
THE Interface

NEWSLETTER OF THE
HUMAN FACTORS &
ERGONOMICS SOCIETY
SOUTH JERSEY
CHAPTER

MARCH 2003

Chief Knowledge Officer to address Chapter

Knowledge Management at the WJHTC – Fact or Fiction, an Interactive Discussion



SJC Sponsors Science Fair Prizes

**By Mike McAnulty &
Kenneth Allendoerfer**

This year, the SJC sponsored prizes for the Junior (Grades 6-8), Intermediate (Grades 9-10), and Senior (Grades 11-12) division winners in the Behavioral and Social Sciences category at the Jersey Shore Science Fair. The prizes consisted of gift certificates to Borders and an invitation to present their projects at a Chapter meeting and get a tour of the Human Factors Laboratory. We also described our discipline, the national society, our local chapter, and the Technical Center. Our intent in sponsoring the prizes is to encourage youth to consider our field as a potential future career – somebody's got to carry on our work when we retire! The Fair was held at Richard Stockton College on March 22nd. It is part of a series of fairs leading to a national competition in which the winners earn college scholarships. Five of our chapter members served as judges at the Fair: Kenneth Allendoerfer, Todd Truitt, Sehchang Hah, Victor Ingurgio, and Gulshan Panjwani.

(see **Science Fair**, page 2)

Program Events

By Edmundo A. Sierra, Jr.

We will hold our next chapter event at noon on Wednesday, April 16 in the Auditorium. Dennis Filler, Chief Scientist for Technology (ACK-1), will give a presentation titled, "Knowledge Management at the WJHTC - Fact or Fiction, an Interactive Discussion." He will discuss some views on what is Knowledge Management, why it isn't about technology, and why it is more about culture and specifically, people-to-people interactions. Mr. Filler will also encourage discussion about how the discipline of Human Factors, and more specifically how Engineering Research Psychologists, may be able to assist and influence the implementation of Knowledge Management within the Center and potentially the Agency.

Dennis Filler is the Chief Scientist for Technology at the FAA William J. Hughes Technical Center and Program Director of the Office of Knowledge Management. Before being selected for his current position in April 2002, he was the Program Director for the Systems Engineering and Analysis Division. Before that he was the Supervisory Electrical Engineer at the Research, Development, and Human Factors Laboratory. Dennis earned a BS in Electrical Engineering from the West Point Military Academy and is working on an MS in

Human Factors from Embry-Riddle Aeronautical University. He served in the Army for 6 years and then worked in industry prior to joining the FAA. He and wife Joann live in Runnemede, and have four children. Dennis is an avid outdoorsman, technology enthusiast, and home handyman.

(see **Events**, page 3)

Standards in the Airway Facilities

By Robert Muldoon

For the past two years we have been conducting some interesting research at the Research, Development, and Human Factors Laboratory (RDHFL) on the computer systems used by Airway Facilities (AF) personnel. AF is the section of the Federal Aviation Administration (FAA) that maintains, monitors, and controls all of the software and hardware that is used to present real time data to air traffic control (ATC) and keep the National Airspace System (NAS) safe and efficient. AF personnel interact with up to 18 different computer systems at terminal facilities, and up to 25 systems at en route facilities. All of the software packages in use are either commercial off-the-shelf (COTS) or have been specifically designed by various manufacturers for the FAA.

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Science Fair

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In the junior division, Becky Ojserkis from Belhaven Avenue School in Linwood, Atlantic County, was awarded first place for her project "The Effect of Age on Learning ASL." Becky taught words in American Sign Language to participants from different age groups and measured the number of words they could recall later. In the intermediate division, Amanda Hubbard from High Technology High School in Lincroft, Monmouth County, won for her project "Which Font is Faster to Read? Serif or Sans Serif?" Amanda measured how quickly participants could read text depicted in different font styles—a human factors engineer in training! In the upper division, Christina Genter from the Pilgrim Academy in Egg Harbor City, Atlantic County, won for her project "Of Time, and Tide, and Coffee Bean Snails." Christina used classical conditioning to teach snails to anticipate the arrival of tides. All the projects showed a tremendous amount of creativity, sophistication, and hard work. All this speaks well for these future social scientists and for the next generation of our field.

Congratulations to all the winners and science fair participants. We're looking forward to hiring you in just a few years!

Standards

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Of the 25 systems monitored and controlled, only two are run with the same software. Believe me when I write that, except for those two systems, all the software packages present with a different look and feel. Granted, all of the systems perform a different support function, but we felt that some standards could be incorporated across the systems. For example, the use of the F1 key to access "Help" information would enhance the efficiency of the AF work environments, cut down on the training time necessary to learn all of the options used across all of the systems, and relieve

some of the long term memory requirements when interacting with so many different options and terminologies.

Adding to memory load is the way that information is accessed with these systems. Across the systems, there are six different overlapping methods of system access (of the 60 plus AF personnel who participated in this research at 19 different facilities, one commented that this variety helped him to "lock in" on the system). Seventeen systems use a graphical user interface (GUI). Fifteen systems incorporate dedicated function keys; 14 use non-dedicated (F1 – F16) function keys. Fifteen of the systems incorporate menu driven access. One system actually incorporates all access methods. To exacerbate this memory load there are five different keyboards in use by the AF along with two button mice, three button mice, and track balls.

We began by cataloguing the symbols/icons used across the various systems (Ahlstrom & Muldoon, 2001). From that research we produced a document that presented data on over 300 symbols used across 16 of the systems in the different AF environments. We have since acquired data on 10 additional systems. We have been able to catalogue function key and shortcut key use along with pull down menu and the mnemonic use with all the systems (Ahlstrom & Muldoon, 2003a; Ahlstrom & Muldoon, 2003b, in press).

