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From Research to Market: Commercializing a User- Centered Product

By Charlotte Safos and Corinna E. Lathan

Over the past five years, AnthroTronix has developed innovative rehabilitation and educational tools for children with disabilities. In this article, we describe how we created and successfully marketed a unique educational product by emphasizing the participative nature of the development process.

Background

Many children with physical disabilities require ongoing physical and occupational therapy to optimize their movement capabilities so they can participate in family, school, and recreational activities. Therapists understand better than anyone the difficulty of motivating children to engage in therapeutic exercises, and they spend considerable time devising ways to make therapy fun.

Prior to founding AnthroTronix, the second author was a professor of biomedical engineering and had conducted research with the National Rehabilitation Hospital. She was taken aback at the lack of technology that children with disabilities could use to manipulate and explore their environments. Lathan's research indicated that new interface technology to motivate children with disabilities would be successful and beneficial.

Following comprehensive interviews with therapists, educators, parents, and children with disabilities, and during extensive surveying of existing technologies, we recognized an opportunity to develop a tool therapists could use to facilitate and motivate rehabilitative therapy in young children with disabilities. Our work resulted in Cosmo's Learning Systems™ and the CosmoBot™ system to enable children with disabilities to participate more fully in learning and therapy. Cosmo's Learning Systems was commercialized in 2006, and CosmoBot has an expected commercial launch in 2008.

Cosmo's Learning Systems consists of a computer interface device (Mission Control™, pictured on page 2), educational software for children with a developmental age of 3–5 years, a curriculum guide, and a set of magnetic manipulatives. CosmoBot is an interactive robot designed to address the developmental goals of children with disabilities across therapeutic and educational domains. Children control CosmoBot using Mission Control and custom gestural sensors.

continued on page 2

HFES and Federation Cohost Forum on Science and Technology Education

By Gerald P. Krueger, HFES Representative to FBPCS

In November 2006, the Human Factors and Ergonomics Society held another successful Science Forum with our advocacy partner, the Federation of Behavioral, Psychological, and Cognitive Sciences (FBPCS) in Washington, D.C. The topic of this year's Forum was "Human Factors Research in Science and Technology Education: Accelerating U.S. Competitiveness." The agenda, photos, and speakers' slide presentations are available at the Forum Web site, http://www.thefederationonline.org/events/2006_HFES/index.php.

A recent National Academies report, *Rising Above the Gathering Storm* (<http://www.nationalacademies.org/cosepup>), addressed the apparent slippage of the United States in science and technology leadership and competitiveness in a rapidly changing world. Recommendations in that report led to adoption of the American Competitiveness Initiative (ACI; <http://www.whitehouse.gov/stateoftheunion/2006/aci/>), which seeks funding to ensure U.S. preeminence in science and technology. Many advocates in Washington interpret the ACI as encouraging the allocation of more funds for the physical sciences, technology, and math education. This narrow interpretation does not acknowledge the important role of the behavioral sciences, notably the work of human factors/ergonomics professionals who study human learning and performance. Human factors and cognitive systems engineering specialists already are educating future technologists and helping the nation realize the goals of ACI.

As Wendy Rogers's October 2006 *HFES Bulletin* announcement portrayed, the purpose of the HFES-FBPCS Forum series is to bring together human factors specialists with mid- and upper-level federal government officials who determine national policy and make decisions on the hot topics of the day. Rogers led this year's effort, collaborating with Federation staff in the formation of the agenda and selection of speakers representing important HF/E work related to the ACI. She opened the Forum by outlining numerous ways in which HFES members contribute to American competitiveness in education. She explained that they produce better training technologies and methods for distributed training, computer-based training, simulation-based training, and human-system interface research in educational technology development.

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Commercializing a User-Centered Product

(continued from page 1)

Product Development

The design team received input from therapists, parents, educators, and children with disabilities before, during, and after every development cycle in order to determine user needs, prioritize design requirements, and make design changes to meet those needs. The components of the CosmoBot system evolved through the user-centered design process with comprehensive input from all stakeholders.

We received Small Business Innovation Research (SBIR) funding from the National Institutes of Health, National Science Foundation, and Department of Education to focus on particular aspects of the system and to target various goals (e.g., education, physical therapy, speech language therapy).

