Message From the President

By David Schroeder, Division 21 President

Let’s start out with a refresher regarding recent or ongoing activities. By the time you receive this newsletter, the Division 21 program for the annual convention in Toronto will have been submitted to APA. Scott Shappell has worked hard at developing a program that will, hopefully, have something for everyone (most of the attendees). In an effort to encourage greater involvement by individuals interested in human-computer issues, Henry Emurian has arranged two sessions that focus on "The many faces of human-computer interaction researchers in information systems" and "Multidisciplinary perspectives on human-computer interaction". Additional details regarding the time and location for the sessions will be provided in the Summer newsletter. Scott has provided some additional information regarding the overall program elsewhere in this newsletter. I would encourage each of you to attend APA and to participate in the Division 21 activities. Doug Griffith has served as the Division's representative in planning the APA cluster program. This involves representatives from several other divisions with shared interests. At this point, the focus appears to be on aspects of human decision-making and/or decision support systems.

We had anticipated that two Division 21 members would be presenting a workshop on the Human Factors Analysis and Classification System (HFACS), a taxonomy for analyzing accidents/incidents at APA. This workshop was presented last year with very good attendance and received excellent reviews from the attendees. It was submitted again for consideration for presentation at Toronto. Doug Wiegmann and Scott Shappell recently received a notice that, due to the large number of submissions for workshops, their presentation was not approved. We are working to have this decision reconsidered for two reasons. First, there are typically few workshops that appeal to members from our division and to applied experimental or human factors psychologists. Second, since the workshop was successful last year and resulted in Scott and Doug contributing their honorarium to the Division’s treasury, it would serve as an additional source of revenue for this year. We have asked for additional information concerning why the workshop was not renewed.
Scott has been performing multiple duties since he is also completing final plans for the mid-year symposium. Once again, Divisions 19 and 21, in conjunction with the Potomac Chapter of the Human Factors and Ergonomics Society, will be hosting the Annual Mid-year Symposium March 6th and 7th, 2003 at the Fort Belvoir Officer’s Club, in picturesque Fort Belvoir, Virginia. The theme for this year’s symposium is *Measuring and Maintaining Performance in Complex Environments*. Additional details are provided in another section of the newsletter. Scott is to be commended for his work with respect to the APA convention program and also the mid-year symposium. I would also like to thank Jerry Krueger for his assistance in facilitating the planning at Fort Belvoir. He set the stage for our planning this year by arrangements he made for the meeting last year. Everyone should make plans to attend a portion of the mid-year symposium. We will be holding our annual mid-year executive committee meeting on March 6 at 9:00 a.m. prior to the start of the symposium.

For those of you who have not recently perused the APA web site, there are several announcements regarding events associated with the *Decade of Behavior*. While the date for making presentations to an eighth grade class regarding "What is Psychology" has passed, the materials that are available provide a decent framework for communicating aspects of psychology to younger students. You can contact APA for the overheads/electronic version of the presentation. In reviewing the materials I thought it would be worthwhile if someone within the division developed a few additional slides regarding applied experimental and engineering psychology. For example, we could easily develop materials that would describe aspects of sleep and the importance of 8 hours of sleep in maintaining academic and job performance, along with the hazards of driving a vehicle while sleepy. A couple of other areas within applied psychology could also be addressed in a similar fashion and then be made available to others within the division who would be interested in presenting the materials to junior high/high school students. If interested, please develop or modify a few slides and we can then indicate their availability via the listserve or distribute them to all members.

The limited response to Doug's call for nominations for Division officers via the listserve reinforces my view that we need to make a more concerted effort to attract new members, along with encouraging greater participation on the part of our current membership. In addition to the overall aging of our membership, one of the other factors associated with the generally lower involvement in the association and in APA is the overall decline in the involvement of the younger generation in various social societies/organizations. In his book *Bowling Alone*, Robert Putnam, a political scientist, reviews data from various social, civic, and professional organizations and illustrates the general decline in social capital the last three to four decades. While there has been a general decline in membership in most voluntary political, civic, and religious organizations, membership in professional organizations has doubled over the last 40 years. Not surprisingly, one of the larger increases was for the American Bar Association, which grew from 34,134 members in 1945 to 357,933 in 1991. However, when considered in the light of the large increase in the number of people involved in professional occupations, we see a somewhat different picture. Putnam reports that for the membership rate for eight national professional associations has steadily declined since the 1970s. While the lower level of interest in and involvement in APA can be, in part, attributed to the general proliferation of specialty organizations and higher dues, a larger issue, as described by Putnam, is that interest in these activities by the last few generations of professionals appears to be at an all time low point. Bill Howell, in his role as a member of the Board of Convention Affairs, recently reviewed the importance of increasing attendance at the annual APA convention. He indicated that while APA membership may have increased over the past few years, attendance at the convention has declined such that in the past few years, 6% or less of the membership have attended the annual meeting. The cluster programming was developed as one effort to encourage greater attendance and involvement. Given these factors, what is the best strategy for both increasing our membership and encouraging greater participation?

Certainly one of the thrusts must focus on encouraging students to become active in APA and our Division. Haydee Cuevas, as the student representative on the executive committee, has been working diligently the past two years to encourage student involvement. As part of that effort there will be a larger number of students involved in making presentations during the Division 21 sessions.
However, we need increased representation from many of the universities involved in training applied experimental and human factors psychologists. I encourage each of you who are employed in an academic setting to invite your students to join as a full student member (member of APA and the division). Bring them to the business meeting, social hour, and mid-year meeting as a way of introducing them to the benefits of being a member of our division. If you feel that there are additional activities that would increase student participation, please let me know. Haydee has done an excellent job at encouraging greater involvement.

I feel less optimistic about identifying young professionals who could join our organization. During my several years of involvement with the executive committee we have tried a number of different approaches to soliciting new members. All of which have yielded little improvement in our membership. No matter how much you promote the benefits of APA and the Federation in lobbying Congress for increased funding for behavior research and education, this does not appear to be a huge selling point for many individuals. Efforts in the last few years by Jerry, along with other members of the division and APA to promote the benefits of behavioral research for the military and the provision of testimony in support of the FAA's human factors research program and human factors research at other governmental laboratories clearly demonstrates how APA and the Federation can be beneficial. We should also point out that we have enough flexibility in the development of our APA convention program and the inclusion of the new cluster programming to make attendance at the annual convention worthwhile for our membership. Please communicate with the colleagues and friends who you feel could contribute the division and ask them to join. Without such a combined effort by each of us we are not likely to maintain a strong and viable division. I would appreciate hearing from you regarding innovative approaches to the recruitment of new members.

