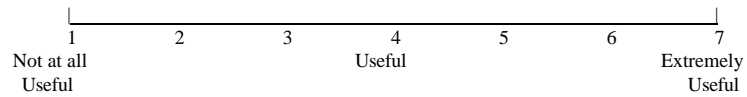
3. Please rate the **Likelihood** that you would **buy or use** the product advertised on the web site you just viewed:



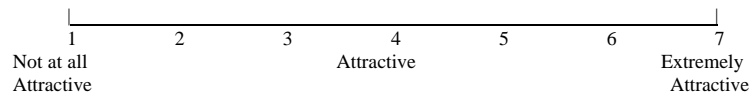
Participant #: \_\_\_\_\_

### Celebrex Ratings

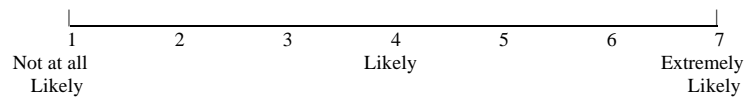
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the product advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



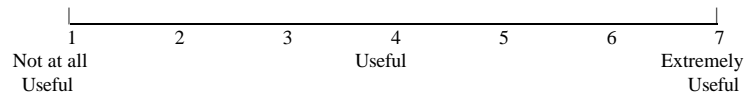
3. Please rate the **Likelihood** that you would **buy or use** the product advertised on the web site you just viewed:



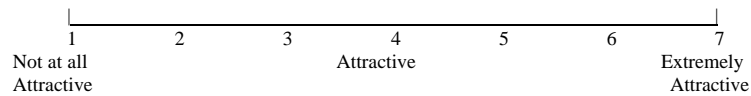
Participant #: \_\_\_\_\_

### Tilex Ratings

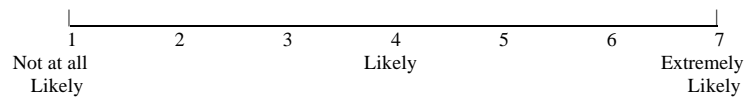
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the products advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



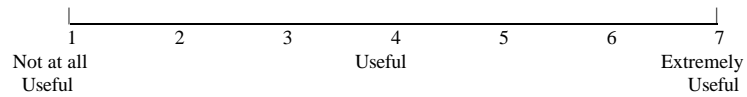
3. Please rate the **Likelihood** that you would **buy or use** the products advertised on the web site you just viewed:



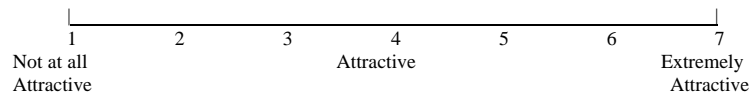
Participant #: \_\_\_\_\_

### Master Copy Ratings

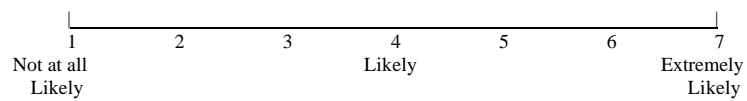
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the products advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



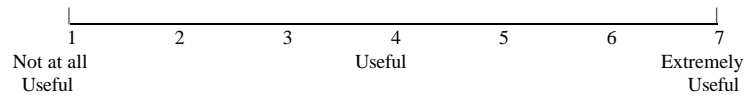
3. Please rate the **Likelihood** that you would **buy or use** the products advertised on the web site you just viewed:



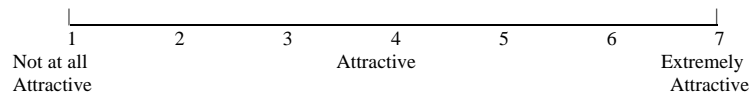
Participant #: \_\_\_\_\_

### Ivory Ratings

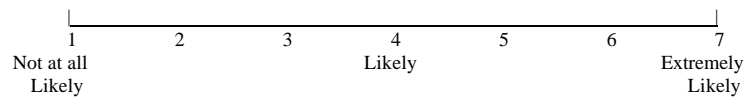
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the products advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



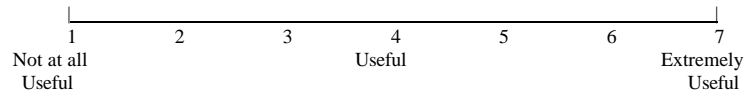
3. Please rate the **Likelihood** that you would **buy or use** the products advertised on the web site you just viewed:



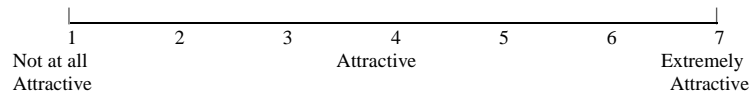
Participant #: \_\_\_\_\_

### Casa Carbone Ratings

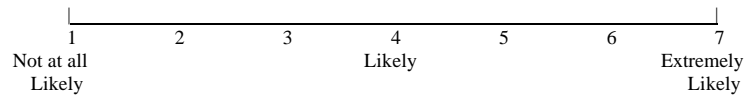
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the products advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



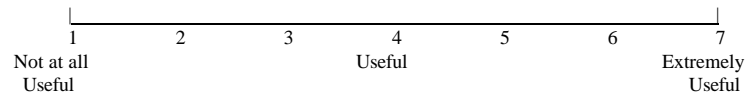
3. Please rate the **Likelihood** that you would **buy or use** the products advertised on the web site you just viewed:



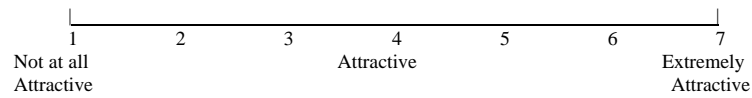
Participant #: \_\_\_\_\_

### Blue Line Ratings

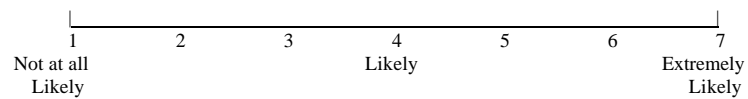
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the products advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



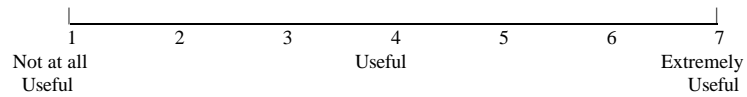
3. Please rate the **Likelihood** that you would **buy or use** the products advertised on the web site you just viewed:



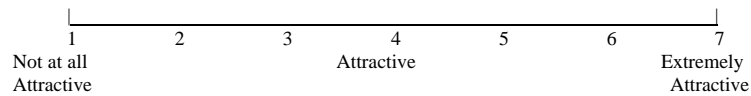
Participant #: \_\_\_\_\_

### Angel City Brewing Ratings

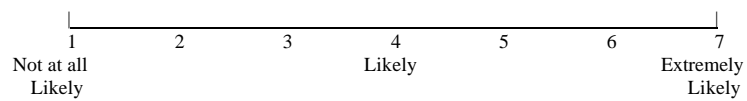
1. Please rate the **Usefulness** of the information contained within the web site that you just viewed for learning about the products advertised on that web site:



2. Please rate the **Attractiveness** of the web site you just viewed:



3. Please rate the **Likelihood** that you would **buy or use** the products advertised on the web site you just viewed:



**Appendix N**

Search and Find Singular Tasks

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What two smoking cessation videos for children and teens are available from the American Lung Association?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What benefits have been found with using Singular?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What are the 3 main categories of asthma triggers ?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

Task \_\_\_\_\_

- What side effects and increased risks have been associated with the use of Singulair?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What is the recommended dosage of Singulair for children between the ages of 6 and 14 years old?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What does the Singulair site provide parents to give to others in case their child has an asthma attack when they are not around?

---

---

---

**Appendix O**

Search and Find Celebrex Tasks

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- Most arthritis patients benefit from combining what three main types of exercises?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What benefits have been found with using Celebrex?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- What is the address for the American Academy of Physical Medicine and Rehabilitation?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

Task \_\_\_\_\_

- What side effects and increased risks have been associated with the use of Celebrex:

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- How is Rheumatoid Arthritis different than Osteoarthritis?

---

---

---

Participant #: \_\_\_\_\_

**Search and Find Task Sheet**

**Task** \_\_\_\_\_

- Can Celebrex be used with Aspirin?

Yes / No

**Appendix P**

Search and Find Practice Tasks

Participant #: \_\_\_\_\_

### Search and Find Task Sheet

#### Practice Task

- How many people can the restaurant accommodate for a private party during the weekend?

---

---

---

- What is the price range for the restaurant's entrees?

---

---

---

- What is in the vegetarian lasagna?

---

---

---

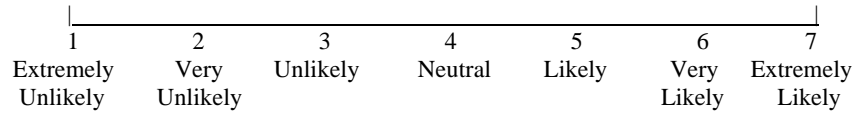
**Appendix Q**

Post Task Ratings: Likelihood of noticing the risk information

Participant #: \_\_\_\_\_

### Singulair Ratings Form

Please rate how **LIKELY** you are to **NOTICE** the **RISK** information on each of the 7 different versions of the Celebrex web site using the following scale:



Singulair version A: \_\_\_\_\_

Singulair version B: \_\_\_\_\_

Singulair version C: \_\_\_\_\_

Singulair version D: \_\_\_\_\_

Singulair version E: \_\_\_\_\_

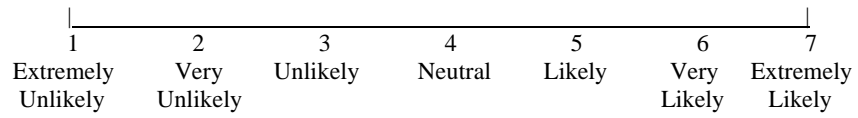
Singulair version F: \_\_\_\_\_

Singulair version G: \_\_\_\_\_

Participant #: \_\_\_\_\_

**Celebrex Ratings Form**

Please rate how **LIKELY** you are to **NOTICE** the **RISK** information on each of the 7 different versions of the Celebrex web site using the following scale:



Celebrex version A: \_\_\_\_\_

Celebrex version B: \_\_\_\_\_

Celebrex version C: \_\_\_\_\_

Celebrex version D: \_\_\_\_\_

Celebrex version E: \_\_\_\_\_

Celebrex version F: \_\_\_\_\_

Celebrex version G: \_\_\_\_\_

**Appendix R**

Browse Task Random Number Sheet

Subject #	Web Site	Rate		Web Site	Number
		Site Order	Order		
1	3	3674521	1234567	Version	
2	4	5234167	7654321	Celebrex-A	1
3	11	1234576	4567321	Celebrex-B	2
4	5	5274136	2467153	Celebrex-C	3
5	14	7654321	2157643	Celebrex-D	4
6	2	1324756	5674321	Celebrex-E	5
7	5	7134256	6374251	Celebrex-F	6
8	6	2374651	7623145	Celebrex-G	7
9	11	5724613	1342756	Singulair-A	8
10	8	5274136	6234157	Singulair-B	9
11	2	6324751	2347651	Singulair-C	10
12	7	3214756	3451726	Singulair-D	11
13	8	3624157	4321765	Singulair-E	12
14	11	2764315	6371425	Singulair-F	13
15	4	2764513	7143256	Singulair-G	14
16	12	6374251	1753624		
17	10	2154673	2567314	Web Site	Site Order
18	1	1324765	3672541	Angel City	1
19	10	3754126	4213756	Tilex	2
20	7	6374215	5236147	Ivory	3
21	6	3654271	6473512	Drug Web Site	4
22	7	1624375	3651274	Blueline	5
23	4	6234157	5273416	Master Copy	6
24	12	5274316	6321754	Casa Carbone	7
25	2	6324751	4621375		
26	1	5724613	7531246		
27	3	2764315	5231476		
28	6	7564123	4623157		
29	4	1754623	1234567		
30	5	5274316	7654321		
31	7	1624375	4567321		
32	13	5234176	2467153		
33	13	3614257	2157643		
34	8	6374125	5674321		
35	10	5234176	6374251		
36	9	6374512	7623145		
37	5	6374215	1342756		
38	3	3654271	6234157		
39	9	3624157	2347651		
40	8	2764153	3451726		
41	3	5274136	4321765		

42	6	6754231	6371425
43	14	1354726	7143256
44	10	7534216	1753624
45	12	3754126	2567314
46	9	2574531	3672541
47	13	1234567	4213756
48	1	7624135	5236147
49	14	6374512	6473512
50	2	7534216	3651274
51	14	3154726	5273416
52	13	5674321	6321754
53	11	6234157	4621375
54	9	7134256	7531246
55	12	2564317	5231476
56	1	5274136	4623157
57	1	1324756	3754126
58	9	3154726	5274136
59	2	1324765	4762315
60	5	6374251	5723614
61	11	5674321	6473215
62	4	3624157	3617254
63	3	1754623	2746513
64	12	1234567	6754231
65	8	5274316	1236574
66	4	6374125	4765123
67	5	3214756	5271436
68	13	3654271	1357426
69	3	7564321	2574531
70	11	1624375	4567123
71	14	6374512	6473512
72	13	2374651	3651274
73	6	2564317	5273416
74	9	7654321	6321754
75	6	6324751	4621375
76	10	2764153	7531246
77	10	7534216	5231476
78	14	3674521	4623157
79	7	2154673	3754126
80	7	5234176	5274136
81	1	7134256	4762315
82	12	7624135	5723614
83	8	5234167	6473215
84	2	3764215	3617254

**Appendix S**

Search and Find Random Number Sheets

SS #	Web Site	Rate Order	Web Site Version	Web site Condition
1	6	1234567	Celebrex-A	1
2	4	7654321	Celebrex-B	2
3	11	4567321	Celebrex-C	3
4	5	2467153	Celebrex-D	4
5	14	2157643	Celebrex-E	5
6	2	5674321	Celebrex-F	6
7	5	6374251	Celebrex-G	7
8	3	7623145	Singulair-A	8
9	11	1342756	Singulair-B	9
10	8	6234157	Singulair-C	10
11	2	2347651	Singulair-D	11
12	7	3451726	Singulair-E	12
13	8	4321765	Singulair-F	13
14	11	6371425	Singulair-G	14
15	4	7143256		
16	12	1753624		
17	10	2567314		
18	1	3672541		
19	10	4213756		
20	7	5236147		
21	6	6473512		
22	7	3651274		
23	4	5273416		
24	12	6321754		
25	2	4621375		
26	1	7531246		
27	3	5231476		
28	6	4623157		
29	4	1234567		
30	5	7654321		
31	7	4567321		
32	13	2467153		
33	13	2157643		
34	8	5674321		
35	10	6374251		
36	9	7623145		
37	5	1342756		
38	3	6234157		
39	9	2347651		
40	8	3451726		

41	3	4321765
42	6	6371425
43	14	7143256
44	10	1753624
45	12	2567314
46	9	3672541
47	13	4213756
48	1	5236147
49	14	6473512
50	2	3651274
51	14	5273416
52	13	6321754
53	11	4621375
54	9	7531246
55	12	5231476
56	1	4623157
57	1	3754126
58	9	5274136
59	2	4762315
60	5	5723614
61	11	6473215
62	4	3617254
63	3	2746513
64	12	6754231
65	8	1236574
66	4	4765123
67	5	5271436
68	13	1357426
69	3	2574531
70	11	4567123
71	14	6473512
72	13	3651274
73	6	5273416
74	9	6321754
75	6	4621375
76	10	7531246
77	10	5231476
78	14	4623157
79	7	3754126
80	7	5274136
81	1	4762315
82	12	5723614
83	8	6473215
84	2	3617254

**Appendix T**

Recall Task Score Interrater Reliability

## Inter-Rater Reliability

**Simple Statistics**

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
All						
Risk Recall – 1	84	1.20	1.62	101.00	0	7.00
Risk Recall – 2	84	1.08	1.50	91.00	0	6.00
Benefit Recall – 1	84	1.24	0.97	104.00	0	4.00
Benefit Recall – 2	84	1.19	0.87	100.00	0	4.00
Singulair						
Risk Recall – 1	42	1.17	1.86	49.00	0	7.00
Risk Recall – 2	42	1.07	1.75	45.00	0	6.00
Benefit Recall – 1	42	0.88	0.63	37.00	0	2.00
Benefit Recall – 2	42	0.91	0.62	38.00	0	2.00
Celebrex						
Risk Recall – 1	42	1.24	1.36	52.00	0	4.00
Risk Recall – 2	42	1.10	1.23	46.00	0	4.00
Benefit Recall – 1	42	1.60	1.11	67.00	0	4.00
Benefit Recall – 2	42	1.48	0.99	62.00	0	4.00

**Inter-Rater Reliability Correlation (N = 42)**

	Risk – 1	Risk – 2	Benefit – 1
All			
Risk – 2	.96 .0001		
Benefit – 1	.32 .0034	.23 .0306	
Benefit – 2	.32 .0028	.26 .0150	.94 .0001
Singulair			
Risk – 2	.99 .0001		
Benefit – 1	.16 .3042	.12 .4552	
Benefit – 2	.18 .2431	.16 .2963	.85 .0001
Celebrex			
Risk – 2	.91 .0001		
Benefit – 1	.52 .0004	.41 .0075	
Benefit – 2	.51 .0006	.42 .0053	.96 .0001

