MESSAGE FROM THE CHAIR
By Chairman Tom Malone
tbmalone@carlow.com

Back in February I identified 11 specific initiatives which I wanted the SDTG to pursue in the 2 years of my term of office as Chair. I also asked for the support of the membership in getting actively involved in one or more of these initiatives. The only initiative for which I received any response from the membership was for the application of the human factors and ergonomics systems approach to reducing human error and enhancing patient safety in medical systems. Two Technical Group members wrote me to offer their help in this initiative. I suspect that the problem may have been that I was not sufficiently explicit in defining what I needed help in accomplishing. I also need to provide some focus, wherein we’re not attacking all 11 initiatives at once, but rather in a step-wise manner.

So, what I now propose is that we limit our attention to a subset of the initiatives, and define what needs to be done to get each of these off the ground. The initiatives on which I’d like to initially focus, and the actions needed by the TG membership, are as follows:

**Actions Needed by SDTG Membership**

1. **Initiative - Application of the human factors and ergonomics systems approach to reducing human error and enhancing patient safety in medical systems.**

   **Action:** identify how the SDTG can support its membership, the membership of HFES, and the human factors and ergonomics community at large in applying human factors methods, tools and data to the enhancement of patient safety, and reduction of medical error. Specific potential actions include:
   - How can the SDTG collaborate with the Medical Systems and Rehabilitation TG in broadening the application of human factors and ergonomics to medical systems?
   - How can the SDTG track legislation on medical systems in Congress, and provide inputs to such legislation to enhance the role of human factors in reducing medical error and enhancing patient safety?
   - How can the SDTG interact with officials of relevant government agencies to enhance the role of human factors in reducing medical error and enhancing patient safety?
   - Should the SDTG plan a conference or symposium, either as part of the HFES annual meeting and/or separate from the annual meeting, to address how the human factors systems development approach is needed to reduce medical error and enhance patient safety?
   - How can the SDTG use its website and ListServer as means of

(Continued on page 7)
Dear Sir:

This note is in response to the article by Dr. Campbell, entitled "20-20 Hindsight," in the February 2001 issue of the System Development TG Newsletter. In general, I am in agreement with her point of view (the need for data for HF design specialists), but I take exception to her emphasis on the experiment as a means of securing those data. What design specialists need and want most is relatively specific data. General principles are insufficient because the use of HF data/information almost always stems from a specific question asked or problem raised, for which general answers are never adequate.

The emphasis in the experiment is on testing hypotheses involving variables. As a consequence, few data can be derived from experiments, in part because the use of contrasting treatment conditions is artificial, since these are rarely found in real world system operations.

I have performed a number of surveys of HF design personnel and they are generally negative toward the HF literature. Much of the data HF designers use comes from the experiment (because there are few other sources), but the experiment is not the most desirable source of behavioral data, given its focus on significance of difference statistics (confirmation/disconfirmation of hypotheses). Experimental outputs are qualitative conclusions much like the examples in Campbell's article. Moreover, most of the literature found in journals like Human Factors deals with research topics remote from the interests of system development personnel. Relevant data would be more readily secured from test situations specifically developed to study system development issues, in which the emphasis is on securing applicable data and not on the testing of hypotheses lacking a connection to system design questions.

A major rationale for HF research is that it supports system development. Gathering useful data from experimental material unfortunately presents severe problems that should be investigated empirically. Why is HF research not more effective in supporting system development? Much more attention should be paid to this question.

Yours truly,

David Meister, Ph.D.
HFES Historian Editor,
Test and Evaluation Newsletter Editor

It is always reinforcing to know that people actually read and think about the things that we write, and I appreciate Dr. Meister's comments on my short blurb entitled "20-20 Hindsight." Dr. Meister and I may be more deeply in agreement than he realizes. My intention in that article was not to promote basic laboratory research as the ultimate solution to all our problems, but rather to argue that system development should be guided by data, not intuition. I was using the word "experiment" in the broadest sense possible, which would include the approaches that Dr. Meister recommends in his letter, such as "...test situations specifically developed to study system development issues, in which the emphasis is on securing applicable data..."

