Warnings & Risk Communication

Course Syllabus
Psychology 710B
North Carolina State University
Fall, 1998

Instructor	Class Meetings	Office Hours
Michael S. Wogalter, Ph.D.	Tuesdays	Tuesdays 12:40 - 1:10 PM
730 Poe Hall	6:00 - 8:50 P.M	Thursdays 10:30 - 11:10 AM
Office: 515-1726; Lab: 515-8260	500 Poe Hall	or by appointment
Home: 851-1884		

Course Objectives

This course explores research and theory related to the human factors of warnings and other forms of risk communication. Topics to be discussed will include design issues, methodological and evaluative approaches, forensics, theoretical models, and applications.

The instructors will not be giving regular lectures; rather, the seminar will function as a class in which students participate in active discussion. Students will be assigned several sets of readings (dep
ending on the number of students in the course) and will lead the class in discussion of the assigned articles. Leaders will summarize each article for a period of time lasting no more than 6 to 7 minutes and then bring forth classmatesÕ questions.

Readings

All of the assigned readings will be current journal/proceedings/book chapter articles published in the last three years. Students taking the course are expected to obtain copies of the readings during the first two weeks of the course.

Students are strongly encouraged to critically read the assigned readings. ItÕs also recommended that you take handwritten notes of the readings as you go through them. Review your notes prior to coming to class. These notes will be useful in bringing up points during class disc
mussions. Remember to bring assigned articles to class.

Course Requirements

Class participation

Due to the nature of the course (i.e., it is a seminar) participation in class is essential. You should be prepared to speak up and add to each meeting's discussion. Class participation will be worth 20% of the final course grade.

Leader assignments

Students w
ill be responsible for leading discussion of several (i.e., 2- 5) topic sessions. Leaders will go through the topic/discussion questions, encourage input from others, summarize and comment where appropriate, etc. Visual aids (i.e., overheads and/or hand-outs) should be used to assist in leadersÕ presentationsÑthey should be brief, however. Presentation quality and discussion leadership will count for 25% of your final course grade. Leaders are responsible for making sure discussion is fruitful and comes to a close 70 minutes after beginning the session. There will be a ten-minute break between the two sections of each class meeting.

Topic questions

Each person is required to submit 1 or 2 discussion questions for each assigned reading for the upcoming session. These questions should deal with aspects of the articles that you do not understand, for clarification, to stimulate discussion, etc. Questions are due by 3:00 P.M. on the Monday before the next session.
Leaders should edit and collate the questions in whatever fashion facilitates class discussion, and then bring copies to the course meeting for fellow classmates. Last names of students should be placed adjacent to the questions that they submitted. When you submit your questions you should label them with your name, date, and indications of which articles the questions refer to. The questions for the two sections should be placed on separate sheets because two group leaders will be picking them up. The quality and regularity of your questions will be worth 20% of your final course grade. Late questions or failure to submit questions will result in a penalty. The magnitude of the penalty will depend on such factors as how late they were submitted, the frequency of the problem, etc. We may do this by email if everyone can get an account.

Research Project

Students are required to complete an empirically-based research project. Approval of one of the instructors is requ
ired. The final product of the research is a report which must be word-processed in the format required by the Human Factors AuthorÕs Guide or the Publication Manual of the American Psychological Association . The report should contain a title page, abstract, review of the relevant literature (related to the problem being addressed), the purpose of the research, and the reasoning behind it, the method (description of the materials and procedure), results, discussion, implications of the research, and references. The report should be no longer than 16 double-spaced pages of text (including the title page, abstract, and reference list, (but not including any supporting figures and tables, analyses, data sheetsÑalthough these should be turned in with the other formal parts of the paper).

The instructors regard the research project as the most important component of the class. Students should work with the instructors every step of the way_from topic selection to the design of t
he study to multiple rewrites of drafts (if needed). Should a good piece of research be generated by this collaborative effort, it might be made suitable for submission to a journal for publication.

You might choose to use research subjects from the NCSU Psychology Department human subject pool (students taking Introductory Psychology). If you plan to do so, you are required to obtain approval of your proposed research from the Institutional Review Board (IRB) of NCSU. IRB approval MUST be obtained prior to conducting research using subjects from the pool. Approval requires a written plan of your proposed research methodology (focusing on the benefits and costs of the research to humans) and typically requires several weeks. It should be

initiatedÑthrough your instructorsÑbefore the end of September at the latest.