\* Top number is Pearson correlation coefficient

\* Bottom number is p value

**Appendix U**

Search and Find Task MANOVA and ANOVA Tables for Experiment 1 Hypothesis 1

Class	Levels	Values				
version	7	1 2 3 4 5 6 7				
Number of observations		84				
Risk Success						
		Sum of				
Source	DF	Squares	Mean Square	F Value	Pr > F	
Model	6	4.90476190	0.81746032	8.49	<.0001	
Error	77	7.41666667	0.09632035			
Corrected Total		83	12.32142857			
R-Square	Coeff Var	Root MSE	r_corr	Mean		
0.398068	37.78237	0.310355		0.821429		
Source	DF	Type I SS	Mean Square	F Value	Pr > F	
version	6	4.90476190	0.81746032	8.49	<.0001	
Source	DF	Type III SS	Mean Square	F Value	Pr > F	
version	6	4.90476190	0.81746032	8.49	<.0001	
Risk Time						
		Sum of				
Source	DF	Squares	Mean Square	F Value	Pr > F	
Model	6	70.5667064	11.7611177	8.77	<.0001	
Error	77	103.2256678	1.3405931			
Corrected Total		83	173.7923742			
R-Square	Coeff Var	Root MSE	rtime	Mean		
0.406040	32.33553	1.157840		3.580705		
Source	DF	Type I SS	Mean Square	F Value	Pr > F	
version	6	70.56670637	11.76111773	8.77	<.0001	
Source	DF	Type III SS	Mean Square	F Value	Pr > F	
version	6	70.56670637	11.76111773	8.77	<.0001	
Risk Clicks						
		Sum of				
Source	DF	Squares	Mean Square	F Value	Pr > F	
Model	6	2112.476190	352.079365	4.65	0.0004	
Error	77	5827.083333	75.676407			
Corrected Total		83	7939.559524			
R-Square	Coeff Var	Root MSE	r_click	Mean		
0.266070	112.9419	8.699219		7.702381		
Source	DF	Type I SS	Mean Square	F Value	Pr > F	
version	6	2112.476190	352.079365	4.65	0.0004	
Source	DF	Type III SS	Mean Square	F Value	Pr > F	
version	6	2112.476190	352.079365	4.65	0.0004	
Benefit Success						
		Sum of				
Source	DF	Squares	Mean Square	F Value	Pr > F	
Model	6	5.16666667	0.86111111	10.20	<.0001	
Error	77	6.50000000	0.08441558			
Corrected Total		83	11.66666667			
R-Square	Coeff Var	Root MSE	b_corr	Mean		
0.442857	34.86523	0.290544		0.833333		
Source	DF	Type I SS	Mean Square	F Value	Pr > F	

version	6	5.16666667	0.86111111	10.20	<.0001
Source	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	5.16666667	0.86111111	10.20	<.0001

Benefit Time

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	6	66.9359322	11.1559887	9.33	<.0001
Error	77	92.0783982	1.1958234		
Corrected Total	83	159.0143304			

R-Square	Coeff Var	Root MSE	btime Mean
0.420943	33.11179	1.093537	3.302561

Source	DF	Type I SS	Mean Square	F Value	Pr > F
version	6	66.93593219	11.15598870	9.33	<.0001
Source	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	66.93593219	11.15598870	9.33	<.0001

Benefit Clicks

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	6	2430.738095	405.123016	11.70	<.0001
Error	77	2665.500000	34.616883		
Corrected Total	83	5096.238095			

R-Square	Coeff Var	Root MSE	b_click Mean
0.476967	93.95881	5.883611	6.261905

Source	DF	Type I SS	Mean Square	F Value	Pr > F
version	6	2430.738095	405.123016	11.70	<.0001
Source	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	2430.738095	405.123016	11.70	<.0001

H = Type III SSCP Matrix for version  
E = Error SSCP Matrix

Root	Percent	Risk Success	Risk Click	Risk Time	B-success	B-time
B-click						
2.79097676	84.92	0.31146597	-0.00639074	-0.00177734	0.16018792	0.04528317
-0.01818778						
0.36050606	10.97	0.26275927	0.11219819	-0.00536470	0.01129699	0.07572371
-0.01118489						
0.09212914	2.80	-0.14304629	0.06463819	-0.00298900	0.12289694	-0.09754519
0.00790209						
0.03101682	0.94	0.08915610	0.05115185	-0.01174846	0.06150395	-0.10470617
0.02628037						
0.00824135	0.25	0.13294551	-0.00389646	0.00787913	-0.19133039	-0.06189674
0.00044827						
0.00375565	0.11	-0.05006520	-0.08171712	0.01395998	0.34216201	0.03196141
0.00823562						

S=6 M=-0.5 N=35

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.17014381	4.40	36	318.94	<.0001

Pillai's Trace	1.12755180	2.97	36	462	<.0001
Hotelling-Lawley Trace	3.28662579	6.46	36	197.53	<.0001
Roy's Greatest Root	2.79097676	35.82	6	77	<.0001

H = Type III SSCP Matrix for drug  
E = Error SSCP Matrix

Root	Percent	Risk Success	Risk Click	Risk Time	B-success	B-time
B-click						
0.14913835	100.00	0.45782316	0.03537736	-0.00083409	0.08263172	0.14986845
-0.02568341						
0.00000000	0.00	0.01616293	-0.01595097	0.00262532	0.41340152	-0.01107515
0.00189798						
0.00000000	0.00	-0.06517760	-0.11336309	0.02068916	0.01023988	0.03249340
-0.00556849						
0.00000000	0.00	-0.00487773	0.10288261	-0.00094224	-0.01151499	-0.03653961
0.00626190						
0.00000000	0.00	-0.17077763	-0.04400261	0.00296269	0.19119028	0.06797284
0.01095644						
0.00000000	0.00	0.12796103	-0.00086459	-0.00203883	0.02832798	-0.09518395
0.02407791						

Statistic	S=1		M=2		N=31.5	
	Value	F Value	Num DF	Den DF	Pr > F	
Wilks' Lambda	0.87021723	1.62	6	65	0.1570	
Pillai's Trace	0.12978277	1.62	6	65	0.1570	
Hotelling-Lawley Trace	0.14913835	1.62	6	65	0.1570	
Roy's Greatest Root	0.14913835	1.62	6	65	0.1570	

H = Type III SSCP Matrix for version\*drug  
E = Error SSCP Matrix

Root	Percent	Risk Success	Risk Click	Risk Time	B-success	B-time
B-click						
0.18327121	58.24	0.34804169	0.03645522	-0.00346666	0.29873726	0.12776683
-0.02101668						
0.04832576	15.36	-0.04142105	-0.04385578	0.00156905	-0.01876126	0.10093979
0.00149199						
0.03784947	12.03	0.24711451	-0.05279636	0.01088679	-0.00618643	0.00692896
-0.00048269						
0.02583870	8.21	-0.26748419	-0.08617287	0.01483390	0.29927457	0.00710770
0.00766799						
0.01852238	5.89	-0.01946028	0.04520922	-0.00971030	0.17251862	-0.10946738
0.03049191						
0.00089309	0.28	0.06191466	0.10662825	-0.00145427	-0.07975160	0.00772173
-0.00073095						

Statistic	S=6		M=-0.5		N=31.5	
	Value	F Value	Num DF	Den DF	Pr > F	
Wilks' Lambda	0.74275867	0.56	36	288.2	0.9811	
Pillai's Trace	0.28171810	0.57	36	420	0.9781	
Hotelling-Lawley Trace	0.31470062	0.56	36	177.11	0.9801	
Roy's Greatest Root	0.18327121	2.14	6	70	0.0596	

**Appendix V**

Browse Task MANOVA and ANOVA Tables for Experiment 1 Hypothesis 1

Class	Levels	Values				
drug	2	1 2				
Number of observations			84			
Risks Recalled						
			Sum of			
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		1	7.44048	7.44048	0.04	0.8412
Error		82	15100.85979	184.15683		
Corrected Total		83	15108.30026			
R-Square	Coeff Var	Root MSE	rrecall Mean			
0.000492	135.4357	13.57044	10.01984			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
drug		1	7.44047619	7.44047619	0.04	0.8412
Source		DF	Type III SS	Mean Square	F Value	Pr > F
drug		1	7.44047619	7.44047619	0.04	0.8412
Benefits Recalled						
			Sum of			
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		1	1412.404468	1412.404468	13.95	0.0003
Error		82	8303.938859	101.267547		
Corrected Total		83	9716.343327			
R-Square	Coeff Var	Root MSE	brecall Mean			
0.145364	73.86177	10.06318	13.62434			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
drug		1	1412.404468	1412.404468	13.95	0.0003
Source		DF	Type III SS	Mean Square	F Value	Pr > F
drug		1	1412.404468	1412.404468	13.95	0.0003
Risks Recognized						
			Sum of			
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		1	1458.33333	1458.33333	3.10	0.0818
Error		82	38528.43915	469.85901		
Corrected Total		83	39986.77249			
R-Square	Coeff Var	Root MSE	rrecog Mean			
0.036470	85.35016	21.67623	25.39683			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
drug		1	1458.333333	1458.333333	3.10	0.0818
Source		DF	Type III SS	Mean Square	F Value	Pr > F
drug		1	1458.333333	1458.333333	3.10	0.0818
Benefits Recognized						
			Sum of			
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		1	437.33466	437.33466	0.53	0.4678
Error		82	67389.21958	821.81975		
Corrected Total		83	67826.55423			
R-Square	Coeff Var	Root MSE	b_recog Mean			
0.006448	41.81872	28.66740	68.55159			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
drug	1	437.3346561	437.3346561	0.53	0.4678

Source	DF	Type III SS	Mean Square	F Value	Pr > F
drug	1	437.3346561	437.3346561	0.53	0.4678

H = Type III SSCP Matrix for drug

Root	Percent	Risk Recall	B Recall	Risk Recog	B Recog
0.39022243	100.00	-0.06700275	0.11499161	0.04409151	-0.00265926
0.00000000	0.00	0.07023900	-0.00408869	-0.00156774	0.00009455
0.00000000	0.00	-0.06867185	-0.06907243	0.06044029	0.00099773
0.00000000	0.00	-0.00005575	0.03979576	-0.01366418	0.00344142

S=1 M=1 N=38.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.71930935	7.71	4	79	<.0001
Pillai's Trace	0.28069065	7.71	4	79	<.0001
Hotelling-Lawley Trace	0.39022243	7.71	4	79	<.0001
Roy's Greatest Root	0.39022243	7.71	4	79	<.0001

Class	Levels	Values
version	7	1 2 3 4 5 6 7

Number of observations 84

Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	3551.58730	591.93122	3.94	0.0017
Error	77	11556.71296	150.08718		
Corrected Total	83	15108.30026			

R-Square 0.235075 Coeff Var 122.2675  
 Root MSE 12.25101 rrecall Mean 10.01984

Source	DF	Type I SS	Mean Square	F Value	Pr > F
version	6	3551.587302	591.931217	3.94	0.0017

Source	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	3551.587302	591.931217	3.94	0.0017

Benefits Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	508.524397	84.754066	0.71	0.6435
Error	77	9207.818930	119.582064		
Corrected Total	83	9716.343327			

R-Square 0.052337 Coeff Var 80.26341  
 Root MSE 10.93536 brecall Mean 13.62434

Source	DF	Type I SS	Mean Square	F Value	Pr > F
version	6	508.5243974	84.7540662	0.71	0.6435

Source	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	508.5243974	84.7540662	0.71	0.6435

## Risks Recognized

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	6	9477.51323	1579.58554	3.99	0.0016
Error	77	30509.25926	396.22415		
Corrected Total	83	39986.77249			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.237016	78.37743	19.90538	25.39683

Source version	DF	Type I SS	Mean Square	F Value	Pr > F
version	6	9477.513228	1579.585538	3.99	0.0016

Source version	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	9477.513228	1579.585538	3.99	0.0016

## Benefits Recognized

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	6	12172.61905	2028.76984	2.81	0.0160
Error	77	55653.93519	722.77838		
Corrected Total	83	67826.55423			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.179467	39.21797	26.88454	68.55159

Source version	DF	Type I SS	Mean Square	F Value	Pr > F
version	6	12172.61905	2028.76984	2.81	0.0160

Source version	DF	Type III SS	Mean Square	F Value	Pr > F
version	6	12172.61905	2028.76984	2.81	0.0160

## H = Type III SSCP Matrix for version

Root	Percent	Risk Recall	B Recall	Risk Recog	B Recog
0.37989804	58.36	0.03791712	0.00409250	0.02881260	-0.00201032
0.21470900	32.98	0.00388103	-0.00503347	0.00698500	0.00399050
0.05263684	8.09	-0.08754128	-0.07100277	0.06264238	-0.00020084
0.00368620	0.57	-0.06753353	0.10536307	0.02956624	-0.00136562
		S=4	M=0.5	N=36	

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.56468237	1.92	24	259.37	0.0071
Pillai's Trace	0.50574376	1.86	24	308	0.0097
Hotelling-Lawley Trace	0.65093009	1.98	24	166.42	0.0068
Roy's Greatest Root	0.37989804	4.88	6	77	0.0003

## H = Type III SSCP Matrix for drug\*version

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.10150731	59.30	0.07866297	0.09871426	-0.03747947	-0.00103553
0.05608715	32.77	0.05461071	-0.05880319	-0.02928007	0.00476082
0.00986279	5.76	-0.07841129	0.08922650	0.02615497	0.00108756
0.00370596	2.17	-0.01674647	-0.00422972	0.05980552	-0.00093253
		S=4	M=0.5	N=32.5	

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.84809399	0.47	24	234.95	0.9840
Pillai's Trace	0.15872028	0.48	24	280	0.9823
Hotelling-Lawley Trace	0.17116321	0.47	24	149.89	0.9835
Roy's Greatest Root	0.10150731	1.18	6	70	0.3248

**Appendix W**

Noticability Ratings MANOVA and ANOVA Tables for Experiment 1 Hypothesis 1

Class	Levels	Values				
version	7	1 2 3 4 5 6 7				
Number of observations			1176			
Ratings						
				Sum of		
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		6	4067.937075	677.989512	845.61	<.0001
Error		1169	937.279762	0.801779		
Corrected Total		1175	5005.216837			
R-Square	Coeff Var	Root MSE	rating Mean			
0.812739	19.62018	0.895421	4.563776			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
version		6	4067.937075	677.989512	845.61	<.0001
Source		DF	Type III SS	Mean Square	F Value	Pr > F
version		6	4067.937075	677.989512	845.61	<.0001

Class	Levels	Values				
task	2	1 2				
Number of observations			1176			
Ratings						
				Sum of		
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		1	35.735544	35.735544	8.44	0.0037
Error		1174	4969.481293	4.232948		
Corrected Total		1175	5005.216837			
R-Square	Coeff Var	Root MSE	rating Mean			
0.007140	45.08138	2.057413	4.563776			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
task		1	35.73554422	35.73554422	8.44	0.0037
Source		DF	Type III SS	Mean Square	F Value	Pr > F
task		1	35.73554422	35.73554422	8.44	0.0037

H = Type III SSCP Matrix for version

Root	Percent	rating
4.34015247	100.00	0.03266370

S=1 M=2 N=583.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.18726057	845.61	6	1169	<.0001
Pillai's Trace	0.81273943	845.61	6	1169	<.0001
Hotelling-Lawley Trace	4.34015247	845.61	6	1169	<.0001
Roy's Greatest Root	4.34015247	845.61	6	1169	<.0001

H = Type III SSCP Matrix for task

Root	Percent	rating
0.00719100	100.00	0.01418549

S=1 M=-0.5 N=586

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99286034	8.44	1	1174	0.0037
Pillais' Trace	0.00713966	8.44	1	1174	0.0037
Hotelling-Lawley Trace	0.00719100	8.44	1	1174	0.0037
Roy's Greatest Root	0.00719100	8.44	1	1174	0.0037

H = Type III SSCP Matrix for drug

Root	Percent	rating
0.00004910	100.00	0.01413511

S=1 M=-0.5 N=586

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99995090	0.06	1	1174	0.8103
Pillais' Trace	0.00004910	0.06	1	1174	0.8103
Hotelling-Lawley Trace	0.00004910	0.06	1	1174	0.8103
Roy's Greatest Root	0.00004910	0.06	1	1174	0.8103

H = Type III SSCP Matrix for version\*task

Root	Percent	rating
0.00032028	100.00	0.01427248

S=1 M=-0.5 N=585

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99967982	0.38	1	1172	0.5402
Pillais' Trace	0.00032018	0.38	1	1172	0.5402
Hotelling-Lawley Trace	0.00032028	0.38	1	1172	0.5402
Roy's Greatest Root	0.00032028	0.38	1	1172	0.5402

H = Type III SSCP Matrix for version\*drug

Root	Percent	rating
0.00096798	100.00	0.01422579

S=1 M=-0.5 N=585

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99903295	1.13	1	1172	0.2870
Pillais' Trace	0.00096705	1.13	1	1172	0.2870
Hotelling-Lawley Trace	0.00096798	1.13	1	1172	0.2870
Roy's Greatest Root	0.00096798	1.13	1	1172	0.2870

H = Type III SSCP Matrix for task\*drug

Root	Percent	rating
0.00076875	100.00	0.01419130

S=1 M=-0.5 N=585

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99923184	0.90	1	1172	0.3427
Pillais' Trace	0.00076816	0.90	1	1172	0.3427
Hotelling-Lawley Trace	0.00076875	0.90	1	1172	0.3427
Roy's Greatest Root	0.00076875	0.90	1	1172	0.3427

H = Type III SSCP Matrix for version\*task\*drug

Root	Percent	rating
0.00007653	100.00	0.01428590

S=1 M=-0.5 N=583

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99992347	0.09	1	1168	0.7650
Pillais' Trace	0.00007653	0.09	1	1168	0.7650
Hotelling-Lawley Trace	0.00007653	0.09	1	1168	0.7650
Roy's Greatest Root	0.00007653	0.09	1	1168	0.7650

**Appendix X**

Search and Find Task MANOVA and ANOVA Tables for Experiment 1 Hypothesis 2

Level 1 = Home (Separated-home)  
 Level 2 = Second (Separated-home, Separate-second)

Class            Levels    Values  
 level            2        1 2

Number of observations    36

#### Risks Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.12500000	0.12500000	1.62	0.2119
Error	34	2.62500000	0.07720588		
Corrected Total	35	2.75000000			

R-square	Coeff Var	Root MSE	r_corr Mean
0.045455	30.31194	0.277859	0.916667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	0.12500000	0.12500000	1.62	0.2119

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	0.12500000	0.12500000	1.62	0.2119

#### Risk Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5.02656436	5.02656436	4.86	0.0344
Error	34	35.19485843	1.03514290		
Corrected Total	35	40.22142280			

R-Square	Coeff Var	Root MSE	rtime Mean
0.124972	35.62842	1.017420	2.855641

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	5.02656436	5.02656436	4.86	0.0344

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	5.02656436	5.02656436	4.86	0.0344

#### Risk Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	210.1250000	210.1250000	7.07	0.0119
Error	34	1010.6250000	29.724265		
Corrected Total	35	1220.7500000			

R-square	Coeff Var	Root MSE	r_click Mean
0.172128	133.5183	5.451996	4.083333

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	210.1250000	210.1250000	7.07	0.0119

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	210.1250000	210.1250000	7.07	0.0119

#### Benefit Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.05555556	0.05555556	2.06	0.1603

Error	34	0.91666667	0.02696078
Corrected Total	35	0.97222222	

R-square	Coeff Var	Root MSE	b_corr Mean
0.057143	16.88887	0.164197	0.972222

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	0.05555556	0.05555556	2.06	0.1603

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	0.05555556	0.05555556	2.06	0.1603

Benefit Time

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	0.67122017	0.67122017	0.68	0.4165
Error	34	33.73402753	0.99217728		
Corrected Total	35	34.40524770			

R-Square	Coeff Var	Root MSE	btime Mean
0.019509	38.85903	0.996081	2.563319

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	0.67122017	0.67122017	0.68	0.4165

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	0.67122017	0.67122017	0.68	0.4165

