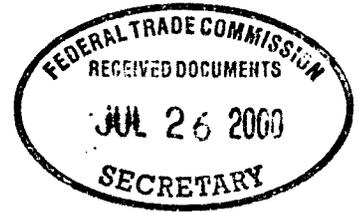


UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION

In the Matters of:

Swisher International Inc.	FTC no. 002-3199)
)
Consolidated Cigar Corporation	FTC no. 002-3200)
)
Swedish Match North America, Inc	FTC no. 002-3201)
)
General Cigar Holdings, Inc.	FTC no. 002-3202)
)
Lane Limited	FTC no. 002-3203)
)
Havatampa, Inc.	FTC no. 002-3204)
)
John Middleton, Inc.	FTC no. 002-3205)



COMMENTS OF THE ATTORNEY GENERAL OF MASSACHUSETTS

These comments are submitted by Thomas F. Reilly, as Attorney General of Massachusetts ("Attorney General"), in response to the Notice of Proposed Consent Agreements between the Federal Trade Commission ("Commission") and seven cigar manufacturers. The Notice was published in the Federal Register at 65 FR 41,998 on July 7, 2000.

Summary of Comments. The Attorney General strongly supports warning consumers nationwide of the potentially severe disease consequences of cigar use. The proposed consent orders are not, however, adequate to achieve that goal. The required warnings are not sufficiently conspicuous; they are too small and lack other generally recommended features that would cause the warnings to attract the attention of a substantial percentage of consumers. The Commission has provided no data or other research which examines the efficacy of the proposed

warnings or identifies a warning format that is appropriate for this risk information. Such research is critical, particularly where the product presents serious health risks. Moreover, because the FTC seeks to implement a new national warning regime and to preempt regulation by the States, it must be especially careful to ensure that its program will be effective.

Massachusetts Cigar Regulations. In January 1999, the Massachusetts Attorney General promulgated regulations under the state Consumer Protection Act, Mass. G.L. c. 93A, § 2, so that “Massachusetts consumers may be adequately informed about health risks associated with cigar smoking, its addictive properties, and the false perception that cigars are a safe alternative to cigarettes” 940 Code Mass. Reg. § 22.01. The regulations required that packages of machine-made cigars and little cigars manufactured, packaged, imported for sale, or distributed within Massachusetts bear, on a rotating basis, one of the following two warning labels:

- (1) **WARNING: Cigar Smoke Contains Carbon Monoxide and Nicotine, An Addictive Drug.**
- (2) **WARNING: Cigars Are Not A Safe Alternative to Cigarettes or Smokeless Tobacco Products.**

940 C.M.R. § 22.04. The regulations required that the warning be in a “clear and conspicuous format,” comprising at least 25% of the front or top of the package (whichever is larger) and be set forth in white letters against a black background or black letters against a white background “in contrast with all other printed material on the package.” 940 C.M.R. § 22.04(2). In addition, the regulations required that 20% of any cigar advertisement within Massachusetts be devoted to the required warning. 940 C.M.R. § 22.05. The use of a pre-printed warning sticker affixed to the package or advertisement also constituted compliance.

The regulations issued by the Massachusetts Attorney General broke new ground in requiring prominent health warnings on all cigar packages and advertising in Massachusetts. In promulgating the regulations, Massachusetts was the first State to respond to the critical need to warn consumers of the specific health risks of cigar use.¹ Although federal law had long required health warnings on cigarettes and smokeless tobacco, federal authorities had overlooked the “other” tobacco product -- cigars -- which have seen a period of growth and resurgence since the mid-1990's.²

Proposed FTC Consent Orders. We are pleased that the Federal Trade Commission

¹ Since the late 1980's, California had required its generic Proposition 65 warning on cigar packages sold in that state. The warning was, however, inconspicuous, often appearing in small, low contrast print on the side of the package.

² In June 1999, the major cigar manufacturers filed suit in federal court in Boston, claiming the Massachusetts cigar warning regulations would violate the Commerce Clause and the First Amendment to the U.S. Constitution. *Consolidated Cigar Corp., et al., v. Thomas F. Reilly, as Attorney General of the Commonwealth of Massachusetts*; Civil Action No. 99-CV-11270-WGY. On January 24, 2000, Chief U.S. District Judge William Young upheld the Massachusetts package warning requirements. *See Lorillard Tobacco Company v. Reilly*, 84 F. Supp.2d 180, 200-202 (D. Mass. 2000). On July 17, 2000, the United States Court of Appeals for the First Circuit reversed this portion of Judge Young's ruling, finding the Massachusetts package warning requirements to violate the Commerce Clause because they potentially imposed liability on cigar manufacturers for the unauthorized conduct of third party retailers or distributors who might sell unlabeled cigar packages in Massachusetts, against the instructions of the manufacturer. *Consolidated Cigar Corp. v. Reilly*, 2000 WL 960526 (1st Cir. Mass.). The Court found no general constitutional flaw in these provisions, however, and suggested it would uphold regulations requiring a package warning which impose liability only on in-state sellers or distributors. The Court gave the Attorney General “leave to reformulate” the regulations in a manner consistent with its opinion. As discussed in more detail below, the First Circuit rejected the cigar manufacturers' challenge to the size and format requirements of the Massachusetts cigar warning.

now seeks to require the major U.S. cigar manufacturers to include health warnings on their products and advertising nationwide. At the same time, we believe the warnings proposed in the consent orders are not sufficiently conspicuous to gain the attention of consumers in the retail environment.

The proposed FTC consent orders do not, by their terms, identify how much of the cigar package must be allocated to the warning message.³ By our estimate, however, it appears that the majority of the warnings prescribed in the proposed orders will occupy only from 8 - 16% of the package area. In contrast, the Massachusetts regulations required that health warnings on cigar packages sold in Massachusetts occupy 25% of the front of the package and be in contrast with all other packaging material. This mirrors requirements in legislation filed in Congress in 1997 to enlarge the health warnings on cigarette packages to 25% of the front of the cigarette package; these requirements were agreed to by the major cigarette manufacturers as part of the Proposed Resolution of the state Attorney General cigarette litigation reached in June 1997. See Proposed Resolution, p. 10, available online at <http://www.health.org/pubs/tobres.htm>.

In the litigation challenging the Massachusetts cigar regulations, the Attorney General submitted the affidavit of Michael S. Wogalter, Ph.D., a leading national expert on warnings

³ Instead, the consent orders set forth a specific font size requirement for warning messages that appear on all packages falling within a defined range of sizes. See Section III.C. and D. The FTC warnings will therefore occupy varying portions of cigar packages, depending on where the package falls in the range. Relatively larger packages (on the high end of these ranges) will therefore appear to bear smaller warnings, with the opposite effect occurring on packages at the lower end of the size range. This structure makes it difficult for interested members of the public to evaluate the warning program contained in the proposed consent orders.

and risk communication. See Exhibit A, attached hereto. Dr. Wogalter concluded that, *even at 25% of the package size*, the Massachusetts cigar warnings would not attract the attention of all consumers, but rather that “a substantial proportion” would notice the warning before they purchased a package of cigars. Exhibit A, pp. 2, 11. It certainly follows that the much smaller warnings proposed in the FTC consent orders would be inadequate. Although in the *Consolidated Cigar* case the manufacturers complained that the Massachusetts warnings were too large, they offered no evidence on the appropriate parameters for a package or advertising warning, nor did they submit any evidence -- expert or otherwise -- to challenge Dr. Wogalter’s conclusions. We believe the Commission should take notice of both Dr. Wogalter’s expert opinion, and the cigar manufacturers’ apparent inability to dispute it, and conclude that the proposed consent orders do not require a sufficiently conspicuous warning.

A product warning must be properly designed in order to reach consumers in a visually “cluttered” retail environment. Dr. Wogalter’s affidavit discusses this challenge and identifies design features that improve the conspicuousness of a product warning. See Exhibit A, pp. 6-9. This discussion indicates how the proposed consent orders should be improved. First, as stated above, we believe the FTC warnings must be larger to attract consumers’ attention. Second, the consent orders should require that the warnings be in contrast with *all* other printed material on the package; the existing requirement of black text on a white background may prove inadequate if the package graphics themselves are black and white. Third, the Commission should incorporate the recommendations of the American National Standards Institute (ANSI) that the signal word (i.e. WARNING) be paired with a signal icon (e.g. exclamation point within triangle) and set against a high-contrast color panel. Finally, the

Commission should also investigate whether a pictorial symbol is feasible in cigar package or advertising warnings.⁴

The Commission has not explained in any public notice whether, or why, the format and design of its proposed warnings will effectively capture and maintain consumers' attention. Nor has the Commission published or referred to any studies, surveys, data or expert analysis to justify the design and size of these warnings. We believe the absence of this information is a serious omission and leaves the public unable meaningfully to evaluate the orders. In a number of countries, most notably Canada and Australia, governmental authorities have required significantly larger warnings on tobacco products than those in the FTC orders. A substantial body of research, which is readily available to the Commission, was undertaken in these countries in the development of their tobacco warning requirements.

We urge the Commission to make public whatever data it has to support the efficacy of the warnings or, if there is none, to undertake the research necessary to develop the optimal size and format for its cigar warnings. It would be entirely inappropriate for a nationwide program of health warnings to be developed simply through the give-and-take of negotiations with the cigar manufacturers.

We also believe the Commission would be on solid legal ground to insist that cigar manufacturers' display a more prominent warning than that proposed in the consent orders.

⁴ The proposed orders do incorporate several modest improvements on the much criticized cigarette package warnings, such as requiring the warning to appear on the principal display panel in black-on-white text. But, the proposed FTC warnings would only be incrementally larger than the existing cigarette warnings, which have been widely viewed as outdated and inadequate. See Exhibit A, pp. 14-15.

The only basis upon which the First Circuit held the Massachusetts warning regulations invalid was the manufacturers' claim under the dormant Commerce Clause, which is inapplicable to federal regulation. See Pike v. Bruce Church, Inc., 397 U.S. 137 (1970). The manufacturers' challenge to the Massachusetts regulations under the First Amendment was squarely rejected.