A written (but informal) research proposal must be submitted and approved prior to any data collection. As soon as possible you should discuss research ideas with the instructor. If you need assistance, we will be glad to help guide you in the direction of researchable ideas. Proposals must be submitted by the middle of September. In all cases students are urged to discuss research with the instructor, since early submission and approval of proposals allows you to initiate data collection and thus gain early access to exhaustible subject populations (either inside NCSU or outside). If you have questions about the research requirement, do not hesitate to bring these up early in the semin
ar (e.g., TODAY!). The research assignment is worth 35% of your seminar grade. See the course calendar for the specific due dates.

Exams

If students fail to participate in the discussion of the assigned articles, don't submit questions, do poor a job on leading the discussion on assigned dates, a final exam will be provided to possibly bring up their grade. At approximately halfway through the course, the instructor will announce whether an exam will be given during the final exam week in December.

Attendance Policy

Students will be expected to attend every class meeting. Because of the length of the meetings and because we only have class once a week, missing a single class is like missing an entire weekÕs worth of classes. Attendance is important because seminar discussions are only as good as the people who attend. For this reason, missing more than two meetings will result in an automatic 9% subtracted from the final grade. Each additional missed meeting will result in fur Tther reductions of 5% from your final grade. Excused absences will be limited to verifiable medical, legal, meteorological or religious reasons. There may be other kinds of legitimate excuses and the instructor will rule on these individually. Some of the excuses that are not considered legitimate include, but are not limited to: (1) ride leaving early or only available flight, etc., (2) big party or other social event, (3) other assignment on same date, (4) did not know the assignment, (5) work required it, and (5) forgot. Take the necessary precautions to avoid getting sick, etc.

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All students are expected to do and turn in their own work. Academic integrity is expected. Dishonorable behavior will not be tolerated and when necessary will be pursued through the UniversityÕs judicial channels.

The grading scale is shown below:

A At least 90% B At least 80% C At least 70%
F Less than 70%

A summary of the percentage worth of each of the course components follows:

Class participation 20%
Leadership of discussion 25%

Weekly questions	20%
Research project	35%
TOTAL	100%

Calendar
for Warnings & Risk Communication

August 18 - INTRODUCTION I

Organizational session; Syllabus Description; Beginning assignment of topics and description of procedures.

Wogalter, M. S., & Laughery, K. R. (1996). WARNING! Sign and Label Effectiveness. Current Directions in Psychology, 5, 33-37.

Laughery, K. R., & Wogalter, M. S. (1997). Risk perception and warnings. In G. Salvendy (ed.) Handbook of Human Factors and Ergonomics (2nd edition) New York: Wiley-Interscience.

August 25 - INTRODUCTION II

Lehto, M., & Salvendy, G. (1995). Warnings: A supplement not a substitute for other approaches to safety. Ergonomics, 38, 2155-2163.

Edworthy, J., & Adams, A. (1996). Chapter 1: Setting t
he scene (pp. 1-24). Warning design: A research prospective. London: Taylor and Francis.

Edworthy, J., & Adams, A. (1996). Chapter 2: Warning labels (pp. 25-73). Warning design: A research prospective. London: Taylor and Francis.

September 1

1st Half - SYMBOLS I

Edworthy, J., & Adams, A. (1996). Chapter 3: Symbols (pp. 75-100). Warning design: A research prospective. London: Taylor and Francis.

Young, S. L. (1997). The role of pictorials in environmental safety signs. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 41, 797-800.

Ringseis, E. L., & Caird, J. K. (1995). The comprehensibility and legibility of twenty pharmaceutical warning pictograms. In Proceedings of the Human Factors Society 39th Annual Meeting (pp. 974-978). Santa Monica: Human Factors Society.

Davies, S., Haines, H., Norris, B., & Wilson, J. R. (1997). Safety pictograms: Are they getting the message across? Applied Ergonomics, 29, 15-23.

2nd Half- SYMBOLS II

Sojourner, R. J., & Wogalter, M. S. (1998). The influence of pictorials on the comprehension and recall of pharmaceutical safety and warning information. International Journal of Cognitive Ergonomics, 2, 93-106.