In his letter, Dr. Meister raises an important issue that goes beyond the scope of my original article. In theory, well-done basic research should provide generalizable answers to a wide variety of applied problems. In practice, basic research in human factors has fallen short of the goal of providing the guidance that system developers require. On the other hand, if we devoted ourselves entirely to conducting highly specialized tests, our results would rarely extend beyond individual cases and would quickly be outdated as technology changes.

Personally, I would like to believe that we can find some middle ground and provide meaningful guidance at least a little more globally than on a case-by-case basis. Of course, Dr. Meister has more experience than I do in this area. His basic premise is very important. If human factors research is not supporting system development, then, as a community, we need to fix this problem.

Sincerely,

Gwendolyn E. Campbell, Ph.D.
Senior Research Psychologist
Naval Air Warfare Center Training Systems Division
Taming technology: New air traffic control system highlights need to consider human factors (Reprinted from Federal Computer Week).

The web location (http://fcw.com/fcw/articles/2001/0409/tec-faa-04-09-01.asp) for the following interesting article on a high profile system development issue came to us courtesy of Melissa Dugger.

BY Paula Shaki Trimble
April 09, 2001

Most people can find something about the way computers work that seems unnecessarily difficult, unintuitive or just plain annoying. Bad design elements are grudgingly accepted as a fact of technical life.

But if you depend on computers to control the comings and goings of planes at a busy airport, a system that’s hard to use becomes more than a minor irritant. The Federal Aviation Administration learned that lesson in 1997 when air traffic controllers assessing the Standard Terminal Automation Replacement System (STARS) found 98 usability problems with the system. The controllers’ concerns ranged from opaque drop-down menus that blocked their view of critical aircraft data on displays to keyboards unlike those they had been using.

The concerns prompted the FAA to make a better effort to keep users and maintenance technicians in the loop as systems are developed. A key component of that effort is the Human Factors Branch at the FAA’s William J. Hughes Technical Center in Atlantic City, N.J., which advises the agency on systems development and commercial off-the-shelf acquisitions.

"Often they don’t come to us until it’s too late, but it’s changing," said Earl Stein, manager of the Human Factors Branch. "Many people think of human-factors people as egghead researchers who like to get in their way. We are information sources. If you don’t include us, we’ll find problems."

The failure to address how people will actually use a system can put a program behind schedule and over budget. In the case of STARS, which is being developed by Raytheon Co., fixing the human factors problems has slowed deployment of the system and boosted the price tag from $940 million to $1.4 billion.

Last month, Lockheed Martin Corp. offered its Common Automated Radar Terminal System (ARTS) as an alternative to STARS. Common ARTS, already delivered to 136 facilities, has been a contingency system during delays in STARS. Common ARTS is similar to STARS but does not include the human-factors changes sought by controllers, and the FAA will likely stick with the Raytheon system, which will be implemented starting in 2003.

"The largest challenge we faced in the last two years was to complete the development of the new [STARS] software to incorporate the computer/human interface changes identified by our workforce," said Steven Zaidman, FAA associate administrator for research and acquisitions. "That challenge is mostly behind us."

The development of STARS provided valuable lessons about the need to consider (Continued on page 6)
Call for Nominations: *Technical Program Chair Elect*

There is one office within the System Development Technical Group (SDTG) that is up for election this year. This is the Technical Program Chair Elect position, which will serve as an assistant to the Technical Program Chair during the first year of office and will transition to the Technical Program Chair for the second year in office. The elected individual will assume the office of the Technical Program Chair Elect on the first day after the close of the 2001 HFES conference and will remain in office through the 2003 HFES Meeting (the annual conference).