In that regard, the Court stated:

On appeal, the cigar companies do not challenge the substantiality of the state's interest in informing consumers of the health risks associated with cigar smoking. Nor do they dispute that the regulations are reasonably related to that interest. Rather, the companies assert that the regulations are nevertheless unconstitutional because the very size of the required warnings (twenty-five percent of the main panel of packaging or twenty percent of advertising) "unduly burdens" speech. Cf. id. at 651 ("We recognize that unjustified or unduly burdensome disclosure requirements might offend the First Amendment by chilling protected commercial speech.").

With respect to the packaging requirements, the companies argue that the warnings are unconstitutional because the Attorney General failed to prove that the Commonwealth's purposes could not be equally well served by warnings covering only, for example, ten percent of the front of top panel of the package. This argument, however, was explicitly rejected by the Supreme Court in Zauderer, where the Court declined to apply a "'least restrictive means' analysis" to disclosure requirements and stated: "[W]e do not think it appropriate to strike down such requirements merely because other possible means by which the State might achieve its purposes can be hypothesized." Id. at 651 n.14. Because the packaging requirements are reasonably related to a substantial state interest and do not unduly burden interstate commerce, they are valid.

With regard to the advertisement warning requirements, the companies argue that the twenty-percent coverage of the warnings will so burden cigar manufacturers that they will cease advertising altogether. The companies offer precious little to support this difficult-to-believe proposition, and we find it unpersuasive. Other industries, including the manufacturers of cigarettes and smokeless tobacco products, have successfully incorporated warning schemes into their advertising practices, and cigars present no special considerations that lead us to believe a different result will ensue here. Similar to the restrictions upheld in Zauderer, Massachusetts "has not attempted to prevent [cigar makers] from conveying information to the public; it has only required them to provide somewhat more information than they might otherwise be inclined to present." Id. at 650. As such, the advertising restrictions do not violate the First Amendment.

Consolidated Cigar Corp. v. Reilly, Slip opinion at 50-51.

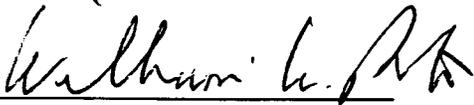
Conclusion. The proposed consent orders represent significant action by the Commission. Because all tobacco products -- including cigars -- present serious health risks, it is critical that consumers receive the warning information *before* they make a purchase decision. Product warnings must stand out in a retail setting often cluttered with products and promotions. If the FTC warnings fail to do that, the agency's goal of informing consumers will not be achieved. And where the FTC seeks to preempt all state regulation of cigar warnings, it must be especially careful to ensure that its warnings will be effective.

The Commission faces a tremendous opportunity to begin a needed reform of the warning systems for all tobacco products. That opportunity should not be squandered. Whatever the Commission does with respect to cigars could well be seen -- at least by the tobacco industry -- as a model for future regulation of cigarettes and smokeless tobacco. The format of the proposed warning for cigars does not meet that high standard.

For the reasons set forth above, we respectfully urge the Commission to disapprove the proposed consent orders.

Respectfully submitted,

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Dated: July 25, 2000



EXPERT DISCLOSURE -- F.R.C.P. 26(b)

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I am an associate professor in the Department of Psychology at North Carolina State University (Raleigh). I received a B.A. from the University of Virginia, an M.A. from the University of South Florida, and a Ph.D. from Rice University. I have held faculty appointments at the University of Richmond and Rensselaer Polytechnic Institute. Most of my research, which is widely published, focuses on the factors that influence the effectiveness of warnings and people's hazard and risk perceptions. I also have an interest in human-technology interaction and information displays. I am a Fellow of the Human Factors and Ergonomics Society and have been HFES Secretary-Treasurer and a member of the Executive Council. I have also held the offices of Chair and Technical Program Chair of the HFES Safety Technical and Forensic Professional Groups, and the General Sessions Chair and Special Sessions Chair of the Technical Program Committee. I am a member of a number of other professional associations including the American Psychological Association, American Psychological Society and Sigma Xi. I am on the editorial boards of the refereed, peer-reviewed journals *Human Factors*, *Ergonomics*, *Occupational Ergonomics*, *Psychology & Marketing*, and *Theoretical Issues in Ergonomics Science*. I am also a co-editor, with David DeJoy and Kenneth Laughery, of the book *Warnings and Risk Communication* (Taylor and Francis, 1999), for which I also co-wrote several chapters.

My curriculum vitae, which includes a list of my publications since 1984, is attached to this disclosure as Exhibit 1.

Anticipated Testimony

I will testify to the following opinions:

1. The requirements in the Massachusetts Attorney General's regulations for the format, size and placement of a warning statement on cigar packaging are reasonable and appropriate for the state's goal of warning consumers of certain risks associated with cigar use. I am of the opinion that 25% is a reasonable portion of the product label to devote to the warning. Because the Massachusetts cigar warnings contain a number of the generally recommended design criteria for effective warnings, it is my opinion that they will attract the attention of a substantial proportion of consumers.

2. The requirements in the Massachusetts Attorney General's regulations for the format, size and placement of a warning statement on cigar print advertising are reasonable and appropriate for the goal of warning consumers of certain risks associated with cigar use. Because the Massachusetts cigar print advertising warnings contain a number of the other recommended design criteria for effective warnings, it is my opinion that they will attract the attention of a substantial majority of consumers. The regulations require the warning to cover 20% of the advertisement. If the size of the advertising warning were substantially reduced (for example, to 10%), substantially fewer readers would notice the warning.

3. The so called "California" warnings that presently appear on cigar packages are inadequate to warn consumers of particular health risks that might be associated with cigar use. It is my opinion that these warnings would attract the attention of fewer than 10% of consumers

at the point of purchase and would therefore not meet one of the goals of the Massachusetts cigar warning regulation.

Bases and reasons. As the bases and reasons for the foregoing opinions, and based upon research that I have conducted or reviewed, and on my education, training and experience, I will testify as follows.

Background. According to the Massachusetts Attorney General's regulations on cigars, the purpose of the required warning statements is that "Massachusetts consumers may be adequately informed about the health risks associated with cigar smoking, its addictive properties, and the false perception that cigars are a safe alternative to cigarettes by requiring the cigar industry to include health warnings on the package labels of cigars sold and distributed within Massachusetts and in the advertisements of such products within Massachusetts." 940 C.M.R. § 22.01. The regulations require the following warning label on packages of manufactured cigars and little cigars sold in Massachusetts:

WARNING: Cigar Smoke Contains Carbon Monoxide And Nicotine. An Addictive Drug.

WARNING: Cigars Are Not A Safe Alternative To Cigarettes Or Smokeless Tobacco Products.

The regulations that the statement be located "on the front or top of the package, whichever surface area is larger, in a clear and conspicuous format, comprising at least 25 percent of the front or top panel of the package" The warning statement must be "letters that are either white against a black background or black against a white background, and are in contrast with all other printed material on the package." The labels may either be "printed

directly on the package or preprinted, provided that any preprinted label is firmly attached to the package in such a way that the surface of the label is destroyed before the label can be removed from the package.” The label statements must be “rotated” regularly. See 940 CMR § 22.04.

The regulations also require that the warning statements be placed on advertising for cigars or little cigars in Massachusetts. The two warnings are to be rotated as described in the regulation. The warning statement must comprise at least 20 percent of the area of the advertisement and be in the format required for package warnings labels. See 940 CMR § 22.05.

Informational Purpose -- Warnings have various purposes. One purpose is to provide information that enables people to understand hazards, consequences and appropriate behaviors. Understanding this information enables them to make informed decisions. Warnings sometimes also serve as reminders, to assure awareness of the risk or hazard at an appropriate or useful time. Sometimes, people may opt not to follow the instructions provided by the warning, but rather “take the risk.” However, if the warning is effective, the decision will be made on the basis of adequate information. In this regard, a warning is successful if the information is properly transmitted, received and understood. Warnings may deliver information at various times, including before and at the point of purchase.

Print Advertising Product purchase may be viewed in several steps. The first step (the *pre-purchase stage*) involves the information gathering undertaken by consumers prior to product purchase. For example, consumers may actively acquire information prior to purchase by noticing advertisements, by reading magazine articles, by consulting consumer testing magazines or by seeking information from friends or experts. In addition, consumers may acquire information passively by absorbing information from the environment without actively

seeking specific data about a product. For example, consumers may observe a friend using a product, overhear a conversation about a product, or watch a newscast discussing a product. The information that is acquired is stored in memory and potentially retrievable later (Beales, Mazis, Salop, and Staelin, 1981).

Acquisition of risk information in the pre-purchase stage may also come from advertising, mass media, and interpersonal sources. However, interpersonal transmission is affected strongly by advertisements and by media portrayals. Pre-purchase information acquisition plays an important role in the development of schema about product safety. For example, initial advertising for all-terrain vehicles (ATVs) portrayed ATVs as stable over most terrains. Therefore, many prospective purchasers viewed ATVs as relatively safe and suitable for use by children. This (mis)perception led to substantial use of ATVs by children and adolescents and to subsequent high injury and death rates (Ford and Mazis, 1996). Product safety schema affect subsequent information acquisition. If consumers are persuaded through advertising and the mass media that a product is safe, they may be less likely to look for or read warnings.

Product Labels -- At the *purchase* stage (e.g., at the point of sale), consumers may search actively for information because a commitment is about to be made. Frequently there are distractions in the point-of-purchase environment. The hazard information is competing against other information confronting consumers, and consumers have only a limited amount of processing capacity available. Therefore, time pressure may limit the amount of processing capacity devoted to warnings. In addition, warnings on many product labels are relatively inconspicuous, such as appearing in small print or located in a position within other text.

Attention Capture and Maintenance To be effective, a warning needs to capture and

maintain attention. Warnings should be designed so as to attract the attention of the target audience..