Once we realized the need in the rehabilitation market, we investigated existing special education tools. Through the relationships we had formed in classrooms while studying the effectiveness of CosmoBot, we were able to introduce Cosmo's Learning Systems (specifically Mission Control) into this setting. We found that the traditional switch was enabling students with disabilities to use the computer, but the software was limited by the input device. In addition, the software that was available could not take full advantage of the interactivity offered by Mission Control. Therefore, we decided to create an educational software program that would highlight the functionality of Mission Control, provide fun and motivating educational content, and encourage software developers to utilize this new technology.

Commercialization and Marketing

Based on our knowledge of the industry, we determined that the rehabilitation and special education fields were our target markets. Phase II funding through SBIR programs is contingent on comprehensive commercialization plans. Market research conducted for our Phase II proposals was instrumental in outlining a meaningful marketing plan.

Our marketing plan consists of a three-pronged attack. First, we hired a full-time regional sales manager to focus on the special education market in the mid-Atlantic region. Second, we focus on the rehabilitation market through national and regional conferences targeted for therapists and clinics. Third, a major priority for our team is to identify and define partnerships with existing



Mission Control with 4 aFFx Activators and a built-in microphone

companies within these markets. In addition, we have invested in our Web presence and advertising in our target markets.

We faced several challenges in commercializing Cosmo's Learning Systems. AnthroTronix is a research and development firm with a clear focus on human-computer interface design. We wanted AnthroTronix to remain an R&D company, so we created AT KidSystems, Inc., to manufacture, market, and distribute products that emerge from AnthroTronix R&D efforts related to education and rehabilitation. The challenge of forming a focused new company is the need to rebrand and rebuild a company from scratch. The initial start-up cost to successfully meet this challenge was substantial.

To ready the Mission Control product for manufacturing, we developed many iterations during testing with end users to create the device's requirements and functionality. Engineers then assisted AT KidSystems in creating a package that was functionally sound, affordable, and durable. We were fortunate to work with a manufacturer in China that had a solid understanding of engineering and was helpful in implementing the best design.

We raised \$1 million in investment funds for AT KidSystems to support marketing and distribution efforts. Cosmo's Learning Systems was shipped in May 2006 and is being used in assistive technology centers, schools, and homes. In addition, it will be featured in a science museum in an interactive exhibit geared toward children.

Benefits of Human Factors Engineering

A major emphasis of our marketing efforts is on the fact that this product was designed using feedback from end users. It is imperative that our clients know this product was developed with stakeholders. The rehabilitation and special education fields demand that a product be sanctioned by their respective communities. HF/E principles have been vital to the success of our product.

As more products are developed using HF/E principles and more individuals are involved in this process, the market will see a demand for similar product development activities. Vendors and product developers will need to employ these principles in order to sell their products.

Corinna Lathan is chief executive officer of AT KidSystems and president, CEO, and cofounder of AnthroTronix. Her background includes research, teaching, and consulting in the areas of biomedical and human performance engineering, human factors, and education. Charlotte Safos is product development director for AT KidSystems and project management director for AnthroTronix. Her previous work includes developing and managing projects for children and adults with disabilities. ☒



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HFES and Federation Cobost Forum...

(continued from page 1)

Deborah Stine, of the National Academies' Committee on Science, Engineering, and Public Policy, spoke first, explaining the history, deliberations, recommendations, and implementation actions associated with the Gathering Storm project. Next, several HFES members showcased a sampling of the methodologies, tools, and informative ongoing research, all suggesting effective ways to educate the current and next generation of competitive experts our nation covets.

In her presentation on teaching and learning with mobile technology in high school, Carolyn Sommerich (Ohio State University) provided examples of how the potential of computers is being accentuated in educational settings. She cautioned about simply spending money on school computers and technology without sufficient attention to educational ergonomics aimed at the interaction of educational performance and educational design.

Mark Scerbo (Old Dominion University) presented "The Future of Medical Simulation and the Need for Human Factors." He portrayed the role that human factors specialists play in determining optimal methods for integrating simulators and cognitive skills training into medical training curricula and how best to train the next generation of medical simulator center administrators, instructors, and technicians. He outlined scientific challenges in the use of medical simulators and their contributions to decreasing errors in medical and health care services systems.



From left to right: Chris Kello, National Science Foundation; Mark Scerbo, Old Dominion University; Carolyn Sommerich, Ohio State University; Wendy Rogers, Georgia Institute of Technology; Alan Lesgold, University of Pittsburgh; Christine Hartel, National Research Council.