Benefit Clicks

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	4.5000000	4.5000000	0.71	0.4040
Error	34	214.2500000	6.3014706		
Corrected Total	35	218.7500000			

R-square	Coeff Var	Root MSE	b_click Mean
0.020571	97.17186	2.510273	2.583333

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	4.50000000	4.50000000	0.71	0.4040

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	4.50000000	4.50000000	0.71	0.4040

H = Type III SSCP Matrix for level

Root	Percent	Risk Success	Risk Click	Risk Time	B-success	B-time
B-click						
0.63464381	100.00	0.37622527	-0.09015589	-0.00987484	2.86274713	0.04848635
0.14928180						
0.00000000	0.00	0.21443549	-0.10275896	0.01886193	0.57668990	0.30306034
-0.03751481						
0.00000000	0.00	0.56356406	0.01374947	0.00505403	-0.75305191	0.02179776
-0.04723119						
0.00000000	0.00	-0.18051569	-0.26345769	0.04469908	0.95825857	-0.02773765
0.06010169						
0.00000000	0.00	0.06151782	0.09127284	-0.00609897	-0.31147998	0.04444896
-0.09631160						
0.00000000	0.00	0.49298584	0.10654748	0.00748050	1.90432478	-0.07302700
		0.15823425				

	S=1	M=2	N=13.5			
Statistic		Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda		0.61175407	3.07	6	29	0.0190
Pillai's Trace		0.38824593	3.07	6	29	0.0190
Hotelling-Lawley Trace		0.63464381	3.07	6	29	0.0190
Roy's Greatest Root		0.63464381	3.07	6	29	0.0190

H = Type III SSCP Matrix for level*drug						
Root	Percent	Risk Success	Risk Click	Risk Time	B-success	B-time
B-click						
0.09977180	100.00	0.25823362	-0.01119613	0.01685593	0.62485193	0.02316775
-0.02328052						
0.00000000	0.00	0.30065118	-0.12428344	0.01244432	1.31685475	0.30708641
0.00102755						
0.00000000	0.00	0.34311936	-0.07524685	0.00985240	3.35801429	-0.08921990
0.25196292						
0.00000000	0.00	0.57409472	0.00289593	-0.00409756	-0.20813818	0.00000000
0.00000000						
0.00000000	0.00	-0.26552310	-0.24107536	0.04601371	-0.38673142	0.00000000
0.00000000						
0.00000000	0.00	0.36282142	0.18425860	0.00217435	-0.54989426	0.00000000
0.00000000						

	S=1	M=2	N=12.5			
Statistic		Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda		0.90927954	0.45	6	27	0.8393
Pillai's Trace		0.09072046	0.45	6	27	0.8393
Hotelling-Lawley Trace		0.09977180	0.45	6	27	0.8393
Roy's Greatest Root		0.09977180	0.45	6	27	0.8393

**Appendix Y**

Browse Task MANOVA and ANOVA Tables for Experiment 1 Hypothesis 3

Level 1 = Home (Integrated-home, Separated-home)  
 Level 2 = Second (Integrated-second, Separated-second, Separated-mixed)

Class Levels Values  
 level 2 1 2

Number of observations 60

#### Risk Recall

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1027.97068	1027.97068	5.17	0.0266
Error	58	11522.95525	198.67164		
Corrected Total	59	12550.92593			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.081904	107.9624	14.09509	13.05556

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	1027.970679	1027.970679	5.17	0.0266

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	1027.970679	1027.970679	5.17	0.0266

#### Benefit Recall

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1.371742	1.371742	0.01	0.9171
Error	58	7280.521262	125.526229		
Corrected Total	59	7281.893004			

R-Square	Coeff Var	Root MSE	brecall Mean
0.000188	76.58327	11.20385	14.62963

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	1.37174211	1.37174211	0.01	0.9171

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	1.37174211	1.37174211	0.01	0.9171

#### Risk Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2046.48920	2046.48920	4.15	0.0463
Error	58	28629.43673	493.61098		
Corrected Total	59	30675.92593			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.066713	71.41294	22.21736	31.11111

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	2046.489198	2046.489198	4.15	0.0463

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	2046.489198	2046.489198	4.15	0.0463

#### Benefits Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2966.04938	2966.04938	4.27	0.0433

Error	58	40287.42284	694.61074
Corrected Total	59	43253.47222	

R-Square	Coeff Var	Root MSE	b_recog Mean
0.068574	36.99013	26.35547	71.25000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	2966.049383	2966.049383	4.27	0.0433

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	2966.049383	2966.049383	4.27	0.0433

H = Type III SSCP Matrix for level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.23738402	100.00	-0.02722948	0.00974421	-0.02943315	0.00406985
0.00000000	0.00	-0.09608969	-0.01839665	0.07383370	0.00060689
0.00000000	0.00	-0.01550024	0.14086549	0.00375536	-0.00099333
0.00000000	0.00	0.06968607	-0.02920625	-0.01367290	0.00361663

S=1 M=1 N=26.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.80815655	3.26	4	55	0.0179
Pillai's Trace	0.19184345	3.26	4	55	0.0179
Hotelling-Lawley Trace	0.23738402	3.26	4	55	0.0179
Roy's Greatest Root	0.23738402	3.26	4	55	0.0179

H = Type III SSCP Matrix for drug\*level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.04605422	100.00	0.04974557	-0.14491735	-0.02889236	0.00524348
0.00000000	0.00	-0.09167243	-0.01198766	0.07835846	0.00007863
0.00000000	0.00	0.07505726	0.00832052	0.00158624	-0.00030074
0.00000000	0.00	-0.00669080	0.08670040	-0.01800835	0.00341424

S=1 M=1 N=25.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.95597339	0.61	4	53	0.6571
Pillai's Trace	0.04402661	0.61	4	53	0.6571
Hotelling-Lawley Trace	0.04605422	0.61	4	53	0.6571
Roy's Greatest Root	0.04605422	0.61	4	53	0.6571

Level 1 = Home (Integrated-home)  
 Level 2 = Second (Integrated-second)

Class levels Values  
 level 2 1 2

Number of observations 24

#### Risks Recalled

			Sum of		
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	350.115741	350.115741	2.42	0.1344
Error	22	3188.657407	144.938973		
Corrected Total	23	3538.773148			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.098937	138.6900	12.03906	8.680556

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	350.1157407	350.1157407	2.42	0.1344

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	350.1157407	350.1157407	2.42	0.1344

#### Benefits Recalled

			Sum of		
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	20.576132	20.576132	0.17	0.6848
Error	22	2674.897119	121.586233		
Corrected Total	23	2695.473251			

R-Square	Coeff Var	Root MSE	brecall Mean
0.007634	91.60572	11.02661	12.03704

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	20.57613169	20.57613169	0.17	0.6848

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	20.57613169	20.57613169	0.17	0.6848

#### Risks Recognized

			Sum of		
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	350.11574	350.11574	0.61	0.4420
Error	22	12563.65741	571.07534		
Corrected Total	23	12913.77315			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.027112	89.38167	23.89718	26.73611

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	350.1157407	350.1157407	0.61	0.4420

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	350.1157407	350.1157407	0.61	0.4420

#### Benefits Recognized

			Sum of		
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	7526.04167	7526.04167	12.64	0.0018
Error	22	13096.06481	595.27567		
Corrected Total	23	20622.10648			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.364950	36.78902	24.39827	66.31944

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	7526.041667	7526.041667	12.64	0.0018

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	7526.041667	7526.041667	12.64	0.0018

H = Type III SSCP Matrix for level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.84857505	100.00	-0.08395254	-0.05297079	0.00640454	0.00886062
0.00000000	0.00	-0.15487997	-0.03508575	0.11472883	-0.00087410
0.00000000	0.00	-0.01296551	0.22787968	0.00217545	-0.00135165
0.00000000	0.00	0.13926759	-0.04309078	-0.00588280	0.00365509

S=1 M=1 N=8.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.54095721	4.03	4	19	0.0156
Pillai's Trace	0.45904279	4.03	4	19	0.0156
Hotelling-Lawley Trace	0.84857505	4.03	4	19	0.0156
Roy's Greatest Root	0.84857505	4.03	4	19	0.0156

H = Type III SSCP Matrix for drug\*level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.21644670	100.00	0.21289260	-0.05088533	-0.08118424	0.00696681
0.00000000	0.00	-0.04744687	0.23228096	0.00655510	-0.00056252
0.00000000	0.00	-0.08959114	-0.06420929	0.09447507	0.00369891
0.00000000	0.00	-0.08208792	-0.10105501	-0.01826071	0.00825764

S=1 M=1 N=7.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.82206643	0.92	4	17	0.4751
Pillai's Trace	0.17793357	0.92	4	17	0.4751
Hotelling-Lawley Trace	0.21644670	0.92	4	17	0.4751
Roy's Greatest Root	0.21644670	0.92	4	17	0.4751

**Appendix Z**

Noticability Ratings MANOVA and ANOVA Tables for Experiment 1 Hypothesis 4

Level 1 = Home (Integrated-home, Separated-home)  
 Level 2 = Second (Integrated-second, Separated-second, Separated-mixed)

Class	Levels	Values
drug	2	1 2
level	2	1 2

Number of observations 840

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	22.9154762	7.6384921	7.90	<.0001
Error	836	808.0833333	0.9666069		
Corrected Total	839	830.9988095			

R-Square	Coeff Var	Root MSE	rating Mean
0.027576	17.20175	0.983162	5.715476

Source	DF	Type I SS	Mean Square	F Value	Pr > F
drug	1	0.02976190	0.02976190	0.03	0.8608
level	1	16.45714286	16.45714286	17.03	<.0001
drug*level	1	6.42857143	6.42857143	6.65	0.0101

Source	DF	Type III SS	Mean Square	F Value	Pr > F
drug	1	0.45714286	0.45714286	0.47	0.4918
level	1	16.45714286	16.45714286	17.03	<.0001
drug*level	1	6.42857143	6.42857143	6.65	0.0101

Drug = Celebrex

Class	Levels	Values
level	2	1 2

Number of observations 420

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	21.7285714	21.7285714	22.78	<.0001
Error	418	398.6785714	0.9537765		
Corrected Total	419	420.4071429			

R-Square	Coeff Var	Root MSE	rating Mean
0.051685	17.06942	0.976615	5.721429

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	21.72857143	21.72857143	22.78	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	21.72857143	21.72857143	22.78	<.0001

Drug = Singular

Class	Levels	Values
level	2	1 2

Number of observations 420

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1.1571429	1.1571429	1.18	0.2777
Error	418	409.4047619	0.9794372		
Corrected Total	419	410.5619048			

R-Square	Coeff Var	Root MSE	rating Mean
----------	-----------	----------	-------------

0.002818	17.33359	0.989665	5.709524			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
level		1	1.15714286	1.15714286	1.18	0.2777
Source		DF	Type III SS	Mean Square	F Value	Pr > F
level		1	1.15714286	1.15714286	1.18	0.2777

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.00795533	100.00	0.03517806

S=1 M=-0.5 N=417

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99210746	6.65	1	836	0.0101
Pillai's Trace	0.00789254	6.65	1	836	0.0101
Hotelling-Lawley Trace	0.00795533	6.65	1	836	0.0101
Roy's Greatest Root	0.00795533	6.65	1	836	0.0101

Level 1 = Home (Integrated-home)  
 Level 2 = Second (Integrated-second)

Class	Levels	Values
drug	2	1 2
level	2	1 2

Number of observations 336

#### Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	11.6785714	3.8928571	3.87	0.0096
Error	332	333.6428571	1.0049484		
Corrected Total	335	345.3214286			

R-Square	Coeff Var	Root MSE	rating Mean
0.033819	17.70927	1.002471	5.660714

Source	DF	Type I SS	Mean Square	F Value	Pr > F
drug	1	0.96428571	0.96428571	0.96	0.3280
level	1	6.85714286	6.85714286	6.82	0.0094
drug*level	1	3.85714286	3.85714286	3.84	0.0509

Source	DF	Type III SS	Mean Square	F Value	Pr > F
drug	1	0.96428571	0.96428571	0.96	0.3280
level	1	6.85714286	6.85714286	6.82	0.0094
drug*level	1	3.85714286	3.85714286	3.84	0.0509

#### Drug = Celebrex

Class	Levels	Values
level	2	1 2

Number of observations 168

#### Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	10.5000000	10.5000000	11.19	0.0010
Error	166	155.7857143	0.9384682		
Corrected Total	167	166.2857143			

R-Square	Coeff Var	Root MSE	rating Mean
0.063144	16.95305	0.968746	5.714286

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	10.50000000	10.50000000	11.19	0.0010

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	10.50000000	10.50000000	11.19	0.0010

#### Drug = Singulair

Class	Levels	Values
level	2	1 2

Number of observations 168

#### Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.2142857	0.2142857	0.20	0.6553
Error	166	177.8571429	1.0714286		
Corrected Total	167	178.0714286			

R-Square	Coef Var	Root MSE	rating Mean			
0.001203	18.46035	1.035098	5.607143			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
level		1	0.21428571	0.21428571	0.20	0.6553
Source		DF	Type III SS	Mean Square	F Value	Pr > F
level		1	0.21428571	0.21428571	0.20	0.6553

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.01156069	100.00	0.05474684

S=1 M=-0.5 N=165

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.98857143	3.84	1	332	0.0509
Pillai's Trace	0.01142857	3.84	1	332	0.0509
Hotelling-Lawley Trace	0.01156069	3.84	1	332	0.0509
Roy's Greatest Root	0.01156069	3.84	1	332	0.0509

Level 1 = Home (Separated-home)  
 Level 2 = Second (Separated-second, Separated-mixed)

Class	Levels	Values
level	2	1 2

Number of observations 504

## Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	12.0039683	12.0039683	12.77	0.0004
Error	502	471.9940476	0.9402272		
Corrected Total	503	483.9980159			

R-Square	Coeff Var	Root MSE	rating Mean
0.024802	16.85772	0.969653	5.751984

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	12.00396825	12.00396825	12.77	0.0004

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	12.00396825	12.00396825	12.77	0.0004

H = Type III SSCP Matrix for level

Root	Percent	rating
0.02543246	100.00	0.04602902

S=1 M=-0.5 N=250

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.97519831	12.77	1	502	0.0004
Pillai's Trace	0.02480169	12.77	1	502	0.0004
Hotelling-Lawley Trace	0.02543246	12.77	1	502	0.0004
Roy's Greatest Root	0.02543246	12.77	1	502	0.0004

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.00447059	100.00	0.04614819

S=1 M=-0.5 N=249

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99554931	2.24	1	500	0.1355
Pillai's Trace	0.00445069	2.24	1	500	0.1355
Hotelling-Lawley Trace	0.00447059	2.24	1	500	0.1355
Roy's Greatest Root	0.00447059	2.24	1	500	0.1355

Level 1 = Home (Separated-home)  
 Level 2 = Second (Separated-mixed)

Class	Levels	Values
level	2	1 2

Number of observations 336

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	18.1071429	18.1071429	18.39	<.0001
Error	334	328.8452381	0.9845666		
Corrected Total	335	346.9523810			

R-Square	Coef Var	Root MSE	rating Mean
0.052189	17.29238	0.992253	5.738095

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	18.10714286	18.10714286	18.39	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	18.10714286	18.10714286	18.39	<.0001

H = Type III SSCP Matrix for level

Root	Percent	rating
0.05506281	100.00	0.05514476

S=1 M=-0.5 N=166

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.94781087	18.39	1	334	<.0001
Pillai's Trace	0.05218913	18.39	1	334	<.0001
Hotelling-Lawley Trace	0.05506281	18.39	1	334	<.0001
Roy's Greatest Root	0.05506281	18.39	1	334	<.0001

H = Type III SSCP Matrix for drug\*level  
 E = Error SSCP Matrix

Characteristic Root	Percent	Characteristic Vector	V'EV=1
0.01058686	100.00	rating	0.05547205

S=1 M=-0.5 N=165

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.98952405	3.51	1	332	0.0617
Pillai's Trace	0.01047595	3.51	1	332	0.0617
Hotelling-Lawley Trace	0.01058686	3.51	1	332	0.0617
Roy's Greatest Root	0.01058686	3.51	1	332	0.0617

**Appendix AA**

Browse Task MANOVA and ANOVA Tables for Experiment 1 Hypothesis 6

Level: 1 - Integrated (Integrated-Second)  
2 - Separated (Separated-Second)

Class            Levels    Values  
level            2        1 2

Number of observations    24

Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	104.166667	104.166667	0.49	0.4902
Error	22	4652.777778	211.489899		
Corrected Total	23	4756.944444			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.021898	99.72132	14.54269	14.58333

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	1	104.1666667	104.1666667	0.49	0.4902

Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	1	104.1666667	104.1666667	0.49	0.4902

Benefits Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	128.600823	128.600823	1.35	0.2569
Error	22	2088.477366	94.930789		
Corrected Total	23	2217.078189			

R-Square	Coeff Var	Root MSE	brecall Mean
0.058005	72.57036	9.743243	13.42593

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	1	128.6008230	128.6008230	1.35	0.2569

Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	1	128.6008230	128.6008230	1.35	0.2569

Risks Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	289.35185	289.35185	0.57	0.4594
Error	22	11226.85185	510.31145		
Corrected Total	23	11516.20370			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.025126	66.38716	22.59007	34.02778

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	1	289.3518519	289.3518519	0.57	0.4594

Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	1	289.3518519	289.3518519	0.57	0.4594

Benefits Recognize

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F

Model	1	7233.79630	7233.79630	12.61	0.0018
Error	22	12615.74074	573.44276		
Corrected Total	23	19849.53704			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.364431	36.29810	23.94666	65.97222

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	7233.796296	7233.796296	12.61	0.0018

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	7233.796296	7233.796296	12.61	0.0018

H = Type III SSCP Matrix for level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.61556823	100.00	0.04472301	-0.01974713	-0.03082333	0.00955747
0.00000000	0.00	-0.13455908	-0.02249668	0.11968308	-0.00066478
0.00000000	0.00	0.11285437	0.00334602	0.00860305	-0.00187173
0.00000000	0.00	-0.06339061	0.27860234	0.01255596	-0.00273175

S=1 M=1 N=8.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.61897726	2.92	4	19	0.0485
Pillai's Trace	0.38102274	2.92	4	19	0.0485
Hotelling-Lawley Trace	0.61556823	2.92	4	19	0.0485
Roy's Greatest Root	0.61556823	2.92	4	19	0.0485

H = Type III SSCP Matrix for drug\*level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.01544955	100.00	0.14538987	0.07151445	-0.04620536	-0.00289569
0.00000000	0.00	-0.06969088	0.27289884	0.00613781	0.00038466
0.00000000	0.00	0.10453320	-0.11747314	-0.06596117	0.01012424
0.00000000	0.00	-0.05098098	-0.00077567	0.10234980	0.00000000