Warnings presented in the pre-purchase stage must gain the consumer's attention and must be relatively simple. Warnings in advertisements must be sufficiently conspicuous to capture and maintain attention when other visual stimuli or activities are competing for it. In addition, relatively simple warnings are preferred because the consumer is less likely to make the effort to read complex disclosures. Thus, consumers may not see the risk information because it is not sufficiently conspicuous or because other visual stimuli or other elements of the print ad seem more important than the pallid risk information. Many readers may be mostly interested in the content of magazine or newspaper articles, and they may have insufficient time or desire to devote to reading the "fine print" in advertisements. On the other hand, most studies on the topic of warnings in print ads report that increased conspicuity has an impact on the effectiveness of warnings in print ads (Barlow and Wogalter, 1993; Foxman *et al.*, 1988) and in owners' manuals (Wogalter, Barlow, and Murphy, 1995). One study, however, failed to find that a conspicuousness manipulation of chewing tobacco warnings had an effect on warning message recall (Popper and Murray, 1989). In general, conspicuous warnings are more likely to be noticed by readers because they do not blend in with the surrounding text and non-text context.

Most retail environments are visually "cluttered" and gaining attention and motivating consumers to read warning information on product labels is a challenge. In order to attract attention, product label warnings must be adequately conspicuous relative to the particular background context in which they occur (Sanders and McCormick, 1993; Wogalter *et al.*, 1987; Young and Wogalter, 1990). Warnings must possess characteristics that make them prominent

and salient so that they stand out from background clutter and noise (Frantz and Miller, 1993; Wogalter, Kalsher, and Racicot, 1993a).

Design Factors -- There is high agreement in the research that the following factors that influence the conspicuousness or salience of a warning.

Size -- Large objects tend to be more salient than smaller objects, and are more likely to capture attention. As a result, greater size within existing constraints, is generally desirable for warnings. Laughery and Wogalter, Chapter 36, Handbook of Human Factors and Ergonomics (Wiley and Sons, 1997); Sanders and McCormick, 1993.

Contrast -- Print warnings should have high contrast with the background, dark on light or vice versa, so that the text is readily discernible from the background context. Discernibility is facilitated by brightness contrast. Black print on a white background or white print on a black background provides maximum brightness contrast, while, for example, gray print on a similar shade of gray background produces little contrast. Research shows that features with greater contrast are detected and localized faster than those of lower contrast (e.g., Brown, 1991; Sanders and McCormick, 1993). Color can also be important in achieving contrast.

Location -- In general, warnings should be located so that individuals who need to see them do in fact notice them. The layout of the environment and what people do in the environment need to be considered in placing a warning properly. For example, for a product label, noticeability is improved by placing the warning on the front label, in a horizontal position. (Funkhouser, 1984; Godfrey *et al.*, 1991; Laughery *et al.*, 1993).

Signal Words - Signal words are used in warning to capture attention. They are also intended to communicate information about the level of the hazard. The most common, and

widely recommended signal words are "CAUTION," "WARNING," and "DANGER," with "danger" representing the most hazardous circumstances and "caution" the least (American National Standards Institute, 1991, FMC Corporation 1985, Westinghouse Electric Corporation, 1981). Where it is feasible, the signal word should be placed in a panel with its corresponding color (e.g., orange with the term "warning").

Most guidelines and standards recommend that warnings also pair a signal word with a signal icon, such as a triangle enclosing an exclamation point (ANSI, 1991; FMC 1985). The ANSI standards on product label warnings (ANSI Z535.4 1991) recommend that all warnings contain a signal word panel on the uppermost portion of the display (ANSI, 1991, 1998). ANSI-style warnings include a rectangular-shape signal word panel on the top section and a signal icon/alert symbol (a triangle enclosing an exclamation point) to its left. Color, signal word and signal icon together comprise a multiple-feature configuration (e.g., Westinghouse Electric Corporation, 1981; FMC Corporation, 1985) that enhances noticeability. (Wogalter, Kalsher, Frederick, Magurno, and Brewster, 1998).

Pictorial symbols -- Another component of many multi-feature warnings which promotes salience is the use of pictorial symbols. Studies have found also that pictorial symbols, color, and signal icons, especially in combination with each other, improve warning noticeability (Laughery *et al.*, 1993).

Generally, warnings having more prominence-type features are more salient and easier to find and more likely to be noticed than those having fewer prominence-type features. Multiple features provide several cues that individually or in combination could capture attention. Additionally, warnings with multiple salient features should benefit people with sensory or

perceptual deficiencies. For example, persons who are color blind might not distinguish some of the colors but may notice the warning because of the bold printing of the signal word or because the signal icon is used.

Attention Maintenance -- The second stage of attention is maintenance. Here, attentional focus is retained on the warning message while information is extracted and memory is formed (e.g., while a person examines the stimulus material). To expedite information extraction, a visual warning needs to be easy to read and legible. Once attention has been attracted to the warning, it is important that the warning retain attention so that information can be encoded (see also Rousseau, Lamson, and Rogers, 1998). During this active attention period, the message text is read and/or the pictorial is examined. The warning should prevent attention from being distracted by and to other stimuli before the message is satisfactorily encoded.

Some of the same design factors that promote the attention switch also promote attention maintenance (Barlow and Wogalter, 1991; Wogalter, et al. 1993). For example, large print not only attracts attention, but also increases legibility, thus making reading less effortful and more likely. Other factors include an accentuated figure-background contrast, the use of a signal word panel containing a signal word, color and alert symbol, and a pictorial symbol when possible.

Other factors specifically promote legibility, such as the use of mixed case lettering. Because of their generally smaller size, lower case letters produce smaller visual angles than larger upper case letters. By considering only character size, upper case letters might be more legible than lower case letters (Foster and Bruce, 1982). However, experts on typefaces have noted that mixed-case materials (both upper and lower case) are easier to read (Tinker, 1963; Williams, 1994). Lower case letters are more distinctive in shape, thereby making them easier to

differentiate than upper case letters. Upper case letters have a block-like appearance making them highly similar and therefore confusable with one another, particularly under low-legibility conditions (e.g., small visual angle, low illumination). Left side justification is also preferred.

Readability of the warning message is promoted by message brevity. Warnings should be in language that people understand and comprehend. Warnings should also be kept as clear and concise as possible, while still communicating the pertinent information.

Massachusetts cigar package warnings -- I have read the Massachusetts cigar regulations' requirements for warnings on cigar packaging and in advertising. I have also examined a variety of cigar packages purchased by the Massachusetts Attorney General. On four of the packages, the Attorney General had placed, on the front of the package, a warning simulating the warnings required by the regulations. Two of the packages contained black text on white background (one for each of the two rotating warning messages) and two of the packages contained white text on black background (one for each of the two warning messages).

The Massachusetts cigar warning labels contain some, but not all, of the attention-getting qualities recommended to produce an effective warning. However, these warnings appear to have as many of the qualities and it is my opinion that the warnings are sufficiently conspicuous to attract the attention of a substantial proportion of consumers.

Size -- The Massachusetts warning label occupies 25% of the front or top (whichever is larger) of the cigar package. On the examples I have seen, the labels were at the bottom of the front or top panel. Given the goal of capturing attention at the point of purchase, I believe that 25% is a reasonable portion of the product label to devote to the warning. As stated above, larger warnings will capture more attention than smaller ones (Barlow and Wogalter, 1993; Foxman *et*

al., 1988, Wogalter, Barlow, and Murphy, 1995; Viscusi and Magat, 1986). The size of the Massachusetts warning is reasonable because retail environments are visually cluttered and there might otherwise be more powerful attractors of attention. Because consumers generally do not look for this type of information, it must be sufficiently prominent to "break through" the visual clutter. It is my opinion that, even at 25%, the Massachusetts cigar warning will not attract the attention of all consumers.

The Massachusetts size requirement (25%) also allows for larger print size within the warning, which would make the warning message easier to read than if it were smaller. (If the print is too small, and takes too much effort to read, consumers are less likely to read it.) The size requirement also promotes the likelihood that the warning will be visible and readable to consumers at arm's length, when the consumer is viewing the product behind the counter in the display case and before it is picked up. On the other hand, smaller warnings could be more easily obscured by other products and parts of the display case (depending upon the way the product is positioned in the display case).

Contrast -- The Massachusetts warnings are high contrast (requiring black lettering on white background, or vice versa). The regulations also require the warning to be "in contrast with all other printed material on the package." As stated above, these features enhance noticeability.

Signal Word -- The Massachusetts warnings contain a signal word, in all capital letters (i.e. WARNING). As is suggested by standards, signal words should be in all capital letters (ANSI 1991; Cheatham and Wogalter, 1999).

Legibility and Readability -- The size of the Massachusetts warnings (assuming that the

text occupies the substantial portion of the warning space) promotes both legibility and readability. That is, because the warning message is not long, a large print format can be used. Also, the use of mixed case letters in the Massachusetts warning message promotes legibility and readability. These features help to make the information in the warning message easier to extract. Also, although certain terms in the Massachusetts warnings may not be universally understood (e.g. "carbon monoxide," "addictive"), the message text is generally clear, direct and understandable.

Additional requirements -- There are additional features that could have been added to the Massachusetts cigar warnings to make them more conspicuous and salient. As examples, the American National Standards Institute and others recommend the use of an icon (e.g., triangle enclosing exclamation point) next to the signal word, and placement of the signal word on a separate panel, with high color contrast. Also, the use of symbols or pictorial representations of the hazard would likely promote noticeability and communication. It would have been reasonable and appropriate to add these additional features to promote the "attention-getting" and communicative qualities of the Massachusetts cigar warning. However, because the Massachusetts cigar warnings contain a number of the other recommended design criteria for effective warnings, it is my opinion that they will attract the attention of a substantial proportion of consumers.

Massachusetts cigar print advertising warnings -- I have also viewed examples of the Massachusetts cigar warning on a selection of four full page magazine advertisements from *Cigar Aficionado* magazine. Again, these examples showed each of the two warnings with black text on white background, and vice versa. The warning was placed at the bottom of the page in

these examples.

The preceding discussion about the Massachusetts cigar package warnings is generally relevant to the print advertising warnings, and should be considered incorporated here. Without repeating that discussion here, those features (e.g., contrast, signal word) that positively enhance package label warnings also enhance the salience of print advertising warnings.

The regulations require the warning to cover 20% of the advertisement. It is my opinion that, at this size, the warning is likely to be seen by a substantial majority of readers who look at the advertisement. It is not possible for me to say whether a somewhat smaller warning would not also reach a substantial majority of readers. However, in my opinion, if the size of the advertising warning were substantially reduced (for example, to 10%), substantially fewer readers would notice the warning.