**Position Description:** The Technical Program Chair is responsible for the development of the SDTG’s technical program through solicitation and review of technical paper submittals and symposia/panel discussion proposals. These activities shall be carried out by a committee comprising the Technical Program Chair and at least two additional technical group members, one of whom shall be the Technical Program Chair Elect. Oversight of the technical review process includes activities such as finding reviewers and session chairs, keeping up with deadlines of the proposal process, working with the electronic submission system, and assembling sessions from the accepted proposals. The Technical Program Chair shall also be responsible for defining criteria for and then selecting the best technical papers, in each of several categories, presented in SDTG-sponsored sessions of the Annual Meeting, published in the SDTG Newsletter or published on the SDTG web site.

Nominations for the Technical Program Chair Elect position will be taken through Friday, July 13th. Following the nominations, elections will be held a few weeks later. To be eligible for an office you must be a member of both the SDTG and HFES. A list of the current SDTG membership can be found on the SDTG website at www.carlow.com/sdtg/.

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**Nomination Form**

I nominate _______________________________ for the office of SDTG Technical Program Chair Elect.

Please return this form by Friday, July 27th via any of the following methods

**Mail:** Melissa Dugger; BCI; PO Box 1748; Dahlgren, VA 22448

**Fax:** Melissa Dugger; 540-663-3307

**Email:** melissa_dugger@teambci.com
By-Laws Revision Progress
By: Larry Avery

One of the goals for the SDTG this year is to complete the revision of the TG’s By-Laws. The purpose of the revision is to bring them up to date with guidance from the Council of Technical Groups and the Executive Council as well as bring them in line with how the TG is currently operating. The process for this, as well as a time-table, is as follows:

- Membership review proposed revision and provide comments – July 31st.
- Final revision published for vote – August 31st.
- Membership votes due on the final revision – September 30th.
- If accepted, final revision submitted to the HFES Executive Council for final approval – October 31st.

You can review the current By-Laws as well as the proposed revision on the new SDTG web site at www.carlow.com/sdtg. If you have any questions, comments, or would like to receive a hard copy of the By-Laws, please contact Larry Avery at lavery@humancentrictech.com or 919-481-0565. Please get your comments in by July 31st. Thanks in advance for your participation.

Membership Update
We have grown from the initial 211 members at the beginning of the year to 224 members currently. We are continuing to work hard to identify ways of increasing or at least maintaining our membership numbers. We would like to hear from you, the membership, about how we can better meet your needs. If you feel that there is something that the SDTG should be involved in, please let one of the officers know.

SDTG Listserver Now Active
The SDTG membership now has a new way to communicate and share ideas – an SDTG listserver! This listserver is hosted by HFES and allows each subscribed member to send concurrent email to all other subscribed members.

The address is hfes-sdtg@listserv.hfes.org. More information on subscribing, unsubscribing, and use is available on the SDTG web site at www.carlow.com/sdtg/.
exactly how new tools will be used, said Kenneth Mead, the Department of Transportation Inspector General.

"The FAA and DOT found out you can’t just have a meeting on human-factors issues," Mead said during a hearing last month before the House Transportation and Infrastructure Committee’s Aviation Subcommittee. "It’s a scientific process. That was not known before STARS."

In April 1997, the FAA’s Acquisition Management System required that "human factors will be considered during architectural and engineering design to achieve effective human performance during operations, maintenance and support."

The Human Factors Branch employs eight engineering research psychologists and an air traffic controller who report to the FAA’s Chief Scientist for human factors. The group works with the integrated product teams responsible for systems acquisition and with developers of new air traffic control concepts. Working at the Research Development and Human Factors Laboratory in Atlantic City, branch researchers conduct simulations and perform computer/human interface analyses. The goal is systems that work better because they optimize the strengths of people and machines.

"There is a desire of technologists to implement technology because they can, whether or not it improves performance or reduces workload," Stein said. "If you put technology into a system, do it for the right reasons."

Call for Papers
The Ergonomics Society 2002 Annual Conference
Wednesday 3rd April - Friday 5th April 2002 Homerton College, Cambridge

Offers of Papers & Workshops are invited
The proceedings of the conference will be published in book form by Taylor & Francis Ltd as "Contemporary Ergonomics 2002"

Guidelines for Submissions
The Ergonomics Society Annual Conference covers all areas of ergonomics research and application and is intended for all ergonomists and human factors professionals and all those with related interests.