S=1 M=1 N=7.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.98478550	0.07	4	17	0.9913
Pillai's Trace	0.01521450	0.07	4	17	0.9913
Hotelling-Lawley Trace	0.01544955	0.07	4	17	0.9913
Roy's Greatest Root	0.01544955	0.07	4	17	0.9913

**Appendix BB**

Noticability Ratings MANOVA and ANOVA Tables for Experiment 1 Hypothesis 7

Level 1 = Integrated (Integrated-second)  
 Level 2 = Separated (Separated-second)

Class	Levels	Values
level	2	1 2

Number of observations 336

## Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5.7619048	5.7619048	6.57	0.0108
Error	334	292.7976190	0.8766396		
Corrected Total	335	298.5595238			

R-Square	Coeff Var	Root MSE	rating Mean
0.019299	16.57500	0.936290	5.648810

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	5.76190476	5.76190476	6.57	0.0108

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	5.76190476	5.76190476	6.57	0.0108

H = Type III SSCP Matrix for level

Root	Percent	rating
0.01967880	100.00	0.05844081

S=1 M=-0.5 N=166

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.98070098	6.57	1	334	0.0108
Pillai's Trace	0.01929902	6.57	1	334	0.0108
Hotelling-Lawley Trace	0.01967880	6.57	1	334	0.0108
Roy's Greatest Root	0.01967880	6.57	1	334	0.0108

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.00065162	100.00	0.05848958

S=1 M=-0.5 N=165

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99934880	0.22	1	332	0.6421
Pillai's Trace	0.00065120	0.22	1	332	0.6421
Hotelling-Lawley Trace	0.00065162	0.22	1	332	0.6421
Roy's Greatest Root	0.00065162	0.22	1	332	0.6421

**Appendix CC**

Search and Find MANOVA and ANOVA Tables for Experiment 2 Hypothesis 1

Level 1 = Separated-home  
 Level 2 = Separated-second and Separated-mixed  
 Level 3 = Separated-fourth

Class	Levels	Values
level	3	1 2 3
drug	2	1 2

Number of observations 48

#### Risk Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.12500000	0.06250000	0.79	0.4582
Error	45	3.54166667	0.07870370		
Corrected Total	47	3.66666667			

R-Square	Coeff Var	Root MSE	r_corr Mean
0.034091	30.60456	0.280542	0.916667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	0.12500000	0.06250000	0.79	0.4582

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	0.12500000	0.06250000	0.79	0.4582

#### Risk Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	31.12773382	15.56386691	16.36	<.0001
Error	45	42.81858143	0.95152403		
Corrected Total	47	73.94631526			

R-Square	Coeff Var	Root MSE	rtime Mean
0.420950	29.72711	0.975461	3.281385

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	31.12773382	15.56386691	16.36	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	31.12773382	15.56386691	16.36	<.0001

#### Risk Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	694.12500000	347.06250000	10.28	0.0002
Error	45	1519.54166667	33.767593		
Corrected Total	47	2213.66666667			

R-Square	Coeff Var	Root MSE	r_click Mean
0.313563	98.21390	5.810989	5.916667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	694.12500000	347.06250000	10.28	0.0002

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	694.12500000	347.06250000	10.28	0.0002

Benefit Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.22916667	0.11458333	2.00	0.1477
Error	45	2.58333333	0.05740741		
Corrected Total	47	2.81250000			

R-Square	Coeff Var	Root MSE	b_corr Mean
0.081481	25.55717	0.239598	0.937500

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	2	0.22916667	0.11458333	2.00	0.1477

Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	2	0.22916667	0.11458333	2.00	0.1477

Benefit Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	14.62887633	7.31443816	6.31	0.0038
Error	45	52.13332361	1.15851830		
Corrected Total	47	66.76219994			

R-Square	Coeff Var	Root MSE	btime Mean
0.219119	37.44262	1.076345	2.874652

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	2	14.62887633	7.31443816	6.31	0.0038

Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	2	14.62887633	7.31443816	6.31	0.0038

Benefit Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	328.500000	164.250000	7.94	0.0011
Error	45	931.166667	20.692593		
Corrected Total	47	1259.666667			

R-Square	Coeff Var	Root MSE	b_click Mean
0.260783	111.4019	4.548911	4.083333

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	2	328.500000	164.250000	7.94	0.0011

Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	2	328.500000	164.250000	7.94	0.0011

H = Type III SSCP Matrix for level

Root B-Clicks	Percent	Risk Success	Risk Time	Risk Clicks	B-Success	B-Time
1.46452964	92.12	0.23499528	0.12702666	0.00564188	0.14792185	-0.01743652
0.02927730						
0.12530188	7.88	0.22243164	0.03288831	-0.01582733	0.68297785	-0.03396516
0.03768649						
0.00000000	0.00	0.05051342	0.03369484	0.00436819	0.49145896	0.00610437
-0.00479311						
0.00000000	0.00	0.00923321	-0.14248632	0.01763123	0.27761723	0.20809969
-0.01787333						
0.00000000	0.00	0.14775976	-0.15061675	0.03022866	0.20319782	-0.05978005
0.02291465						
0.00000000	0.00	0.52850707	0.03063184	0.00186036	-0.38403309	0.11298113

-0.04330748

S=2 M=1.5 N=19

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.36057608	4.44	12	80	<.0001
Pillai's Trace	0.70559263	3.72	12	82	0.0002
Hotelling-Lawley Trace	1.58983152	5.21	12	59.213	<.0001
Roy's Greatest Root	1.46452964	10.01	6	41	<.0001

H = Type III SSCP Matrix for level\*drug

Root	Percent	Risk Success	Risk Time	Risk Clicks	B-Success	B-Time
B-Clicks						
0.46328414	90.46	0.33176745	0.00967365	0.00045146	1.09520404	0.08300839
0.02296590						
0.04888301	9.54	0.15542538	0.02216794	0.01575558	0.04299754	-0.13506427
0.01337685						
0.00000000	0.00	0.47541648	-0.00630249	-0.00350150	-0.17609120	0.01679096
-0.00641060						
0.00000000	0.00	-0.13029093	0.03165692	-0.00581700	0.37897275	-0.16866855
0.06669830						
0.00000000	0.00	0.28716934	0.19991274	-0.00949263	-0.17927863	0.02500986
0.00000000						
0.00000000	0.00	0.12108469	-0.14854138	0.03423955	0.01969031	0.10757158
0.00000000						

S=2 M=1.5 N=17.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.65154480	1.47	12	74	0.1539
Pillai's Trace	0.36321055	1.41	12	76	0.1822
Hotelling-Lawley Trace	0.51216715	1.55	12	54.553	0.1347
Roy's Greatest Root	0.46328414	2.93	6	38	0.0188

Level 1 = Separated-home  
 Level 2 = Separated-second  
 Level 3 = Separated-fourth

Class Level Information  
 Class            Levels    Values  
 level            3        1 2 3

Number of observations    36

#### Risk Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.05555556	0.02777778	0.26	0.7712
Error	33	3.50000000	0.10606061		
Corrected Total	35	3.55555556			

R-Square	Coeff Var	Root MSE	r_corr Mean
0.015625	36.63782	0.325669	0.888889

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	0.05555556	0.02777778	0.26	0.7712

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	0.05555556	0.02777778	0.26	0.7712

#### Risk Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	26.93895589	13.46947795	11.41	0.0002
Error	33	38.95902240	1.18057644		
Corrected Total	35	65.89797830			

R-Square	Coeff Var	Root MSE	rtime Mean
0.408798	31.38264	1.086543	3.462243

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	26.93895589	13.46947795	11.41	0.0002

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	26.93895589	13.46947795	11.41	0.0002

#### Risk Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	488.7222222	244.3611111	5.34	0.0098
Error	33	1510.8333333	45.782828		
Corrected Total	35	1999.555556			

R-Square	Coeff Var	Root MSE	r_click Mean
0.244415	95.15111	6.766301	7.111111

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	488.7222222	244.3611111	5.34	0.0098

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	488.7222222	244.3611111	5.34	0.0098

#### Benefit Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.16666667	0.08333333	1.06	0.3564

Error	33	2.58333333	0.07828283
Corrected Total	35	2.75000000	

R-Square	Coeff Var	Root MSE	b_corr Mean
0.060606	30.52262	0.279791	0.916667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	0.16666667	0.08333333	1.06	0.3564

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	0.16666667	0.08333333	1.06	0.3564

Benefit Time

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	2	13.66258814	6.83129407	4.80	0.0148
Error	33	46.93463690	1.42226172		
Corrected Total	35	60.59722504			

R-Square	Coeff Var	Root MSE	btime Mean
0.225466	40.15038	1.192586	2.970299

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	13.66258814	6.83129407	4.80	0.0148

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	13.66258814	6.83129407	4.80	0.0148

Benefit Click

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	2	274.888889	137.444444	4.92	0.0135
Error	33	922.750000	27.962121		
Corrected Total	35	1197.638889			

R-Square	Coeff Var	Root MSE	b_click Mean
0.229526	112.6421	5.287922	4.694444

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	274.888889	137.444444	4.92	0.0135

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	274.888889	137.444444	4.92	0.0135

H = Type III SSCP Matrix for level

Root	Percent	Risk Success	Risk Time	Risk Click	B-Success	B-Time
B-Click						
1.50466351	93.30	0.33085950	0.16130989	0.00105035	0.15480073	0.01435045
0.02270708						
0.10805209	6.70	0.06939131	-0.00056224	-0.01144073	0.74726793	-0.09306540
0.05387683						
0.00000000	0.00	0.06572419	-0.17036269	0.03670414	0.25402465	-0.03007631
0.01885043						
0.00000000	0.00	0.10800868	0.05899845	-0.00215327	0.47529275	0.02741245
-0.01074527						
0.00000000	0.00	0.55065539	0.02828217	-0.00119556	-0.29520163	0.04515322
-0.02664276						
0.00000000	0.00	0.14651168	-0.11609606	0.01098302	0.20972619	0.25097180
-0.03008532						

	S=2	M=1.5	N=13			
Statistic	Value	F Value	Num DF	Den DF	Pr > F	
Wilks' Lambda	0.36032171	3.11	12	56	0.0020	
Pillai's Trace	0.69826012	2.59	12	58	0.0079	
Hotelling-Lawley Trace	1.61271560	3.68	12	40.581	0.0009	
Roy's Greatest Root	1.50466351	7.27	6	29	<.0001	

H = Type III SSCP Matrix for level\*drug

Root	Percent	Risk Success	Risk Time	Risk Click	B-Success	B-Time
B-Click						
0.50746007	85.44	0.37521459	0.02434143	-0.00052979	1.08327110	0.13045246
0.01576075						
0.08644807	14.56	0.19276825	0.03361910	0.01015021	0.15981149	-0.17589168
0.02515718						
0.00000000	0.00	-0.23326084	0.02181063	-0.00589739	0.43543156	-0.16794421
0.06896978						
0.00000000	0.00	0.44257576	-0.01248336	-0.00507075	-0.10654698	0.02821397
0.00000000						
0.00000000	0.00	-0.01746749	-0.22568060	0.03820176	0.08439535	0.07758105
0.00000000						
0.00000000	0.00	0.34869350	0.14860135	0.00418808	-0.18775012	0.05717518
0.00000000						

	S=2	M=1.5	N=11.5			
Statistic	Value	F Value	Num DF	Den DF	Pr > F	
Wilks' Lambda	0.61058370	1.17	12	50	0.3327	
Pillai's Trace	0.41620196	1.14	12	52	0.3509	
Hotelling-Lawley Trace	0.59390814	1.21	12	35.928	0.3169	
Roy's Greatest Root	0.50746007	2.20	6	26	0.0756	

Level 1 = Separated-home  
 Level 2 = Separated-mixed  
 Level 3 = Separated-fourth

Class	Levels	Values
level	3	1 2 3

Number of observations 36

#### Risk Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.16666667	0.08333333	1.06	0.3564
Error	33	2.58333333	0.07828283		
Corrected Total	35	2.75000000			

R-Square	Coeff Var	Root MSE	r_corr Mean
0.060606	30.52262	0.279791	0.916667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	0.16666667	0.08333333	1.06	0.3564

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	0.16666667	0.08333333	1.06	0.3564

#### Risk Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	20.43038970	10.21519485	10.30	0.0003
Error	33	32.73781782	0.99205509		
Corrected Total	35	53.16820751			

R-Square	Coeff Var	Root MSE	rtime Mean
0.384260	27.97411	0.996020	3.560505

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	20.43038970	10.21519485	10.30	0.0003

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	20.43038970	10.21519485	10.30	0.0003

#### Risk Click

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	498.1666667	249.0833333	5.47	0.0089
Error	33	1502.5833333	45.532828		
Corrected Total	35	2000.750000			

R-Square	Coeff Var	Root MSE	r_click Mean
0.248990	95.26308	6.747802	7.083333

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	498.1666667	249.0833333	5.47	0.0089

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	498.1666667	249.0833333	5.47	0.0089

#### Benefit Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.16666667	0.08333333	1.06	0.3564
Error	33	2.58333333	0.07828283		
Corrected Total	35	2.75000000			

R-Square      Coeff Var      Root MSE      b\_corr Mean  
 0.060606      30.52262      0.279791      0.916667

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	2	0.16666667	0.08333333	1.06	0.3564
Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	2	0.16666667	0.08333333	1.06	0.3564

Benefit Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	10.50533849	5.25266925	3.80	0.0328
Error	33	45.67229272	1.38400887		
Corrected Total	35	56.17763121			

R-Square      Coeff Var      Root MSE      btime Mean  
 0.187002      38.56003      1.176439      3.050929

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	2	10.50533849	5.25266925	3.80	0.0328
Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	2	10.50533849	5.25266925	3.80	0.0328

Benefit Click

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	284.222222	142.111111	5.12	0.0116
Error	33	916.083333	27.760101		
Corrected Total	35	1200.305556			

R-Square      Coeff Var      Root MSE      b\_click Mean  
 0.236792      113.5786      5.268786      4.638889

Source level	DF	Type I SS	Mean Square	F Value	Pr > F
	2	284.222222	142.111111	5.12	0.0116
Source level	DF	Type III SS	Mean Square	F Value	Pr > F
	2	284.222222	142.111111	5.12	0.0116

H = Type III SSCP Matrix for level

Root B-Click	Percent	Risk-Success	Risk-Time	Risk-Click	B-Success	B-Time
1.30352110	90.93	0.17120582	0.18555498	-0.00302783	0.19202256	-0.05343076
0.03785155						
0.12998786	9.07	0.39107893	0.05445777	-0.01729053	0.50650579	0.03117668
0.01372090						
0.00000000	0.00	-0.36714371	-0.04286471	-0.00209239	0.48419220	-0.21433220
0.06454756						
0.00000000	0.00	-0.08734541	-0.19264522	0.02249182	0.42557917	0.17193921
0.00000000						
0.00000000	0.00	-0.01277538	0.01993333	0.00588484	0.54475995	0.00000000
0.00000000						
0.00000000	0.00	0.49113343	-0.15025328	0.03460839	0.00000000	0.00000000
0.00000000						

S=2      M=1.5      N=13

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.38417936	2.86	12	56	0.0039
Pillai's Trace	0.68091673	2.49	12	58	0.0104

Hotelling-Lawley Trace	1.43350896	3.27	12	40.581	0.0023
Roy's Greatest Root	1.30352110	6.30	6	29	0.0003

H = Type III SSCP Matrix for level\*drug

Root	Percent	Risk-Success	Risk-Time	Risk-Click	B-Success	B-Time
B-Click						
0.45170846	96.99	0.43235094	0.00716128	0.00306330	1.07333997	0.09490908
0.01843140						
0.01402938	3.01	0.00187698	-0.02282551	0.02586999	-0.04812962	-0.07598464
0.00093949						
0.00000000	0.00	-0.24113768	0.06403869	-0.00706516	0.41532795	-0.22644316
0.07461575						
0.00000000	0.00	0.56455808	-0.00505654	0.00664286	-0.24066991	-0.05677126
0.00000000						
0.00000000	0.00	0.23336510	0.26956080	-0.01970065	-0.17924351	0.01866551
0.00000000						
0.00000000	0.00	0.18465784	-0.15362341	0.03059704	0.03388986	0.14122431
0.00000000						

S=2 M=1.5 N=11.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.67931320	0.89	12	50	0.5637
Pillai's Trace	0.32499174	0.84	12	52	0.6093
Hotelling-Lawley Trace	0.46573785	0.95	12	35.928	0.5153
Roy's Greatest Root	0.45170846	1.96	6	26	0.1089

**Appendix DD**

Browse Task MANOVA and ANOVA Tables for Experiment 2 Hypothesis 2

Level 1 = Separated-home  
 Level 2 = Separatd-second, Separated-mixed  
 Level 3 = Separated-fourth

Class levels Values  
 level 3 1 2 3

Number of observations 48

#### Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	2161.45833	1080.72917	5.99	0.0049
Error	45	8116.31944	180.36265		
Corrected Total	47	10277.77778			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.210304	107.4393	13.42992	12.50000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	2161.458333	1080.729167	5.99	0.0049

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	2161.458333	1080.729167	5.99	0.0049

#### Benefits Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	249.485597	124.742798	0.93	0.4025
Error	45	6044.238683	134.316415		
Corrected Total	47	6293.724280			

R-Square	Coeff Var	Root MSE	brecall Mean
0.039640	77.02557	11.58950	15.04630

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	249.4855967	124.7427984	0.93	0.4025

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	249.4855967	124.7427984	0.93	0.4025

#### Risks Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	5911.45833	2955.72917	7.77	0.0013
Error	45	17120.94907	380.46553		
Corrected Total	47	23032.40741			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.256658	68.50721	19.50553	28.47222

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	5911.458333	2955.729167	7.77	0.0013

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	5911.458333	2955.729167	7.77	0.0013

#### Benefits Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1328.12500	664.06250	0.94	0.3988
Error	45	31843.17130	707.62603		

Corrected Total	47	33171.29630				
R-Square	Coeff Var	Root MSE	b_recog Mean			
0.040038	37.19008	26.60124	71.52778			
Source	DF	Type I SS	Mean Square	F Value	Pr > F	
level	2	1328.125000	664.062500	0.94	0.3988	
Source	DF	Type III SS	Mean Square	F Value	Pr > F	
level	2	1328.125000	664.062500	0.94	0.3988	

H = Type III SSCP Matrix for level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.36293273	91.50	0.01898419	-0.01043429	0.05758179	-0.00078450
0.03369593	8.50	0.06679283	0.07095262	-0.06316788	0.00463483
0.00000000	0.00	-0.12176935	-0.00455779	0.06764487	0.00205324
0.00000000	0.00	-0.05717603	0.14231142	0.02986155	-0.00428179