On a positive note, there is evidence that a number of our members maintain a strong commitment to the division. This is based on the number of points that were allocated to the division as part of the APA apportionment ballot for Council representation in 2004. While we are one of the smaller divisions, the total value of the points allocated to Division 21 for council representation (852) was higher than that of 13 of the other divisions. While assured of membership on Council prior to the election, the outcome suggests that a number of us are still interested in our maintaining a voice in APA governance.

On a more somber note, we heard late in November that the 1999-2000 president of the Division, Bob Swezey had passed away following a battle with cancer. Bob has made significant contributions to the Division and his support and involvement will be missed.

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**Spotlight on Educating our Future Professionals: Why Students Choose Human Factors/Engineering Psychology**

_Haydee M. Cuevas, Student Representative_

As rapid advances in technology increase the complexity of our society, human factors professionals need to become even more involved in the design and evaluation of today’s products and systems. Such need ranges from more mundane situations in which consumers are faced with everyday products that are difficult to use (e.g. ATM machines, personal computers) (Norman, 1988), to addressing the human-machine interaction issues raised by today’s complex, highly advanced systems, such as found in aviation and aerospace operations (Salas, Driskell, & Hughes, 1996). Yet despite the clear necessity for human factors involvement in the design and evaluation of these products and systems, the general public, for the most part, is unaware of the discipline of human factors/engineering psychology (HFE) (Stone & Moroney, 1998).

A preliminary survey of college-bound high school students and undergraduate students showed that a large number of these students had little to no knowledge of human factors and/or ergonomics, as indicated by their inability to either define these terms, name ergonomically designed products, or identify where a human factors professional would work (see Cuevas & Hilscher, 2002). Moreover, when the undergraduate students were asked if they...
had considered human factors/engineering psychology as a viable major, nearly 80% of the students said no and most had either never heard of these majors or lacked a clear understanding of this field of study. It should be noted that the majority of these undergraduate students completed the survey in an I/O Psychology class and listed psychology as their major. More alarming is the fact that their university has a Ph.D. program in Human Factors Psychology offered through their Psychology Department, and as such, these students would be expected to at least be aware of the program. Such lack of awareness is indeed cause for concern.

Of particular consequence for the future of the HFE profession is that if college-bound students are unaware of this discipline, we may fail to promote the education of future generations of HFE professionals (Carkenord, 1994; Stone & Moroney, 1998). As such, one of the primary goals for members of APA Division 21 should be to increase student awareness of the opportunities found in the field of human factors/engineering psychology. By increasing awareness of our discipline, we can improve our chances of attracting bright, talented, and energetic students to the various undergraduate and graduate programs around the country, which can only serve to enrich our profession and benefit society as a whole. Toward this goal, we sought to determine what attracted students to our discipline in order to use this information to promote HFE programs to students at all levels.

**Why Do Students Choose Human Factors/Engineering Psychology as their Field of Study?**

Several undergraduate and graduate HFE students were asked to simply respond to one open-ended question, “Why did you choose human factors/engineering psychology as your field of study?” Specifically, responses from 52 undergraduate students (29 males and 23 females), enrolled as engineering psychology majors in a northeastern military academy, were obtained by reviewing their personal summaries, as posted on their program’s website (see http://www.dean.usma.edu/bsl). Eighteen graduate students (10 males and 8 females) enrolled in a human factors psychology doctoral program at a southeastern university voluntarily participated in this survey via their program’s list serve. What follows is a qualitative analysis of the responses given by these HFE students.

Many students gave more than one reason for choosing to study HFE. Based on the similarity of responses, seven broad categories were determined as follows:

- **Multidisciplinary.** These responses highlighted the diversity and flexibility offered by this field of study. For example, HFE allows students to combine their interests in engineering design principles with psychological theories in human performance.

- **Interest in field.** This category includes responses where students cited interests in various areas of HFE (e.g., product design, aviation/aerospace) that intrinsically appealed to them, without actually referring to them as human factors, per se. For example, several students stated that they had always been interested in how things worked and how to improve products to make them easier to use.

- **Significance.** These responses reflected students’ desire to make a significant and positive impact on people’s lives, calling attention to the usefulness, practicality, and applicability of this field.

- **Career/job opportunities.** This category includes responses that emphasized the potential for employment in a variety of areas as well as financial gain.

- **Authority figure.** These responses credited the influence of an authority figure, such as a professor or advisor.

- **Peers.** These responses cited other students, roommates, or teammates as influential in their decision.

- **Other sources.** Included in this category are a variety of other sources such as taking a class in human factors, a research or internship experience, reading about HFE in a textbook or magazine, or seeing a flyer advertising an HFE program.

Overall, the results of this survey clearly indicated that what mostly attracted these undergraduate and graduate HFE students to the field is the discipline’s multidisciplinary nature (see Figure 1). Also important in their decision were an intrinsic interest in the field and the desire to make a significant and positive impact on people’s lives. An authority figure also played a major role in both undergraduate and graduate students’ choices. Less important were career/job opportunities, peers, and other sources (e.g., class, textbook).
Figure 1. Percent of responses for why students chose human factors/engineering psychology as their field of study.

Excerpts taken from the students’ responses are presented next to vividly illustrate what students meant by HFE’s *multidisciplinary* nature and its *significance*. Such comments may provide insight as to how to best promote HFE to new students and inspire them to consider this major.

- “Best of both worlds: People and machines . . . and how to make them work better together.”
- “I love the blend of psychology with design and engineering . . . allows for a lot of flexibility in the workplace.”
- “I liked the fact that I would not be limited to a fixed number of research areas. I like to be well-rounded so I sometimes shift interest areas.”
- “I always had a strong appeal for both psychology and technology, but had no idea those two fields were necessarily intertwined . . .”
- “Engineering Psychology is a very practical major that provides a better understanding of how humans operate so that modern technology can accommodate people.”
- “HF provides us with the unique opportunity to have a positive impact across multiple domains of interest (aviation, military applications, nuclear power, consumer products, etc.). . . the flexibility there is in HF to do both very basic and highly applied research depending on the problem at hand and your interests.”
- “I’m a very curious person. I have fun learning about how things work. It only seemed logical to bring the two areas together and learn how to adapt tools to how humans function.”
- “It gives us the opportunity to have a direct impact on the improvement of a product in making it safer, more intuitive, and more efficient and effective.”
- “I’ve failed the 2% rule (being 2% smarter than the machines you use) enough times that I want to learn how to design machines and make them user friendly.”
- “I learned that Human Factors Psychology was a discipline that applied knowledge about people’s physiological, cognitive, and psychological limits and capabilities into the design of machine systems.”
- “The diversity and real life use of and need for Engineering Psychology really interest me. I enjoy studying the limitations and capabilities of humans while applying it to functional design. Engineering Psychology allows me to follow guidelines all while using creativity and an understanding of human behavior.”
- “I wanted to become a part of a field where I could make a significant and positive impact on the lives of people. I wanted something that was based on engineering principles but that concentrated on humans.”