Wolff, J. S., & Wogalter, M. S. (1998). Comprehension of pictorial symbols: Effects of context and test method. Human Factors, in press.

Caird, J. K., Wheat, B., McIntosh, K. R., & Dewar, R. E. (1997). The comprehensibility of airline safety card pictorials. In Proceedings of the Human Factors Society 41st Annual Meeting (pp. 801-805). Santa Monica: Human Factors Society.

Long, G. M., & Kearns, D. F. (1996). Visibility of text and icon highway signs under dynamic viewing conditions. Human Factors, 38, 690-701.

September 8

1st Half - MEDICAL INFORMATION I

Nordenberg, T. (1997). Rx: A dose of clear directions for drug users. FDA Consumer, July-August, 17-21.

Fisch, M. K., & O'Connell, C. A. (1998). Creation of a dictionary of medical and lay terms for use in the preparation of patient information leaflets. Drug Information Journal, 32, 533-538.

Steering Committee for the Collaborative Development of a Long-Range Action Plan for the Provision of Useful Prescription Medicine Information (1996). Action plan for the provision of useful prescription medicine information (pp. 1-33). Keystone, Co: Keystone Center.

Hartley, J., Sydes, M., & Burton, A. (1996). Obtaining information accurately and quickly: Are structured abstracts more efficient? Journal of Information Science, 22, 349-356.

2nd Half - MEDICAL INFORMATION II

Vigilante, W. J., & Wogalter, M. S. (1997). The preferred order of over-the counter (OTC) pharmaceutical label components. Drug Information Journal, 31, 973-988.

Vigilante, W. J., & Wogalter, M. S. (1998). Older adults' perceptions of OTC drug labels: Print size, white space and design type. In S. Kumar (Ed.),Advances in Occupational Ergonomics and Safety., Louisville, KY: IOS Press and Ohmsha.

Morris, L. A., Lechter, K., Weintraub, M., & Bowen, D. (1998). Comprehension testing for OTC drug labels: Goals, methods, target population, and testing environment. Journal of Public Policy & Marketing, 17, 86-96.

U.S. FDA. (1997). Medical device labeling: Suggested format and content (Draft). Rockville, MD: Author: Center for Devices and Radiological Health.

September 15

1st Half - LEGIBILITY & RETRIEVAL RESPONSES

Garvey, P. M., Pietrucha, M. T., & Meeker, D. T. Clearer road signs ahead. Ergonomics in Design, July, 7-11.

Green, F. A., Huchinson, R. D., & Koppa, R. J. (1995). Comparison of simulation and field legibility distances for symbol highway signs. In Proceedings of the Human Factors Society 39th Annual Meeting (pp. 1147-1151). Santa Monica: Human Factors Society.

Lehto, M. R. (1998). The influence of chemical warning label content and format on information retrieval speed and accuracy. Journal of Safety Research, 29, 43-56.

Slater, M. D., Karan, D., Rouner, D., Murphy, & Beauvais, F. (1998). Developing and assessing alcohol warning content: Responses to quantitative information and behavioral recommendations in warnings with television beer advertisements. Journal of Public Policy & Marketing, 17, 48-60.

2nd Half - COMPONENTS OF WARNINGS

Derocher, R.. (1997). Different signs for different times. Safety + Health, March, 48-52.

Brewster, B. (1996). White paper on safety sign components. Wolcott, NY: Electromark.
Wogalter, M. W. (1998). Hazard level perceptions of warning components and configurations. International Journal of Cognitive Ergonomics, 2, 123-143.

September 22

1st Half - ALTERNATIVE CUES

Wogalter, M. S., Laughery, K. R., & Barfield, D. A. (1997). Effect of container shape on hazard perceptions. Proceedings of the Human Factors and Ergonomics Society, 41, 390-394.

Hatem, A., & Lehto, M. (1995). Effectiveness of glue odour as a warning signal. Ergonomics, 38, 2250-2261.

Conzola, V., & Wogalter, M. S. (in press). Using voice and print directives and warnings to supplement product manual instructions. International Journal of Industrial Ergonomics..

Selcon, S. J., & Taylor, S. J. (1995). Integrating multiple information sources: Using redun dancy in the design of warnings. Ergonomics, 38, 2362-2370.

