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Human Factors and Homeland Security

By Raja Parasuraman

This article is another in an occasional series of reports on the activities of the National Research Council (NRC) Committee on Human Factors (CoHF). The CoHF is a standing committee of the NRC established by the National Academy of Sciences (NAS) in 1980 to advise the U.S. government on various policy matters involving human factors and ergonomics (HF/E). The committee consists of an appointed group of prominent scholars with expertise not only in HF/E but in related fields such as organizational behavior, computer science, and cognitive science.

The CoHF holds discussion meetings twice a year. It also conducts workshops and panel studies on emerging issues of national or international significance. The end products of these activities include written reports reflecting the conclusions of an expert study committee over a one- to three-year period and summaries of the conclusions of decision makers who have discussed national issues at symposia, workshops, and roundtables.

Most NRC panel reports include specific recommendations of actions that should be taken to address the issue at hand and therefore bear significant national policy implications. Recent prominent NRC reports in HF/E include *Musculoskeletal Disorders and the Workplace* (2001), *The Future of Air Traffic Control* (1998), *Modeling Human and Organizational Behavior* (1998), and *The Case for Human Factors in Industry and Government* (1997).

I was appointed chair of the CoHF in 2001, following the distinguished service of former HFES President William Howell. I plan to continue to direct the CoHF to investigate a diverse range of HF/E issues. Not surprisingly, however, our recent discussions have been dominated by issues related to terrorism and homeland security. Accordingly, in this article I briefly describe the activities of our committee in this area.

Science and Technology to Counter Terrorism

The second meeting of the CoHF in 2001 took place shortly after the tragic events of September 11. Former HFES President Peter Hancock and NASA Ames researcher Sandy Hart were invited to give presentations on the role of HF/E in homeland security. Our agenda focused on the implications of recent proposals initiated by the White House Office of Science and Technology Policy (OSTP) on technologies to counter terrorism. In response to a request from this agency, the NAS rapidly formed the Committee on Science and Technology to Counter Terrorism (STCT), chaired by Lewis Branscomb and Richard Klausner. The goal was to quickly mobilize the nation’s experts to evaluate the most effective ways to prevent future terrorist attacks.

The STCT committee consisted of seven panels, six dealing with (1) biological, (2) chemical, (3) nuclear/radiological, (4) information technology, (5) transportation, and (6) energy domains, and a seventh on behavioral and social/institutional issues. The charge to the STCT panels was outlined in a briefing at the CoHF meeting: to identify key areas (threats) to which the technical domain relates, evaluate the capacity for dealing with these threats, and identify barriers to the use of technology to counter the threats. The panels were asked to provide top-priority research issues by March 2002 and by September 11, 2002, to recommend “ways in which the federal R&D enterprise must evolve in policy and structure in light of the expectation that terrorism is a permanent feature of contemporary society.”

As I listened to this briefing and the impressive list of scientists and scholars appointed to the various panels (distinguished by being either Nobel Prize winners or NAS members), I was struck by two things: First, HF/E was mentioned, but only in passing, and was relegated to the last panel (a telling position?) on behavioral issues. In my view, however, HF/E needed to be seen as an *integral* part of the six technical domains and not as a separate activity within another category. Without HF/E input, technological “solutions” to cope with threats in domains such as transportation and information technology were likely to be unsuccessful.

A second point that was obvious from the briefing was that of the several distinguished panel members in the six technical domains, only *one* had HF/E or social/behavioral science expertise: Don Norman, who was in the information technology panel. (Subsequently, HF/E expert Bill Rouse was appointed to another panel on systems engineering.) Both of these issues – the role of HF/E in the design and use of technology and the lack of HF/E expertise – seemed to me to be important problems that needed to be pointed out to the STCT Committee. Accordingly, the CoHF decided to attempt to get the six technical panels to consider HF/E.

A Small Victory

Were we successful? Yes, but only in a limited fashion. Remarkably, our efforts led to us getting language into the final report of the STCT Committee on the need for integrating human factors into homeland security initiatives. This small victory may have some general implications for integrating HF/E more generally into new technology initiatives.