**Implications for Promoting HFE to Students**

In order to keep pace with the demands placed on humans by the ever-increasing complexity of technology, it is critical that we inspire future generations of dedicated HFE professionals. To accomplish this goal, we first need to increase awareness of this discipline. HFE professionals need to strive even more to make the general public aware of the value that our profession adds to society, both in terms of safety and efficiency. Second, to entice students to consider this major, we need to highlight what makes this field of study so attractive to our current students, namely the significant contributions that HFE professionals can make in a variety of domains. Our profession offers a unique advantage due to its multidisciplinary nature, the flexibility and
diversity of areas in which our principles can be applied, and the tremendous potential for having a direct, positive impact on people’s lives.

Specifically, a greater emphasis needs to be placed on recruiting entering freshmen to HFE programs. One place to begin is by getting student chapters and department faculty more involved in outreach programs to local high schools (e.g., speaking at high school career fairs; volunteering as judges in science fairs, etc.). Additionally, HFE programs can target students at the college level, such as by setting up a table at student orientation with informative material on HFE majors. HFE programs can also work with their departments to ask professors in related undergraduate courses (e.g., general psychology) to include a human factors activity in their lessons, such as a design project (e.g., Carkenord, 1994; Stone & Moroney, 1998). These activities can inform students about this profession and perhaps spark their interest to learn more.

Similarly, organizations representing the HFE profession, such as APA Division 21, could more actively recruit participation from their student members. For example, these groups could establish a mentoring network to encourage the professional development of their students through interaction with professionals in the field. In turn, these students may later serve as mentors themselves as they enter the workforce. Finally, senior members of these HFE organizations could also speak at colloquia geared at students, sharing their personal experiences and citing both the intrinsic and extrinsic benefits of their profession. Inspiring the next generation of HFE professionals is the only way to ensure our field’s continued existence.

References


*Portions of this article were reported at the 46th Annual Meeting of the Human

Human Factors Psychology Undergraduate Program at Embry-Riddle Aeronautical University

By Haydee M. Cuevas, Student Representative

This article is a second in a series aimed at spotlighting quality undergraduate human factors/engineering psychology programs around our country. In a previous issue of the Division 21 newsletter, we introduced the Engineering Psychology program at the United States Military Academy (USMA) in West Point, New York. In this issue, we present the Human Factors Psychology undergraduate program at Embry-Riddle Aeronautical University (ERAU) in Daytona Beach, Florida. Dr. Christina M. Frederick-Recascino, an associate professor in the Department of Human Factors and Systems at ERAU, kindly provided us with information about the program, emphasizing what makes their approach unique.

How old is the undergraduate program (i.e., year of inception) and what is the current enrollment?

The Human Factors Psychology Bachelor of Science program at ERAU began in 1997. Since its inception, it has grown to include over 140 students majoring and 50 students minoring in both Psychology and Human Factors. The program typically graduates 35 majors per year. Also in 1997, the success of the program allowed for a Master of Science program in Human Factors and Systems (MSHFS) to be added. This is a 36 hour program with specialization in Human Factors Engineering and Systems
Engineering. The Master’s program has approximately 50 students enrolled, 30 of whom are full-time. In 2002, the program was approved to begin a 5-year Masters for selected undergraduates in the program. Those students who are qualified may choose to complete their BS and MSHFS in one five year period.

What courses constitute the curriculum for this major?

The Human Factors (HF) program at ERAU is unique for many reasons. First, it is a comprehensive undergraduate major in human factors. As such, the students in the program are required to fulfill 33 hours of core courses in psychology and human factors. These courses include: Statistics, Research Design, Experimental Psychology, Cognitive Psychology, Physiological Psychology, Sensation and Perception, Introduction to Human Factors, Human Factors Methods, Ergonomics and Anthropometrics, Human Factors IV – Capstone and a Human Factors Practicum/Coop. In addition, each student is required to complete 18 more elective hours in Human Factors Psychology. For these elective hours, students can specialize strictly in Human Factors and Aviation courses, Human Computer Interaction courses or a mixture of Psychology and Human Factors offerings. The second aspect that makes the ERAU HF program unique is that it is focused on aviation-related offerings. The students can choose from a variety of courses with an aviation emphasis including Human Factors in Space, Human Factors in ATC and Human Factors and Systems Safety. The last element that uniquely characterizes the ERAU HF program is its strong Practicum/Coop program. The students are required to complete 18 more elective hours in Human Factors Psychology. For these elective hours, students can specialize strictly in Human Factors and Aviation courses, Human Computer Interaction courses or a mixture of Psychology and Human Factors offerings. The second aspect that makes the ERAU HF program unique is that it is focused on aviation-related offerings. The students can choose from a variety of courses with an aviation emphasis including Human Factors in Space, Human Factors in ATC and Human Factors and Systems Safety. The last element that uniquely characterizes the ERAU HF program is its strong Practicum/Coop program. The students can choose from a variety of paid and unpaid coops with premier corporations and agencies such as: the FAA, Boeing, Lockheed-Martin, the NTSB, IBM, MITRE Corp., Sikorsky Helicopter and others. These coops often evolve into full-time employment for students once they graduate.

How do students come to choose this major?

Although the ERAU Human Factors undergraduate degree program continues to thrive, our typical student has never been exposed to the field of human factors psychology until reaching college. After taking the Introduction to Human Factors class or General Psychology, the HF major realizes that this field has great appeal and transfers to the major. Recently, a greater emphasis has been placed on recruiting entering freshmen to the program. This is a challenge to the ERAU and other HF programs because high school students are not aware of the field of human factors psychology. Our department has begun to work closely with admissions to promote the HF program at all high school recruiting fairs and general information systems.