California Warnings -- So far, I have examined approximately 10 examples of recently purchased cigar packages. Most had the so called "California warning," placed on the packages as a result of actions related to California Proposition 65. None of the California warnings appeared on the top or front of the package, and none were conspicuous or prominent. Most of these appeared on the side of the package (one on the bottom), where they would be much less likely to attract the attention of potential consumers. Although these warnings varied in size, all of the warnings were too small to attract the attention of consumers at the point of sale. The print format varied in these warnings, with some warnings set out in all capital letters, which are more difficult to read than mixed case. In addition, some of the warning messages were in low contrast against the background, making them more difficult to read. Other warnings were not separate from other printed or graphic material on the cigar packaging, again reducing their

noticeability and making them more difficult to read. Although I have not done empirical studies on the California cigar warnings, based on the general criteria referred to above, and on my education and experience, it is my opinion that these warnings would attract the attention of less than 10% of consumers at point of purchase/sale.

Cigarette warnings -- In connection with this case, I have examined the federally mandated warnings on several sample cigarette packages, for comparison to the Massachusetts cigar warnings. I am also generally familiar with these warnings, and the warnings on cigarette advertising, from prior experience and work. The cigarette package warnings lack a number of the positive design criteria of the Massachusetts cigar warning. The cigarette warnings are placed on the side of the package, in a less conspicuous location than the Massachusetts cigar warning, which is on the front or top of the package (whichever is larger). The cigarette warnings are not required to be in a specific, high contrast format; consequently, the text-background contrast of the cigarette warnings is variable, and in some cases poor. In addition, in some cases, the text color of the cigarette warning message is the same color used in the other package text and graphics (such as the brand name); this also reduces the potential for the cigarette warnings to be noticed. The science of warnings and risk communications has changed substantially since the mid-1980's, when the current version of the cigarette package warnings was implemented. Some of the features lacking in the cigarette warnings are those that have been studied, and recommended, since the cigarette warnings were implemented. In my opinion, and based on the factors discussed in this disclosure, the Massachusetts cigar warnings will capture the attention of substantially more consumers than the federal cigarette warnings presently do.

Cigarette warnings in advertising have been the subject of several research studies. While cigarette advertising warnings may not be judged as conspicuous, they are more noticeable than the "fine print" disclosures that appear at the bottom of many print advertisements. Fischer, Richards, Berman, and Krugman (1989) conducted an eye-tracking study to measure adolescents' attention to warnings in cigarette print advertising. The findings show that there was a relatively low level of attention to the warnings with participants performing only slightly better than random guessing in a recognition test. In addition, with tachistoscopic presentation, one study found that while participants frequently were aware of a warning appearing in a cigarette ad, few were able to recall the warning's content (Fischer, Krugman, Fletcher, Fox and Rojas, 1993).

References

In addition to my education, experience, research and training, the studies and other information I have considered and rely on with respect to these opinions are identified in the attached Exhibit 2. The Massachusetts cigar warning examples referred to above, and the sample products bearing the California warning, are maintained by the Attorney General.

Exhibits

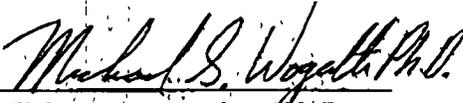
I might use graphic or pictorial demonstrative aids, or sample product and/or advertising warnings, in support of my opinions at trial. (The Commonwealth reserves the right to identify additional exhibits that might be used in respect of this testimony.)

Trial and Deposition Testimony

A list of those cases in which I have testified at trial or in deposition during the past four years is attached as Exhibit 3 to this disclosure.

Compensation

I will be compensated at the rate of \$150 per hour, plus reimbursement for reasonable expenses.


Michael S. Wogalter, Ph.D.

Dated: November 1, 1999

EXHIBIT 1 - Curriculum Vitae of Michael S. Wogalter, Ph.D.
(including list of publications)

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Degrees: B.A. in Psychology, 1978, University of Virginia (Charlottesville).

M.A. in Human Experimental Psychology, 1982, University of South Florida (Tampa).

Ph.D. in Human Factors Psychology, 1986, Rice University (Houston).

Employment History

- 1992-Present: Associate Professor of Psychology, North Carolina State University (Raleigh).
- 1997-1998: Visiting Scholar, Liberty Mutual Research Center for Safety and Health (Hopkinton, MA)
- 1989 - 1992: Asst. Professor of Psychology, Rensselaer Polytechnic Institute (Troy, NY).
- 1986 - 1989: Asst. Professor of Psychology, University of Richmond (VA).
- 1989 - present Consulting on various legal cases regarding Human Factors/Ergonomics issues.
- 1984 - 1986: Internship on the forensic applications of Human Factors (Houston, TX).
- 1984 - 1986: Human factors and cognition research with Drs. Kenneth R. Laughery, John W. Brelsford, Michael J. Watkins, Randi C. Martin, Craig A. Anderson, and Sarah A. Burnett, Rice Univ.
- 1983 - 1986: Laboratory instructor for Research Methods & Human Memory courses, Rice Univ.
- Summer, 1984: Consultant for Conceptual Software Inc. on the design of a tutorial for Omnibase database management and statistics package.
- Spring, 1983: Instructor of Research Methods course, University of South Florida, Fort Myers.
- 1980-1982: Teaching assistant for the Research Methods course at the University of South Florida, Tampa.
- 1980-1983: Research assistant for Dr. W. Trammell Neill on human perception, attention, and memory research, University of South Florida, Tampa.
- 1978-1979: Research assistant on neurological correlates of cognition, Department of Psychiatry, New Jersey Institute of Mental Health, Rutgers Medical School, Piscataway.

Publications

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Published Abstracts

1. Pennebaker, J. W., Skelton, J. A., Wogalter, M. S., & Rodgers, R. J. (1978). Effects of attention on the experience of physical symptoms. *Personality and Social Psychology Bulletin*, 4, 364.
2. Young, S. & Wogalter, M. S. (1989). Memory of instruction manual warnings: Pictorial icons and conspicuous print. *University of Richmond Research Symposium..*
3. McKenna, N. & Wogalter, M. S. (1989). Behavioral effects of cost and consensus. *University of Richmond Research Symposium..*
4. Young, S. L., & Wogalter, M. S. (1989). Gender differences in the perception of consumer product hazards. *Student / Faculty Information: Exchange for Enhancing Research in Progress*. Washington DC: Southeastern Psychological Association.
5. Wogalter, M. S., & Barlow, T. (1993). Alcoholic beverage warnings in print and broadcast advertisements. *Proceedings of the 1993 Marketing and Public Policy Conference*, 123.
6. Wogalter, M. S., Malpass, R. S., & Burger, M. A. (1993). Methods of constructing live and photographic lineups by police officers in the United States. *Proceedings of the International Conference on Face Processing*, Welsh Branch of the British Psychological Society, University of Wales, Cardiff, Wales, United Kingdom.
7. Wogalter, M. S. (1993). Face memory: Effects of verbal description and visual imaging. *Proceedings of the International Conference on Face Processing*, Welsh Branch of the British Psychological Society, University of Wales, Cardiff, Wales, United Kingdom
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13. Wogalter, M. S. (1996). Recurring accidents in transportation systems. *Proceedings of the Human Factors and Ergonomics Society, 40*, 491.
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15. Hink, J. K., Frederick, L. J., & Wogalter, M. S. (1997). Development of a warning system for carpal tunnel syndrome. *Proceedings of the Human Factors and Ergonomics Society, 41*, 1372.
16. Kalsher, M. J., Kellner, R., Johnson, B., Silver, N. C., & Wogalter, M. S. (1998). The interrelationship of warning variables in a realistic product assembly task. *Proceedings of the Human Factors and Ergonomics Society, 42*, 1626.
17. Wogalter, M. S., & Rashid, R. (1998). A border surrounding warning sign text affects looking behavior: A field observational study. *Proceedings of the Human Factors and Ergonomics Society, 42*, 1628.
18. Leonard, S. D., Wogalter, M. S., & Griffin, R. S. (1998). What you don't know can hurt you: Household products and events. *Proceedings of the Human Factors and Ergonomics Society, 42*, 1628.

Conference and Colloquium Presentations

1. Pennebaker, J. W., Skelton, J. A., Wogalter, M. S., & Rodgers, R. J. (1978, August). The effects of attention on the experience of physical symptoms. Presented at the American Psychological Association meeting, Toronto.
2. Wogalter, M. S., & Best, P. J. (1980, April). Bilateral olfactory bulbectomy blocks acquisition of olfactory but not taste aversions. Presented at the Eastern Psychological Association meeting, Hartford.
3. Wogalter, M. S., & Neill, W. T. (1982, April). The detection of additions and deletions in complex pictures. Presented at the Southeastern Psychological Association meeting, New Orleans.
4. Wogalter, M. S., & Neill, W. T. (1983, April). The detection of objects and patterns added or deleted between successive pictorial scenes. Presented at the Southeastern Psychological Association meeting, Atlanta.
5. Wogalter, M. S. (1984, October). The detection and identification of change between successive pictures. Presented at the 28th Annual Meeting of the Human Factors Society, San Antonio.
6. Wogalter, M. S., Fontenelle, G. A., & Laughery, K. R. (1985, October). Behavioral effectiveness of warnings. Presented at the 29th Annual Meeting of the Human Factors Society, Baltimore.
7. Wogalter, M. S., Desaulniers, D. R., & Godfrey, S. S. (1985, October). Perceived effectiveness of environmental warnings. Presented at the 29th Annual Meeting of the Human Factors Society, Baltimore.