S=2 M=0.5 N=20

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.70979474	1.96	8	84	0.0611
Pillai's Trace	0.29888559	1.89	8	86	0.0720
Hotelling-Lawley Trace	0.39662865	2.05	8	57.724	0.0556
Roy's Greatest Root	0.36293273	3.90	4	43	0.0086

H = Type III SSCP Matrix for drug\*level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.11652081	89.02	0.04446505	0.15504485	-0.01495922	-0.00346478
0.01437722	10.98	0.04629404	0.02387869	-0.05115519	0.00614319
0.00000000	0.00	-0.10305393	0.04443139	0.10713829	-0.00145499
0.00000000	0.00	0.10403892	-0.09780101	-0.01014262	0.00121133

S=2 M=0.5 N=18.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.88294508	0.63	8	78	0.7534
Pillai's Trace	0.11853407	0.63	8	80	0.7503
Hotelling-Lawley Trace	0.13089803	0.63	8	53.442	0.7498
Roy's Greatest Root	0.11652081	1.17	4	40	0.3406

Level 1 = Separated-home  
 Level 2 = Separated-mixed  
 Level 3 = Separated-fourth

Class levels Values  
 level 3 1 2 3

Number of observations 36

#### Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1956.018519	978.009259	5.82	0.0068
Error	33	5543.981481	167.999439		
Corrected Total	35	7500.000000			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.260802	116.6531	12.96146	11.11111

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	1956.018519	978.009259	5.82	0.0068

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	1956.018519	978.009259	5.82	0.0068

#### Benefit Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	246.913580	123.456790	0.75	0.4802
Error	33	5432.098765	164.609053		
Corrected Total	35	5679.012346			

R-Square	Coeff Var	Root MSE	brecall Mean
0.043478	86.60254	12.83001	14.81481

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	246.913580	123.456790	0.75	0.4802

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	246.913580	123.456790	0.75	0.4802

#### Risks Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	4633.48765	2316.74383	5.64	0.0078
Error	33	13553.24074	410.70426		
Corrected Total	35	18186.72840			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.254773	79.58948	20.26584	25.46296

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	4633.487654	2316.743827	5.64	0.0078

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	4633.487654	2316.743827	5.64	0.0078

#### Benefits Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
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Model	2	1207.56173	603.78086	0.82	0.4495
Error	33	24317.12963	736.88272		
Corrected Total	35	25524.69136			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.047310	40.16059	27.14558	67.59259

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	1207.561728	603.780864	0.82	0.4495

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	1207.561728	603.780864	0.82	0.4495

H = Type III SSCP Matrix for level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.48086307	87.93	0.03416130	-0.00251451	0.06359952	-0.00355885
0.06600018	12.07	0.07999418	0.03289066	-0.05453807	0.00627149
0.00000000	0.00	-0.14720410	-0.03701314	0.10032877	0.00144938
0.00000000	0.00	-0.06936064	0.16494455	0.02236759	-0.00323977

S=2 M=0.5 N=14

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.63347258	1.92	8	60	0.0729
Pillai's Trace	0.38663197	1.86	8	62	0.0832
Hotelling-Lawley Trace	0.54686325	2.01	8	40.602	0.0692
Roy's Greatest Root	0.48086307	3.73	4	31	0.0137

H = Type III SSCP Matrix for drug\*level

Root	Percent	Risk Recall	B Recall	Risks Recog	B Recog
0.14653362	84.63	-0.06090645	-0.16158709	0.01206516	0.00542587
0.02661370	15.37	0.09417996	0.01332826	-0.06875291	0.00702832
0.00000000	0.00	-0.11351879	0.04232664	0.12104591	-0.00193673
0.00000000	0.00	0.10919926	-0.12739914	0.00000000	0.00000000

S=2 M=0.5 N=12.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.84958366	0.57	8	54	0.7952
Pillai's Trace	0.15372955	0.58	8	56	0.7877
Hotelling-Lawley Trace	0.17314732	0.57	8	36.324	0.7933
Roy's Greatest Root	0.14653362	1.03	4	28	0.4112

**Appendix EE**

Noticability Ratings MANOVA and ANOVA Tables for Experiment 2 Hypothesis 3

Level 1 = Separated-home  
 Level 2 = Separated-second, Separated-mixed  
 Level 3 = Separated-fourth

Class	Levels	Values
level	3	1 2 3

Number of observations 672

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1484.587798	742.293899	831.36	<.0001
Error	669	597.327381	0.892866		
Corrected Total	671	2081.915179			

R-Square	Coeff Var	Root MSE	rating Mean
0.713088	19.29455	0.944916	4.897321

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	1484.587798	742.293899	831.36	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	1484.587798	742.293899	831.36	<.0001

H = Type III SSCP Matrix for level

Root	Percent	rating
2.48538380	100.00	0.04091606

Statistic	S=1		M=0		N=333.5		Pr > F
	Value	F Value	Num DF	Den DF	Den DF		
Wilks' Lambda	0.28691245	831.36	2	669	669	<.0001	
Pillai's Trace	0.71308755	831.36	2	669	669	<.0001	
Hotelling-Lawley Trace	2.48538380	831.36	2	669	669	<.0001	
Roy's Greatest Root	2.48538380	831.36	2	669	669	<.0001	

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.00589948	100.00	0.04109933

Statistic	S=1		M=0		N=332		Pr > F
	Value	F Value	Num DF	Den DF	Den DF		
Wilks' Lambda	0.99413512	1.96	2	666	666	0.1410	
Pillai's Trace	0.00586488	1.96	2	666	666	0.1410	
Hotelling-Lawley Trace	0.00589948	1.96	2	666	666	0.1410	
Roy's Greatest Root	0.00589948	1.96	2	666	666	0.1410	

Level 1 = Separated-home  
 Level 2 = Separated-second  
 Level 3 = Separated-fourth

Class	Levels	Values
level	3	1 2 3

Number of observations 504

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1407.908730	703.954365	796.06	<.0001
Error	501	443.035714	0.884303		
Corrected Total	503	1850.944444			

R-Square	Coeff Var	Root MSE	rating Mean
0.760643	20.03163	0.940374	4.694444

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	1407.908730	703.954365	796.06	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	1407.908730	703.954365	796.06	<.0001

H = Type III SSCP Matrix for level

Root	Percent	rating
3.17786735	100.00	0.04750952

S=1 M=0 N=249.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.23935657	796.06	2	501	<.0001
Pillai's Trace	0.76064343	796.06	2	501	<.0001
Hotelling-Lawley Trace	3.17786735	796.06	2	501	<.0001
Roy's Greatest Root	3.17786735	796.06	2	501	<.0001

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.00755852	100.00	0.04770412

S=1 M=0 N=248

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99249819	1.88	2	498	0.1534
Pillai's Trace	0.00750181	1.88	2	498	0.1534
Hotelling-Lawley Trace	0.00755852	1.88	2	498	0.1534
Roy's Greatest Root	0.00755852	1.88	2	498	0.1534

Level 1 = Separated-home  
 Level 2 = Separated-mixed  
 Level 3 = Separated-fourth

Class	Levels	Values
level	3	1 2 3

Number of observations 504

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1316.456349	658.228175	726.09	<.0001
Error	501	454.178571	0.906544		
Corrected Total	503	1770.634921			

R-Square	Coeff Var	Root MSE	rating Mean
0.743494	20.68412	0.952126	4.603175

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	2	1316.456349	658.228175	726.09	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	2	1316.456349	658.228175	726.09	<.0001

H = Type III SSCP Matrix for level

Root	Percent	rating
2.89854351	100.00	0.04692310

S=1 M=0 N=249.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.25650605	726.09	2	501	<.0001
Pillai's Trace	0.74349395	726.09	2	501	<.0001
Hotelling-Lawley Trace	2.89854351	726.09	2	501	<.0001
Roy's Greatest Root	2.89854351	726.09	2	501	<.0001

H = Type III SSCP Matrix for drug\*level

Root	Percent	rating
0.00995991	100.00	0.04727572

S=1 M=0 N=248

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.99013831	2.48	2	498	0.0848
Pillai's Trace	0.00986169	2.48	2	498	0.0848
Hotelling-Lawley Trace	0.00995991	2.48	2	498	0.0848
Roy's Greatest Root	0.00995991	2.48	2	498	0.0848

**Appendix FF**

Browse Task Exploratory MANOVA and ANOVA Tables

i-s = 1 (Integrated-home and Integrated-second)  
 i-s = 2 (Separated-home and Separated-second)

Class	Levels	Values
level	2	1 2
is	2	1 2

## Risks Recalled

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	3	860.821759	286.940586	1.77	0.1664
Error	44	7123.842593	161.905513		
Corrected Total	47	7984.664352			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.107809	112.7561	12.72421	11.28472

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	522.2800926	522.2800926	3.23	0.0794
is	1	325.5208333	325.5208333	2.01	0.1633
level*is	1	13.0208333	13.0208333	0.08	0.7781

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	522.2800926	522.2800926	3.23	0.0794
is	1	325.5208333	325.5208333	2.01	0.1633
level*is	1	13.0208333	13.0208333	0.08	0.7781

## Browse Recall

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	3	234.053498	78.017833	0.64	0.5946
Error	44	5380.658436	122.287692		
Corrected Total	47	5614.711934			

R-Square	Coeff Var	Root MSE	brecall Mean
0.041686	78.31506	11.05838	14.12037

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	23.1481481	23.1481481	0.19	0.6656
is	1	208.3333333	208.3333333	1.70	0.1986
level*is	1	2.5720165	2.5720165	0.02	0.8854

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	23.1481481	23.1481481	0.19	0.6656
is	1	208.3333333	208.3333333	1.70	0.1986
level*is	1	2.5720165	2.5720165	0.02	0.8854

## Risks Recognized

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	3	1532.11806	510.70602	1.12	0.3497
Error	44	19994.21296	454.41393		
Corrected Total	47	21526.33102			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.071174	73.52446	21.31699	28.99306

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	1216.724537	1216.724537	2.68	0.1089
is	1	244.502315	244.502315	0.54	0.4671
level*is	1	70.891204	70.891204	0.16	0.6948

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	1216.724537	1216.724537	2.68	0.1089
is	1	244.502315	244.502315	0.54	0.4671
level*is	1	70.891204	70.891204	0.16	0.6948

Benefits Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	9965.27778	3321.75926	6.35	0.0011
Error	44	23020.83333	523.20076		
Corrected Total	47	32986.11111			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.302105	31.36948	22.87358	72.91667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	2314.814815	2314.814815	4.42	0.0412
is	1	2089.120370	2089.120370	3.99	0.0519
level*is	1	5561.342593	5561.342593	10.63	0.0022

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	2314.814815	2314.814815	4.42	0.0412
is	1	2089.120370	2089.120370	3.99	0.0519
level*is	1	5561.342593	5561.342593	10.63	0.0022

H = Type III SSCP Matrix for level\*is

b_recog	Root	Percent	r_recall	b_recall	rc_recog
0.26044367	100.00	-0.02255685	-0.02938446	0.00618578	0.00668541
0.00000000	0.00	-0.01939753	0.15692395	-0.00038047	-0.00041120
0.00000000	0.00	0.09731328	-0.00349315	0.00052252	0.00056473
0.00000000	0.00	-0.11579077	0.00363300	0.09281811	-0.00193690

S=1 M=1 N=19.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.79337144	2.67	4	41	0.0455
Pillai's Trace	0.20662856	2.67	4	41	0.0455
Hotelling-Lawley Trace	0.26044367	2.67	4	41	0.0455
Roy's Greatest Root	0.26044367	2.67	4	41	0.0455

Level = 1

Class	Levels	Values
is	2	1 2

Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	234.375000	234.375000	2.09	0.1627
Error	22	2471.064815	112.321128		
Corrected Total	23	2705.439815			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.086631	132.7075	10.59817	7.986111

Source	DF	Type I SS	Mean Square	F Value	Pr > F
is	1	234.3750000	234.3750000	2.09	0.1627

Source	DF	Type III SS	Mean Square	F Value	Pr > F
is	1	234.3750000	234.3750000	2.09	0.1627

## Benefits Recalled

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	1	82.304527	82.304527	0.55	0.4662
Error	22	3292.181070	149.644594		
Corrected Total	23	3374.485597			

R-Square	Coeff Var	Root MSE	brecall Mean
0.024390	83.57228	12.23293	14.81481

Source is	DF	Type I SS	Mean Square	F Value	Pr > F
	1	82.30452675	82.30452675	0.55	0.4662

Source is	DF	Type III SS	Mean Square	F Value	Pr > F
	1	82.30452675	82.30452675	0.55	0.4662

## Risks Recognized

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	1	26.0416667	26.0416667	0.07	0.8006
Error	22	8767.361111	398.516414		
Corrected Total	23	8793.402778			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.002962	83.32331	19.96288	23.95833

Source is	DF	Type I SS	Mean Square	F Value	Pr > F
	1	26.04166667	26.04166667	0.07	0.8006

Source is	DF	Type III SS	Mean Square	F Value	Pr > F
	1	26.04166667	26.04166667	0.07	0.8006

## Benefits Recognized

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	1	416.666667	416.666667	0.88	0.3581
Error	22	10405.09259	472.95875		
Corrected Total	23	10821.75926			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.038503	27.23180	21.74761	79.86111

Source is	DF	Type I SS	Mean Square	F Value	Pr > F
	1	416.6666667	416.6666667	0.88	0.3581

Source is	DF	Type III SS	Mean Square	F Value	Pr > F
	1	416.6666667	416.6666667	0.88	0.3581

Level = 2

Class	Levels	Values
is	2	1 2

## Risks Recalled

	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source Model	1	104.166667	104.166667	0.49	0.4902
Error	22	4652.777778	211.489899		
Corrected Total	23	4756.944444			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.021898	99.72132	14.54269	14.58333

Source	DF	Type I SS	Mean Square	F Value	Pr > F
is	1	104.1666667	104.1666667	0.49	0.4902
Source	DF	Type III SS	Mean Square	F Value	Pr > F
is	1	104.1666667	104.1666667	0.49	0.4902

## Benefits Recalled

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	128.600823	128.600823	1.35	0.2569
Error	22	2088.477366	94.930789		
Corrected Total	23	2217.078189			

R-Square	Coeff Var	Root MSE	brecall Mean
0.058005	72.57036	9.743243	13.42593

Source	DF	Type I SS	Mean Square	F Value	Pr > F
is	1	128.6008230	128.6008230	1.35	0.2569

Source	DF	Type III SS	Mean Square	F Value	Pr > F
is	1	128.6008230	128.6008230	1.35	0.2569

## Risks Recognized

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	289.35185	289.35185	0.57	0.4594
Error	22	11226.85185	510.31145		
Corrected Total	23	11516.20370			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.025126	66.38716	22.59007	34.02778

Source	DF	Type I SS	Mean Square	F Value	Pr > F
is	1	289.3518519	289.3518519	0.57	0.4594

Source	DF	Type III SS	Mean Square	F Value	Pr > F
is	1	289.3518519	289.3518519	0.57	0.4594

## Benefits Recognized

		Sum of			
Source	DF	Squares	Mean Square	F Value	Pr > F
Model	1	7233.79630	7233.79630	12.61	0.0018
Error	22	12615.74074	573.44276		
Corrected Total	23	19849.53704			

R-Square	Coeff Var	Root MSE	b_recog Mean
0.364431	36.29810	23.94666	65.97222

Source	DF	Type I SS	Mean Square	F Value	Pr > F
is	1	7233.796296	7233.796296	12.61	0.0018

Source	DF	Type III SS	Mean Square	F Value	Pr > F
is	1	7233.796296	7233.796296	12.61	0.0018

**Appendix GG**

Noticability Ratings Exploratory MANOVA and ANOVA Tables

i\_s = 1 (Integrated-home and Integrated-second)  
 i\_s = 2 (Separated-home and Separated-second)

Class	Levels	Values
i_s	2	1 2

Number of observations 672

Ratings

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	7.7142857	7.7142857	7.76	0.0055
Error	670	666.0714286	0.9941365		
Corrected Total	671	673.7857143			

R-Square	Coeff Var	Root MSE	rating Mean
0.011449	17.28656	0.997064	5.767857

Source	DF	Type I SS	Mean Square	F Value	Pr > F
i_s	1	7.71428571	7.71428571	7.76	0.0055

Source	DF	Type III SS	Mean Square	F Value	Pr > F
i_s	1	7.71428571	7.71428571	7.76	0.0055

H = Type III SSCP Matrix for i\_s

Root	Percent	rating
0.01158177	100.00	0.03874714

S=1 M=-0.5 N=334

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.98855083	7.76	1	670	0.0055
Pillai's Trace	0.01144917	7.76	1	670	0.0055
Hotelling-Lawley Trace	0.01158177	7.76	1	670	0.0055
Roy's Greatest Root	0.01158177	7.76	1	670	0.0055

Class	Levels	Values
level	2	1 2

Number of observations 672

Rating

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	9.5238095	9.5238095	9.61	0.0020
Error	670	664.2619048	0.9914357		
Corrected Total	671	673.7857143			

R-Square	Coeff Var	Root MSE	rating Mean
0.014135	17.26306	0.995709	5.767857

Source	DF	Type I SS	Mean Square	F Value	Pr > F
level	1	9.52380952	9.52380952	9.61	0.0020

Source	DF	Type III SS	Mean Square	F Value	Pr > F
level	1	9.52380952	9.52380952	9.61	0.0020

H = Type III SSCP Matrix for level

Root	Percent	rating
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	0.01433743	100.00	0.03879988		
	S=1	M=-0.5	N=334		
Statistic	Value	F Value	Num DF	Den DF	Pr >
Wilks' Lambda	0.98586522	9.61	1	670	0.0020
Pillai's Trace	0.01413478	9.61	1	670	0.0020
Hotelling-Lawley Trace	0.01433743	9.61	1	670	0.0020
Roy's Greatest Root	0.01433743	9.61	1	670	0.0020

**Appendix HH**

Search and Find Familiarity Ratings

## Amount of Time Spent Suring Analyses

Class	Levels	Values
surf	3	3 4 5

Number of observations	84
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## Risk Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	2.05632886	1.02816443	8.11	0.0006
Error	81	10.26509972	0.12672963		
Corrected Total	83	12.32142857			

R-Square	Coeff Var	Root MSE	r_corr Mean
0.166890	43.33804	0.355991	0.821429

Source	DF	Type I SS	Mean Square	F Value	Pr > F
surf	2	2.05632886	1.02816443	8.11	0.0006

Source	DF	Type III SS	Mean Square	F Value	Pr > F
surf	2	2.05632886	1.02816443	8.11	0.0006

## Risk Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	15.7917017	7.8958509	4.05	0.0211
Error	81	158.0006725	1.9506256		
Corrected Total	83	173.7923742			