What do the students have to say about why they chose human factors as their field of study?

Having surveyed the HF students at ERAU about their experience, most students are drawn to the field through personal interest in human factors. They stay in the major, however because of the personal attention they receive in the major. Each student is assigned a faculty adviser who meets with the student each semester to plan his/her program. The program emphasizes teamwork at both faculty and student levels and this perspective allows students to become active members of the department. In addition, ERAU has a student chapter of HFES that promotes professional and social opportunities for interested students.

What competencies do the faculty seek to instill in their graduates upon completion of the program?

The HF program views human factors psychology as an applied discipline which develops knowledge concerning the abilities and limitations of humans to sense, store, and process information, and to act. This knowledge is applied to the design, use, and maintenance of human-machine systems. Depending on its goals, the system is then optimized with respect to human performance. The environmental factors affecting system performance are recognized as important and are considered systematically. When relevant data are not available, it must be uncovered through research efforts. This requires considerable skill in experimental design and quantitative methodology. The HF program seeks to develop a student with the capacity to design, conduct and apply human factors research to the design of simple and complex systems. The goal of the program is to educate and graduate professionals who are equipped for employment in industry and government as human factors specialists, or to continue their education in graduate school.

How well do the students make the transition to the real world upon completion of the program?

The career opportunities for the ERAU HF student have been excellent. In 1999, Human Factors
graduates received the highest starting salaries of any major in our campus. We have enjoyed almost 100% employment for our graduates both in aviation and non-aviation related companies.

**What are the research interests of the faculty?**

The ERAU Human Factors program has a diverse set of faculty who engage in both teaching and research. The program currently houses seven full-time faculty, four adjuncts and has plans to increase the number of full-time faculty to nine within the next two years. Faculty backgrounds range from human factors to systems engineering to general and clinical psychology. It is only with this degree of diversity that ERAU can offer the range of courses it does within the degree program. The program faculty are well-versed in research and are involved in applied and theoretical projects in the field of human factors. Current research interests within the faculty include: pilot screening, training of x-ray baggage screeners, virtual reality displays, motivation in pilots, development of employment screening tools for baggage screeners, development of tunnel in the sky flight systems, and development of small aircraft flight systems (SATS) amongst many others. The full-time faculty at ERAU engage in a wide variety of professional activities including national and international conference presentations, publication of research papers and book chapters and editing of professional books.

*For more information, visit the program’s website (http://www.db.erau.edu/campus/departments/humanfactors).*

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**Chicago, Toronto and You, Part II: The Evaluation**

**Bill Howell, Outgoing Chair, APA Board of Convention Affairs (BCA)**

If you read the last issue of this *Newsletter*, you may have caught my piece about the changes BCA introduced at the Chicago convention (in which case you can skip the next paragraph). If you didn’t, or have a leaky memory, I’ll now recap the main points so we can all join hands and trip merrily on to the new stuff—an evaluation report I promised you at the close of my last epistle.

**The rehash.** The Chicago convention was shortened to a Thursday-Sunday schedule; all substantive programming was held “under one roof” instead of in scattered hotels; two new invited program formats were introduced (*cluster/track* and *plenary* sessions); the *division, cluster track*, and *plenary* sessions were assigned to non-competing time blocks; and greater emphasis was placed on attracting “name speakers” and “hot topics.” These moves were made in an effort to stem the serious erosion in session and convention attendance that has been going on for decades—to the point where fewer than 6% of the APA members now attend, and more than one-third of the sessions (including many excellent ones featuring distinguished speakers) attract fewer than 20 attendees (including speakers, APA staffers, students, friends, relatives, the homeless, and an occasional stray dog or cat). The most radical and controversial of these changes were the *cluster/track* and *plenary* format innovations because they took an hour or two away from the total number allotted to each division for *its* program. The idea was to use those hours, plus the ones gained by nuking the poorly attended “miniconventions,” to put on sessions with greater appeal for wider audiences—the *cluster/track* ones organized by and aimed at clusters of divisions with shared interests; the *plenaries* organized centrally to appeal to psychologists in general.

*Introduction to the new stuff—evaluation context.*

“Okay,” you ask, “so what made BCA think these gyrations would work, and did they actually pay off?” Well, we didn’t ride in on a turnip truck, so we knew better than to try to slip anything past a bunch of psychologists without pilot testing and evaluation. Fact is, we started planning for Chicago three years ago. We introduced an experimental *cluster/track* in each of those conventions, took attendance, and surveyed attendee reactions. Also, we took attendance for *all* the sessions at the 1999 Boston and 2000 Washington conventions, and analyzed the results in terms of seven potential contributing factors.

Controlling for hour and day, it was clear that “hot topics” and “high-profile speakers” were responsible for virtually all highly attended sessions, whereas “highly specialized topics”—especially, but not exclusively, those sponsored by smaller divisions or
any governance body—drew pitifully small audiences. Being part of a “miniconvention” or having multiple-division sponsorship contributed absolutely nothing. By contrast, cluster/track sessions fared extremely well. Therefore, we decided to dump the miniconvention format, focus on ways to generate more sessions on more widely appealing topics (including the invitation of more featured speakers), and structure the schedule so that attractive programming didn’t compete so much with either the divisions’ more specialized offerings or other broadly attractive programming. Hence the Chicago model.

More new stuff—the evaluation itself: Clever reader that you are, you’ve undoubtedly anticipated that we’d use the Boston and Washington data as a baseline against which to evaluate the Chicago changes. That we did, with dramatic results. Controlling for day and time, attendance at the cluster/track sessions increased an average of 226% over whatever occupied those time slots under the old format, and the plenaries did equally well (up 221%). Only 4% of the cluster/tracks (and 0% of the plenaries) were in the embarrassing under-20 range compared to 34% (and 18%) for the traditional programming. On the flip side of the attendance record, 48% of the cluster/track sessions (69% of the plenaries) drew 100 or more, compared to 2% (and 10%) under the old format.

Equally encouraging—and extremely useful for future fine-tuning purposes—were the subjective data. Not only did we survey attendees at each track and plenary session (over 1,300 responses), we surveyed all division representatives who participated in the clustering process (26 of 53 responded), and a committee mandated by the Council or Representatives (C/R) did the same for division presidents (34 of 53 divisions responded). Finally, we had the Research Office conduct an e-mail survey of all APA members who attended the convention whether or not they went to any of the new-format sessions (about half, or 4,000, responded).