8. Laughery, K. R., Duval, G., Wogalter, M. S., & Jensen, D. (1985, September). The dynamics of face recall. Presented at the NATO ARW Aspects of Face Processing Conference at Aberdeen University, Scotland, United Kingdom.
9. Jones, R. T., Wogalter, M. S., & Anderson, C. A. (1986, April). Post-impression person memory for consistent and inconsistent trait adjectives. Presented at Southeastern Psychological Association meeting, Orlando.
10. Jones, R. T., Anderson, C. A., & Wogalter, M. S. (1986, April). Traits in person memory: Effects of time and consistency. Presented at Southwestern Psychological Association meeting, Fort Worth.
11. Wogalter, M. S. (1986, May). The effects of post-exposure verbal description on the recognition of faces. Invited presentation, University of Richmond.
12. Wogalter, M. S., & Jensen, D. G. (1986, October). Response bias in lineups with prototypic faces. Presented at the 30th Annual Meeting of the Human Factors Society, Dayton.
13. Wogalter, M. S., Desaulniers, D. R., & Brelsford, J. W., Jr. (1986, October). Perceptions of consumer product hazards: Implications for the need to warn. Presented at the 30th Annual Meeting of the Human Factors Society, Dayton.
14. Wogalter, M. S. (1987, April). The effects of target-directed post-exposure tasks on subsequent recognition of faces. Presented at the Southeastern Psychological Association meeting, Atlanta.
15. Laughery, K. R., Jensen, D. G., & Wogalter, M. S. (1987, August). Response bias with prototypic faces. Presented at the Second International Conference on the Practical Aspects of Memory, Swansea, Wales, Great Britain.
16. Wogalter, M. S., Desaulniers, D. R., & Brelsford, J. W., Jr. (1987, October). Consumer products: How are the hazards perceived? Presented at the 31st Annual Meeting of the Human Factors Society, New York.
17. Wogalter, M. S., & Marwitz, D. B. (1987, October). The effect of selecting multiple-choice distractor items around a single target alternative. Presented at the 31st Annual Meeting of the Human Factors Society, New York.
18. Wogalter, M. S. (1988, January). Eyewitness identification: The effects of post-exposure verbal description on the recognition of faces. Invited presentation, 1987-88 Colloquium Series, Psychology Department of the College of William and Mary, Williamsburg.
19. Collier, P. L., & Wogalter, M. S. (1988, April). Music preferences and gender differences. Presented at the Southeastern Psychological Association meeting, New Orleans.
20. Marwitz, D. B., & Wogalter, M. S. (1988, April). Multiple-choice test construction: Distractor similarity produces response bias. Presented at the Southeastern Psychological Association meeting, New Orleans.
21. Marwitz, D. B., & Wogalter, M. S. (1988, October). Bias in photospread selection: A comparison of two lineup construction methods. Presented at the 32nd Annual Meeting of the Human Factors Society, Anaheim.
22. Wogalter, M. S., McKenna, N. A., & Allison, S. T. (1988, October). Warning compliance: Behavioral effects of cost and consensus. Presented at the 32nd Annual Meeting of the Human Factors Society, Anaheim.

23. Young, S. L., & Wogalter, M. S. (1988, October). Memory of instruction manual warnings: Pictorial icons and conspicuous print. Presented at the 32nd Annual Meeting of the Human Factors Society, Anaheim. (This paper was also presented at the University of Richmond Research Symposium, April, 1989).
24. McKenna, N., & Wogalter, M. S. (1989, April). Behavioral effects of cost and consensus. University of Richmond Research Symposium. Conference sponsored by the American Chemical Society Student Affiliates, Richmond.
25. Leonard, D., Marwitz, D. B., & Wogalter, M. S. (1989, April). Fairness in identification procedures: Construction of unbiased lineups. Presented at the Southeastern Psychological Association meeting, Washington D.C.
26. Post, M. P., & Wogalter, M. S. (1989, April). Human-computer interaction: The effects of two documentation variables on computer task performance. Presented at the Southeastern Psychological Association meeting, Washington D.C.
27. Young, S. L., & Wogalter, M. S. (1989, April). Gender differences in the perception of consumer product hazards. Southeastern Psychological Association meeting, Student/ faculty information: Exchange for enhancing research in progress, Washington D.C.
28. Wogalter, M. S., & Post, M. P. (1989, May). Printed computer instructions: The effects of screen pictographs and text format on task performance. Presented at Interface 89: The Sixth Symposium on Human Factors and Industrial Design in Consumer Products, Carnegie-Mellon University, Pittsburgh.
29. Young, S. L., Martin, E. G., & Wogalter, M. S. (1989, May). Gender differences in consumer product hazard perceptions. Presented at Interface 89: The 6th Symposium on Human Factors & Industrial Design in Consumer Products, Carnegie-Mellon University, Pittsburgh.
30. Wogalter, M. S. (1989, January). Warnings: Variables that influence effectiveness. Invited presentation. Rensselaer Polytechnic Institute, Troy, NY.
31. Martin, E. G., & Wogalter, M. S. (1989, October). Risk perception and precautionary intent for common consumer products. Presented at the 33rd Annual Meeting of the Human Factors Society, Denver.
32. Silver, N. C., & Wogalter, M. S. (1989, October). Broadening the range of signal words. Presented at the 33rd Annual Meeting of the Human Factors Society, Denver.
33. Marwitz, D. B., & Wogalter, M. S. (1989, October). Training potential witnesses to produce higher quality face composites. Presented at the 33rd Annual Meeting of the Human Factors Society, Denver.
34. Leonard, D. C., Ponsi, K. A., Silver, N. C., & Wogalter, M. S. (1989, October). Predictions of reading pesticide warnings and consumer purchase intentions. Presented at the 33rd Annual Meeting of the Human Factors Society, Denver.
35. Young, S. L., & Wogalter, M. S. (1989, October). Behavioral compliance to voice and print warnings. Presented at the 33rd Annual Meeting of the Human Factors Society, Denver.
36. Wogalter, M. S. (1990, February). Warning compliance: Behavioral effects of location, cost, and social influence. Invited presentation, Hudson Valley Chapter of the Human Factors Society, Hyde Park, New York.

37. Hosie, J. A., & Wogalter, M. S. (1990, March). Effects of cranial and facial hair on age estimation and person perceptions. Presented at the Eastern Psychological Association Meeting, Philadelphia
38. Wogalter, M. S. (1990, April). Warnings! Invited colloquium presentation, Departments of Behavioral Sciences and Psychology, State University at New York at Plattsburg, Plattsburg, New York.
39. Wogalter, M. S., & Cayard, J. A. (1990, June). Massed versus distributed exposure and imaging of faces: Changing the test view. Presented at the American Psychological Society meeting, Dallas.
40. Young, S. L., Brelsford, J. W., & Wogalter, M. S. (1990, October). Judgments of hazard, risk, and danger: Do they differ? Presented at the 34th Annual Meeting of the Human Factors Society, Orlando.
41. Wogalter, M. S., & Barlow, T. (1990, October). Injury likelihood and severity in warnings. Presented at the 34th Annual Meeting of the Human Factors Society, Orlando.
42. Wogalter, M. S., & Frei, R. L. (1990, October). Social influence and preference of direct-manipulation and keyboard-command computer interfaces. Presented at the 34th Annual Meeting of the Human Factors Society, Orlando.
43. Wogalter, M. S. (1991, February). Behavioral effectiveness of warnings. Invited presentation. Department of Psychology, Texas Tech University, Lubbock.
44. Barlow, T., & Wogalter, M. S. (1991, May). Increasing the surface area on small product containers to facilitate communication of label information and warnings. Presented at Interface 91: The Seventh Symposium on Human Factors and Industrial Design in Consumer Products, University of Dayton.
45. Silver, N. C., & Wogalter, M. S. (1991, May). Pest-control products: Hazard perception, product type, and label characteristics. Presented at Interface 91: The Seventh Symposium on Human Factors and Industrial Design in Consumer Products, University of Dayton.
46. Kalsher, M. J., Wogalter, M. S., & Clarke, S. W. (1991, June). Evaluating the effectiveness of beverage alcohol warning labels: Does anyone notice? Presented at the Association for Behavior Analysis meeting, Atlanta.
47. Barlow, T., & Wogalter, M. S. (1991, September). Alcohol beverage warnings in print advertisements. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
48. Kalsher, M. J., Clarke, S. W., & Wogalter, M. S. (1991, September). Effect of a posted alcohol warning placard on college students knowledge of alcohol facts and hazards. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
49. Silver, N. C., & Wogalter, M. S. (1991, September). Strength and understanding of signal words by elementary and middle school students. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
50. Wogalter, M. S. (1991, September). Effects of post-exposure description and imaging on subsequent face recognition performance. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.

51. Wogalter, M. S., Rashid, R., Clarke, S. W., & Kalsher, M. J. (1991, October). Evaluating the behavioral effectiveness of a multi-modal voice warning sign in a cluttered environment. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
52. Wogalter, M. S., Van't Slot, L. J., & Kalsher, M. J. (1991, October). Bias in police lineups and its reduction by an alternative lineup construction procedure. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
53. Wogalter, M. S., Seipp, B., Jessen, D., & Kalsher, M. J. (1991, October). Perception and influence of modifier terms on food labels. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
54. Wogalter, M. S., Hatem, A., & Kalsher, M. J. (1991, October). Nutrition label formats: Effects of item absence and arrangement on comparison time and accuracy. Presented at the 35th Annual Meeting of the Human Factors Society, San Francisco.
55. Wogalter, M. S. (1991, November). Factors influencing the effectiveness of warnings. Invited keynote presentation, National Safety Congress, New Orleans.
56. Wogalter, M. S. (1992, February). Factors influencing the effectiveness of warnings. Invited job-talk presentation. North Carolina State University, Raleigh. Similar talks were given at University of Houston—Clear Lake, Louisiana State University, and New Mexico State University.
57. Laughery, K. R., & Wogalter, M. S. (1992, March). Warnings, labeling and risk communication. Seminar given to Office of Seafood in the Center for Food Safety and Applied Nutrition, U.S. Food and Drug Administration, Washington DC.
58. Wogalter, M. S., & Laughery, K. R. (1992, March). Human factors in risk communication. Seminar given to the Office of Consumer Affairs, U.S. FDA, Rockville, MD.
59. Wogalter, M. S., Rashid, R., & Kalsher, M. J. (1992, April). Effects of presentation location and pictorials on behavioral compliance to warnings. Presented at the Eastern Psychological Association meeting, Boston.
60. Wogalter, M. S., Forbes, R. M., Van't Slot, L. J., & Barlow, T. (1992, April). Facilitating communication of label information and warnings by increasing the surface area and print size on small product containers. Presented at the Eastern Psychological Association meeting, Boston.
61. Jarrard, S. W., & Wogalter, M. S. (1992, June). Massed vs. distributed presentation of same or different views of aircraft pictures: Implications for applied recognition training. Presented at the American Psychological Society meeting, San Diego.
62. Wogalter, M. S., Jarrard, S. W., & Simpson, S. N. (1992, August). Influence of signal words on perceived product hazard. Presented at the American Psychological Association meeting (Division 21), Washington, DC.
63. Young, S. L., Wogalter, M. S., & Brelsford, J. W. Jr. (1992, October). Relative contribution of likelihood and severity of injury to risk perceptions. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
64. Jessen, D. M., & Wogalter, M. S. (1992, October). The influence of audio-visual instruction on consumers' selection of nutritious food products. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.