I began by sending a letter to the STCT panel on behalf of the CoHF. We stated that we had reviewed their charge and had identified a number of ways in which human factors intersected

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NSF & USDOT to Fund Multidisciplinary Research

The Directorate for Engineering of the National Science Foundation (NSF) announces the third year of the NSF/USDOT Partnership for Exploratory Basic Research on Information and Communications Systems for Surface Transportation (ICSST). The project is jointly sponsored with the U.S. Department of Transportation (USDOT) for Exploratory Basic Research on Information and Communications Systems for Surface Transportation.

The NSF/USDOT program offers a flexible vehicle for pursuing potentially high-risk and high-payoff research. Research topics must target innovative strategies for exploiting state-of-the-art information and information/communication technologies in surface transportation systems to meet the challenges and constraints associated with mobility. One aspect of this program is intended to foster innovative uses of technology in all modes of surface transportation in a spirit similar to intelligent transportation systems. It is also meant to spur integrative, multidisciplinary research needed to understand and manage the complexity and vulnerability of surface transportation systems and their interactions with natural, social, and economic systems.

Please note there are significant changes in eligibility and funding from last year. Proposals are due *June 11, 2003*. For more information, visit <http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf03556>.

NIH Final Statement on Data-Sharing Initiative

After considering researchers' comments and working on the new data-sharing requirement for grants funded by the National Institutes of Health, a final document on how data sharing will work is now available at http://grants.nih.gov/grants/policy/data_sharing/. Please note that program officers will help potential grantees determine the necessary data-sharing steps to take and also that this only applies to grantees who will receive monies of greater than \$500,000 in direct costs per year.



Bulletin

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Ergo Advisory Panel

By *Carter J. Kerk, NACE Chairman*

On December 3, 2002, Secretary of Labor Elaine L. Chao announced the selection of 15 individuals from industry, academia, labor, legal, and medical professions to form OSHA's National Advisory Committee on Ergonomics (NACE). Three of the 15 are members of the Human Factors and Ergonomics Society: Lisa Brooks, Richard Wyatt, and myself. I felt honored just to be nominated, not to mention to be selected for the committee, and then to be named as the chair. I know there were many highly qualified nominees and I am humbled by my selection. I will do my best to help represent and serve our profession.

As you probably know, OSHA has announced a Four-Pronged Approach on Ergonomics: 1) Guidelines, 2) Enforcement, 3) Outreach and Assistance, and 4) NACE. I encourage you to monitor the OSHA Web site (<http://www.osha.gov>) for developments in these areas.

The initial NACE meeting was held January 22 in Washington, DC. John Henshaw, Assistant Secretary of Labor for Occupational Safety and Health, tasked the committee to provide advice on information related to various industry or task-specific guidelines, identification of gaps in the existing research base related to applying ergonomics principles in the workplace, current and projected research needs and efforts, methods of providing outreach and assistance that will communicate the value of ergonomics to employers and employees, and ways to increase communications among stakeholders on the issue of ergonomics. NACE has no charge to address enforcement.

To help increase our effectiveness, NACE is forming three work groups to address the areas of guidelines, research, and outreach/assistance. Our second meeting is scheduled for May 6-7 in Washington, DC, and our third meeting is scheduled for September 23-24. As a member of HFES, I wish to be accessible to the Society membership. Please feel free to provide comments, feedback, and questions at any time. Contact me at 605/394-6067 or carter.kerk@sdsmt.edu. I look forward to seeing you in Denver in October.

California Ergonomics Debate Continues

The California Division of Occupational Safety and Health (DOSH) is working to remove many of the restrictions placed on issuing ergonomics citations. Labor groups and the division argue that prevention should be the centerpiece of ergonomics regulation. DOSH proposes to strip much of the current language from the General Industry Safety Orders (GISO) §5110 and make the Injury and Illness Prevention Program (IIPP) standard, GISO §3203, the "backbone" of the ergonomics regulation. According to the *Cal-OSHA Reporter*, the proposal has been met with resistance from employer groups.