Rather than bore you with details, I can sum up the findings by saying that they strongly supported all the changes—in some cases, by an overwhelming margin. For example, 88% of the respondents in one survey and 74% in another endorsed the shorter convention duration; and housing the programming “under-one-roof” was preferred 2/1 over the multiple-hotel arrangement of years past (despite serious problems with the location and layout of the Chicago Convention Center). Around 60-70% of those who attended the new cluster/track and plenary sessions liked them better than the traditional sessions they replaced compared to only 3-11% who preferred the traditional ones. So in our official report to the Board of Directors (B/D), we recommended that some version of all these changes be incorporated as permanent fixtures. I felt confident in drafting this recommendation because I personally crunched the numbers (for this and the baseline years), and the evidence was so strong that I doubt even the Enron boys could have hidden it.

How does this affect future conventions? Well, the upcoming Toronto convention will be essentially a replay of the Chicago model. At some point, B/D and C/R will have to decide whether to endorse the changes or cave in to political pressure from a few very dedicated, vocal opponents who want to give total control back to the 53 divisions. While nobody’s claiming that the new model is a panacea for all convention ills, we know for sure where the old model will take us—a place called “oblivion”. By contrast, we now have strong evidence that the new model offers at least a shot at a more congenial destination. If sustained, promoted, and fine-tuned on the basis of annual evaluations, it promises over time to start recapturing some of the 80,000-plus APA members that divisional fare alone has failed to attract. And a rising attendance tide would float all boats, including those flying division flags. With divisional programming protected from the competition of high-profile plenary and cluster/track sessions, new attendees—who have to be somewhere during the divisional time blocks—would be fair game for all divisions. That opportunity, one would expect, would encourage them to upgrade their own programming. It’s important to note that nobody, least of all BCA, wants to do away with traditional special-interest sessions, which naturally attract smaller audiences, in favor of a centrally organized, big-draw circus. The new formats have always been considered a complement to—not a substitute for—divisional offerings. The shift of an hour or two from each division’s private stock of 15-67 program hours to a pool that they manage in collaboration with a handful of compatible others is hardly a threat to divisional integrity.
our Doug Griffith helped organize two Chicago cluster/tracks that attracted between 15-340 folks (mean of 81). Even our best divisional sessions can’t approach that, and what did it cost us? One puny hour from an allotment of 15! Considering our track record, that’s one hell of a deal. Like past program chairs, Dee Andrews worked his butt off to fill this year’s 14 hours, and despite some excellent sessions, they rarely drew more than 20. Unless I’m missing something, the message here is that our council reps and the rest of the division should push the Chicago model for all we’re worth. It can afford engineering and applied experimental psychology some much-needed external exposure, and who knows? We might even get some of our own members to show up—and snag a few new ones in the process.

**Convention Preview**

Division 21 is sponsoring two symposia at the APA Convention. The papers will also appear in a Special Issue of *Computers in Human Behavior*. These symposia are not to be missed!

**Thursday, August 7th, 12:00-1:50pm**

*The many faces of human-computer interaction researchers in information systems*

- **Ping Zhang & Na Li**, Syracuse University
  "An Assessment of Research in MIS Oriented HCI Studies"

- **A. Ant Ozok**, UMBC
  "Perceived Security issues in On-Line Shopping Behavior"

- **Anita Komlodi**, UMBC
  "Your History is Just the Beginning: History-Based User Interfaces for Information Retrieval and Use"

- **Wayne Lutters**, UMBC
  "Who Knows? Design Challenges of Interfacing Organizational Memory Systems"

- **Jennifer Preece**, UMBC
  "Online Support Communities: From Research to Design"

**Thursday, August 7th, 2:00-3:50pm**

*Multidisciplinary perspectives on human-computer interaction*

- **Haydee M. Cuevas, Stephen M. Fiore, Clint A. Bowers, & Eduardo Salas**, University of Central Florida
  "Fostering Constructive Cognitive and Metacognitive Activity in Computer-Based Training Environments"

- **Jonathan Lazar**, Towson University

  "Self-Service Systems: New Methodology Reveals Real-Time Customers’ Actions During Merger"

- **Jeffrey D. Campbell**, UMBC
  "Interaction In Collaborative Computer-Supported Diagram Development"

  1The Johns Hopkins University, 2Science Applications International Corporation, and 3Institutes for Behavior Resources
  "Distributed Interactive Communications in Simulated Space-Dwelling Groups"

**Federation of Behavioral, Psychological and Cognitive Sciences**

*By Gerald P. Krueger, Ph.D., CPE*

Over a year ago, while serving as Pres.-Elect of Div. 21, I was privileged to help prepare and then present the Federation’s March 2001 testimony in support of Defense sponsored behavioral sciences research before the Congressional Appropriations Committee. I highlighted significant work by our engineering psychologists as examples of what Congress should continue to support with funding. Subsequently, in August 2002, I was invited to serve as the Human Factors and Ergonomics Society (HFES) representative to the Federation’s Council of
Member Organizations. This means I represent HFES in bringing issues to the Federation at various meetings and functions; and I stay abreast of developments that often are of direct interest to Division 21 members. In recent months I have forwarded pertinent information excerpted from the Federation’s weekly e-mail news bulletins to Div. 21’s list serve participants.

The Federation’s stated purpose is the promotion of the behavioral, psychological, and cognitive sciences by assisting its 16 member organizations, and by advocating on professional issues of concern to them. This is done by facilitating and encouraging communication among member organizations and other scientific groups, the communications media and the general public; by educating public and private agencies on the need for basic research in these sciences; by representing these sciences before public and governmental bodies; by seeking out important issues and contributing to the passage of current legislation dealing with these issues; and by advocating to the legislative, judicial and executive branches of government the views of the Federation and the views of its constituent scientific organizations. The Federation does not take positions on internal matters of its member societies.


