Welcome to the Spring 2007 edition of the TTG newsletter!

Greetings everyone and welcome to the Spring 2007 Newsletter for the Training Technical Group. In this issue, you will find:

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2007 Officers Elections

This year the TTG will nominate and elect new Officers for 2007-2008. At this time, the TTG calls for nominations for Chair, Secretary, and Treasurer. All nominations should be submitted to Steve Fiore via email at Sfiore@ist.ucf.edu. Nominations for these roles will be accepted through April 27th. Electronic ballots for the election will be distributed to the TTG membership via the list server on April 6th and votes will be accepted through April 25th. Please submit your nomination today!

TTG Technical Focus
Dee Andrews
Human factors practitioners working in the field of training are involved in training development and research. We are committed to developing solutions to human performance problems that will enable organizations to achieve their strategic visions and goals. Moreover, the training innovations the TTG seeks will foster through better training the creativity and skills of people in organizations and societies. The technology of training has advanced dramatically in recent years with the advent of such developments as low cost computer generated visual displays, training approaches using artificial intelligence, and networking of computers for training.

The human factors practitioner is an important part of a team responsible for designing and implementing training for large systems and training devices. Specific activities include the following:
- Seeking new ways to develop and implement training solutions that can make organizations better at learning and adopting to change
- Aligning the organizational training strategies and content with the strategic goals of the organization
- Developing user profiles that match equipment characteristics
- Developing user interfaces, controls and displays, and technical information to train in operation and maintenance
- Developing, evaluating, and implementing innovative technologies and approaches for training
- Evaluating training techniques and programs of instruction

Please send TTG Newsletter comments to: Michelle Harper-Sciarini, (mharper@ist.ucf.edu)
TTG Supporting Student Members

**TTG 2006 STUDENT GRANT AWARD WINNER**

Carl Smith  
George Mason University  
*Use of a Functional Display as a Flight Training Device: Assessment of Knowledge Acquisition and Transfer of Training*

Carl Smith is a doctoral student at George Mason University where he investigates the use of alternative aviation displays to improve piloting performance and support novice knowledge acquisition. Carl is also involved in an FMS training program for a regional airline. When not pursuing his main research interests, Carl also works to extend various analysis techniques for interface and display design.

**TTG 2006 BEST STUDENT PAPER AWARD WINNER**

Ewart de Visser  
George Mason University  
*A Comprehensive Methodology for Assessing Robot-human Team Performance for Use in Training and Simulation*  
Co-Authors: R. Parasuraman, A. Freedy, E. Freedy, and G. Weltman  

Ewart de Visser is a master student at George Mason University, where he investigates human-robot team training and effects of imperfect automation on system performance.

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**2007 Award for Best Training TG Student Paper**

The Training Technical Group (TTG) will be holding the “Best Student Paper Competition” for HFES 2007. All papers accepted by the TTG for publication in the HFES 2007 proceedings will be entered into the contest. The first place winner will receive a cash award of $250. The Competition winner(s) will be announced at the Annual HFES TTG business meeting. If you have any questions, please contact the contest coordinator, Mike Curtis at m_curtis@earthlink.com.

**2007 Training TG Student Grant Award**

The HFES Training Technical Group is continuing its Student Grant Program to support student affiliates in conducting independent research during their graduate education. This program is open to all HFES student members. We offer financial support for research expenses including, but not limited to, purchase of research materials; paying subjects; partial payment for equipment, etc. Each year we offer one award of $750. To be eligible for consideration, the proposal narrative (no longer than 4 pages) must be submitted by midnight Friday, August 31st, 2007 to Michelle Harper-Sciarini (mharper@ist.ucf.edu). A detailed Call for Proposals is below. For specific questions or for more information please contact Michelle at mharper@ist.ucf.edu
Call for Proposals
Training Technical Group
2007 Student Grant Program

The HFES Training Technical Group has created a Student Grant Program to support student research in training theory and training experimentation. The primary purpose of the program is to support the professional development of our student affiliates. Towards this end, the program is designed to foster the growth of a set of targeted competencies required by the professional scientist interested in training. By allowing student affiliates to oversee the management of this effort, affiliates can gain, not only experience in the grant-writing process, but also experience in reviewing research grants. A secondary goal of the program serves the long-term interests of the Training TG by providing another opportunity for our student affiliates to gain recognition of their work while in graduate school. The goal is to return something to our affiliates and foster goodwill towards the Society. In sum, this program provides an important opportunity for our affiliates to gain recognition for their efforts, thus strengthening the long-term viability of the field.