In his presentation entitled "Complex Performance Requirements of Modern Jobs and Professions," Alan Lesgold (University of Pittsburgh) addressed such topics as how cognitive science can support reengineering of schools to keep America competitive and how cognitive science supports more efficient training and retraining of workers in competitive enterprises.

Following lunch, a number of speakers representing key government agencies gave informative presentations. Lynn Okagaki, commissioner for education research at the Institute of Education Sciences, reported on rather bleak statistics on the math and science educational levels of American youth, indicated by De-

partment of Education tracking metrics. She described initiatives, research grant programs, and opportunities available to human factors professionals for work on pre-kindergarten through adult education (go to <http://ies.ed.gov/funding> for details about submitting applications).

Christine Hartel of the National Research Council covered national statistics on the Science Technology Engineering Mathematics (STEM) Workforce. She highlighted the role that HF/E specialists play in helping to understand the limits and challenges of human performance as applied in the design of secure and efficient human technology systems and in developing training programs that enhance human performance.

Christopher Kello of the NSF Directorate for Social, Behavioral, and Economic Sciences (SBE) highlighted the American Competitiveness Initiative from the eyes of a program officer by focusing on Science and Innovation Policy (SIP). He described NSF emphases, activities, and program solicitation proposal procedures. Three important SIP workshops are detailed at <http://www.lrdc.pitt.edu/schunn/innov2006/talks/schedule.htm>. The NSF's Research and Evaluation on Education in Science and Engineering (REESE) programs might be of particular interest to HFES members. Proposals are welcomed for synthesis research (summarizing findings and drawing conclusions from important research and practice) and for empirical research and evaluation (to advance discovery and innovation at the frontiers of STEM).

Jim Turner, minority chief counsel for congressional representatives on the House Science Committee, provided insights into the legislative process with regard to matters related to education and the ACL. He stressed that very few Congressmembers or their staffers are likely to know about the HF/E discipline or what our hot issues are. He advised us to supply these legislators and staff with "good human factors stories" that illustrate points of importance involving the discipline, and then the "talk-chain" will pass along the story for us.

Our partnership with FBPCS in sponsoring this, our third Forum, continues to reap dividends as a very effective way to "advocate, educate, and communicate." HFES members can look forward to more Forum exchanges as we expound upon more good works our HF/E discipline contributes toward resolving hot topics facing our nation.

Gerald (Jerry) Krueger, principal scientist/ergonomist at the Wexford Group International in Vienna, Virginia, has served as the HFES representative to the FBPCS since the summer of 2002. ☒

Erratum

HFES sincerely regrets misspelling the name of newly elected Fellow **Mark M. Brauer** in the December 2006 issue. ☒

Call for Proposals Now Open

The HFES 51st Annual Meeting Call for Proposals is now open, and submissions are invited for all types of presentations at <http://www.hfes.org/web/HFESMeetings/07CallforProposals.html>. The meeting will take place on October 1–5, 2007, at the Baltimore Waterfront Marriott Hotel.

The Society's 50th Anniversary, which is September 25, 2007, will be observed at the Baltimore meeting. Retrospective and other special types of presentations are particularly welcome, as are innovative topics and formats. Proposals are due before midnight Pacific time on Monday, February 12.

E&T Committee Invites Workshop Proposals

By *Patricia R. DeLucia, Education and Training Committee Chair*

The Education and Training Committee invites those submitting workshop proposals for the HFES 51st Annual Meeting to focus on providing high-quality training opportunities that meet the primary education and training needs identified by members in the E&T Committee's 2003 survey.

Survey results showed that desired **content areas** included HCI, displays, cognition, sensation-perception, situation awareness, training, stress/fatigue, expert systems, individual differences, workplace design, warnings, communication and instructional technologies, consumer products, and special populations.

The **skill areas** that members identified in the 2003 survey included task analysis, simulation methods, statistical data analyses, test and evaluation, usability analysis, applying HF/E principles, workload measurement, modeling, project/time management, systems analysis, safety/risk assessment, survey construction, experimental methods, human reliability analysis, and prototyping. Full survey results may be viewed at <http://www.hfes.org/web/Membership/survey.pdf>.

