

Science Forum on Human Factors Research on Education and American Competitiveness

Co-Sponsored by:

- The Federation of Behavioral, Psychological and Cognitive Sciences



- Human Factors and Ergonomics Society



American Competitiveness Initiative - Overview

- Keeping our competitive edge in the world economy requires focused policies that lay the groundwork for continued leadership in innovation, exploration, and ingenuity. America's economic strength and global leadership depend in large measure on our Nation's ability to generate and harness the latest in scientific and technological developments and to apply these developments to real world applications. These applications are fueled by: scientific research, which produces new ideas and new tools that can become the foundation for tomorrow's products, services, and ways of doing business; **a strong education system that equips our workforce with the skills necessary to transform those ideas into goods and services that improve our lives and provide our Nation with the researchers of the future;** and an environment that encourages entrepreneurship, risk taking, and innovative thinking. By giving citizens the tools necessary to realize their greatest potential, the American Competitiveness Initiative (ACI) will help ensure future generations have an even brighter future.

Relevance of Human Factors and Ergonomics to

Education and American Competitiveness

What is Human Factors & Ergonomics?

- Designing for human use
- Understanding needs, capabilities, and limitations of users
- Analysis of products, systems, and environments in the context of human interactions
- Multidisciplinary field - psychology, engineering, biomechanics...

WWW.HFES.ORG

Primary professional society for the field; Founded in 1956; Approximately 4500 members, affiliates, and students



HFES Technical Groups

- Aerospace Systems
- Aging**
- Cognitive Engineering & Decision Making**
- Communications
- Computer Systems**
- Education**
- Environmental Design
- Forensics Professional
- Health Care Systems
- Human Performance Modeling
- Individual Differences**
- Industrial Ergonomics
- Internet**
- Macroergonomics
- Perception and Performance
- Product Design**
- Safety
- Surface Transportation
- System Development**
- Test and Evaluation**
- Training**
- Virtual Environments**

Range of Relevant Science & Practice in HF/E

- Producing better training technologies and methods
 - Distributed training
 - Computer-based training
 - Simulation-based training
 - Human-system interface research
- Design of educational technology
 - Readability of text
 - Quality/design of displays and graphics
 - Usability of courseware
 - Database development and use
 - Performance measurement issues
- Physical ergonomics issues
 - Reducing risks of musculoskeletal and visual system disorders

Range of Relevant Science & Practice in HF/E

- Designing useful and usable distance learning programs
- Training teachers to use technology in the classroom
- Understanding the implications of an aging workforce and other changing demographics
- Web site design for education sites
- Identifying individual differences in cognitive functions
- Multimedia design and educational technology
- Predicting performance in combat medic training and developing a software intervention tool
- Training for naturalistic decision making
- Using simulation-based training for professionals in health care
- Getting students excited about science and engineering

Purpose and Plan for Today's Forum

- Exchange of knowledge
 - Examples of current HF/E research relevant to issues of education and competitiveness
 - Gaps in the literature – needs for future research
 - Research needs identified by funding agencies
- Future directions for advancement of science and practice
- Common Goal:
 - Effective education and support for competitiveness of the American people