Papers
FOUR copies of an A4 page abstract
This should include: Name and address of each author

Workshops
FOUR copies of the proposed workshop
This should include: Name and address of presenters
Short title for workshop
Aims of workshop
Outline of issues to be addressed
Who the workshop will be of interest to
Workshops will be allocated 11/2 hours

For further information, please contact:
c.greenwood@ergonomics.org.uk

Please send submissions to:
Annual Conference Programme Secretary, The Ergonomics Society, Devonshire House, Devonshire Square, Loughborough Leicestershire, LE11 3DW, UK.

Closing date for receipt of submissions is:
Friday 24th August 2001

Closing date for camera-ready copy of papers is:
Friday 21st December 2001

Please note that all presenters at the Conference are liable to pay registration fees.
formulating and planning how the TG can address this problem?

· Should the SDTG establish a consortium of consultants to offer to government and industry their expertise and services in applying human factors and ergonomics to reduce medical error and enhance patient safety?

2. Continuation of efforts to enhance the image of the SDTG, and of human factors and ergonomics in general, as applied to systems development.

· How can the SDTG track legislation in Congress which is important to human factors in general, and system development in particular, and provide inputs to such legislation to enhance the image and importance of human factors and ergonomics?

· Can the members of the TG generate journal articles, news items, and white papers on the value of human factors and ergonomics in system development and operation.

· Should the SDTG set up a web-based forum for information exchange on the selling of human factors and ergonomics?

3. Maintaining and contribution to the success stories database - situations where human factors made a demonstrable and quantifiable contribution to the usability, operability, supportability, maintainability, safety, or affordability of a complex system.

· How should this be established? As a web based resource? Part of the web site? Through the ListServer? What would we do with the data?

4. Providing an information exchange on human factors and ergonomic processes, tools, methods and data applicable to system development.

· Again, should we set this up as a web based resource? Part of the web site? Through the ListServer?

· How do we balance a member organization’s needs to market its processes, tools and methods, and the SDTG membership’s need to know what is available, and have access to it?

I would welcome the insights, opinions, comments, and critiques of the membership on any or all of these initiatives. I would welcome your thoughts on whether or not these are the types of things the SDTG should be involved in. Finally, I would welcome your involvement and active interest in the SDTG, because, without your participation, there really is no technical group.

By: Tom Malone
The System Development Group fosters research and the exchange of information for integrating human factors into the development of systems.

Web Siteings

SDTG Web Site:  
The SDTG site is up and running. This is a very beta site and your comments and content suggestions are needed and appreciated. We have implemented some of the basic requests from the initial web site survey. The survey results can be accessed on the web site under “Documents.” We know there will be some glitches.

Carlow International has been generous in hosting our site, however they are having some temporary service provider problems. Load time for the newsletter is effected and some pages may be temporarily down. We are also still working on other issues like SDTG listserv access from our site.

http://www.carlow.com/sdtg/  
The focal point for comments on what you would like to see and content submission is Secretary-Treasurer Melissa Dugger: melissa_dugger@teambci.com. We hope to have a web form for comments by the time this newsletter is published. Technical issues can be sent to the webmaster Teresa Alley: talley@dticam.dtic.mil. Participation by all members will make this a truly useful site!

Useful Web Stuff:  
The theme for this newsletter was to be technical group web sites. There are a number of link collections of these groups on the internet. One is: http:// dticam. dtic.mil/~hm/ org.html  
Within each of these organization’s sites there are listings of their technical groups and committees. If anyone belongs to a technical group not on this list, either national or local, that has a good web site, please let me know and I’ll publish it here.

A Little Usable Humor:  
Many of you know this site, but it is periodically updated and always a good visit:  
Bad Human Factors Designs:  
http:// baddesigns.com/  
Please send items for this column to:  
Teresa Alley, 619-545-7384;  
FAX 619-545-0019;  
talley@dticam.dtic.mil