The program is open to all HFES student members. We offer financial support for research expenses including, but not limited to, purchase of research materials; paying subjects; partial payment for equipment, etc. Each year we would offer one award of $750. Each proposal would be evaluated on the following criteria:
1. Clarity in presentation of ideas
2. Clarity of research methods and methodology appropriateness
3. Likelihood of the project to explain some psychological phenomenon
4. Ability of the project to advance research in a specified area
5. Budget match for scope and requirements of the research

Submission Process
To have the grant proposal considered for the TTG-SGP, the following information would need to be submitted:

Cover Letter
Include the following information:
- Name and Current mailing address
- Telephone number and e-mail address
- Area of research
- University Affiliation
- Full name(s) of other(s) involved in the project

Letter from Faculty Sponsor
This letter should describe the amount of faculty involvement in the project, an assessment of the student’s capabilities in completing the project, and the degree of independence exhibited by the student in developing the research idea.

Proposal Narrative
Complete a typewritten (single-spaced, no more than 4 pages) project description summarizing the purpose and methodology of the proposed project. This summary should include the research project’s title (without author’s name) at the top of each page and must include text on the following:
1. A synopsis of previous related research
2. A short description of the theoretical implications of the research
3. A short description of the practical implications of the research
4. Specific objectives of the current project
5. Clearly stated hypothesis or set of hypotheses (if relevant)
6. Proposed methodology
7. Budget
8. Budget justification explaining costs and why the proposed expenditures are necessary

Send the above materials to Michelle Harper-Sciarini at mharper@ist.ucf.edu or via FAX at 407-882-0306. All materials must be received by midnight Friday, August 31st, 2007, in order to be considered for this year’s Student Grant Program. Any questions regarding the program or awards can be directed to Michelle at mharper@ist.ucf.edu.
Since 1981 I have been part of teams developing or evaluating training systems – over 100 systems in all. The systems vary from simple warnings to in-flight simulators. During these 25 years I learned from other team members and from the training literature and began to develop a set of human factors criteria for training. The purpose of the criteria was simply to help my teams jump start the training development or evaluation process – hit the ground running as it were. I refined the set as problems were identified during transfer of training exercises. I refined the definitions as the diversity of my team members and projects with individual jargons required. In the early years there were fewer criteria and a greater diversity in the names. The change to criteria beginning with the letter C began after a project with the US Navy.

There were seven criteria at that time and an industrious sailor recommended changing the list to the seven Cs. Although it started as a bit of Navy humor, the use of criteria starting with the letter C became useful in discussions – if it began with a C it was a criterion. If it didn’t, it wasn’t. Both engineers and mathematicians liked the orderliness of this requirement. In the last five years I have been asked to join some training evaluations I think just because of the list. During those same years I have been encouraged to publish the list somewhere outside of the proprietary and restricted worlds. I immediately thought of the Human Factors and Ergonomics Society training technical group and Dr. Dee Andrews. Dee kindly reviewed the list and immediately reported that a training effectiveness measure was missing. So I added the ninth C, competence. The complete list of criteria and their definitions are presented in the accompanying table.

The Nine Cs - Fundamental Human Factors Criteria For Training

<table>
<thead>
<tr>
<th>Completeness</th>
<th>Competence</th>
<th>Construction</th>
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<tbody>
<tr>
<td>The training must include all components of the system that will be experienced by the operator. These components consist of control operation, display symbology and text, all system procedures performed by the operator, and techniques for exploiting imagery.</td>
<td>After using the training materials in the designated manner, the trainee should possess the required skills and knowledge to perform the tasks being trained.</td>
<td>The training modules should build on previous modules and proceed from simple to complex. Further, the presentation should be highly formatted:</td>
</tr>
<tr>
<td>Compactness</td>
<td>Conciseness</td>
<td></td>
</tr>
<tr>
<td>All the training material on a single component should be provided in a single, short training package. The package should include up to a few pages of text in the manual and a few relevant classroom exercises.</td>
<td>The training must be provided in as few words as possible. Sentence structure should not include a significant amount of parenthetical material or appended phrases.</td>
<td>Place a figure depicting control next to the description of the operation of that control; Place a figure presenting a display next to the discussion of the meaning of the display; Provide procedures in numbered checklists; and Place a figure illustrating the use of an exploitation technique next to a figure of the same imagery, in the same orientation but without the use of the technique, and with a text comparison of the merit of the technique.</td>
</tr>
<tr>
<td>Communication</td>
<td>Consistency</td>
<td>Currency</td>
</tr>
<tr>
<td>Words used in the training should match the communication skill level, both written and spoken, of the trainees. It should also match the trainees’ areas of expertise. For example, drivers should be expected to know the term “volume control” but not the term “hard keys.”</td>
<td>Throughout the training, the same terminology should be unanimously used for the same training component. There should be complete agreement throughout the training process.</td>
<td>The training material must reflect the current state of the system including: Appearance, placement, labeling, and operation of controls; Wording and meaning of displayed information; Order and actions in procedures; and Application of techniques for exploiting imagery.</td>
</tr>
</tbody>
</table>

Clarity - All terminology must be unambiguous. Terms should be easy to understand.