As I keep the HFES executive council and members informed of the deliberations and activities of the Federation, I will also pass along to Div. 21 members, much information gleaned during my Federation activities. For the most part I will do this by periodically submitting news entries for our newsletter, and occasionally I will send out “hot items” via our Div. 21 List Serve. Another reason why you may want to sign up for our list-serve function? If you are not listed, but would like to be, send your particulars to Henry Emurian at UMBC, as he is manager of our Div 21 Web site and List-Serve function. Henry’s email address is: emurian@umbc.edu

The Federation strives to make connections with the information and power sources in the Washington DC area concerning issues facing the behavioral sciences and to maintain currency on congressional and other governmental initiatives that might affect our members. These include activities pertinent to such agencies as the National Institutes of Health, the National Science Foundation, the Departments of Defense, State, Education, Health and Human Services, Homeland Security, etc. Periodically the Federation holds Science and Public Policy Briefings on Capitol Hill to inform House and Senate staffers who work in areas of Science or Health. Often the intent is to convince Congress to enact legislation, or to devote more funds to an important topic. Recent Federation activities include participation in an all-day event at the FBI academy to engage behavioral researchers with FBI field agents. Currently the Federation is assisting significantly in the attempts to re-start the Congressional Office of Technology Assessment (OTA), which during its heyday covered topics of significance to Div. 21.

Forum on Research Management (FORM) events focus on interchange of perspectives and knowledge for a different audience, usually one of mid- to upper level agency staff (e.g. from NSF, NIH, State Department, etc.) along with academic researchers. You may recall I presented a length list of Div. 21 applied research capabilities to the November 2001 FORM discussion of what member organizations could offer in our nation’s response to 9/11/2001 and to prepare our nation for its war on terrorism. Another FORM topic was Institutional Review Boards; and in July 2002 the science briefing topic was “technology and education” with an emphasis on the need for research funds. The next topical FORM in the Spring of 2003 will be on Medical Decision Making. Proceedings of most recent science briefings and FORMs can be found on the Federation’s web site at: www.thefederationonline.org

If you have particular topics you wish the HFES to bring up to the Federation, we are to work through
the Division to the APA Executive Council to obtain organizational direction. I will be happy to help facilitate the process, and insofar as it concerns items of common interest to the HFES, I might be able to assist there as well. I can be reached at the following email address: gkrueger@thewexfordgroup.com.

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**Notes from the 48th Meeting of the DOD Human Factors Engineering Technical Advisory Group (HFE TAG)**

**By: James C. Geddie and Gerald P. Krueger**

In chairing the November 2002 meeting of the HFE TAG, LCDR Sean Biggerstaff, of NAVAIR, attempted a theme of examining government Decision Support Systems (DSS) and the technologies that produce such tools in terms of their key roles in responding to the diffuse, evolving threats that face our nation. The U.S. Government has begun a series of radical transformations that begin to change the way we identify, classify, and respond to domestic and foreign threats. New missions, and the physical transformation and reorganization of the departments create additional demands on the intelligence gathering, data fusion, and federal government decision-making (command and control) processes. DoD changes in defense technologies and priorities necessitate changes in the systems that support decision-making at all levels.

LCDR Biggerstaff highlighted three challenges facing the human factors professional: a) to minimize through sound design, any adverse human performance impact presented by new technologies and concepts; b) ensuring new DSS are adaptive to the current complexities of equipment operator’s environments, and to the variable needs and perspective of individual operators; and c) create realistic, optimized, group decision-making models to accommodate the distributed/global/multi-force decisions the war on terror requires.

Although the three day sessions of the usual collection of subgroup briefings did not quite achieve Biggerstaff’s thematic goals, several of the plenary session presentations came close. A few of them are highlighted here.

LtCol Michael R. Fox, USAF – began his talk *Homeland Security, USAF Perspectives* with a quote everyone assumed addressed how the September 11th terrorist attacks caught us completely by surprise. Then he credited the source as Thomas C. Shelling’s book, *Forward to Pearl Harbor*. Warning and Decision. Before 9/11/2001, most terrorist acts had been carried out to call attention to a cause, to effect release of prisoners, or to influence policy in some other way. Now terrorists seem to seek nothing less than the destruction of the United States. A series of panels and working groups formed over the past few years intended to address Homeland Security including: Presidential appointed Blue Ribbon Panels: the Gilmore Commission, and the Hart-Rudman Commission, both appointed in 1999; and at the DoD level, the National Defense Panel in 1997, the Joint Staff Dimensions Protection JWCA in 2001, and the USAF Homeland Security Working Group at about the same time. Fox described current efforts to knit together and to coordinate various federal agencies and their activities on homeland security topics.

Orlando J. Illi’s talk on – *The US Army’s Medical Communications for Combat Casualty Care (MC^4)* described the medical component of C^4ISR, and MC^4 program efforts to allocate and coordinate medical assets in response both to military needs and to homeland defense.

LtCol Brian Donnelly, of the Crew Systems Interfaces Div., Air Force Research Lab spoke on *MC^2C and C^4ISR: An Impending Revolution in the Human-Machine Interface*. He described the Multi-Sensor Command and Control Constellation and C^4ISR using the model of the nervous system. The first C2 in C4 represents the brain; the second represents the rest of the Central Nervous System. ISR represents the senses. The way forward is to automate (move from the conscious to the subconscious) more of the functions currently performed by the brain to free resources for other processing. He described this as a “radical departure from legacy operation.” For more information visit their web site: [https://www.mc4.army.mil](https://www.mc4.army.mil)

In her talk on *The Role of Decision Support Systems (DSS) in Aviation Security* Dr. Sandra Hart of NASA Ames Res. Ctr. described the difference between a
safety breach and a security breach, and procedurally how to apply what we’ve learned in aviation safety to supporting aviation security, as well as the role of DSS in that process.

Dr. Robert S. McCann also of NASA Ames spoke on Decision Support Tools in the Space Shuttle Glass Cockpit. There currently are two shuttles with glass cockpits, each having 9 multifunction displays; but until new software is developed (now under way), they still use the old software and displays. The software in development presents information in much more intuitive ways, and in the future will support much greater interactivity with the vehicle and allow human-based and vehicle-based reasoning engines to collaborate (HAL 9000?).

Dr. Michael Drillings, Deputy Director of the Department of the Army MANPRINT Office described the MANPRINT Program as belonging to the Army Deputy Chief of Staff, G-1. MANPRINT attempts to create greater life-cycle cost effectiveness for army systems by saving Manpower Personnel and Training dollars. Several initiatives are under way to cope with an acquisition world being re-defined by the new DoD 5000 series of directives, and Mike noted the term Cognitive Engineering appears for the first time.