Proposals for workshops in these areas are highly desired and urgently solicited. When submitting your proposal, be sure to indicate whether you would like the E&T Committee to evaluate it. Proposals are subject to the normal technical review process. Accepted workshops that are approved by E&T are eligible for an additional honorarium. For details about submitting a workshop proposal, see the Call for Proposals (<http://www.hfes.org/Web/HFESMeetings/07CallforProposals.html>).

The E&T Committee cosponsored three successful full-day workshops at the 2006 HFES Annual Meeting in San Francisco: (1) Cognitive Work Analysis for Design (Gavan Lintern), (2) Designing to Enhance Situation Awareness (Mica Endsley and Debra Jones), and (3) Survey Construction and Use: A Primer for Practitioners (William Moroney and Joyce Cameron). Questions about the E&T Committee may be directed to pat.delucia@ttu.edu. ☉

HFES Awards Nominations Invited

Each year during the HFES Annual Meeting, the Society honors outstanding persons who have made significant contributions to the human factors/ergonomics discipline. Nominations are requested from HFES Full Members for six of these awards. Nominees are not required to be HFES Members. Submissions are due on or before *March 31, 2007*.

To submit a nomination for one of the awards described below, the nominating Full Member must

- submit the candidate's résumé or curriculum vitae, a nominating letter, and at least two and not more than three letters of support from individuals who know the candidate well enough to assess his or her candidacy in terms of the award's criteria, and
- send all nomination packages to HFES, c/o Lynn Strother, P.O. Box 1369, Santa Monica, CA 90406-1369, or lynn@hfes.org. E-mail submissions are strongly preferred; please submit the package as a single file in PDF format.

Nominations are sought for the following awards:

Distinguished International Colleague Award. This award recognizes a non-U.S. citizen who has made outstanding contributions to the human factors/ergonomics field.

Paul M. Fitts Education Award. This award recognizes a person who has made exceptional contributions to the education and training of human factors specialists. Candidates should either be currently or previously engaged in college or university teaching of human factors material or should have written significant textbooks in the human factors field. The principal criteria for evaluation are the influence that the candidate has had on students and/or how extensively the candidate's work has been used by educators in general. If the criterion for the award is student influence, as many as five testimonials from current or previous students may be submitted in addition to the curriculum vitae and letters of recommendation.

A. R. Lauer Safety Award. This award recognizes a person for outstanding contributions to human factors aspects in the broad area of safety. This includes human factors work that has led to reduced accidents and injuries in such areas as industry, aviation, surface transportation, and consumer products.

Alexander C. Williams, Jr., Design Award. This award is intended to recognize those who have made outstanding contributions to the conception or design of any product, service, or system that has had a significant impact on users and exemplifies the excellent use of empirical human factors design principles. In addition to the curriculum vitae or résumé and letters of support, other evidence of the success of the design will be accepted, such as testimonials from users' performance evaluations or papers or reports that substantiate the extent to which the submission is based on experimentally derived human factors design principles.

Jack A. Kraft Innovator Award. This award honors a person for significant efforts to extend or diversify the application of human factors principles and methods to new areas of endeavor.

AWARDS, cont.

O. Keith Hansen Outreach Award. This award recognizes members and nonmembers who engage in significant activities that broaden awareness of the existence of the human factors/ergonomics profession and the benefits it brings to humankind.

Students are encouraged to compete for the **Alphonse Chapanis Student Paper Award** by submitting a paper for the meeting with an award application form, available to accepted authors in early May. ☒

EDUCATIONAL RESOURCES

New on *HFES.org*: Educational Resources

The Education and Training Committee is pleased to announce the launch of the Educational Resources, which may be viewed at <http://www.hfes.org/web/EducationalResources/educresourcesmain.html>. The site, which is in its first phase of development, contains a list of definitions of human factors/ergonomics, links to HF/E course syllabi, textbooks that are used in classroom teaching, courses offered across psychology and engineering programs, helpful information about working in the field and making the most of internships, and links to the HFES Directory of Human Factors/Ergonomics Graduate Programs and the list of undergraduate HF/E programs.

In 2003, the Education and Training Committee conducted a survey to assess the education and training needs of HFES members. The results indicated that it is important for HFES members to advance their education and training in particular content and skill areas, and to attract undergraduates to the field of HF/E. (Complete results may be viewed at <http://www.hfes.org/web/Membership/survey.pdf>.) In addition, survey respondents identified Web sites as a needed forum for education. Consequently, the committee initiated the Educational Resources Web site.