65. Kalsher, M. J., Wogalter, M. S., & Gilbert, C. M. (1992, October). Connoted quantity of food-label modifier terms. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
66. Wogalter, M. S., Kalsher, M. J., & Racicot, B. M. (1992, October). The influence of location and pictorials on behavioral compliance to warnings. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
67. Racicot, B. M., & Wogalter, M. S. (1992, October). Warning compliance: Effects of video warning sign and modeling on behavior. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
68. Wogalter, M. S., Jarrard, S. W., & Simpson, S. N. (1992, October). Effects of warning signal words on consumer-product hazard perceptions. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
69. Jarrard, S. W., & Wogalter, M. S. (1992, October). Recognition of non-studied visual depictions of aircraft: Improvement by distributed presentation. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
70. Wogalter, M. S., Barlow, T., & Murphy, S. A. (1992, October). An accessory safety directive increases compliance to warnings in an owner's manual. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
71. Wogalter, M. S., & Young, S. L. (1992, October). Enhancing warning compliance through alternate product label designs. Presented at the 36th Annual Meeting of the Human Factors Society, Atlanta.
72. Wogalter, M. S. (1992, June). Risk communication. Presented at the Conference for Chemical Contaminants in Seafood, Office of Seafood, Center for Food Safety and Applied Nutrition, U.S. Food and Drug Administration, Washington DC.
73. Wogalter, M. S. (1993, February). Similarity bias in police lineup construction. Presented to the Cognition Group meeting, North Carolina State University, Raleigh.
74. Wolff, J. S., & Wogalter, M. S. (1993, May). Test and development of pharmaceutical pictorials. Presented at Interface 93: The Eighth Symposium on Human Factors and Industrial Design in Consumer Products, Raleigh.
75. Wogalter, M. S., Forbes, R. M., & Barlow, T. (1993, May). Alternative product label designs: Increasing the surface area and print size. Presented at Interface 93: The Eighth Symposium on Human Factors and Industrial Design in Consumer Products, Raleigh.
76. Wogalter, M. S., & Barlow, T. (1993, May). Alcoholic beverage warnings in print and broadcast advertisements. Presented at the 1993 Marketing and Public Policy Conference, Special Session on Research on Alcohol Warning Messages, East Lansing.
77. Kalsher, M. J., & Wogalter, M. S. (1993, May). Development of posted alcohol warning for specific target groups. Presented at the 1993 Marketing and Public Policy Conference, special session on Research on Alcohol Warning Messages, East Lansing.
78. Wogalter, M. S., Malpass, R. S., & Burger, R. S. (1993, September). Methods of constructing live and photographic lineups by police officers in the United States. Presented at the International Conference on Face Processing, Welsh Branch of the British Psychological Society, University of Wales, Cardiff, Wales, United Kingdom.

79. Wogalter, M. S. (1993, September). Face memory: Effects of verbal description and visual imaging. Presented at the International Conference on Face Processing, Welsh Branch of the British Psychological Society, University of Wales, Cardiff, Wales, United Kingdom.
80. Silver, N. C., Gammella, D. S., Barlow, A. N., & Wogalter, M. S. (1993, October). Connoted strength of signal words by elderly and non-native English speakers. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
81. Wogalter, M. S., Racicot, B. M., Kalsher, M. J., & Simpson, S. N. (1993, October). Behavioral compliance to personalized warning signs and the role of perceived relevance. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
82. Duffy, R. R., Kalsher, M. J., & Wogalter, M. S. (1993, October). The effectiveness of an interactive warning under varying task load. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
83. Kalsher, M. J., Rodocker, A. J., Racicot, B. M., & Wogalter, M. S. (1993, October). Promoting recycling behavior in office environments. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
84. Wogalter, M. S., Malpass, R. S., & Burger, M. A. (1993, October). How police officers construct lineups: A national survey. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
85. Racicot, B. M., & Wogalter, M. S. (1993, October). Effects of video modeling on behavioral compliance. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
86. Herbert, L. B., Kalsher, M. J., & Wogalter, M. S. (1993, October). Connoted meaning of descriptive terms across food nutrients. Presented at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
87. Wogalter, M. S. (1993, October). Methods of enhancing communication of on-product pharmaceutical information to the elderly. Discussant in the Aging and Medication Adherence symposium session at the 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle.
88. Wogalter, M. S. (1994, January). Publishing research in ergonomics. Presented to the North Carolina State University Student Chapter of the Human Factors and Ergonomics Society, Raleigh.
89. Wogalter, M. S. (1994, June). Communicating warnings and risk information to consumers. Presented at the Drug Information Association Meeting, Washington DC.
90. Wogalter, M. S., Wolff, J. S., Magurno, A., & Kohake, J. (1994, August). Iterative test and development of pharmaceutical pictorials. Presented at the 12th Triennial International Ergonomics Association meeting, Toronto.
91. Wogalter, M. S. (1994, September). Factors influencing the effectiveness of warnings. Keynote presentation at the International Public Graphics Symposium, September, Lunteren, The Netherlands.

92. Kalsher, M. J., & Wogalter, M. S. (1994, September). Enhancing the proper connection of automobile battery booster cables with a tag warning. Presented at the International Public Graphics Symposium, Lunteren, The Netherlands.
93. Wogalter, M. S. (1994, September). Maps and plans—Discussant and session chair. International Public Graphics Symposium, Lunteren, The Netherlands.
94. Brelsford, J. W., Wogalter, M. S., & Scoggins, J. A. (1994, October). Enhancing comprehension and retention of safety-related pictorials. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
95. Jarrard, S. W., & Wogalter, M. S. (1994, October). Learning complex visual stimuli: Effects of spaced presentation and rehearsal on aircraft recognition. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
96. Magurno, A. B., & Wogalter, M. S. (1994, October). Behavioral compliance with warnings: Effects of stress and placement. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
97. Howe, J. E., & Wogalter, M. S. (1994, October). The understandability of legal documents: Are they adequate? Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
98. Wogalter, M. S., & Baneth, R. C. (1994, October). Availability of owner's manuals for 'second-hand' consumer products. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
99. Wogalter, M. S., & Kalsher, M. J. (1994, October). Label list format: Effects of item arrangement and completeness on comparison time and accuracy. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
100. Wogalter, M. S., & Brelsford, J. W. (1994, October). Incidental exposure to rotating warnings on alcoholic beverage labels. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
101. Lovvoll, D. R., Laughery, K. R., Wogalter, M. S., & Terry, S. A. (1994, October). Risk perception issues in the use of motorized shoulder belt/manual lap belt systems. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
102. Kalsher, M. J., Pucci, S., Wogalter, M. S., & Racicot, B. M. (1994, October). Enhancing the perceived readability of pharmaceutical container labels and warnings: The use of alternative designs and pictorials. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
103. Brelsford, J. W., Wogalter, M. S., Begley, P. B., Scancorelli, L. F., Williams, J. H., & Terry, S. A. (1994, October). Comprehension and compliance to elevator service signs. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.
104. Wogalter, M. S., Kalsher, M. J., Glover, B. L., Magurno, A. B., Fisher, J. T., & Dunham, D. L. (1994, October). Increasing the correct connection of automobile battery jumper cables with an enhance warning. Presented at the 38th Annual Meeting of the Human Factors and Ergonomics Society, Nashville, TN.

105. Wogalter, M. S. (1995, January). Human factors perspectives of over-the-counter (OTC) pharmaceutical labeling. Invited symposium/workshop presentation given at a Drug Information Association meeting on OTC Drug Labeling, Washington DC.
106. Wogalter, M. S., Begley, P. B., Scancorelli, L. F., & Brelsford, J. W. (1995, March). Perceived understandability and behavioral adherence to posted instructional signs. Presented at the Southeastern Psychological Association meeting, Savannah, GA.
107. Wogalter, M. S. (1995, May). Recent research on warnings. Presented at the American National Standards Institute/National Electrical Manufacturers Association's Z535.2 Subcommittee Meeting on Environmental Warning Signs, Washington, DC.
108. Wogalter, M. S. (1995, September). Componential analysis of the ANSI Z535 sign standard and proposed variants. Presented at the ANSI Z535 Annual Meeting on Warning Standards, Washington, DC.
109. Wogalter, M. S. (1995, September). Human factors of OTC pharmaceutical labeling. U.S. FDA Hearing on Over-the-Counter Drug Labeling, Rockville, MD.
110. Wogalter, M. S., Magurno, A. B., Carter, A. W., Swindell, J. A., Vigilante, W. J., & Daurity, J. G. (October, 1995). Hazard association values of warning sign header components. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
111. Kalsher, M. J., Wogalter, M. S., Brewster, B., & Spunar, M. E. (October, 1995). Hazard level perceptions of current and proposed warning sign and label panels. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
112. Young, S. L., Wogalter, M. S., Laughery, K. R., & Murray, L. A. (October, 1995). Space allocation and relative order of message components in hazard warning signs. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
113. Silver, N. C., Wogalter, M. S., Brewster, B. M., Glover, B. L., Murray, L. A., Tillotson, C. A. and Temple, T. L. (October, 1995). Comprehension and perceived quality of warning pictorials. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
114. Howe, J. E., & Wogalter, M. S. (October, 1995). On making legal documents understandable: Objective and subjective measures. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
115. Wogalter, M. S., & Dietrich, D. A. (October, 1995). Enhancing label readability in over-the-counter pharmaceuticals for elderly consumers. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
116. Laughery, K. R., Wogalter, M. S., & Lovvoll, D. R. (October, 1995). Allocation of responsibility for product safety. Presented at the 39th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
117. Brewster, B., Wogalter, M. S., & Graffin, M. (November, 1995). Warnings directed to lay persons. Presented at the National Safety Council meeting, Dallas, TX.
118. Conzola, V. C., & Wogalter, M. S. (July, 1996). Compliance and recall of operator manual instructions: The use of supplemental voice and print directives and warnings. Presented at the XIth International Occupational Ergonomics and Safety Conference, Zurich, Switzerland.