Dr. Robert Bost in his talk entitled: NAVSEA 03 Human System Integration Directorate portrayed changes to the tradition in sea system development of sailors as being an afterthought to be dealt with after the important decisions of system design were made. The Navy must accommodate more complex requirements and demands on sailors. There is now considerably more emphasis on “sailor performance” and issues that it drives; thus the stand-up of the Human Systems Directorate under NAVSEA 03.

Major Robert Lindberg of Brooks AFB gave an update on the Air Force Human Systems Integration program. The Air Force appears to have buried Human Systems Integration (HSI) organizationally, so the effort is completely a bottom-up operation. It has admirable goals, but there is little evidence of acquaintance with current DoD policy changes. For more information see: https://afkm.wpafb.af.mil

Obituaries

Robert W. Swezey 1943 - 2002

By John F. Brock

Robert W. Swezey, Ph.D., 59, a nationally recognized Industrial/Organizational Psychologist, died November 30 at his home in Leesburg, Virginia, after a courageous battle with cancer. Bob Swezey was President and founder of InterScience America, Inc. He had over thirty years' experience in instructional systems technology, simulation, and human factors engineering. His expertise in those areas has left a mark on many of us who knew him.

Bob was a Fellow of the Human Factors and Ergonomics Society, the American Psychological Association, the Washington Academy of Sciences, and the American Psychological Society. He was an author or editor of five books and over 150 journal articles and reports on ergonomics, training, and instructional technology related topics. He most recent contribution was co-editor with Dr. Dee Andrews of Readings in Training and Simulation: A 30-Year Perspective. He held a Ph.D. in industrial psychology from the University of Maryland.

Bob Swezey was born in Defiance, Ohio. His daughter, Susan E. Swezey, preceded him in death. He is survived by his wife Judith L. Swezey; his daughter and son-in-law Lisa L. Swezey Dyson and
Daniel F. Dyson of Herndon, Virginia, and daughter Catherine E. Swezey of Leesburg, Virginia

Bob had very high standards when it came to his profession. He believed in science and the scientific method as an approach to solving problems. And he was very good at it. He could formulate problems so that there was a chance to solve them. He truly loved research.

Bob was a behavioral scientist. He believed that the behavior of people is something worth studying and, in fact, is an approach to improving people’s abilities to learn and perform. There are sailors, airmen, soldiers, military and commercial pilots and young and commercial drivers, who are safer, more efficient, and better prepared because of the work that Bob performed, managed, designed, and measured.

Dr. Swezey was Past-President of the Society of Applied Experimental and Engineering Psychology, a division of the American Psychological Association. He delivered the Presidential Address to this group in August 2001. Dr. Swezey was a member of the editorial board of the journals Human Factors and Human Factors and Ergonomics in Manufacturing, and he served for ten years as an adjunct full professor in the psychology and engineering administration departments at The George Washington University. He testified before the U.S. Congress. He is listed in numerous Who’s Who and biographic references and has presented invited papers and addresses at over 40 conferences and symposia in the U.S., Scotland, the Netherlands, Sweden, Germany, Canada, and Argentina.

On a personal note, Bob and I worked together for over 25 years. Sometimes Bob worked for me, sometimes I worked for Bob. The friendship that developed over those years transcended our working relationship. His high standards and commitment to excellence could make for tense moments and looming deadlines. However, our profession has lost someone important.

Dr. Alphonse Chapanis, Ph.D., CHFP, was born in Meriden, Connecticut on March 17, 1917. He died October 4th, 2002 in Baltimore after complications following knee surgery.

For Division 21, Alphonse Chapanis was an impactful man. After attaining his Ph.D. in experimental psychology at Yale in 1943, he spent WWII as a junior Army Air Corps officer, and as the first research psychologist among numerous design engineers at the Aero Med Lab (AML) at Wright Field, Ohio. Chapanis became one of a small number of early human factors psychology professionals who researched user-interface problems with air force equipment and developed design solutions during the war. Chapanis’ work at AML included examinations of pilot errors, aviation accidents, testing luminescent materials for cockpit displays, developing anoxia demonstration charts, and especially doing significant work on night vision and dark adaptation issues as well as on other man-machine interface issues for operators of advancing military systems being put through their paces in WWII.

After the war, Chapanis accepted a position at the Johns Hopkins University (JHU) Systems Research Lab at Beavertail Point, Narraganset Bay, RI. He moved to JHU’s Baltimore Homewood campus in 1948, where, except for two short leaves of absence, he remained until he retired as professor emeritus in 1982.

While a member of the Systems Research Laboratory in 1947, Chapanis, teamed with Wendell Garner, and Clifford T. Morgan to offer ten Lectures on Men and Machines: An Introduction to Human Engineering at the U.S. Naval Academy in Annapolis, Maryland. In
1949 their published version of these lectures became our first textbook, and gave rise to the new discipline’s name: Applied Experimental Psychology: Human Factors in Engineering Design (1949; Wiley). The field of study was a marriage between applied psychological research and equipment and system design processes. In its formative years (circa 1957), our Div. 21 initially took on the name: The Society of Engineering Psychologists. In 1983, Division 21 adopted more of that book’s title when it was renamed: the Division of Applied Experimental and Engineering Psychology ----- a name Chapanis was not in favor of because it does not define a clearly circumscribed area of interest.

Chapanis was the third elected President of Div. 21 (1959-1960). In August 1960, he was in his third month on assignment in London, serving there as the Office of Naval Research liaison scientist in the U.S. Embassy. Chapanis flew back to participate in the APA annual meeting in Chicago to complete his term as division president by delivering the first ever presidential address to the Society. That address, entitled: Men, machines, and models was published in the American Psychologist, 16, 113-131; subsequently it was reprinted in two books: Theories in Contemporary Psychology (ed: Marx, 1963; Macmillan); and in Studies in Personnel and Industrial Psychology (ed: Fleishman, 1967; Dosey Press).

Alphonse Chapanis put forth a prolific career in teaching, research, publishing and public lecturing for which he is widely recognized as a founding father who set the framework and direction for our field of engineering psychology and human factors. His professional career covered 60 years from 1942 to 2002. Several of his last publications are still “in press.” For over 35 of those years (1947-1982), he did significant research in engineering psychology at the Johns Hopkins University in Baltimore, Maryland. As professor, he taught experimental design, statistics, and engineering psychology to countless undergraduates, and to most graduate students in the Dept. of Psychology. Chapanis mentored many graduate students, and he produced about 30 Ph.D. recipients in engineering psychology.