The mission of Educational Resources is to provide HFES members with resources that they can use to educate and train themselves and others in the field of HF/E. Specifically, the two primary aims of the site are to provide members with resources that they can access freely and easily in order to (a) introduce undergraduates to the area of HF/E so that they have sufficient time to decide whether they would like to pursue graduate degrees in HF/E, and (b) further members' education and training in specific topics within HF/E. These aims are being pursued as Phase I and Phase II, respectively. More generally, the site helps achieve several of the goals and objectives of the HFES Strategic Plan, specifically the Education and Training Goal: "Promote the teaching of HF/E science, philosophy, and practice." In addition, the materials provided on the Web site are available for public education and outreach.

The Education and Training Committee serves as a clearinghouse by collecting and reviewing existing materials and posting them on the Web site. Within each of the two primary aims of Educational Resources, the committee identified critical cate-

gories, developed a vetting procedure for selecting resources, and solicited educational materials through the *HFES Bulletin*.

Phase II in Development

The committee encourages members to visit this new area of the Web site and provide feedback on Phase I. The goal is to complete Phase II during 2007. Categories planned for this phase include online courses on general topics, continuing education opportunities, online materials on specific training topics, textbooks on particular topics, journals and other published materials, research resource Web sites (e.g., statistics), standards, and publishing issues such as copyright and plagiarism.

It is the committee's hope that members will find the resources useful for themselves as well as those not yet in the HF/E community. ☒

EXECUTIVE COUNCIL

Executive Council Meeting Report

On October 14–15, 2006, the HFES Executive Council met at the Hilton San Francisco Hotel to discuss policy and budget matters. Below is a summary of the actions taken at that meeting.

Advocacy/Government Relations

HFES will expand efforts to foster relationships with like-minded organizations to raise awareness of the value and contributions of the human factors/ergonomics field.

Chapter Development

Council approved the formation of a local chapter in China.

Membership

The following new members and changes of status were approved: 120 Full Members, 35 Associates, 5 Affiliates, 125 Student Affiliates; 17 Affiliate to Associate, 11 Affiliate to Full Member, 38 Associate to Full Member, 1 Emeritus Member to Emeritus Fellow, 12 Full Member to Fellow, 3 Full Member to Honorary Fellow, 1 Spouse Associate to Spouse Member, 6 Student Affiliate to Associate, 5 Student Affiliate to Full Member, 75 Student Affiliate to Transitional Associate 1, 2 Transitional Associate 1 to Associate, 43 Transitional Associate 1 to Transitional Associate 2, 50 Transitional Associate 2 to Associate, 22 Transitional Associate 2 to Full Member.

Online Periodicals Collection

Council approved a proposal to create a digital collection of articles from *Ergonomics in Design* and annual meeting proceedings. The collection will be available in 2007; watch for announcements in upcoming issues.

Resource Development

Efforts will continue to develop an HFES endowment fund to generate nondues revenue for Society activities. Note that members may make donations at any time, whether as one-time or ongoing bequests, or through membership at the Contributing, Supporting, or Sustaining levels. See pages iv and 400 in the 2006–2007 *Directory and Yearbook*. Donations may be tax-deductible; consult your tax adviser. ☒

2005 Financial Report

The Human Factors and Ergonomics Society's 2005 audited financial report, received by Secretary-Treasurer William S. Marras in December 2006, was prepared by Castillo & Associates, an accountancy corporation. The firm audited the following statement of assets and liabilities – cash basis – of the Human Factors and Ergonomics Society (a nonprofit organization) at December 31, 2005, and the related statements of revenues and expenses – cash basis, and of changes in fund balance – cash basis for the 12 months then ended. These financial statements are the responsibility of the Human Factors and Ergonomics Society's management. The firm's responsibility is to express an opinion on these financial statements based on its audit.

In addition to the regular Society funds, the firm reviewed the A. Chapanis Award Funds. These funds had a balance of \$21,410 at January 1, 2005; at December 31, 2005 the balance was \$22,742.

The firm conducted its audit in accordance with generally accepted auditing standards. Those standards require that the firm plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statement. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. The firm believes that its audit provides a reasonable basis for its opinion.