Source: *Cal-OSHA Reporter*, Vol. 30, No. 10, March 7, 2003

2nd Annual User-Centered Consumer Product Design Award

By *Dianne McMullin and Stan Caplan*

Have you designed an innovative consumer product? Do you know of someone who has developed a product with outstanding usability or appearance? Do you wish to recognize the designer of a particularly good user-centered design? Then we have the award for you!

For the second year, the HFES Consumer Products Technical Group (CPTG) is sponsoring a consumer product design competition that will emphasize product design and the methods used to specify and achieve the design. Emphasis will be placed on innovative and user-centered approaches to human factors and industrial design. Consideration is limited to products or systems that are purchased for use in the home, in the workplace, or while mobile. They include consumer, commercial, and medical products but exclude military equipment or systems. The product or system being nominated must be operational and capable of being marketed with no more than minimal changes.

Nominations will be accepted from individuals nominating others or themselves. Award candidates must be members of HFES but do not have to be members of CPTG.

The nominations should be submitted by a human factors professional and should adhere to the following format:

1. Name of product
2. Name of person(s) being nominated and their title(s)
3. Names and titles of team members who worked on the product
4. State of development: Is this product on the market? If not, what remains to be done?
5. Abstract (200 words)
6. Product description, including photos
7. Targeted users
8. Reasons for product development: Why was this product developed?
9. External considerations: What external constraints and/or requirements were imposed on the development of the product or process?
10. Judging criteria: Following are the judging criteria. Please write a separate description for each of the six criteria that explains how the product or process meets that criterion.
 - 10A *Functional Obviousness*. To what extent does the design tell the targeted user how to do things from looking at the product or system?
 - 10B *Ease of Operation*. How easy is it to learn and actually do tasks in various applicable usage modes such as setup, normal usage, failure recovery, maintainability, portability, and storability that occur during ownership?
 - 10C *Creativity/Innovation*. How is this product unique compared with similar products? How do usability and styling take advantage of product technology?

- 10D *Concept Development*. How was new user input created or past user data applied to influence the product or system concept?
- 10E *Design*. How was user data generated or used for specifying design parameters or making design decisions?
- 10F *Evaluation*. What was done to assess usability of the product design and the need for improvement? This could include iterative assessments made during the design process or feedback obtained in the market that could be used for subsequent versions of the product.

The deadline for submitting nominations for the 2nd Annual Award is *June 27, 2003*. Nominations should be submitted electronically to Dianne McMullin at dianne.l.mcmullin@boeing.com.

The winning product/system will be recognized at the 2003 HFES Annual Meeting, and the awardees will be asked to present a talk on the product and methodology. They will also be expected to submit a paper to *Ergonomics in Design* within two months of the meeting.

For more information or to volunteer for the selection committee, please contact Dianne McMullin. More information concerning CPTG and the 1st User-Centered Consumer Product Design Award appears at the CPTG Web site, <http://cptg.hfes.org/>.



ANNUAL MEETING

Annual Meeting Sponsorship Opportunities

The HFES 47th Annual Meeting, to be held October 13–17 in Denver, Colorado, is an opportunity to promote your organization's products and services. Members are encouraged to pass this information to their employers and other interested parties.

Increased Visibility

The following sponsorship opportunities are available. Recognition is provided in the pre- and postmeeting issues of the *HFES Bulletin*, the Annual Meeting Program, onsite signage, and the daily newsletter. Also sponsors' logos will be included on the Sponsors page at the HFES Web site.

Opening Reception \$10,000

One sponsorship is available. The Opening Reception, held on the evening of Monday, October 13, is the official kickoff for the 47th Annual Meeting. Attendees gather to enjoy refreshments while mingling and networking in a relaxed atmosphere. Table tent cards and a banner bearing the sponsor's name and logo will be displayed.

Plenary Session \$5,000

One sponsorship is available. The Opening Plenary Session, Tuesday, October 14, features the keynote address and presidential address, and recognition of HFES awardees and newly elected

continued on next page

fellows. The sponsor will be acknowledged from the podium, and signs bearing the sponsor's name and logo will be placed at the door.