119. Vigilante, W. J. Jr., & Wogalter, M. S. (July, 1996). The ordering of safety warnings in product manuals. Presented at the XIth International Occupational Ergonomics and Safety Conference, Zurich, Switzerland.
120. Wogalter, M. S. (1996, May). The impact of the Nutritional Labeling and Education Act of 1990 on the use of Light, Natural and other key words in food advertisements (Discussant). Marketing and Public Policy Conference, Arlington, VA.
121. Wogalter, M. S., & Brewster, B. M. (August, 1996). Connoted hazard of warning components and configurations by industrial workers. Presented at the American Psychological Association meeting, Toronto.
122. Wogalter, M. S., Magurno, A. B., Scott, K. L., & Dietrich, D. A. (September, 1996). Facilitating information acquisition for over-the-counter drugs using supplemental labels. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
123. Wogalter, M. S. (September, 1996). Describing faces from memory: Accuracy and effects on subsequent recognition performance. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
124. Wogalter, M. S. (September, 1996). Influence of food label quantifier terms on connoted amount and purchase intention. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
125. Vigilante Jr., W. J., & Wogalter, M. S. (September, 1996). The ordering of over-the-counter pharmaceutical label components. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
126. Hink, J. K., Wogalter, M. S., & Eustace, J. K. (September, 1996). Display of quantitative information: Are graphics better than plain graphs or tables? Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
127. Glover, B. L., Magurno, A. B., Murray, L. A., & Wogalter, M. S. (September, 1996). Pictorial negations: Preferences for different circle-slash variations. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
128. Lovvoll, D. R., Laughner, K. R., McQuilkin, M. L., & Wogalter, M. S. (September, 1996). Responsibility for product safety in the work environment. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
129. Drake, K. L., Conzola, V. C., & Wogalter, M. S. (September, 1996). Signal words: Do definitions correspond with connoted hazard? Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
130. Sojourner, R., & Wogalter, M. S. (September, 1996). Effects of words and pictures on subjective preference of pharmaceutical instructions. Presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
131. Wogalter, M. S. (September, 1996). Recurring accidents in transportation systems. Chair of symposium presented at the 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.
132. Wogalter, M. S. (November, 1996). Warnings and risk communication. Invited presentation, Carolinas Chapter of the Human Factors and Ergonomics Society, Cary, NC.

133. Wogalter, M. S. (February, 1997). Factors that Influence risk communication and hazard perception. Invited presentation, UNC Injury Prevention Research Center Colloquium series, Chapel Hill, NC.
134. Wogalter, M. S., & Sojourner, R. J. (March, 1997). Research on pharmaceutical labeling: An information processing approach. Invited presentation given at the Conference on Medical Information Processing and Aging. Destin, Florida.
135. Wogalter, M.S. (April, 1997). An empirical and modeling approach to practical warning issues. NCSU College of Education and Psychology Research Day, Young Investigator Award Presentation, Raleigh, NC.
136. Jackson, T. S., & Wogalter, M. S. (May, 1997). Background discontinuous speech increases perceived difficulty of a language-based task. Presented at the Silicon Valley Ergonomics Conference, ErgoCon'97, San Jose, CA.
137. Wogalter, M. S. (May, 1997). A communication-human-information processing approach to warning (in)effectiveness. Presented at the 1997 Marketing and Public Policy Conference, Boston, MA.
138. Rashid, R., & Wogalter, M. S. (June, 1997). Effects of warning border color, width, and design on perceived effectiveness. Presented at the International Society of Ergonomics and Occupational Safety Conference, Washington, DC.
139. Wogalter, M.S., Kalsher, M. J., & Rashid, R. (June, 1997). Effect of source attribution on judgments of warning credibility and compliance likelihood. Presented at the International Society of Ergonomics and Occupational Safety Conference, Washington, DC.
140. Wogalter, M.S., Frederick, L. J., Magurno, A. B, and Herrera, O. L. (July, 1997). Connoted hazard of Spanish and English warning signal words, colors, and symbols by native Spanish language users. Presented at the 13th Triennial Congress of the International Ergonomics Association, IEA'97, Tampere, Finland.
141. Leonard, S. D., & Wogalter, M. S. (July, 1997). What you don't know can hurt you: Control settings. Presented at the 13th Triennial Congress of the International Ergonomics Association, IEA'97, Tampere, Finland.
142. Wogalter, M. S., Rashid, R., & Kalsher, M. J. (July, 1997). Effect of warning signal word and source on perceived credibility and compliance likelihood. Presented at the 13th Triennial Congress of the International Ergonomics Association, IEA'97, Tampere, Finland.
143. Frederick, L. J., Hink, J.K., & Wogalter, M.S. (July, 1997). Prioritizing symptoms of CTDs for the design of warning labels. Presented at the 13th Triennial Congress of the International Ergonomics Association, IEA'97, Tampere, Finland.
144. Wogalter, M. S. (July, 1997). Forensic issues of young children falling through window screens: A set of parallel case studies. Presented at the 13th Triennial Congress of the International Ergonomics Association, IEA'97, Tampere, Finland.
145. Wogalter, M. S. (July, 1997). Using a hybrid communication-human information processing model to track beverage alcohol warning effectiveness. Presented at the 1997 Annual Meeting of the Research Society on Alcoholism, San Francisco, CA.

146. Wogalter, M. S., & Rashid, R. (August, 1997). Warning compliance: Effects of time pressure and social monitoring stress. Presented at the American Psychological Association annual meeting (Div. 21). Chicago, IL.
147. Wogalter, M. S. (1997, September). Medical device instructional labels: Testing for effectiveness. Presentation and panel member at the Open Public Meeting/Hearing on Medical Device Labeling, Center for Devices and Radiological, U.S. Food and Drug Administration, Rockville MD.
148. Kalsher, M. J., Cote, M. B., Champagne, M. V., & Wogalter, M. S. (September, 1997). The effects of a raised label border on warning effectiveness measures. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
149. Wogalter, M. S., Sifuentes, A. H., & Luginbuhl, J. (September, 1997). Factors influencing comprehension of informed consent: Appearance, time stress and voice presentation. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
150. Martin, D. W., & Wogalter, M. S. (September, 1997). The exposure of undergraduate students to human factors/ergonomics instruction. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
151. Leonard, S. D., Griffin, R. S., & Wogalter, M. S. (September, 1997). Electrical hazards in the home: What do people know? Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
152. Glover, B. L., & Wogalter, M.S. (September, 1997). Using a computer simulated world to study behavioral compliance with warnings: Effects of salience and gender. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
153. Wogalter, M. S., Laughery, K. R., & Barfield, D. A. (September, 1997). Effect of container shape on hazard perceptions. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
154. Jackson, T. S., Klein, K. W., & Wogalter, M. S. (September, 1997). Open-plan office designs: An examination of unattended speech, performance, and focused attention. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
155. Vredenburg, A., Cohen, H. H., Hornick, R. Laughery, K., Leonard, D., Olsen, R. Smith, L., Thompson, D., Wogalter, M., & Zackowitz, I. (September, 1997). Mock trial: How human factors experts contribute to civil litigation. Presented at the 41st Annual Meeting of the Human Factors and Ergonomics Society, Albuquerque, NM.
156. Hendrick, H. W., & Wogalter, M. S. (January, 1998). Engineering psychology: Exposing undergraduates to the discipline and its career opportunities. Poster presented at the National Institute on the Teaching of Psychology. 20th Annual Conference, St. Petersburg Beach, FL.
157. Wogalter, M. S. (March, 1998). Warning: A talk about warning effectiveness on sign and product labels. Invited colloquium presentation given to the Departments of Engineering & Public Policy and Social & Decision Sciences, Carnegie-Mellon University.
158. Barzegar, R. S., & Wogalter, M. S. (April, 1998). Effects of auditorily-presented warning signal words on intended carefulness. Presented at the Ergonomics Society Annual Meeting, Cirencester, United Kingdom.

159. Wogalter, M. S., & Hendrick, H. W. (May, 1998). Human Factors/ergonomics: Students won't know about it if you don't tell them. Presented at the Teaching of Psychology Institute, American Psychological Society Annual Meeting, Washington, DC.
160. Vigilante, W. J., & Wogalter, M. S. (June, 1998). Older adults' perceptions of OTC drug labels: Print size, white space, and design type. Presented at the International Society of Ergonomics and Occupational Safety Conference, Ann Arbor, MI.
161. Wogalter, M. S., & Wolff, J. S. (August, 1998). Pictorial symbols: Influence of testing technique and context on comprehension. Presented at the American Psychological Association annual meeting (Div. 21). San Francisco, CA.
162. Wogalter, M. S., Hancock, P. A., & Dempsey, P. G. (October, 1998). On the description and definition of human factors/ergonomics. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
163. Smith-Jackson, T., & Wogalter, M. S. (October, 1998). Determining the preferred order of material safety data sheets (MSDS): A user-centered approach. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
164. Kalsher, M. J., Phoenix, G. M., Wogalter, M. S., & Braun, C. C. (October, 1998). How do people attribute blame for burns sustained from hot coffee? The role of causal attributions. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
165. Wogalter, M. S., Brantley, K. A., Laughery, K. R., & Lovvoll, D. R. (October, 1998). Effects of warning quality and expert testimony on allocation of responsibility of consumer product accidents. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
166. Barzegar, R. S., & Wogalter, M. S. (October, 1998). Intended carefulness for voiced warning signal words. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
167. Vigilante, W. J., Jr., & Wogalter, M. S. (October, 1998). Product manual safety warnings: The effects of ordering. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
168. Young, S. L., & Wogalter, M. S. (October, 1998). Relative importance of different verbal components in conveying hazard-level information in warnings. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
169. Conzola, V. C., & Wogalter, M. S. (October, 1998). Consumer product warnings: Effects of injury statistics on recall and subjective evaluations. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
170. Kalsher, M. J., Kellner, R., Johnson, B., Silver, N. C., & Wogalter, M. S. (October, 1998). The interrelationship of warning variables in a realistic product assembly task. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
171. Wogalter, M. S., & Rashid, R. (October, 1998). A border surrounding warning sign text affects looking behavior: A field observational study. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.