2nd Half - SOCIAL INFLUENCES

Wogalter, M. S., Magurno, A. B., Rashid, R., & Klein, K. W. (1998). The influence of time stress and location on behavioral compliance. Safety Science, 29, in press.
Wogalter, M.S., Kalsher, M. J., & Rashid. R. (in press). Effect of signal word and source attribution on judgments of warning credibility and compliance likelihood. International Journal of Industrial Ergonomics..

Adams, A., Bochner, S., & Bilik, L. (1998). The effectiveness of warning signs in hazardous work places: Cognitive and social determinants. Applied Ergonomics, 29, 247-254.

Hammond, A. J. (1995). Adult notions of adults' and children's perceptions of consumer product risk. In Proceedings of the Human Factors and Ergonomics Society 39th Annual Meeting (pp. 321-325). Santa Monica: Human Factors and Ergonomics Society.

September 29

Practice HFES Presentations (17.5 minutes in duration; with overheads; a few minutes at the end of each for helpful comments)

Smith-Jackson, T., & Wogalter, M. S. (1998). Determining the preferred order of material safety data sheets (MSDS): A user-centered approach. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

Wogalter, M. S., Brantley, K. A., Laughery, K. R., & Lovvoll, D. R. (1998). Effects of warning quality and expert testimony on allocation of responsibility of consumer product accidents. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

Barzegar, R. S., & Wogalter, M. S. (1998). Intended carefulness for voiced warning signal words. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

Vigilante, W. J., Jr., & Wogalter, M. S. (1998). Product manual safety warnings: The effects of ordering. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

Conzola, V. C., & Wogalter, M. S. (1998). Consumer product warnings: Effects of injury statistics on recall and subjective evaluations. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

Wogalter, M. S., & Rashid, R. (October, 1998). A border surrounding warning sign text affects looking behavior: A
field observational study. Poster to be presented at the 42nd Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.

October 20

1st half - INFORMATION CONTENT

Fain, W. B. (1995). Analysis of the influence of traffic information messages on route selection. In Proceedings of the Human Factors Society and Ergonomics Society 39th Annual Meeting (pp. 1082-1086). Santa Monica: Human Factors and Ergonomics Society
.
Braun, C. C., Holt, R. S., & Silver, N. C. (1995). Adding consequence information to product instructions: Changes in hazard perceptions. In Proceedings of the Human Factors Society and Ergonomics Society 39th Annual Meeting (pp. 346-350). Santa Monica: Human Factors Society and Ergonomics Society.

Trommelen, M. (1997). Effectiveness of explicit warnings. Safety Science, 25, 79-88.

Young, S. L., & Wogalter, M. S. (1998). Relative importance of different verbal components in conveying hazard-level information in warnings. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

Wogalter, M. S., Young, S. L., Brelsford, J. W., & Barlow, T. (in press). The relative contributions of injury severity and likelihood information on hazard-risk judgments and warning compliance. Journal of Safety Research.

2nd half - CONCURRENT EFFECTS OF CUES & PRODUCT MANUALS

Braun, C. C., & Silver, N. C. (1995). Interaction of signal word and colour on warning labels: Differences in perceived hazard and behavioural compliance. Ergonomics, 38, 2207-220.

Adams, A. S., & Edworthy, J. (1995). Quantifying and predicting the effects of basic text display variables on the perceived urgency of warning labels: Tradeoffs involving font size, border weight and colour. Ergonomics, 38, 2221-2237

Showers, L. S., Celuch, K. G., & Lust, J. A. (1998). Product owner manuals: A comparison of video versus print formats. Marketing and Public Policy Con
ference Proceedings, pp. 84-90.

Wogalter, M. S., Vigilante, W. J., & Baneth, R. C. (1998). Availability of operator manuals for used consumer products. Applied Ergonomics, 29, 193-200.

October 27

1st half - Behavioral and Risk Effects

Cox III, E. P., Wogalter, M. S., Stokes, S. L., Murff, E. J. T. (1997). Do product warnings increase safe behavior? Journal of Public Policy & Marketing, 16, 195-204.

Ayres, T., Wood, C., Schmidt, R., Young, D., & Murray, J. (1998) Effectiveness of warning labels and signs: An update on compliance research. Proceedings of ErgoCon 98.