Student Reception \$2,000

One sponsorship is available. Each year, about 200 students gather to enjoy refreshments and camaraderie at a Tuesday-evening event. Awards are also presented at the Student Reception. Signs bearing the sponsor's name and logo will be placed at the door.

Message Center/E-Mail Stations \$5,000

One sponsorship is available. Simply provide a screensaver with your company logo for display on monitors at the free e-mail stations where attendees go to check their e-mail. This heavily utilized service is an excellent way to increase your visibility. Also includes signage; logo mousepads will be displayed if supplied by the sponsor (6–10 stations).

Coffee Breaks \$2,500

Eight sponsorships are available. Morning and afternoon coffee and beverage breaks are offered in the exhibit hall and other locations. Signs bearing the sponsor's name and logo will be placed in the area. In addition, the sponsor's representatives are encouraged to meet and greet attendees in the coffee break areas.

Portfolios \$10,000

One sponsorship is available. High-quality portfolios are given to every attendee at the registration desk. The portfolio has room for carrying laptops, books, programs, writing implements, and more. Black nylon canvas with shoulder strap, imprinted on the front flap with the meeting and sponsors' name and logos.

Luggage Tags \$2,000

One sponsorship is available. Accompanying the portfolio is a white plastic luggage tag so that attendees can insert their business cards to personalize and identify their portfolios. Includes one imprint color.

Flexible Notepad \$4,000

One sponsorship is available. The flexible memo folder comes with a ruled pad and pocket for holding notes. Sponsor's logo/name appears on the front cover. 5¼ × 8¾"; black with silver imprint.

How to Reserve a Sponsorship

If you wish to reserve a sponsorship, please contact Dick Bublitz, 800/485-5029, 818/992-0366; dick-rcb@juno.com. **A \$500 nonrefundable deposit is required at the time sponsorships are reserved; the balance is due August 29, 2003.** Sponsorships are allocated on a first-come, first-served basis on receipt of the deposit. Payment is accepted by check (US\$ payable to the Human Factors and Ergonomics Society), MasterCard, VISA, or American Express.

General meeting support is also welcome. To discuss alternative sponsorship ideas, please contact Carlos de Falla at HFES (310/394-1811, carlos@hfes.org).

Directory & Yearbook Coming

The HFES 2003–2004 *Directory & Yearbook* was mailed to all members in good standing this month. Additional copies are available to members for \$25 per copy plus \$7 shipping/handling (\$15 outside the U.S.).

Every effort is made to ensure that member listings are correct. Errors should be reported to the HFES Member Services Department (310/394-1811, stefanie@hfes.org). Members may also submit changes to their contact information via the HFES Web site (<http://hfes.org>) using the on-line update form. The information at the on-line member directory is updated twice a month.

Member Benefits Correction

The April issue of the *HFES Bulletin* reported a 15% discount available to HFES members on books and resources offered by John Wiley & Sons. The discount continues to be a benefit of HFES membership. However, to receive the discount, please place your order on line at <http://www.wiley.com>, not by calling the phone number originally listed. ☒

SHORT COURSES

25th Annual Occupational Safety and Health Update, June 12–13, Chapel Hill, NC. Occupational Safety and Health Education and Research Center, University of North Carolina, 3300 Hwy. 54 West, Chapel Hill, NC 27516-8264; 919/962-2101, fax 919/966-7579; oshercww@sph.unc.edu, <http://www.sph.unc.edu/osherc>.

Creativity and New Product Development, June 23–25, Atlanta, GA. American Society of Mechanical Engineers, 3 Park Ave., New York, NY 10016-5990; 201/882-1167, fax 201/882-1717; infocentral@asme.org, <http://www.asme.org>.

Enhancing Presentation Skills for Engineers and Technical Professionals, July 14–15, Calgary, Alberta. American Society of Mechanical Engineers, 3 Park Ave., New York, NY 10016-5990; 201/882-1167, fax 201/882-1717; infocentral@asme.org, <http://www.asme.org>.

Human Factors Engineering Short Course (44th year), July 28–August 8, 2003, Ann Arbor, MI. University of Michigan Center for Professional Development, 2121 Bonistell Blvd., 273 Chrysler Center, Ann Arbor, Michigan, 48109-2092; 734/647-7200, fax 734/647-7182; cpd-info@umich.edu, <http://www.umich.edu/~driving/shortcourse/index.html>.