As described in Note 1, these financial statements were prepared on the basis of cash receipts and disbursements, which is a comprehensive basis of accounting other than generally accepted accounting principles.

In the firm's opinion, the financial statements referred to above present fairly, in all material respects, the assets, liabilities, and fund balances of the Human Factors and Ergonomics Society as of December 31, 2005, and its revenue, expenses, and the changes in its fund balances for the twelve months then ended, in conformity with the basis of accounting described in Note 1.

**Statement of Assets and Liabilities – Cash Basis
December 31, 2005**

Assets	
Cash on deposit	
Bank of America	\$675,656
Total Cash on Deposit	\$675,656
Investments	
Vanguard STAR Fund, at cost (Note 7)	7,503
Total assets	\$683,159

Liabilities and Fund Balance

Reserve for current payable (Note 3)	\$12,000
Total liabilities	12,000
Fund balance	671,159
Total liabilities and fund balance	\$683,159

**Statement of Changes in Fund Balance – Cash Basis
for the 12 Months Ended December 31, 2005**

Balance - January 1, 2005	\$604,841
Less: excess of expenses over revenues	(66,318)
Balance - December 31, 2005	\$671,159

**Statement of Revenues and Expenses – Cash Basis
for the 12 Months Ended December 31, 2005**

Revenues	
Individual memberships	\$653,540
Sustaining memberships	3,072
Publications	370,481
HFES Institute	23,587
Annual Meeting	251,409
Placement	81,613
Miscellaneous	35,362
Total revenues	\$1,419,064

Expenses	
Publication Expenses:	
HFES Bulletin	\$ 37,870
Human Factors Journal	133,619
Directory and Yearbook	25,979
Ergonomics in Design	51,375
Books	12,606
Proceedings	932
Other publication expense	39,272
Total publication expense	\$301,653

Member Services:	
Mailings expenses	\$ 25,298
Placement Service	36,065
Committee and other (Note 4)	122,533
Annual Meeting	84,151
Member Services	25,115
Computer, Web site, & related expenses	78,194
Interorganizational	16,715
Total Member Services	\$388,071

General and Administrative Expense:	
Salaries and related costs	\$514,978
Office expense	137,668
Accounting and legal	10,376
Total General and Administrative Expense	\$663,022
Total Expenses	\$1,352,746

Excess of revenues over expenses **\$66,318**

Note 1 – Summary of Significant Accounting Policies

This summary of significant accounting policies of Human Factors and Ergonomics Society, Inc. (the organization) is presented to assist in understanding the organization's financial statements. The financial statements and notes are representations of the organization who is responsible for their integrity and objectivity.

Activity. The organization is a nonprofit entity. The organization is an interdisciplinary organization of professional workers concerned with the role of humans in complex systems, the design of equipment and facilities for human use, and the development of environments for comfort and safety. The membership is composed of psychologists, engineers, physiologists, and other scientists from the United States and around the world.

Human Factors and Ergonomics Society, Inc. promotes research and the application of human factors in

the design, development, use, and evaluation of machines, systems, environments, and devices.

Basis of accounting. The organization's policy is to prepare its financial statements on the cash basis of accounting; consequently, certain revenues are recognized when received rather than when earned, and certain expenses and purchases of assets are recognized when cash is disbursed rather than when the obligation is incurred.

Note 2 – Property and Equipment

It is the organization's policy to expense all capital assets purchased throughout the year.

Note 3 – Reserve for Current Payable

This represents a segregation of surplus for bills due at December 31, 2005. This represents \$12,000 for miscellaneous payables.

Note 4 – Committee and Other

Awards	\$ 2,811
Chapter Affairs	2,273
Outreach Advisory	41,500
Student Affairs	5,113
Miscellaneous	4,579
HFES Institute	30,103
Executive Council	36,154
	\$122,533

Note 5 – Concentrations of Credit Risk

The organization maintains its cash balances at several financial institutions located in Santa Monica, California. Accounts at each institution are insured by the Federal Deposit Insurance Corporation up to \$100,000. At December 31, 2005, there was an uninsured cash balance of \$575,656.

Note 6 – Pension Plan

The organization has a tax-deferred annuity plan using Teachers Insurance and Annuity Association-College Retirement Equities Fund (TIAA-CREF) Annuities that meet the requirements of section 403(b)(1) of the Internal Revenue Code.