We have created a database of over 1,500 different options that can be chosen by AF personnel. Along with these options, we have been able to determine the meaning/functionality of over 80% of those options. We currently have a document in the process that contains recommendations based on the database. For example, there are 19 systems that have the capability to switch from a primary to a backup. There are 16 different terms used for this activity (e.g., switch, switchover, change, change channels, primary/secondary, etc.). The meaning of this switching is very similar across the

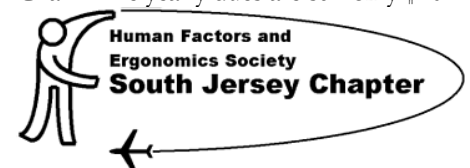
systems. So, we are able to recommend that we should call this just one thing. We also suggest that, due to the importance of this option, it should be prominently available across all the systems and grayed out or provided with a pop up frame (that says so) where not used. Having a single command such as "changeover" that at least can be accessed with an F key, for example, even if only for redundancy, would eliminate a lot of learning time and alleviate a lot of human memory use. The recommendations are all based on Human Factors principles and guidelines that we have documented in our work.

The AF personnel are some of the most dedicated people this 47 year old has ever met. They fully understand the importance of their jobs. They do extra each day to ensure that people are safe in the NAS. In the two years of this research they have been some of the most willing participants and helpful people I have met. We hope that the recommendations we have set forth will only make their workload a little lighter.

Membership Drive

By Pam Della Rocco

Twenty-five members have paid their membership dues for 2003. Membership is open to anyone with an interest in human factors. You do not need to be a member of the national HFES to join. The benefits include a newsletter, hearing guest speakers, touring facilities with human factors programs or issues, sharing information and networking with colleagues, video presentations...and, of course, the good company. To join or renew your dues for 2003, please complete the form in this newsletter and/or contact Pam Della Rocco, Membership Chair. The yearly dues are still only \$10.



Events

(Continued from page 1)

As we look forward to the next chapter event, we also reflect on our most recent event. In February, Todd Truitt and Anton Koros each gave very interesting presentations. Todd discussed a new air traffic control concept collocating terminal and en route traffic operations in an expanded terminal airspace. Anton discussed sources of complexity in FAA Air Traffic Control Towers. Both talks generated many questions and a lively discussion. These talks were the first of a number of events that will be hosted by the Chapter this year. Kate McDevitt photographed the event.



Anton Koros presents research on complexity in ATC towers



Todd Truitt presents research on the new ATC concepts



The RDHFL briefing room was full!

Upcoming events:

MAY – FAMS by Jerry Hadley

JUNE – Human Factors in Human-Computer Interaction by Dr. Atwood, Drexel University

AUGUST – Tour: New FAA Labs

OCTOBER - Brownbag Movie: Topics in Human Factors

DECEMBER - Panel Discussion: Statistics in Applied Research

Publications Committee Formed

By Todd Truitt

Two more chapter members recently volunteered to join the Publications Committee. Shantanu Pai has volunteered to be a contributor. Kate McDevitt has also volunteered to serve the chapter as our photographer. Other members already serving on the Publications Committee are Sehchang Hah and Robert Muldoon.

Highlights of Recent Executive Council Meetings

By Gulshan Panjwani

February 13: The Executive Council (EC) discussed the presentation scheduled for February 26. Flyers should be posted in RDHFL and on bulletin boards at the Tech Center main building.

The EC also discussed sponsorship of the upcoming science fair. Mike will make a one-page introduction that would go with the prizes. The EC discussed various prize amounts and whether they should be based on the

number of projects in each age category. We decided to invite the winners to come and present at RDHFL. The chapter will give awards to entrants in the Behavioral Sciences category.

The EC also determined that the event for April would be a presentation by Dennis Filler.

March 13: This was the second EC meeting of the year, with Mike, Kenneth, Tanya, Jerry, and Todd present.

We determined that the Science Fair prizes were confounded by number of entrants in each division and there were differences of opinion among the EC on what to. The EC decided to give \$30/\$30/\$40 gift certificates plus a letter to the junior, intermediate, and upper winners. It was proposed that next year we consider awarding plaques.

The first chapter meeting was judged successful and want more internal presentations. The Program Chair has tentatively scheduled the next event for lunchtime, April 16. Dennis Filler will present in the auditorium concerning knowledge management. Jerry Hadley will talk about FAMS work in May (this is an add on meeting). Dr. Atwood from Drexel will speak on June 25th. Mike also suggested that we plan a purely social get together (happy hour, picnic, softball game). He asked all EC members to be thinking about preferences for a social event.

The Publications Chair indicated that the next Interface will be published March 28th, with articles due March 24th for editing.

Treasurer's Report

By Jerry Hadley

As of the last EC meeting, there was \$565.72 in savings and \$527.39 in checking. The bills from the 2002 holiday party have been paid.

South Jersey HFES Chapter Membership and Renewal Application

For the Year 2003

Applicant Name: _____

New Member (*complete all fields*)

Renewal (*complete this section only*)

I am (a Fellow / a Full Member / an Associate Member / Not a Member) of the National HFES (*circle one*)

Organization/Company: _____

Mailing address: _____

Daytime phone: () -

Evening phone: () -

Fax number: () -

E-mail address: _____

Endorsing SJC-HFES Member: _____

SJC HFES dues for 2003 are \$10. Make checks payable to the "Human Factors Society." Submit applications and checks to:

Pam Della Rocco
ACB-220, RDHFL Bldg 28
Wm. J. Hughes Technical Center
Atlantic City Int'l Airport, NJ 08405