Successful Negotiation Skills for Engineering and Technical Professionals, August 4–8, New York, NY. American Society of Mechanical Engineers, 3 Park Ave., New York, NY 10016-5990; 201/882-1167, fax 201/882-1717; infocentral@asme.org, <http://www.asme.org>.

Project Management for Engineers & Technical Professionals, Atlanta, GA. American Society of Mechanical Engineers, 3 Park Ave., New York, NY 10016-5990; 201/882-1167, fax 201/882-1717; infocentral@asme.org, <http://www.asme.org>. ☒

The Student's Companion to the HFES Directory and Yearbook

By *Melanie Diez, Student Views Editor*

I've often said the *HFES Directory and Yearbook* (D&Y) alone is worth the modest membership fee paid by student affiliates. Yet few students recognize its true value. In anticipation of the new *2003–2004 Directory and Yearbook*, here are some ideas on how to use it to its full potential.

Professional development. One way to realize your professional goals is to follow in the footsteps of those before you. Use the "Member Listings" section to see the educational background, research interests, technical groups, and certifications of the human factors professional who holds your dream job. Consider contacting them and asking how they found their current position. Do they have any letters after their name, such as CHFP or CPE? Check out the "Professional Designations" page to decode these certifications and others available in your field.

Student activities and networking. If you are looking for ways to get involved at school, use the "Student Chapter Officers and Activities" section to see what other students are doing. Get ideas for activities, guest speakers, and outreach programs you can initiate at your own school. Similarly, use the "Local Chapter Officers and Activities" section to find out about professional activities in your area. These chapters are a great way to meet local professionals as well as to establish yourself in the human factors community while still in school.

Spreading the word. If you are teaching a course in human factors or participating in an outreach program, why not hand out a few brochures promoting the profession? The "Free Publications from HFES" section lists several titles available to members for distribution.

Save the date. Want to attend the next meeting? The "Annual Meetings" section tells you where and when annual meetings will take place for the next three years. When you attend the meeting, bring your D&Y to highlight the names of people you meet and to make brief notes. Later, you can use the names as contacts for a job search, reminding them that you met at the HFES Annual Meeting.

Awards. Are you thinking of applying for the Alphonse Chapanis Best Student Paper Award? If so, you might want to look up past recipients and read their winning submissions. Just see the "Award" section, which lists recipients for each award offered by the Society since its inception.

Employment. When the time comes to look for a job, wouldn't it be nice to have a listing of all the companies that hire human factors professionals in your area? The "Member Affiliations by Geographical Area" section does just that and more. This section lists the names of companies and institutions employing HFES members according to state and country. Find local companies or check out the market in other states. Then use the list of employees for possible contacts when looking for jobs or internships.

More than just a phonebook, the D&Y should be a well-used reference in your personal library. With a little creativity, it can become an indispensable tool in achieving your educational and professional goals. ☒

Beth A. Loring has been appointed director of the Design and Usability Testing Center at Bentley College in Waltham, MA, where she will oversee the consulting and research activities of the center. Contact her at Bentley College, Design & Usability Testing Center, 175 Forest St., Waltham, MA 02452; 781/891-2608; bloring@bentley.edu.

Kim Vicente received the Steacie Fellowship, a top Canadian science and engineering honor from the Natural Sciences and Engineering Research Council of Canada. Contact him at University of Toronto, Department of Mechanical & Industrial Engineering, 5 King's College Rd., Toronto, ON M5S 3G8 Canada; 416/978-7399, fax 416/978-3453; vicente@mie.utoronto.ca. ☒

IN THE NEWS

The work of **Andris Freivalds** and **Hyunkook Jang** was featured in the March 2003 issue of *Safety & Health* in an article titled, "Brushing up On Ergonomics." The article describes Freivalds and Jang's work with Weiler Corporation to resolve the fact that from 1997 to 1999, 50% of the corporation's lost workdays resulted from musculoskeletal disorders. Based on Freivalds and Jang's recommendations, Weiler implemented redesigns and methods changes. The ergonomic improvements have helped to increase earned hours by more than 10% in some departments. ☒

CALENDAR

Announcement deadlines: 1st day of the month prior to the desired issue; for events or deadlines within the first 3 weeks of a month, send information at least 2 months in advance. Items are published according to space availability.