While at Hopkins, and for 21 more years thereafter, Chapanis became a world-renowned pace setter, recognized for his impactful development and demonstration of sound methodological approaches to experimental psychology research. He always addressed practical human factors problems to improve the design and use of machine systems and new technologies. For over 50 years, in Chapanis’s consulting work with industry and government, he influenced the design of dozens of well-known systems and products.


Chapanis was an APA Fellow in Divisions 3 and 21. He was also a Fellow in the Human Factors & Ergonomics Society (HFES), the Ergonomics Society, and the American Association for the Advancement of Science (AAAS).

Chapanis received the Division’s Franklin V. Taylor Award for outstanding contributions to the field of engineering psychology in 1973; and in 1978, he was honored by the APA with the award for Distinguished Contribution for Applications in Psychology for his contributions as “a founder of the field of engineering psychology and for his pioneering research leadership over a 35-year period.”

For additional historical data about Alphonse Chapanis, consult his Chronicles (1999), the obituary on him in the Human Factors & Ergonomics Society October 2002 newsletter, the Bulletin, at www.hfes.org , or see his obituary in the February 2003 issue of the American Psychologist.

Alphonse Chapanis was a faithful guiding mentor, a true friend of those of us who had the privilege of studying and doing research with him. We will miss him dearly.
Member

**William L. Farmer, Ph.D.**  
Personnel Research Psychologist  
Navy Personnel Command, Millington, TN  
Dr. Farmer received his Ph.D. from University of Oklahoma and has over 10 years working experience in the development, implementation, validation, evaluation, and maintenance of large-scale selection systems.

Student Members

**Bryan R Clark**  
University of Central FL  
Work with Army Research Institute, currently a PhD student at UCF.

**Virginia A. Cylke**  
University of Maine, Orono  
Virginia is study inter-group relations/stereotyping & prejudice.

**Alexandra Forsythe**  
Queens University Belfast, Northern Ireland, United Kingdom.  
She is interested in Automated Image Analysis.

**Doris C. Karnisky**  
Cleveland State University  
Dorris is doing her Pre-Thesis on speech Synthesis Technology.

Affiliate

**Ellen Carla Haas, Ph.D.**  
Research Engineer (Human Factors)  
U.S. Army Research Laboratory  
Dr. Haas received her Ph.D. from Virginia Polytechnic Institute and State University Currently she heads the Auditory Controls and Displays Laboratory at the U.S. Army Research Laboratory. Her research interest is in the integration of auditory displays, speech recognition, and speech synthesis into Army crew systems.

Affiliate Membership Renewal

Division 21 Affiliate Membership Renewal

Name:
Address:

City, State, Zip:
* Phone
* Email (* Optional)

I am renewing membership in Division 21 as an:

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Make your check out to **APA Division 21** and mail to:

Jim Callan  
APA Division 21 Secretary / Treasurer  
6310 Greenwich Drive Suite 200  
San Diego, CA 92122
for Outstanding Contributions in the Field of Applied Experimental/Engineering Psychology

Recipients of this award are expected to deliver an oral presentation of approximately 45 minutes as part of the Division 21 program at the next (2004) annual meeting of the APA. The presentation should address a scientific or technical topic, provide an historical review of the recipient's area of expertise, or describe personal reflections on important events in the development of applied experimental or engineering psychology.

From: ______________________________ (include email address)

To: Division 21 Awards Committee
I nominate __________________________________________________________
whose present position is ______________________________________________
and address is________________________________________________________

Please provide the following support for your nomination.

1. Attach a letter showing the outstanding contributions your nominee has made to the field of applied experimental/engineering psychology. The Awards Committee believes that potential recipients will have contributed by virtue of (1) research and publication, (2) special new contributions, e.g., equipment or techniques, or (3) general leadership in the field, e.g., teacher, director of laboratory, officer in societies, etc. Please demonstrate how your candidate is outstanding with respect to one or more of these criteria.

2. Attach the candidates vita.

3. Previous nominations will be reconsidered by the Awards Committee. Please update the supporting material and include an updated vita.

Please send this form or a nominating letter and supporting documentation by March 15, 2001 to:

James R. Callan
Pacific Science & Engineering
6310 Greenwich Drive #200
San Diego, CA 92122
Email: jrcallan@pacific-science.com
phone: 858 535-1661
FAX: 858 535-1665
Email submissions are encouraged.
2003 NOMINATION FORM FOR EARL ALLUISI AWARD for Early Career Achievement within 10 years of the PhD.

Recipients of the Earl Alluisi award are expected to deliver an oral presentation of approximately 45 minutes as part of the Division 21 program at the next (2004) annual meeting of the APA. The presentation will address a scientific or technical topic reflecting the research contributions of the recipient.

From: ____________________________________________________________ (include email address)
To: Division 21 Awards Committee
I nominate ___________________________________________________________
whose present position is ______________________________________________
and address is ________________________________________________________

Please provide the following support for your nomination.

1. Attach a letter showing the contributions your nominee has made to the field of applied experimental/engineering psychology. The Awards Committee believes that potential recipients will have contributed by virtue of (1) research and publication, (2) special new contributions, e.g., equipment or techniques, or (3) contributions to theory, etc. Please demonstrate how your candidate is exceptional with respect to one or more of these criteria.

2. Attach the candidates vita.

Please send this form or a nominating letter and supporting documentation by March 15, 2001 to:

James R. Callan
Pacific Science & Engineering
6310 Greenwich Drive #200
San Diego, CA 92122

Email: jrcallan@pacific-science.com
phone: 858 535-1661
FAX: 858 535-1665

Email submissions are encouraged.
2003 Nomination form for the BRIGGS DISSERTATION AWARD

For a dissertation completed in the calendar year 2001.

From: ____________________________________________________________ (include email address)
To: Division 21 Awards Committee
Student name: ________________________________________________________
whose address is ______________________________________________________

Name of Advisor or Chair: _____________________________________________

Recipients of the Briggs award are expected to deliver an oral presentation of approximately 45 minutes, based on their dissertation research, as part of the Division 21 program at the next (2002) annual meeting of APA.

Please provide the following support for your nomination.

1. Forward three copies of the candidates dissertation.

Please send this form or a nominating letter and supporting documentation by March 15, 2001 to:

James R. Callan
Pacific Science & Engineering
6310 Greenwich Drive #200
San Diego, CA 92122

Email: jrcallan@pacific-science.com
phone: 858 535-1661
FAX: 858 535-1665

Email submissions are encouraged.