McCarthy, R. L., Ayres, T. J., & Wood, C. T. (1995). Risk and effectiveness criteria for using on-product warnings. Ergonomics, 38, 2164-2175.

Chen, J. Y. C., Gilson, R. D., & Mouloua, M. (1997). Perceived risk dilution with multiple warnings. In Proceedings of the Human Factors Society and Ergonomics Society 41st Annual Meeting (pp. 831-835). Santa Monica: Human Factors Society and Ergonomics Society.

2nd half -RISK PERCEPTION

Stone, E. R., Yates, J. F., & Parker, A. M. (1997). Effects of numerical and graphical displays on professed risk-taking behavior. Journal of Experimental Psychology: Applied, 3, 243-256.

Weinstein, N. D., Kolb, K., & Goldstein, B. D. (1996). Using time intervals between expected events to communicate risk magnitudes. Risk Analysis, 16, 305-308.

Freudenburg, W. R., Coleman, C. L. Gonzales, J., & Helgeland, C. (1996). Media coverage of hazard events: Analyzing the assumptions. Risk Analysis, 16, 31-42.

November 3

1st half - Potpourri

DeJoy, D. M. (1997). Expectations and warning effectiveness: Literature review and proposed mod
el. In Proceedings of the Human Factors Society and Ergonomics Society 41st Annual Meeting (pp. 826-830). Santa Monica: Human Factors Society and Ergonomics Society.

Bushman, B. J. (1998). Effects of warning and information labels on consumption of full-fat, reduced-fat, and no-fat products. Journal of Applied Psychology, 83, 97-101.

Bushman, B. J., & Stack, A. D. (1996). Forbidden fruit versus tainted fruit: Effects warning labels on attraction to television violence. Journal of Experimental Psychology: Applied, 2, 207-226.

2nd half - FORENSICS/LAW & ALLOCATION OF RESPONSIBILITY

Schwartz, V. E. (1998). Continuing duty to warn: An opportunity for liability prevention or exposure. Journal of Public Policy & Marketing, 17, 124-126.

Wogalter, M. S. (1997). Forensic issues of young children falling through window screens: A set of parallel case studies. Proceedings of the 13th Triennial Congress of the International Ergonomics Association, IEAÕ97, 7, 584-586.

Consumers Union (1995). Is lawsuit reform good for consumers? Consumer Reports, May, 312.

Logan, D. A., & Logan, W. A. (1996). North Carolina Torts (pp.367-372). Durham, NC: Carolina Academic Press.

Madden, M. S. (in press). Law related warnings. In M. S. Wogalter, D. M. DeJoy, & K. R. Laughery (Eds.). Warnings and Risk Communication. London: Taylor and Francis.

Laughery, K. R., Laughery, B. R., Lovvoll, D. R., McQuilkin, M. L., & Wogalter, M.S. (in press). Effects of warnings on responsibility allocation. Psychology & Marketing.

Kalsher, M. J., Phoenix, G. M., Wogalter, M. S., & Braun, C. C. (1998). How do people attribute blame for burns sustained from hot coffee? The role of causal attributions. Proceedings of the Human Factors and Ergonomics Society, 42, in press.

November 10

1st half - AUDITORY WARNINGS I

Haas, E. C., & Casali, J. G. (1995). Perceived urgency of and response time to multi-tone and frequency-modulated warning signals in broad band noise
. Ergonomics, 38, 2313-2326.

Edworthy, J., & Stanton, N. (1995). A user-centred approach to the design and evaluation of auditory warning signals: 1. Methodology. Ergonomics, 38, 2262-2280.

Prouix, G., Laroche, C., & Latour, J. C. (1995). Audibility problems with fire alarms in apartment buildings. In Proceedings of the Human Factors Society and Ergonomics Society 39th Annual Meeting (pp. 989-993). Santa Monica: Human Factors Society and Ergonomics Society.

Burt, J. L., Bartoleme, D. S., & Burdette, D. W. (1995). A psychophysiological evaluation of perceived urgency of auditory warning signals. Ergonomics, 38, 2327-2340.

2nd half - AUDITORY WARNINGS II

Haas, E. C., Gainer, C., Wightman, D., Cuch, M., & Schilling, R. (1997). Enhancing system safety with 3-D audio displays. In Proceedings of the Human Factors Society and Ergonomics Society 41st Annual Meeting (pp. 868-872). Santa Monica: Human Factors Society and Erg onomics Society.