Benefits are provided by individually insured contracts issued by TIAA-CREF to each participant. The guaranteed rate basis for premiums applied to TIAA Retirement Annuity contracts is in accordance with the terms of the participant's individual annuity contract.


The plan is a defined contribution plan, which covers all full-time employees with two years of service. The plan calls for contributions of 10% of compensation for participants for the first three years in the plan and 12.5% of compensation thereafter.

Note 7 – Investments

The organization has the following mutual fund with the Vanguard Group.

	Cost	Fair Market Value
418.767 shares of Vanguard STAR Fund	\$7,503	\$8,208

Note 8 – Income Tax Status

The organization is exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code. However, income from certain activities not directly related to the organization's tax-exempt purpose is subject to taxation as unrelated business income. For 2005, the organization had no tax on unrelated business income. In addition, the organization qualifies for the charitable contribution deduction under Section 170(b)(1)(A) and has been classified as an organization other than a private foundation under Section 509(a)(2). 

**Faculty Position in
The Grado Department of Industrial and Systems Engineering
Virginia Tech**

The Grado Department of Industrial and Systems Engineering (ISE) at Virginia Polytechnic Institute and State University (Virginia Tech) is seeking faculty candidates for two tenure-track faculty positions. The starting date for these positions is August 10, 2007.

First position: We are seeking candidates who have the ability to enhance the department's expertise in **production systems and advanced manufacturing systems**. In addition to a strong methodological background, candidates with research interests in facilities planning, logistics, supply chain management, manufacturing systems design and analysis are especially encouraged to apply, as well as outstanding candidates in other manufacturing fields.

Appointments for this first position will be considered at all ranks; however, the department is particularly interested in faculty with established research programs and strong scholarship records. For qualified, well-established Full Professor candidates, the position may carry with it an **Endowed Professorship**.

Second position: We are seeking Assistant-Professor candidates who have the ability to enhance the department's expertise in the areas of **human factors engineering and ergonomics**. Those with research interests in physical ergonomics (e.g., work-related musculoskeletal disorder prevention and control, ergonomic epidemiology, occupational biomechanics, exposure assessment, intervention development and evaluation, etc.) are especially encouraged to apply. Outstanding applicants from other areas of human factors and ergonomics are also encouraged to apply.

Applicants for either position should have evidence of (or potential to develop, in the case of assistant-professor applicants) a strong program of research and scholarship. Applicants with an ability and interest in conducting interdisciplinary research are encouraged to apply. Both positions require a Ph.D. degree, with at least one degree in industrial engineering or a closely related field.

Applicants should go to <http://jobs.vt.edu> (posting number 061298 for the first position and 061313 for the second position) to provide a cover letter and a complete vita including graduate transcript. The cover letter should include a candidate's statement highlighting unique strengths of the candidate and indicate courses within the department that the applicant would desire to teach, as well as teaching and research statements. The vita should contain information about education, publications, research funding, professional experience. Applicants should have five references send support letters to *ISE Search, Grado Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA 24060* (or electronically to: ise-search@vt.edu). The review of applications will commence **January 15, 2007** and continue until the positions are filled. Prospective candidates are encouraged to visit the departmental web site (<http://ise.vt.edu/>) for further information on the department.

Virginia Tech has a strong commitment to the principle of diversity and, in that spirit, seeks a broad spectrum of candidates including women, minorities, and people with disabilities. Virginia Tech is the recipient of the National Science Foundation ADVANCE Institutional Transformation Award to increase the participation of women in academic science and engineering careers.



**Liberty
Mutual®**

**Employment Opportunity
Liberty Mutual Research
Institute for Safety**

The **Liberty Mutual Research Institute for Safety (LMRIS)** conducts original, peer-reviewed research in occupational and highway safety, injury, and return to work fulfilling Liberty Mutual's commitment to help people live safer, more secure lives. LMRIS is seeking highly qualified candidates to fill 3 new director-level, research management positions.

The **Director of the Center for Physical Ergonomics** will lead research into the mechanisms underlying occupational injuries by improving our understanding of worker physical capabilities and limitations and their relationship with work demands.

The **Director of the Center for Behavioral Sciences** will lead research into behavioral, cognitive and organizational aspects of workplace and highway injuries.

The **Director of the Center for Injury Epidemiology** will lead research in occupational injury epidemiology and the burden of injury.

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