R-Square	Coeff Var	Root MSE	rtime Mean
0.090865	39.00483	1.396648	3.580705

Source	DF	Type I SS	Mean Square	F Value	Pr > F
surf	2	15.79170170	7.89585085	4.05	0.0211

Source	DF	Type III SS	Mean Square	F Value	Pr > F
surf	2	15.79170170	7.89585085	4.05	0.0211

## Risk Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	383.916219	191.958109	2.06	0.1344
Error	81	7555.643305	93.279547		
Corrected Total	83	7939.559524			

R-Square	Coeff Var	Root MSE	r_click Mean
0.048355	125.3915	9.658134	7.702381

Source	DF	Type I SS	Mean Square	F Value	Pr > F
surf	2	383.9162190	191.9581095	2.06	0.1344

Source	DF	Type III SS	Mean Square	F Value	Pr > F
surf	2	383.9162190	191.9581095	2.06	0.1344

## Benefit Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1.17250712	0.58625356	4.53	0.0137
Error	81	10.49415954	0.12955753		
Corrected Total	83	11.66666667			

R-Square	Coeff Var	Root MSE	b_corr Mean
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0.100501	43.19292	0.359941	0.833333			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
surf		2	1.17250712	0.58625356	4.53	0.0137
Source		DF	Type III SS	Mean Square	F Value	Pr > F
surf		2	1.17250712	0.58625356	4.53	0.0137

Benefit Time

			Sum of			
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		2	15.5386635	7.7693318	4.39	0.0155
Error		81	143.4756669	1.7713045		
Corrected Total		83	159.0143304			

R-Square	Coeff Var	Root MSE	btime Mean
0.097719	40.29914	1.330904	3.302561

Source		DF	Type I SS	Mean Square	F Value	Pr > F
surf		2	15.53866350	7.76933175	4.39	0.0155
Source		DF	Type III SS	Mean Square	F Value	Pr > F
surf		2	15.53866350	7.76933175	4.39	0.0155

Benefit Clicks

			Sum of			
Source		DF	Squares	Mean Square	F Value	Pr > F
Model		2	338.730403	169.365201	2.88	0.0617
Error		81	4757.507692	58.734663		
Corrected Total		83	5096.238095			

R-Square	Coeff Var	Root MSE	b_click Mean
0.066467	122.3885	7.663854	6.261905

Source		DF	Type I SS	Mean Square	F Value	Pr > F
surf		2	338.7304029	169.3652015	2.88	0.0617
Source		DF	Type III SS	Mean Square	F Value	Pr > F
surf		2	338.7304029	169.3652015	2.88	0.0617

H = Type III SSCP Matrix for surf

Root	Percent	Risk-Success	Risk-Time	Risk-Click	B-Success	B-Time
B-Click						
0.27158454	84.70	0.20315685	-0.01146559	-0.00100596	0.11164455	-0.02481140
0.00251390						
0.04904176	15.30	-0.21185764	-0.11411031	0.01601265	0.22987081	0.04803524
-0.00641726						
0.00000000	0.00	-0.14646782	-0.01534062	-0.00165537	0.18047889	-0.11927057
0.03049282						
0.00000000	0.00	0.07762646	-0.03641520	0.00137605	0.19289045	0.10959026
0.00000000						
0.00000000	0.00	0.12103938	0.04734610	0.00602042	0.12685985	0.00000000
0.00000000						
0.00000000	0.00	0.07374453	-0.07730368	0.01156173	-0.17680630	0.00000000
0.00000000						

S=2 M=1.5 N=37

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.74965594	1.96	12	152	0.0313
Pillai's Trace	0.26032872	1.92	12	154	0.0358
Hotelling-Lawley Trace	0.32062630	2.01	12	115.18	0.0290
Roy's Greatest Root	0.27158454	3.49	6	77	0.0042

## Familiarity with DTC TV Advertisements extremes

Class	Levels	Values
TV Fam	3	3 4 5

Number of observations	84
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## Risk Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.98000000	0.98000000	6.19	0.0164
Error	48	7.60000000	0.15833333		
Corrected Total	49	8.58000000			

R-Square	Coeff Var	Root MSE	r_corr Mean
0.114219	51.01426	0.397911	0.780000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
tvfam	1	0.98000000	0.98000000	6.19	0.0164

Source	DF	Type III SS	Mean Square	F Value	Pr > F
tvfam	1	0.98000000	0.98000000	6.19	0.0164

## Risk Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	6.1444857	6.1444857	2.93	0.0934
Error	48	100.6812002	2.0975250		
Corrected Total	49	106.8256859			

R-Square	Coeff Var	Root MSE	rtime Mean
0.057519	38.06473	1.448283	3.804792

Source	DF	Type I SS	Mean Square	F Value	Pr > F
tvfam	1	6.14448574	6.14448574	2.93	0.0934

Source	DF	Type III SS	Mean Square	F Value	Pr > F
tvfam	1	6.14448574	6.14448574	2.93	0.0934

## Risk Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	269.120000	269.120000	3.74	0.0589
Error	48	3450.560000	71.886667		
Corrected Total	49	3719.680000			

R-Square	Coeff Var	Root MSE	r_click Mean
0.072350	104.9332	8.478601	8.080000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
tvfam	1	269.1200000	269.1200000	3.74	0.0589

Source	DF	Type III SS	Mean Square	F Value	Pr > F
tvfam	1	269.1200000	269.1200000	3.74	0.0589

## Benefit Success

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.00000000	0.00000000	0.00	1.0000
Error	48	6.72000000	0.14000000		
Corrected Total	49	6.72000000			

R-Square      Coeff Var      Root MSE      b\_corr Mean  
 0.000000      44.54354      0.374166      0.840000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
tvfam	1	0	0	0.00	1.0000

Source	DF	Type III SS	Mean Square	F Value	Pr > F
tvfam	1	5.546678E-34	5.546678E-34	0.00	1.0000

Benefit Time

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.08997307	0.08997307	0.05	0.8257
Error	48	88.11179078	1.83566231		
Corrected Total	49	88.20176385			

R-Square      Coeff Var      Root MSE      btime Mean  
 0.001020      39.51278      1.354866      3.428932

Source	DF	Type I SS	Mean Square	F Value	Pr > F
tvfam	1	0.08997307	0.08997307	0.05	0.8257

Source	DF	Type III SS	Mean Square	F Value	Pr > F
tvfam	1	0.08997307	0.08997307	0.05	0.8257

Benefit Clicks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	11.520000	11.520000	0.16	0.6939
Error	48	3527.600000	73.491667		
Corrected Total	49	3539.120000			

R-Square      Coeff Var      Root MSE      b\_click Mean  
 0.003255      126.8155      8.572728      6.760000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
tvfam	1	11.52000000	11.52000000	0.16	0.6939

Source	DF	Type III SS	Mean Square	F Value	Pr > F
tvfam	1	11.52000000	11.52000000	0.16	0.6939
surf	2	338.7304029	169.3652015	2.88	0.0617

H = Type III SSCP Matrix for TV Fam

Root	Percent	Risk-Success	Risk-Time	Risk-Click	B-Success	B-Time
B-Click						
0.32441552	100.00	-0.39073691	-0.05062571	0.01779821	0.25131602	-0.09545237
0.1323188						
0.00000000	0.00	-0.00103782	-0.10211522	0.01227778	0.32854526	0.14322319
0.00227469						
0.00000000	0.00	0.23656057	0.12373500	-0.00408501	-0.06469000	0.01246579
-0.00272745						
0.00000000	0.00	-0.00949150	0.01229599	-0.00676798	0.15021618	-0.16073889
0.03516880						
0.00000000	0.00	0.06850526	-0.13444373	0.02444863	-0.10531920	0.00000000
0.00000000						
0.00000000	0.00	0.08903843	-0.03390219	0.01049569	0.37425155	0.00000000
0.00000000						

S=1      M=2      N=20.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.75505005	2.32	6	43	0.0494
Pillai's Trace	0.24494995	2.32	6	43	0.0494

Hotelling-Lawley Trace	0.32441552	2.32	6	43	0.0494
Roy's Greatest Root	0.32441552	2.32	6	43	0.0494

Appendix II  
Browse Task Familiarity Ratings

## Magazine Familiarity

Class	Levels	Values
mag	5	1 2 3 4 5

Number of observations	84
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## Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	2796.58356	699.14589	4.49	0.0026
Error	79	12311.71670	155.84452		
Corrected Total	83	15108.30026			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.185102	124.5905	12.48377	10.01984

Source	DF	Type I SS	Mean Square	F Value	Pr > F
mag	4	2796.583560	699.145890	4.49	0.0026

Source	DF	Type III SS	Mean Square	F Value	Pr > F
mag	4	2796.583560	699.145890	4.49	0.0026

## Benefits Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	1354.951633	338.737908	3.20	0.0173
Error	79	8361.391695	105.840401		
Corrected Total	83	9716.343327			

R-Square	Coeff Var	Root MSE	brecall Mean
0.139451	75.51102	10.28788	13.62434

Source	DF	Type I SS	Mean Square	F Value	Pr > F
mag	4	1354.951633	338.737908	3.20	0.0173

Source	DF	Type III SS	Mean Square	F Value	Pr > F
mag	4	1354.951633	338.737908	3.20	0.0173

## Risks Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	5572.08160	1393.02040	3.20	0.0173
Error	79	34414.69089	435.62900		
Corrected Total	83	39986.77249			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.139348	82.18243	20.87173	25.39683

Source	DF	Type I SS	Mean Square	F Value	Pr > F
mag	4	5572.081596	1393.020399	3.20	0.0173

Source	DF	Type III SS	Mean Square	F Value	Pr > F
mag	4	5572.081596	1393.020399	3.20	0.0173

## Benefits Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	7151.04918	1787.76230	2.33	0.0634

Error		79	60675.50505	768.04437		
Corrected Total		83	67826.55423			
R-Square	Coeff Var	Root MSE	b_recog Mean			
0.105431	40.42738	27.71361	68.55159			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
mag		4	7151.049182	1787.762296	2.33	0.0634
Source		DF	Type III SS	Mean Square	F Value	Pr > F
mag		4	7151.049182	1787.762296	2.33	0.0634

H = Type III SSCP Matrix for mag

Root	Percent	Risks Recall	B Recall	Risks Recog	B Recog
0.27208799	52.58	0.07189313	0.05993982	-0.01543591	0.00078875
0.14649332	28.31	-0.05970099	0.05374215	0.00861509	0.00262554
0.09341624	18.05	-0.06435847	-0.04185544	0.07059845	-0.00017534
0.00552004	1.07	0.04392206	-0.09479732	-0.02079886	0.00338639

S=4 M=-0.5 N=37

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.62364158	2.43	16	232.82	0.0021
Pillai's Trace	0.43259092	2.39	16	316	0.0021
Hotelling-Lawley Trace	0.51751760	2.43	16	146.11	0.0029
Roy's Greatest Root	0.27208799	5.37	4	79	0.0007

## Magazine Familiarity Extremes

Class	Levels	Values
mag	2	1 2

Number of observations	48
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## Risks Recalled

Score	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2107.456140	2107.456140	12.39	0.0010
Error	46	7823.099415	170.067379		
Corrected Total	47	9930.555556			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.212219	125.1935	13.04099	10.41667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
mag	1	2107.456140	2107.456140	12.39	0.0010

Source	DF	Type III SS	Mean Square	F Value	Pr > F
mag	1	2107.456140	2107.456140	12.39	0.0010

## Benefits Recalled

Score	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	617.311024	617.311024	4.22	0.0456
Error	46	6725.795971	146.212956		
Corrected Total	47	7343.106996			

R-Square	Coeff Var	Root MSE	brecall Mean
0.084067	85.63412	12.09185	14.12037

Source	DF	Type I SS	Mean Square	F Value	Pr > F
mag	1	617.3110245	617.3110245	4.22	0.0456

Source	DF	Type III SS	Mean Square	F Value	Pr > F
mag	1	617.3110245	617.3110245	4.22	0.0456

## Risks Recognized

Model	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	4133.78716	4133.78716	10.22	0.0025
Error	46	18607.82164	404.51786		
Corrected Total	47	22741.60880			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.181772	88.43416	20.11263	22.74306

Source	DF	Type I SS	Mean Square	F Value	Pr > F
mag	1	4133.787159	4133.787159	10.22	0.0025

Source	DF	Type III SS	Mean Square	F Value	Pr > F
mag	1	4133.787159	4133.787159	10.22	0.0025

## Benefits Recognized

Score	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	841.02400	841.02400	0.99	0.3250
Error	46	39088.08480	849.74097		
Corrected Total	47	39929.10880			

R-Square	Coeff Var	Root MSE	b_recog Mean			
0.021063	43.61190	29.15032	66.84028			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
mag		1	841.0240010	841.0240010	0.99	0.3250
Source		DF	Type III SS	Mean Square	F Value	Pr > F
mag		1	841.0240010	841.0240010	0.99	0.3250

H = Type III SSCP Matrix for mag

Root	Percent	Risks Recall	B Recall	Risks Recog	B Recog
0.30343500	100.00	0.07182577	0.04490598	0.00796001	-0.00022955
0.00000000	0.00	0.02833372	-0.05549040	-0.02608111	0.00583515
0.00000000	0.00	-0.13137641	-0.04985124	0.10825252	0.00000000
0.00000000	0.00	-0.05363999	0.13214619	0.00000000	0.00000000

S=1 M=1 N=20.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.76720358	3.26	4	43	0.0201
Pillai's Trace	0.23279642	3.26	4	43	0.0201
Hotelling-Lawley Trace	0.30343500	3.26	4	43	0.0201
Roy's Greatest Root	0.30343500	3.26	4	43	0.0201

## Online Shopping Extremes

Class	Levels	Values
shopfam	2	1 2

Number of observations	53
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## Risks Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	776.50446	776.50446	4.23	0.0448
Error	51	9354.52279	183.42202		
Corrected Total	52	10131.02725			

R-Square	Coeff Var	Root MSE	rrecall Mean
0.076646	121.3178	13.54334	11.16352

Source	DF	Type I SS	Mean Square	F Value	Pr > F
shop	1	776.5044616	776.5044616	4.23	0.0448

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Shop	1	776.5044616	776.5044616	4.23	0.0448

## Benefits Recalled

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	11.945505	11.945505	0.10	0.7552
Error	51	6198.163976	121.532627		
Corrected Total	52	6210.109481			

R-Square	Coeff Var	Root MSE	brecall Mean
0.001924	78.48561	11.02418	14.04612

Source	DF	Type I SS	Mean Square	F Value	Pr > F
shop	1	11.94550461	11.94550461	0.10	0.7552

Source	DF	Type III SS	Mean Square	F Value	Pr > F
shop	1	11.94550461	11.94550461	0.10	0.7552

## Risks Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	193.52464	193.52464	0.40	0.5303
Error	51	24722.61792	484.75721		
Corrected Total	52	24916.14256			

R-Square	Coeff Var	Root MSE	rrecog Mean
0.007767	83.84995	22.01720	26.25786

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Shop	1	193.5246406	193.5246406	0.40	0.5303

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Shop	1	193.5246406	193.5246406	0.40	0.5303

## Benefits Recognized

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1425.76317	1425.76317	1.79	0.1874

Error		51	40725.70434		798.54322	
Corrected Total		52	42151.46751			
R-Square	Coeff Var	Root MSE	b_recog Mean			
0.033825	42.28802	28.25851	66.82390			
Source		DF	Type I SS	Mean Square	F Value	Pr > F
Shop		1	1425.763168	1425.763168	1.79	0.1874
Source		DF	Type III SS	Mean Square	F Value	Pr > F
Shop		1	1425.763168	1425.763168	1.79	0.1874

H = Type III SSCP Matrix for shopfam

Root	Percent	Risk Recall	B Recall	Risk Recog	B Recog
0.23120726	100.00	-0.12186426	-0.02016914	0.03871211	0.00348759
0.00000000	0.00	-0.01705626	0.15556833	-0.00498921	-0.00044948
0.00000000	0.00	-0.06190434	-0.00420343	0.08282334	-0.00185511
0.00000000	0.00	0.05649092	-0.03648922	-0.01277276	0.00413745

S=1 M=1 N=23

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.81221094	2.77	4	48	0.0374
Pillai's Trace	0.18778906	2.77	4	48	0.0374
Hotelling-Lawley Trace	0.23120726	2.77	4	48	0.0374
Roy's Greatest Root	0.23120726	2.77	4	48	0.0374

**Appendix JJ**

Browse Task Data

SS#	Drug: Celebrex-1; Singulair-2	Drig Site Version	Gender: Male-1; Female-2	Age	AA-1; Asian-2; White-3; Hisp-4;	Fresh-1; Soph-2; Jun-3; Sen-4;	Asthma: no-1; yes-1	Arthritis: no-0; yes-1	Other:	Fam Ads Mags	Fam Ads TV	Fam Ads WWW
1	1	3	1	18	3	1	0	0	1	3	3	2
2	1	4	1	18	1	1	1	0	0	1	1	1
3	2	4	2	18	3	1	0	0	2	4	3	3
4	1	5	2	20	1	3	0	0	0	3	3	2
5	2	7	1	18	3	1	0	0	2	1	3	1
6	1	2	2	23	2	4	0	0	2	2	3	1
7	1	5	1	18	3	1	0	0	2	3	4	2
8	1	6	1	20	3	3	0	0	0	4	4	2
9	2	4	2	19	1	2	0	0	0	3	2	2
10	2	1	1	22	3	4	0	0	2	2	3	2
11	1	2	1	18	3	1	0	0	1	3	4	1
12	1	7	1	18	1	1	0	0	1	2	4	1
13	2	1	2	18	1	1	0	0	0	3	4	2
14	2	4	1	20	3	2	0	0	1	1	2	1
15	1	4	1	18	3	1	0	0	0	3	3	2
16	2	5	2	18	3	1	0	0	0	3	3	2
17	2	3	1	19	3	1	1	0	0	5	5	5
18	1	1	2	19	1	1	1	0	0	3	3	1
19	2	3	1	21	3	4	0	0	0	2	3	1
20	1	7	2	19	1	2	0	0	0	3	3	2
21	1	6	1	19	3	2	0	0	0	2	2	2
22	1	7	1	20	3	2	0	0	0	1	1	1
23	1	4	2	18	1	1	0	0	3	3	3	4
24	2	5	1	20	3	3	1	0	0	2	2	2
25	1	2	2	19	3	2	0	0	0	3	4	3
26	1	1	2	18	3	1	0	0	1	3	3	2
27	1	3	1	19	3	2	0	0	0	2	3	1
28	1	6	1	20	3	3	0	0	0	3	4	2
29	1	4	1	18	3	1	0	0	1	3	4	2
30	1	5	1	19	3	2	0	0	1	3	3	2
31	1	7	1	20	3	3	0	0	1	4	4	3
32	2	6	1	20	2	2	0	0	0	2	3	3
33	2	6	1	20	3	3	0	0	0	1	1	1
34	2	1	1	19	3	1	0	0	0	1	1	1
35	2	3	2	18	3	1	0	0	1	3	4	2
36	2	2	1	19	3	1	0	0	2	2	4	2
37	1	5	1	19	3	2	0	0	3	4	3	2
38	1	3	2	23	3	2	0	0	2	2	2	1
39	2	2	1	18	3	1	1	0	0	2	3	1
40	2	1	1	21	3	6	0	0	1	2	3	4
41	1	3	1	18	3	1	0	0	0	2	3	1
42	1	6	2	18	3	1	0	0	5	4	3	2
43	2	7	1	19	4	2	0	0	2	2	4	1
44	2	3	1	20	8	3	0	0	1	3	3	1
45	2	5	1	19	3	2	0	0	0	4	5	2
46	2	1	1	19	3	2	1	0	0	2	3	1
47	2	6	1	18	4	1	0	0	0	3	3	2
48	1	1	2	18	3	1	0	0	0	2	2	2
49	2	7	1	19	1	2	0	0	0	3	3	2
50	1	2	1	19	3	2	0	0	0	2	3	1
51	2	7	2	18	3	1	0	0	0	3	5	1
52	2	6	2	20	3	2	0	0	0	3	3	2
53	2	4	2	18	3	1	0	0	3	4	5	2
54	2	2	2	18	3	1	0	0	2	2	2	2
55	2	5	2	19	1	1	0	0	0	3	3	2
56	1	1	1	18	8	1	1	0	3	2	3	1
57	1	1	1	20	3	2	0	0	3	3	3	3
58	2	2	1	18	4	1	0	0	0	1	1	1
59	1	2	1	19	3	1	0	0	0	2	2	3
60	1	5	1	20	3	3	0	0	2	3	3	2