★ **The American Occupational Therapy Association 83rd Annual Conference and Expo**, June 6–9, 2003, Washington, DC. American Occupational Therapy Association, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220; 301/652-2682, TDD 800/377-8555, fax 301/652-7711; dc2003@aota.org, <http://www.aota.org/index.asp>.

★ **Human Systems Integration Symposium**, June 23–25, 2003, Tysons Corner, VA. Megan Sinesiou, American Society of Naval Engineers, 1452 Duke St., Alexandria, VA 22314-3458; 703/836-6727, fax 703/836-7491; msinesiou@navalengineers.org, <http://www.navalengineers.org/Events/Events.html>.

HFES 47th Annual Meeting, October 13–17, 2003, Denver, CO. Hosted by the Rocky Mountain Chapter. HFES, P.O. Box 1369, Santa Monica, CA 90406; 310/394-1811, 310/394-2410; info@hfes.org, <http://hfes.org>.

★ **5th Australian Industrial & Organizational Psychology Conference**, June 26–29, 2003, Melbourne, Australia. Eventcorp, P.O. Box 788, Rosebery NSW 2018, Australia, ktaylor@eventcorp.com.au; <http://www.aps.psychsociety.com.au/events/conferences/iop>.

★ *Indicates new listing.* ☒

Human Factors and Homeland Security

(continued from page 1)

with the panel topics. We pointed out that many of the science and technology responses to terrorism, as well as the systems to which they apply and which must be protected against threats (e.g., air transportation, energy infrastructure), involve human operators. We went on in our letter to state:

A systems approach must be taken to ensure that these interactions are achieved with a minimum of error. Taking a total systems approach to understanding vulnerabilities or deployment implications of countermeasures will necessitate including human factors in your deliberations. Human factors issues are critical to the effective deployment of countermeasures in all seven of the STCT panels.

We hoped that the letter would get us invited to the panel meetings, at which we (and other HF/E experts) could testify on how HF/E could contribute to enhanced homeland security. Accordingly, I began making several phone calls attempting to line up HF/E experts who were not interested in preaching to the choir (like we usually do) but were comfortable talking to an audience of people without a background (or even interest) in behavioral science. Unfortunately, we were up against a time crunch, since the STCT Committee was on a fast track to produce its reports in only three months. For this and other reasons, therefore, I was successful in wrangling only one invitation, to the transportation panel. I asked aviation HF/E expert Victor Riley to accompany me. We both gave presentations at one of the panel's regularly scheduled meetings.

In my presentation I used a single slide to make a simple but powerful argument for the need to include HF/E. The point was that several initiatives for countering terrorist threats have been proposed within the six technical domains. *All* such proposals, whether improved bomb-detection equipment at airports, face recognition software at major transportation hubs, new surveillance systems for highways, or intelligent monitoring systems in the nation's ports, share in common four major features:

- New technologies
- Human users
- New operational procedures
- Changed organizational structures

I stressed that these features mandated a systems approach and that HF/E is the one scientific discipline that is uniquely qualified to assist in the seamless integration of technologies, human users, procedures, and organizations so as to maximize the effectiveness of new security efforts.

Vic Riley and I went on to make other specific recommendations pertinent to the transportation domain. We proposed that researchers at universities and at such institutions as NASA and the Department of Defense have the requisite expertise to define and examine HF/E issues pertaining to transportation security. The bottom line: By incorporating HF/E into the design, development, and insertion of new technologies, issues of usability, ease of implementation, procedures, scheduling, training, roles and responsibilities can be addressed as hardware capabilities are engineered and new regulations are crafted and approved.

Following my meeting with the transportation panel, I had extensive discussions with the panel staff and provided suggestions for and written samples of recommendations. However, there was no guarantee that any of what Vic Riley and I had said had any impact or that language concerning HF/E would make it into the panel's report.