Simons, D., Fredericks, T., K., & Tappel, J. (1997). The evaluation of an auditory alarm for a new medical device. In Proceedings of the Human Factors Society and Ergonomics Society 41st Annual Meeting (pp. 777-781). Santa Monica: Human Factors Society and Ergonomics Society.

Stanton, N. A., & Baber, C. (1997). Comparing speech versus text displays for alarm handling. Ergonomics, 40, 1240-1254.

Whitaker, L. A., McCloskey, M., & Peters, L. J. (1996). Effects of speech intelligibility, morphological confusions, and redundancy on task performance. In Proceedings of the Human Factors Society and Ergonomics Society 40th Annual Meeting (pp. 308-312). Santa Monica: Human Factors Society and Ergonomics Society.

November 17

1st half - HEADS-UP DISPLAYS (HUDs)
Ward, N. J., Parkes, A., Crone, P. R. (1995). Effect of background scene complexity and field dependent on the legibility of head-up displays for automotive applications. Human Factors, 37, 735-745.

Grant, B. S., Kiefer, R. J., & Wierwille, W. W. (1995). Drivers' detection and identification of head-up versus head-down telltale warnings in automobiles. In Proceedings of the Human Factors Society and Ergonomics Society 39th Annual Meeting (pp. 1087-1091). Santa Monica: Human Factors Society and Ergonomics Society.
Ververs, P. M., & Wickens, C. D. (1996). The effect of clutter and low-lighting symbology on pilot performance with head-up displays. In Proceedings of the Human Factors Society and Ergonomics Society 40th Annual Meeting (pp. 62-66). Santa Monica: Human Factors Society and Ergonomics Society.

Tufano, D. R. (1997). Automotive HUDs: The overlooked safety issues. Human Factors, 39,

303-311.

2nd half - FALSE-ALA
RMS

Kantowitz, B. H., Hanowski, R. J., & Kantowitz, S. C. (1997). Driver acceptance of unreliable traffic information in familiar and unfamiliar settings. Human Factors, 39, 164-176.

McDonald, D. P., Gilson, R. D., & Mouloua, M. (1996). Spatial proximity of multiple alarms and the cry-wolf phenomenon. In Proceedings of the Human Factors Society and Ergonomics Society 40th Annual Meeting (pp. 850-854). Santa Monica: Human Factors Society and Ergonomics Society.

Parasuraman, R., Hancock, P. A., Olofinboba, O. (1997). Alarm effectiveness in driver-centred collision-warning systems. Ergonomics, 40, 390-399.

Bliss, J. P., & Gilson, R. D. (1998). Emergency signal failure: Implications and recommendations. Ergonomics, 41, 57-72.

November 24

1st half - AUTOMOBILE WARNING AND INFORMATION SYSTEMS

Mortimer, R. G. (1997). Vehicle -driver communications to reduce rear-end collisions: What makes sense and why?In Proceedings of the Human Factors Society and Ergonomics Society 41st Annual Meeting (pp. 849-853). Santa Monica: Human Factors Society and Ergonomics Society.

Hirst, S., & Grahm, R. (1997). The format and presentation of collision warnings. In Noy, Y. I (ed.). Ergonomics and safety of intelligent driver interfaces. Mahwah, NJ: Erlbaum.

Dingus, T. A., McGehee, D. V., Manakkal, N., Jahns, S. K., Carney, C., and Hankey, J. M. (1997). Human factors field evaluation of automotive headway maintenance/collision warning devices. Human Factors, 39, 216-229.

Dingus, T. A., Hulse, M., Mollenhauer, M. A., Fleischman, R. N., McGehee, D. V., & Manakkal, N. (1997). Effects of age, system experience, and navigation technique on driving with an advanced traveler information system. Human Factors, 39, 177-199.

November 24 - OTHER ISSUES

Woods, D. D. (1995). The alarm problem and directed attention in dynamic fault management. Ergonomics, 38, 2371-2393.

Young, S. L., Laughery, K. R., Wogalter, M. S., & Lovvoll, D. (in press). Receiver characteristics in safety communications. In W. Karwowski (Ed.) Handbook of Occupational Ergonomics.