61	2	4	1	18	3	1	0	0	0	1	1	1
62	1	4	2	18	3	1	0	0	2	3	2	2
63	1	3	1	19	1	2	0	0	0	3	3	3
64	2	5	2	18	3	1	0	0	2	3	3	2
65	2	2	1	19	3	2	0	0	0	2	2	2
66	1	4	2	19	3	1	0	0	1	2	2	1
67	1	5	1	18	3	1	0	0	0	4	2	3
68	2	6	2	18	1	1	0	0	4	4	4	3
69	1	3	1	18	3	1	0	0	2	1	3	1
70	2	4	2	18	3	1	0	0	0	3	3	1
71	2	7	1	19	3	2	0	0	0	1	2	1
72	2	6	1	22	3	4	0	0	0	2	3	1
73	1	6	1	18	3	1	0	0	0	3	4	2
74	2	2	1	20	3	2	0	0	0	3	4	2
75	1	6	1	20	2	2	0	0	0	3	4	2
76	2	3	1	20	3	4	0	0	3	1	2	1
77	2	3	2	19	3	1	0	0	0	3	2	1
78	2	7	2	18	3	1	0	0	1	2	2	2
79	1	7	1	19	2	1	0	0	0	2	4	2
80	1	7	1	18	3	1	0	0	4	3	4	1
81	1	1	2	19	3	1	0	0	2	3	4	2
82	2	5	1	18	3	1	0	0	0	2	3	1
83	2	1	2	20	1	2	0	0	2	3	2	3
84	1	2	2	18	2	1	0	0	0	2	2	2

Fam Celebrex	Fam Singulair	Exp Computers	Exp Surfing	Exp Shop Online	never-1; year-2; month-3; week-4;	Version-A no risks	Version-B Home Integ	Version-C Home Separ	Version-D 2nd Integ	Version-E 2nd Separ
1	1	5	5	2	5	1	6	7	5	5
1	2	4	4	4	5	1	4	6	5	5
2	2	4	4	5	5	1	6	5	5	4
1	1	4	4	2	3	1	6	5	5	6
1	1	3	3	2	4	1	1	5	6	7
1	1	4	4	2	5	1	6	6	6	6
1	1	4	5	3	5	1	4	6	4	5
3	1	5	5	4	5	1	6	7	6	6
2	3	3	3	3	5	1	6	6	5	5
1	1	5	5	4	4	1	4	5	6	7
1	1	3	2	1	2	1	6	6	4	6
1	1	4	5	3	5	1	6	4	4	5
2	1	3	3	3	3	1	4	4	7	5
2	1	4	4	3	5	1	6	6	7	5
1	1	3	4	4	4	1	5	6	5	7
2	3	3	3	2	4	1	6	6	5	5
5	5	3	4	3	5	1	6	5	5	4
1	1	3	3	3	5	1	5	5	5	5
1	1	4	5	3	5	1	6	7	5	6
2	1	4	4	2	3	1	7	6	5	5
1	1	4	4	5	5	1	5	3	4	6
1	1	3	3	3	4	1	5	7	6	5
1	1	5	5	4	5	1	6	7	4	4
1	1	5	5	5	5	1	4	4	3	6
2	2	3	4	3	4	1	7	6	5	5
1	1	3	3	2	4	1	7	7	7	7
2	2	3	3	1	4	1	7	5	5	5
3	1	4	4	4	5	1	7	6	6	7
1	1	5	5	3	5	1	7	7	6	6
2	2	4	4	3	5	1	5	5	5	5
2	2	3	4	1	5	1	6	6	5	5
1	2	4	5	4	5	1	4	6	4	5
1	1	3	4	3	5	1	3	6	5	5
1	1	4	4	3	5	1	5	7	4	5
1	2	4	5	5	5	1	5	5	5	6
1	1	4	4	3	5	1	5	5	6	6
1	1	3	4	3	5	1	5	7	5	6
1	1	3	3	3	4	1	6	5	6	6
1	1	4	3	2	4	1	5	5	6	6
1	1	4	5	4	5	1	4	3	5	6
1	1	3	4	4	5	1	6	6	5	5
3	1	3	4	4	4	1	6	7	5	6
1	1	4	4	2	5	1	6	7	6	6
2	1	5	4	3	5	1	6	5	3	2
1	1	5	5	5	5	1	7	7	6	6
1	5	4	4	3	5	1	6	6	5	6
2	2	4	5	4	5	1	6	7	5	5
1	1	4	3	2	5	1	7	7	5	6
2	2	4	5	5	5	1	6	7	5	6
2	2	4	3	2	4	1	3	5	4	6
1	1	4	4	4	5	1	4	7	4	6
1	3	3	3	4	5	1	6	6	5	5
4	5	4	5	3	5	1	6	5	6	7
2	4	4	4	4	4	1	6	6	5	6
2	3	3	3	4	5	1	5	6	5	7
2	1	5	4	3	4	1	5	6	4	5
1	1	4	4	2	5	2	5	7	6	6
1	1	3	3	1	5	1	5	7	6	6
2	1	4	4	3	5	1	7	7	6	6
3	1	4	4	2	5	1	6	7	5	6

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

Version-F B-Home R- 2nd	Version-G B-Home R- 4th	Drug- rate- Use	Drug- rate- Att	Drug- rate- buy	Blue- rate- Use	Blue- rate- Att	Blue- rate- Buy	Angel- rate- Use	Angel- rate- Att	Angel- rate- Buy	Tilex- rate- Use	Tilex- rate- Att	Tilex- rate- Buy	Ivory- rate- Use
5	4	4	4	2	7	3	3	3	2	5	7	5	6	6
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4	2	7	5	5	5	3	3	7	7	7	6	5	6	4
5	1	6	6	5	6	4	6	4	4	2	6	6	6	2
7	1	5	5	1	6	4	2	3	4	1	7	6	7	4
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5	2	5	5	3	4	5	3	4	6	2	6	4	4	4
6	3	7	4	1	6	5	2	3	3	1	5	4	2	6
6	3	7	4	1	6	3	4	3	5	1	7	4	6	6
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5	1	6	3	2	4	7	3	2	3	1	2	2	2	1
6	3	7	7	7	5	4	4	5	4	1	7	7	7	6
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6	1	5	3	1	6	4	2	6	6	5	5	5	5	4
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7	1	7	4	1	3	2	1	4	3	2	5	6	4	7
4	3	4	3	3	5	6	4	3	4	1	6	6	6	5
5	2	6	2	3	5	4	5	3	6	1	6	5	6	6

Ivory-rate-Att	Ivory-rate-Buy	Casa-rate-Use	Casa-rate-Att	Casa-rate-Buy	# of Risks Recalled	# of Benefits Recalled	2# of Risks Recalled	2# of Benefits Recalled	# of Correct Risks Recog	# of Wrong Risks Recog	# of Correct Benefits Recog
3	4	5	3	5	3	2	3	2	8	5	6
4	4	4	3	2	0	0	0	0	0	3	2
4	4	6	5	7	7	2	6	2	7	3	4
3	2	5	5	7	1	1	1	1	4	2	6
5	2	3	4	3	0	0	0	0	0	0	0
5	5	4	4	4	0	0	0	0	2	0	2
5	3	6	5	7	1	1	2	1	7	2	6
5	4	6	4	5	4	1	3	1	4	2	3
3	7	4	2	2	0	1	0	1	5	1	4
5	6	7	4	6	0	1	0	1	0	0	0
4	5	6	2	6	0	1	0	1	1	4	5
2	1	5	6	5	0	0	0	0	0	4	3
4	5	7	5	5	0	0	0	0	0	0	0
5	7	5	2	6	0	0	0	1	0	0	1
7	6	5	4	7	2	1	2	1	5	4	3
6	5	5	3	4	0	1	0	1	2	0	3
4	5	6	3	6	0	1	0	1	2	2	2
4	6	6	6	6	0	1	0	1	1	3	5
6	3	7	5	7	4	0	4	1	6	0	3
5	7	7	6	6	0	1	0	1	3	3	4
5	2	6	6	7	0	0	0	0	0	1	1
3	3	4	3	3	0	1	0	1	0	0	3
7	7	5	2	4	2	1	1	1	2	1	1
6	3	6	3	6	0	1	0	1	2	2	4
3	3	5	6	6	1	1	1	1	5	3	6
6	7	6	7	7	0	1	0	1	2	1	2
4	7	6	5	2	1	3	1	2	3	1	6
6	4	5	4	4	1	1	1	1	4	2	5
4	3	5	5	5	4	3	4	3	8	1	5
6	3	6	5	6	2	1	2	1	5	2	2
5	5	7	6	6	1	3	0	2	4	3	6
5	3	5	5	3	0	0	0	0	0	0	1
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4	6	6	1	3	3	3	2	3	5	1	4
5	1	5	3	6	0	1	0	1	0	0	4
3	7	4	4	5	0	1	0	1	1	6	3
5	6	4	3	6	2	4	1	3	2	0	4
5	7	5	7	7	4	4	3	4	8	2	5
6	6	6	5	7	0	1	0	1	1	1	4
5	6	7	4	5	0	0	0	0	2	0	4
6	6	4	3	4	1	1	1	1	2	0	2
5	3	4	4	4	1	1	1	1	1	0	3
4	4	6	5	6	2	0	2	0	8	1	3
4	7	7	2	6	0	2	0	2	1	2	4
4	1	6	6	6	2	0	2	1	3	2	3
6	4	3	4	3	0	1	0	1	2	0	3
3	6	7	4	5	0	1	0	1	1	2	2
4	5	5	5	6	1	1	1	1	2	0	2
3	5	4	2	4	5	1	5	2	9	0	3
4	7	5	7	7	3	1	3	1	5	0	4
3	4	5	5	4	6	1	6	1	9	2	4
4	3	5	4	5	2	1	1	1	3	3	4
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4	5	2	2	6	3	0	3	0	8	0	3
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6	5	6	6	7	2	2	2	2	3	3	6

6	5	6	6	7	3	2	2	1	5	0	2
4	5	6	4	6	3	3	3	3	7	1	4
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4	5	5	7	7	3	3	3	3	8	0	6
6	6	6	4	6	4	3	2	2	6	2	5
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6	6	4	2	5	1	1	1	1	2	2	3
6	6	7	5	7	0	1	0	1	1	2	3
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4	6	7	5	6	0	1	0	1	0	0	2
3	3	7	5	6	0	1	0	1	2	1	1
4	3	5	3	5	0	2	0	2	2	3	4
6	2	6	4	5	2	1	3	1	8	0	2
5	2	4	3	3	1	1	1	1	3	0	3
4	3	7	6	6	0	1	0	1	1	3	4
4	5	6	6	6	0	2	0	2	1	2	4
3	4	4	5	5	0	0	0	0	3	2	4
4	4	7	6	7	0	3	0	3	1	0	4
2	3	6	6	6	0	2	0	2	3	2	3
5	5	4	5	7	1	2	1	2	4	3	4
6	4	5	7	6	1	1	0	1	1	2	4
3	5	5	3	4	0	2	0	2	3	5	4

# of Wrong Benefit Recog
3
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**Appendix KK**

Search and Find Task Data

SS#	Drug: Celebrex-1; Singulair-2	Drig Site Version	Gender: Male-1; Female-2	Age	Ethnic: AA-1; Asian-2; White-3; Hispanic-4; ME-5; NatA-6; Pacil-7; MR-8	Year: Fresh-1; Soph-2; Jun-3; Sen-4; Grad-5; Other-6	Asthma: no-1; yes-1	Arthritis: no-0; yes-1	Other:	Fam Ads Mags	Fam Ads TV
1	1	6	1	18	3	1	0	0	1	3	5
2	1	4	1	18	3	1	0	0	1	2	3
3	2	4	1	20	3	2	1	0	0	3	3
4	1	5	1	18	3	1	0	0	2	4	3
5	2	7	1	19	3	2	0	0	0	3	3
6	1	2	1	36	3	4	0	0	1	3	4
7	1	5	1	19	3	2	0	0	1	2	2
8	1	3	1	18	3	1	0	0	0	1	2
9	2	4	2	20	3	2	0	0	0	2	2
10	2	1	1	18	3	1	0	0	0	3	3
11	1	2	2	18	3	1	0	0	2	3	2
12	1	7	1	18	1	1	0	0	0	3	3
13	2	1	1	20	5	2	0	0	0	3	4
14	2	4	1	19	3	1	0	0	0	2	2
15	1	4	1	19	3	1	0	0	0	2	3
16	2	5	2	18	3	1	0	0	10	4	4
17	2	3	2	19	3	2	0	0	3	3	3
18	1	1	1	18	3	1	0	0	0	2	3
19	2	3	2	19	3	2	0	0	0	2	3
20	1	7	1	20	3	4	0	0	0	2	3
21	1	6	1	18	3	1	0	0	0	3	4
22	1	7	1	18	3	1	0	0	3	3	4
23	1	4	1	18	2	1	1	0	0	2	3
24	2	5	1	18	5	1	0	0	0	4	4
25	1	2	1	17	3	1	0	0	2	4	4
26	1	1	2	18	3	1	0	0	0	2	2
27	1	3	1	18	3	1	0	0	1	2	3
28	1	6	1	18	3	1	0	0	0	2	3
29	1	4	2	18	2	2	0	0	2	2	2
30	1	5	2	18	3	1	0	1	1	2	3
31	1	7	2	17	3	1	1	0	1	5	5
32	2	6	1	20	3	2	0	0	10	3	3
33	2	6	1	19	3	1	0	0	2	2	2
34	2	1	2	18	8	1	0	0	0	1	2
35	2	3	2	19	8	2	0	0	2	3	5
36	2	2	2	18	3	1	0	0	0	3	3
37	1	5	1	18	3	1	1	0	0	3	4
38	1	3	2	18	1	1	0	0	0	3	3
39	2	2	1	19	2	1	0	0	0	3	3
40	2	1	1	19	3	2	0	0	0	1	1
41	1	3	1	20	3	3	0	0	0	1	1
42	1	6	2	20	3	3	0	0	2	4	4
43	2	7	1	19	3	1	0	0	0	2	3
44	2	3	1	19	3	1	1	0	0	4	4
45	2	5	1	20	3	2	0	0	0	2	2
46	2	2	1	18	3	1	0	0	0	3	3
47	2	6	1	19	3	2	0	0	0	3	4
48	1	1	1	18	4	1	1	0	4	3	2
49	2	7	1	18	3	1	0	0	0	2	3
50	1	2	1	18	3	1	0	0	0	3	4
51	2	7	1	19	1	1	0	0	0	3	4
52	2	6	1	19	1	2	0	0	3	1	4
53	2	4	2	19	3	2	0	0	0	2	2
54	2	2	1	19	3	1	0	0	0	3	2
55	2	5	1	20	3	2	0	0	0	3	3
56	1	1	2	22	6	4	0	0	0	4	5

57	1	1	1	22	3	3	0	0	0	3	3
58	2	2	2	19	3	2	0	0	2	3	3
59	1	2	1	21	3	4	0	0	0	2	3
60	1	5	1	21	2	3	0	0	0	3	2
61	2	4	1	18	3	1	0	0	5	2	2
62	1	4	1	28	6	4	0	0	4	2	4
63	1	3	1	18	3	1	0	0	0	3	2
64	2	5	1	21	3	4	0	0	5	3	3
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66	1	4	1	18	3	1	0	0	0	2	2
67	1	5	1	22	3	4	0	0	5	2	3
68	2	6	2	20	1	2	0	0	0	1	2
69	1	3	1	18	4	1	0	0	3	4	4
70	2	4	2	19	3	2	0	0	3	3	4
71	2	7	2	22	3	5	1	0	0	4	5
72	2	6	2	19	3	2	0	0	1	3	3
73	1	6	2	19	3	2	1	0	0	2	3
74	2	2	2	19	1	2	0	0	3	4	4
75	1	6	2	19	3	2	0	0	5	2	3
76	2	3	1	24	3	2	0	0	0	1	1
77	2	3	1	19	2	3	0	0	1	2	2
78	2	7	1	19	3	2	0	0	0	2	2
79	1	7	1	18	3	1	0	0	0	3	4
80	1	7	2	18	3	1	0	0	0	2	3
81	1	1	2	18	3	1	0	0	2	3	2
82	2	5	1	20	3	2	0	0	1	3	3
83	2	1	2	22	8	2	0	0	1	5	5
84	1	2	2	20	3	3	0	0	0	2	3