Several weeks passed. Finally, I was very happy to learn that the STCT Committee and the panel on transportation specifically included HF/E in their recommendations. The executive summary of this report (*Making the Nation Safer*, National Academy Press, July 2002) states that

Recognition of human factors is important for ensuring that the role of people in providing security is not determined by default on the basis of what technology promises, but rather as a result of systematic evaluations of human strengths and weaknesses that technology can both complement and supplement. The Transportation Security Agency (TSA) can take the lead in making sure that human factors are fully considered in all security initiatives and at the earliest possible stages. (p. 15)

More specifically and pointedly, Recommendation 7.2 states that

TSA should collaborate with the public and private sectors to build a strong foundation of research on human factors and transportation operations and to make the evaluation of security system concepts a central element of its collaborative research program. (p. 234)

Future Prospects

It remains to be seen whether these strong recommendations will be implemented. Early signs are reasonably encouraging, at least in the area of transportation. We have had meetings with representatives of the TSA and the OSTP, and there is interest in further incorporation of HF/E into the R&D efforts of these agencies and the recently formed Department of Homeland Security.

The recognition of HF/E as central to security initiatives represents a small but nevertheless significant victory. Even more important will be to monitor developments to ensure the continual integration of HF/E into future technological and procedural initiatives aimed at boosting security in domains other than transportation. The CoHF plans to take a lead in following these developments, along with other interested parties such as the Science Policy staff (Geoffrey Mumford, director) of the American Psychological Association's Public Policy Office. I also invite all HFES members to contact the CoHF if they have any comments or suggestions as to ways in which HF/E input can be assured.

In future articles on the activities of the NRC CoHF, I will discuss other areas, such as collaborative planning, integrating human factors into system design, neuroergonomics research and practice, criteria for evaluating e-learning, and applications of social network modeling and analysis.

Raja Parasuraman is director of the Cognitive Science Laboratory and professor of psychology at the Catholic University of America, Washington, DC. Please direct any comments to him at parasuraman@cua.edu. Thanks to Anne Mavor, Program Officer of the CoHF, NRC, for her help with this article



This periodic column features brief overviews of research being carried out in academic research centers and laboratories. Send your lab reports (project description, goals, and applications of research) to alex@bfes.org.

Florida International University Human Factors and Ergonomics Laboratory

*By Marc Resnick, Associate Professor,
Florida International University*

The laboratory is conducting research on the effects of semantic and syntactic instruction on user performance and satisfaction in search user interface design. This research is part of an ongoing series of research efforts dedicated to improving the usability of search engines.

The project investigates the effects of providing brief hints and tips next to the search input box to assist users in developing

more detailed search queries without requiring extensive training or learning. Three types of information are investigated. The semantic component briefly explains the logic behind the major Boolean (AND, NOT, and OR) and adjacency (“ ”) operators. This component provides participants with information concerning the effect of employing proper advanced operators within a search query.

The syntactic component provides details regarding the precise syntax that is accepted by this system. The specific syntax rules that were selected are those most commonly used by commercial search engines. The examples component consists of a set of four examples of search queries. Each example pertains to one of the four advanced operators discussed in the semantic and syntactic components. These components are presented in all combinations, for a total of eight experimental conditions.

The effects of each component, in isolation and in combination with other components, will be determined for user performance and satisfaction measures.

Contact Marc Resnick, Florida International University, University Park, Miami, FL 33199; 305/348-3537; resnickm@fiu.edu.



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Opinions expressed in BULLETIN articles are those of the authors and should not be considered as expressions of official policy by the Human Factors and Ergonomics Society.

FLASH!

WRITE TO/FOR THE BULLETIN

HFES welcomes responses to any articles published in the HFES Bulletin. We also invite all members to submit short news items on any issue pertaining to the human factors/ergonomics field. Examples include significant activities in institutions, regulatory agencies, or industries. Items should address topics of interest to a broad segment of the membership and may be up to 1000 words in length. Send your letters and article submissions to Lois Smith (lois@hfes.org).



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