172. Leonard, S. D., Wogalter, M. S., & Griffin, R. S. (October, 1998). What you don't know can hurt you: Household products and events. Presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
173. Wogalter, M. S. (November, 1998). Forensic case studies concerning human factors issues. Invited colloquium, University of Central Florida Human Factors and Ergonomics Society Student Chapter, Orlando, FL.
174. Wogalter, M. S. (November, 1998). Factors that influence warning effectiveness. Invited colloquium, Department of Psychology, University of Central Florida, Orlando, FL.
175. Wogalter, M. (January, 1999). Factors that influence risk communication in the workplace. Presented at the Health and Safety Executive (HSE) Workplace Risk Communication Workshop, London.
176. Rogers, W. A., & Wogalter, M. S. (February, 1999). Exposing students to Human Factors/Ergonomics: Applying psychology to make technology user friendly. Kennesaw State University Symposium on the Teaching of Psychology, Atlanta.
177. Wogalter, M. (March, 1999). Warning! Human factors issues, research and liability. Invited Colloquium co-sponsored by the Student Chapters of the American Society of Safety Engineers and the Human Factors and Ergonomics Society, Virginia Polytechnic Institute and State University, Blacksburg.
178. Wogalter, M. S., Paine, C. S., Mills, B., & Smith-Jackson, T. L. (March, 1999). Prescription medication advertising: Facilitating the communication of benefits and risks. Southeastern Psychological Association Annual Meeting, Savannah, GA.
179. Leonard, S. D., & Wogalter, M. S. (May, 1999). Electrical hazards in the home: What people don't know. Presented 3rd National Conference on Injury Prevention and Control. Brisbane, Australia.
180. Wogalter, M. S. (August, 1999). Reducing errors through better labeling. In APA Division 21 Symposium on Reducing System Error in Healthcare. American Psychological Association Annual Convention, Boston.
181. Wogalter, M. S., Smith-Jackson, T. L., Mills, B. J., Paine, C. S. (August, 1999). Risk/benefit communication in direct-to-consumer advertising of prescription medications. American Psychological Association Annual Convention, Boston.
182. Joyce, K. M., Byrd, T. G., Vigilante, Jr., W. J., & Wogalter, M. S. (August, 1999). Over-the-counter (OTC) drug labeling: Format preferences. American Psychological Association Annual Convention, Boston.
183. Cheatham, D. B., & Wogalter, M. S. (September, 1999). Connoted hazard and perceived conspicuity of warning configurations. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.
184. Kalsher, M. J., Wogalter, M. S., & Williams, K. J. (September, 1999). Allocation of responsibility for injuries from a "hidden" hazard. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.
185. Vigilante, Jr., W. J., & Wogalter, M. S. (September, 1999). Over-the-counter (OTC) drug labeling: Format preferences. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.

186. Wogalter, & M. S., & Usher, M. O. (September, 1999). Effects of concurrent cognitive task loading on warning compliance behavior. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.
187. Wogalter, M. S., Mills, B. J., Paine, C. S., & Smith-Jackson, T. L. (September, 1999). Application of cognitive principles to the design of direct-to-consumer advertising of prescription medications. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.
188. Wogalter, M. S., Conzola, V. C., & Vigilante, W. J. (October, 1999). Applying usability engineering principles to the design and testing of warning messages. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.
189. Brantley, K. A., & Wogalter, M. S. (September, 1999). Oral and written symbol comprehension testing: The benefit of cognitive interview probing. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.
190. Bzostek, & J. A., & Wogalter, M. S. (September, 1999). Measuring visual search time for a product Warning label as a function of icon, color, column, and vertical placement. Presented at the 43rd Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.

Service to Profession

Ad Hoc Reviewer for:

Applied Cognitive Psychology

Applied Ergonomics

British Journal of Psychology

Ergonomics

Experimental Aging Research

Human Factors

Human Performance

Psychological Research

Psychological Science

Psychology & Marketing

Proceedings of the Human Factors and Ergonomics Society

Proceedings of the Public Policy and Marketing Meeting

Journal of Applied Psychology

Journal of Applied Social Psychology

Journal of Public Policy and Marketing

Journal of Experimental Gerontology

Safety Science

& several technical reports.

- Reviewer of American Psychological Society poster abstracts (1991-1993).
- Reviewer of Interface 93 Conference meeting abstracts (1993).
- Reviewer of submissions to the Public Graphics Symposium (1994).
- Ad hoc consultant to the U.S. Food and Drug Administration and the U.S. Consumer Product Safety Commission.
- Consultant for the U.S. Federal Trade Commission, Division of Advertising Practices on fairness and deception in print and broadcast advertising, Washington, DC.
- Reviewer of several textbooks on behavioral statistics, research design, experimental psychology, and sensation and perception (Wadsworth, Mayfield, Academic Press).
- Consultant on various legal cases on the human factors of safety and warnings.
- Program Chair of the Safety Technical Group (Human Factors Society), 1989-91.
- Editor, *Safety News*, the newsletter of the Safety Technical Group (Human Factors Society), 1990-91.
- Member, Public Relations Committee (Human Factors Society and Ergonomics Society), 1991-1993.
- Chair of the Safety Technical Group (Human Factors and Ergonomics Society), 1991-1993.
- Faculty advisor for the North Carolina State University Student Chapter of the Human Factors and Ergonomics Society, 1993-1994.
- Co-Guest Editor, *Safety Science*, of a 1993 special journal issue on Warnings and Risk Communication.
- General Sessions Chair of the National Program Committee (Human Factors and Ergonomics Society), 1992-1994.
- Special Sessions Chair of the National Program Committee (Human Factors and Ergonomics Society), 1994-1995.
- Chair of the Forensic Professional Group (Human Factors and Ergonomics Society), 1993-1994.
- Technical Program Chair of the Forensic Professional Group (Human Factors and Ergonomics Society), 1995-1996.
- Chair, Council of Technical Groups (COTG) of the Human Factors and Ergonomics Society, 1995-1996.
- Member, Technical Advisor Group (TAG), Human Factors and Ergonomics Society, 1995-1997.
- Human Factors and Ergonomics Society representative to the American National Standards committee (ANSI Z535.1-5) on warning colors, signs, pictorial symbols, product labels and tags (1995-1998).

- Special Government Employee (SGE) for the U.S. Food and Drug Administration as a consultant on Over-the-Counter drug labeling (1996-1997).
- Member of the Student Health Committee, North Carolina State University (1995-1997).
- Secretary-Treasurer of the Human Factors and Ergonomics Society (1996-1998).
- Member of the Executive Council of the Human Factors and Ergonomics Society (1996-1998).
- Member of the Communications/Publications Subcouncil of the Human Factors and Ergonomics Society (1996-1998).
- Chair of the Nominations and Elections Committee of the Human Factors and Ergonomics Society (1996).
- Chair of Sustaining Membership Committee of the Human Factors and Ergonomics Society (1996-1997).
- Visiting Scholar, Liberty Mutual Research Center for Safety and Health, Hopkinton, MA (1997-1998).
- Fellow of the Human Factors and Ergonomics Society (1997-present).
- Member of *Human Factors* Editorial Board (1992-present).
- Member of *Ergonomics* Editorial Board (1996-present).
- Member of *Occupational Ergonomics* Editorial Board (1997-present).
- Member of *Psychology & Marketing* Editorial Board (1998-2000).
- Associate Editor of the *International Encyclopedia of Human Factors and Ergonomics* (1997-).
- Chair, Membership Services Subcouncil of the Human Factors and Ergonomics Society (1998-1999).
- Member of *Theoretical Issues in Ergonomics Science* Editorial Board (1999-2001)

Courses Taught

- Human Factors/Ergonomics** (undergraduate and graduate)
- Advanced Human Factors** (graduate)
- Human-Computer Interaction** (graduate)
- Warnings and Risk Communication** (graduate)
- Statistics and Research Design/Methods** (undergraduate and graduate)
- Cognition** (undergraduate and graduate)
- Cognition Laboratory** (undergraduate)
- Sensation and Perception** (undergraduate)

Perception Laboratory (undergraduate)

Independent and Directed Research (undergraduate and graduate)

Honors Psychology (undergraduate)

Memberships in Professional Organizations

Human Factors and Ergonomics Society

Consumer Product Technical Group

Communications Technical Group

Computer Systems Technical Group

Educators Professional Group

Environmental Design Technical Group

Forensic Professional Group

Personality and Individual Differences Technical Group

Medical Systems and the Functionally Impaired Technical Group

Safety Technical Group

Test and Evaluation Technical Group

Visual Performance Technical Group

American Psychological Association

Division of Applied Experimental and Engineering Psychology

Division of Law and Psychology

Division of Teaching of Psychology

Division of Consumer Psychology

American Psychological Society

Ergonomics Society

American Marketing Association

Southeastern Psychological Association

International Association of Applied Psychology

International Society for Occupational Ergonomics and Safety

Sigma Xi — The Scientific Research Society

American Association of University Professors

North Carolina Cognition Group

Society for Consumer Psychology

Society of Applied Research in Memory and Cognition

Exhibit 2 - References

- ANSI (1998) Z535.1-5, *Accredited Standards Committee on Safety Signs and Colors*. Washington, DC; National Electrical Manufacturers Association.
- ANSI (1991) Z535.1-5, *Accredited Standards Committee on Safety Signs and Color*. Washington, DC; National Electrical Manufacturers Association.
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