Fam Ads WWW	Fam Celebrex	Fam Singlair	Exp Computers	Exp Surfing	Exp Shop Online	Surf: never-1; year-2; month-3; week-4; day-5	Version-A No Risks	Version-B Home Integ	Version-C Home Separ	Version-D 2nd Integ
2	2	1	4	4	5	5	1	6	5	6
2	3	1	4	5	3	5	1	5	5	4
2	2	2	4	4	3	5	1	7	7	7
2	1	1	5	5	4	5	1	6	4	5
2	1	1	4	4	4	5	1	6	6	7
2	2	2	5	5	3	4	1	7	7	5
1	1	1	3	3	2	4	1	6	6	7
1	1	1	5	5	3	5	1	6	7	6
2	1	1	4	4	3	5	1	5	6	7
2	1	1	4	5	3	5	1	7	6	7
2	3	2	3	4	3	4	1	4	5	5
2	1	1	4	5	3	5	1	7	7	6
2	1	1	3	3	1	3	1	7	6	7
1	1	1	3	3	3	4	1	6	6	5
2	1	1	5	5	5	5	1	5	6	6
3	3	2	4	4	4	5	1	6	7	5
3	2	2	3	3	3	4	1	4	3	6
1	2	2	4	4	2	4	1	5	7	5
1	1	1	3	3	2	4	1	6	7	5
2	1	1	4	4	3	5	1	6	6	6
2	1	1	4	4	4	5	1	6	6	5
2	1	3	4	4	3	5	1	6	7	5
2	1	1	4	4	2	4	1	7	7	5
2	3	1	4	5	2	5	1	6	6	5
1	1	1	3	3	2	4	1	6	7	6
1	1	1	4	3	2	5	1	7	7	6
2	2	1	3	3	2	4	1	6	7	3
2	1	1	4	3	3	4	1	6	6	6
2	1	1	4	4	4	5	1	5	5	6
1	1	5	5	5	5	5	1	7	7	6
3	2	3	4	4	3	5	1	5	6	5
1	2	4	4	5	3	5	1	7	6	7
2	1	1	3	3	3	5	1	6	5	5
1	1	1	3	3	3	3	1	7	5	5
2	2	2	3	3	2	4	1	6	7	6
3	2	2	4	4	5	5	1	7	7	6
2	1	1	3	4	1	4	1	7	7	6
1	1	1	4	4	1	5	1	7	6	5
1	1	1	5	5	3	5	1	6	7	5
1	1	1	3	3	2	3	1	6	7	6
1	1	1	5	5	5	5	1	7	7	7
2	1	2	4	4	4	4	1	4	3	6
1	1	1	3	3	3	4	1	6	6	5
2	5	5	4	4	3	5	1	7	5	5
2	2	1	3	3	3	5	1	6	6	5
2	2	1	4	4	2	5	2	5	5	5
1	1	1	5	5	3	5	1	6	6	6
2	1	1	5	4	2	5	1	6	5	4
1	1	1	4	4	4	5	1	5	6	6
2	4	1	4	4	4	5	1	5	5	7
3	3	2	4	4	5	5	1	6	7	5
1	1	2	3	4	3	4	1	7	7	6
1	2	2	3	3	1	4	1	7	6	5
1	1	1	3	3	1	4	2	6	7	5
2	1	2	4	4	3	4	1	7	7	6
2	1	1	4	4	5	5	1	7	7	7

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

Version-E 2nd Separ	Version-F B-Home R 2nd	Version-G B-Home R 4th	Practice-1 time	Practice-1 clicks	Practice-2 time	Practice-2 clicks	Practice-3 time	Practice-3 clicks	Risk- correct (0=no, 1=yes)	Risk-time
5	5	2	18.62	5	11.98	2	8.07	2	1	307.25
6	6	2	6.48	2	33.56	3	14.83	3	1	9.01
7	7	2	24.5	2	14.01	2	15.76	2	1	19.83
5	5	3	5.77	5	6.32	2	13.18	2	1	9.72
7	6	3	17.69	5	9.01	2	13.73	2	2	210.03
6	5	2	14.34	5	7.96	2	17.9	2	1	12.47
7	6	3	20.55	5	14.77	2	10.38	2	1	18.68
7	7	3	18.51	5	5.93	2	12.47	2	1	11.97
7	7	2	24.01	4	21.86	2	13.24	2	1	12.52
7	6	2	31.58	2	16.05	2	21.69	2	0	290.83
7	7	2	18.84	5	10.71	2	11.76	2	1	459.01
6	6	3	29	5	12.25	2	17.36	2	1	60.31
7	7	3	19.45	4	7.03	2	53.93	4	0	30.7
6	6	3	17.52	5	7.2	2	9.83	2	1	11.91
7	7	2	11.21	4	6.98	2	11.65	2	1	19.28
7	5	2	39.11	5	9.39	2	13.46	2	1	8.79
5	7	2	18.13	5	6.92	2	13.51	2	1	32.52
6	6	2	18.62	5	11.98	2	8.07	2	2	445.44
6	6	1	37.4	2	6.43	2	17.08	2	1	4.89
7	7	2	xx	xx	xx	xx	xx	xx	1	209.32
6	5	2	14.22	4	5.66	2	13.79	2	1	4.72
6	6	2	54.93	5	9.4	2	20.1	2	1	302.64
5	6	3	34.77	5	12.08	2	13.46	2	1	20.22
5	4	2	46.25	2	12.58	2	11.81	2	1	8.62
6	6	2	34.77	2	12.08	2	13.46	2	1	13.35
7	6	2	11.87	2	6.48	2	10.05	2	2	432.98
3	4	2	12.19	2	4.33	2	10.76	2	1	9.72
6	6	2	17.85	2	12.19	2	11.42	2	1	10.6
6	6	2	16.14	2	10.82	2	50.86	2	1	11.87
5	6	1	6.38	2	5.6	2	10.27	2	1	5.54
7	7	3	14.67	2	8.73	2	11.15	2	1	93.86
6	5	2	12.9	5	6.59	2	14.45	3	1	10.88
6	6	2	23.62	5	6.65	2	9.17	2	1	16.37
5	5	2	24.01	5	12.36	2	33.61	3	0	104.79
6	6	3	38.28	5	14.34	2	15.65	2	1	22.74
6	6	5	62.56	5	7.42	2	14.06	3	1	5.55
6	6	4	19.66	2	20.27	2	13.34	2	1	66.85
5	5	2	86.45	2	19.27	2	17.36	3	1	10.27
5	6	2	45.37	5	29.55	4	20.54	2	1	30.71
7	7	4	23.57	4	12.36	2	12.63	2	0	658.5
7	7	2	19.94	2	7.2	2	10.44	2	1	136.16
7	7	1	21.09	2	9.23	2	11.32	2	1	8.51
5	5	3	18.89	2	9.45	2	9.94	2	1	214.98
5	6	3	42.12	5	10.27	2	9.67	2	1	7.75
5	5	4	26.04	5	5.6	2	12.53	2	0	81.73
6	6	2	25.65	5	7.36	2	13.4	2	2	282.98
5	5	2	24.01	5	10.82	2	15.05	3	1	9.51
6	5	2	9.89	2	5.28	2	9.51	2	0	68.16
6	6	1	xx	xx	xx	xx	xx	xx	1	41.64
6	5	2	13.35	2	18.51	2	17.31	2	1	269.74
5	4	4	13.84	4	8.19	2	16.32	2	1	86.95
6	6	3	36.91	4	7.47	2	15.77	2	1	9.11
5	5	4	11.48	4	37.41	3	22.74	2	1	17.3
5	5	3	130.23	9	22.96	2	15.49	2	0	104.19
6	6	2	19.17	6	8.9	2	10.76	2	1	6.32
7	7	2	11.48	4	10.21	2	12.47	2	0	147.48

5	5	3	14.23	4	6.31	3	52.02	3	0	30.86
7	6	2	16.97	4	6.42	2	12.3	2	1	224.59
7	7	2	14.06	4	12.24	5	14.11	2	1	21.75
5	5	2	24.99	5	7.14	2	17.19	2	1	5.11
5	5	2	31.91	6	14.28	2	21.81	2	1	7.36
4	5	1	10.49	5	25.7	2	25.27	2	1	11.37
7	7	2	28.23	5	16.42	3	17.58	2	0	209.54
7	7	3	12.2	5	5.77	2	10.22	2	1	6.31
7	6	2	34.99	6	6.37	2	10.32	2	0	168.07
5	5	2	28.18	2	9.5	2	14.11	2	1	64.04
7	3	2	44.66	4	10.43	2	39.11	2	1	9.01
6	5	3	38.23	6	9.88	2	21.75	3	1	258.54
6	6	2	18.73	4	8.89	2	13.12	3	1	13.73
6	6	3	23.78	5	7.9	2	13.73	2	1	16.42
5	6	4	47.46	5	9.73	2	10.77	2	1	76.9
6	6	3	16.26	5	6.75	2	9.73	2	1	10.87
6	6	3	27.41	5	8.96	2	14.01	2	1	13.95
7	7	1	23.67	5	7.42	2	12.41	2	1	6.92
6	5	3	35.04	4	87.67	2	34.99	3	1	55.14
6	5	4	18.4	5	9.45	2	60.08	3	0	138.47
6	6	2	18.84	5	9.06	2	28.51	4	1	238.26
6	6	3	19.39	5	11.1	2	23.03	3	1	32.41
6	6	1	26.97	3	24.48	2	26.75	3	1	166.52
6	6	3	37.9	2	7.2	2	12.58	3	1	23.51
6	5	1	19.99	4	8.79	2	10.93	2	0	458.68
7	6	4	19.39	3	11.64	2	11.2	2	1	7.14
7	6	5	24.44	4	6.1	2	17.13	2	2	293.08
6	6	2	14.77	4	10.6	2	14.99	2	1	13.12

Risk-clicks	Benefit-correct (0=no, 1=yes)	Benefit-time	Benefit-clicks	Aspirin-correct (0=no, 1=yes)	Aspirin-time	Aspirin-clicks	Exercise-correct (0=no, 1=yes)	Exercise-time	Exercise-clicks	Address-correct (0=no, 1=yes)
22	1	34	3	1	50.15	5	1	48.49	5	1
2	1	10.6	2	0	24.12	3	1	41.96	6	1
2	1	14.13	2							
2	1	8.62	2	1	27.74	4	1	15.87	3	1
26	1	31.86	4							
1	1	65.91	3	1	148.68	8	1	53.55	3	1
2	1	15.21	2	1	143.9	9	1	43.23	3	1
1	1	9.17	2	1	55.53	3	1	86.89	10	1
2	1	12.47	2							
10	0	140.83	13							
24	1	11.15	1	1	111.89	7	1	55.04	3	1
9	1	182.57	17	0	21.42	3	1	16.2	4	1
3	0	34.7	3							
3	1	3.95	2							
2	1	13.07	2	1	415.01	22	1	91.72	4	1
2	1	7.03	2							
6	1	6.09	3							
59	0	262.38	28	1	74.43	14	1	73.77	9	1
1	1	3.57	1							
23	1	10.99	1	1	188.06	20	1	44.32	4	1
2	1	13.18	1	0	36.63	3	1	20.6	3	1
14	1	117.6	10	1	105.08	6	1	84.42	4	1
2	1	15.77	2	1	75.25	4	1	57.11	3	1
1	1	22.85	3							
1	1	11.48	1	1	48.5	3	1	34.38	3	1
25	0	486.25	39	1	126.6	9	1	47.01	3	1
1	1	10.49	3	0	24.5	3	1	16.15	3	1
2	1	7.91	1	1	264.13	13	1	29.77	3	1
2	1	18.01	2	0	71.08	3	1	63.88	5	1
2	1	6.04	2	1	45.87	4	1	25.87	3	1
6	1	17.14	3	1	358.22	25	1	42.57	3	1
2	1	86.29	12							
2	1	12.14	1							
7	2	225.75	19							
1	1	24.01	1							
1	1	5.49	1							
6	1	6.1	2	1	194.99	10	1	270.7	15	1
1	2	619.95	16	1	67.07	5	1	67.06	4	1
1	1	31.69	1							
36	0	166.98	16							
12	1	6.16	1	1	29.27	3	1	176.37	9	1
2	1	34.11	3	1	175.76	8	1	54.7	5	1
13	1	56.9	6							
1	1	11.37	1							
3	1	49.98	6							
14	1	15.99	1							
4	0	91.12	14							
9	0	263.31	17	0	27.63	3	1	24.77	3	1
7	2	111.94	17							
14	1	144.84	13	1	199.76	12	1	25.37	3	1
11	0	187.3	25							
2	1	22.96	1							
2	1	22.08	2							
6	1	16.2	1							
3	1	6.59	2							
1	2	271.44	18	1	12.52	3	1	22.46	4	1

5	0	46.85	5	1	13.84	3	1	20.82	3	1
21	1	2.97	1							
3	1	31.8	3	0	151.54	15	1	407.32	16	1
2	1	4.5	2	0	28.67	3	1	19.5	4	1
2	1	15.6	2							
2	1	8.46	2	1	422.87	6	1	89.04	3	1
16	1	81.07	3	1	20.22	3	1	46.8	5	1
2	1	4.89	2							
13	2	162.03	20							
5	1	58.66	5	1	71.24	4	1	42.29	3	1
2	1	13.56	2	1	72.88	3	1	27.68	4	1
13	1	146.38	14							
5	1	5.16	1	1	xxxxx	10	1	17.69	5	1
2	1	6.54	2							
10	1	6.15	1							
2	1	6.86	1							
2	1	9.12	1	1	93.27	3	0	16.64	1	1
1	1	130.39	14							
8	2	328.34	16	1	147.53	8	1	36.47	3	1
13	1	23.13	3							
32	1	10.99	2							
6	1	9.17	1							
8	1	32.41	3	1	203.33	6	1	341.36	12	1
4	1	251.34	15	0	100.73	9	1	23.84	3	1
22	0	297.91	16	1	147.31	5	1	268.8	16	1
2	1	22.03	2							
22	0	237.28	27							
1	1	7.36	1	0	348.83	19	1	77.39	4	1

Address-time	Address-clicks	Diff-correct (0=no, 1=yes)	Diff-time	Diff-clicks	parents correct (0=no, 1=yes)	parent-time	parent-clicks	Dosage correct (0=no, 1=yes)	Dosage-time	Dosage-clicks	trigger correct (0=no, 1=yes)
21.04	2	1	299.72	26							
17.74	2	1	65.64	10							
					1	23.35	4	1	137.43	15	0
11.15	2	1	109.85	13							
					1	19.94	4	1	117.43	11	1
46.25	4	1	133.42	11							
98.81	8	1	92.66	9							
56.29	7	0	181.26	8							
					2	175.76	19	1	108.31	11	1
					1	32.08	4	1	120.18	12	1
20.71	2	1	55.37	5							
28.18	6	1	32.29	4							
					1	40.91	4	1	32.13	3	0
					1	120.32	13	1	56.13	7	0
57.23	4	1	70.14	5							
					2	132.65	9	1	18.24	4	1
					0	89.48	6	1	43.5	5	0
35.21	5	1	48.23	5							
					1	43.23	4	1	22.52	3	0
18.84	2	1	49.93	5							
44.93	9	1	89.64	9							
13.18	3	1	117.54	9							
33.07	2	1	51.68	3							
					1	244.25	18	1	170.93	11	1
20.54	3	1	67.94	5							
19.33	3	1	73.65	5							
16.15	3	0	76.73	9							
19.72	2	0	305.83	14							
18.95	2	0	59.87	5							
18.62	2	1	267.76	18							
20.55	3	1	57.34	5							
					1	94.37	10	1	18.18	3	1
					1	23.73	4	1	55.81	8	1
					1	36.75	4	1	16.7	3	0
					1	189.17	14	1	32.9	3	1
					1	140.22	10	1	42.19	7	1
22.24	3	1	58.66	3							
108.09	8	2	700.41	21							
					1	122.54	17	1	76.24	10	0
					1	41.36	4	1	7.91	3	1
19.83	3	1	60.91	6							
10.87	3	1	87	10							
					1	157.33	29	1	113.92	14	0
					1	36.3	4	1	23.45	3	1
					0	215.58	17	1	21.7	3	0
					1	76.57	10	1	39.05	6	1
					1	77.99	11	1	46.3	9	0
14.56	2	1	103.81	6							
					1	13.51	4	1	34.72	6	1
45.81	4	1	64.84	6							
					1	147.7	12	0	102.32	11	0
					1	39.23	4	1	81.17	5	1
					1	129.08	14	1	113.86	16	1
					1	78.82	4	1	100.79	5	0
					1	21.26	5	1	58.88	7	1
16.64	2	1	91.94	9							

37.08	5	1	108.3	8								
					1	26.59	4	1	78.11	9	0	
60.81	6	1	65.91	8								
16.86	2	1	131.88	11								
					0	169.67	11	1	18.45	5	0	
91.89	2	1	142.41	5								
16.7	3	1	71.57	7								
					1	29.6	4	1	11.97	3	1	
					1	43.67	6	1	15.6	3	0	
19.88	3	1	95.02	5								
19.44	3	1	322.31	16								
					1	115.78	6	1	17.19	3	1	
36.74	5	1	98.53	11								
					1	223.88	25	1	60.2	10	0	
					1	35.65	6	1	109.69	13	1	
					1	59.1	9	1	11.31	3	1	
36.2	2	1	296.37	15								
					1	66.57	4	1	16.86	3	1	
25.15	3	1	88.82	7								
					1	45.26	4	0	35.75	3	1	
					1	184.5	42	1	28.9	6	0	
					1	43.01	5	0	75.41	5	1	
20.77	3	1	74.32	5								
13.46	2	1	32.62	5								
140.88	6	1	701.62	37								
					1	40.15	6	0	73.6	5	1	
					1	51.08	6	1	12.14	3	0	
15.65	2	1	192.18	13								

trigger-time	trigger-clicks	videos correct (0=no, 1=yes)	video-time	video-clicks
53.17	4	1	24.11	4
16.53	4	1	41.86	6
34.93	3	1	68.82	9
14.77	4	1	52.78	4
29.33	2	0	39.82	3
18.45	2	1	29.66	5
72.23	7	1	27.02	4
44.77	9	1	20.55	6
71.74	4	1	23.78	4
56.96	3	1	118.04	10
57.18	3	1	34.82	6
11.26	3	0	9.23	3
205.25	11	1	33.56	4
46.03	3	1	32.73	4
163.96	14	1	19.66	4
25.98	2	1	55.48	8
14.45	4	1	267.93	26
46.69	3	1	318.46	36
89.47	7	1	31.36	4
75.52	3	1	32.19	4
16.31	3	1	23.83	4
131.38	16	1	10.49	4
83.26	16	1	14.89	6
97.49	4	1	33.05	4
53.55	5	1	23.23	4
69.43	3	1	24.83	4
57.23	2	1	28.72	5
10.77	3	1	173.23	21

14.17	2	1	13.73	4
90.08	11	2	419.52	56
46.63	6	1	12.58	4
20.98	3	1	39.16	9
24.77	3	1	48.88	5
83.11	8	1	21.15	4
359.49	24	1	91.29	10
39.27	4	1	20.92	5
110.62	5	1	33.45	4
58.05	5	1	19.61	5
137.59	25	1	39.38	7
4.56	2	1	17.19	4
31.31	3	1	134.56	17
110.84	6	1	48.94	7