Notes from the Chair...
Here is an update on Training TG business. The last newsletter included a ballot to elect TG officers. The ballot was also placed on the web page. There were delays in counting the ballots because a portion of the votes came from people who are not members of the Training TG. Validation of votes was accomplished by comparing the most recent list of Training TG members from central office, the web page listing, and the directory. There were some discrepancies between these lists that had to be resolved. After resolving all the ballots, James Bushman of TRW, Inc. won in a very close election. He will be taking over as the new Chair at the Training TG business meeting during the conference. James McCarthy of Sonalysts, Inc will be the new Secretary. Jim Bushman appointed Steve Fiore of the University of Central Florida, as the new Program Chair for the Training TG.

Teresa Alley has continued improving the Training TG web page (http://ttg.hfes.org). It includes a TTG membership directory, a listserv, a survey of Training TG services, and other relevant information. I want to encourage everyone to get online and look it over. In particular, I urge everyone to complete the survey regarding the Training TG. This is your opportunity to provide feedback on how the Training TG can better serve you. There is a section addressing new benefits the TTG is considering. Some of these benefits will require funding, but we have a large surplus of funds ($8,000) and we should consider ways of spending these funds. There is also space in this section to give other suggestions on how to spend our budget. To date only seven people have responded. I strongly encourage you to complete the survey and send me your comments and suggestions. Also, take advantage of our listserv to pose questions and comments to the TG.

Our Program Chair, Jim Bushman, has completed our program for the 2003 Annual meeting. I want to thank him for his efforts. I also want to thank all of you who helped in reviewing proposals for the meeting. It is your effort and assistance that will maintain the high quality of the Training TG program in 2003. You can find his report in this newsletter, along with the tentative program and paper abstracts.

Lori Van Dayne, our newsletter editor, also deserves our thanks and praise. Once again she has worked hard to find interesting articles for our newsletter. It is a time consuming task and Lori has done a great job.

Finally, the Training TG will be holding its Business Meeting from 4:30-5:30 on Wednesday, October 15, 2003. I requested this time so that it does not conflict with the Aerospace TG Business meeting. I have also requested hors d'oeuvres for the meeting and made arrangements with Aerospace TG and Surface Transportation TG to share the potential cost of a cash bar. The bartender fee of about $300 is waived when a minimum number of drinks is served. I hope these actions will encourage attendance at the business meeting. Attendance is important so that relevant issues can be discussed and your input can be heard.

I hope to see you all at the upcoming HFES conference.

Barry Geettl
Here's a look at the TTG’s sessions at HFES 2003
Panel Discussion
(co-sponsored by the Cognitive Engineering & Decision Making TG)

Training Rapid Decision-Making Processes Required by the
Dismounted Objective Force Leader
Tuesday, October 14, 2003, 3:30-5:00

Chair: Richard E. Christ (US Army Research Institute)
Co-Chair: Alvah C. Bitner ( Battelle Seattle Research Center)

Panel Members:
Jared Freeman (Aptima, Inc.)
Rick Archer (Micro Analysis & Design, Inc.)
Gary Klein (Klein Associates, Inc.)
Jean Dyer (US Army Research Institute)

The Army’s Objective Force concept exploits the enormous opportunities made possible by advances in our capacity to quickly gather, organize, and distribute battlespace information. Electronic information systems will be developed and fielded to process and display critical features of the data available from multiple sensor and database systems. The Objective Force Warrior is one component of the Objective Force that encompasses a system of equipment and capabilities for the individual warfighter. The proposed panel is concerned directly with the use of these systems by the light, dismounted Infantryman. The Army clearly anticipates that innovative uses of advanced information systems will enhance the Infantryman’s situational awareness and his decision-making capabilities.

The proposed panel session will draw on the knowledge and experiences of behavioral scientists that have been actively confronting the challenges associated with automating human cognitive processes, each using some unique and innovative research concepts and approaches. Each of the panelists has been engaged directly in efforts to describe the training implications of critical decision-making requirements and to develop computer-based decision-making training methods that will serve both the conventional and electronic light infantry environments. Three of the proposed panelists represent private sector organizations that are recognized leaders in research on decision-making performance and training. The fourth proposed panelist is a government behavioral scientist who is widely recognized as an expert in this area due to her extensive training research and studies on both fielded and prototype light infantry systems.

The proposed panelists will summarize their respective conceptualization of the issues involved in this problem area, the methods they have employed in their research, and the results they have obtained. Furthermore, and most importantly, each panelist will be prepared to discuss among themselves and with members of the audience the implications of their research for (a) the determination of critical decision-making requirements of small-unit leaders for both the conventional and electronic military environments, (b) the training implications of the critical decision-making requirements identified, and (c) the development of interactive computer-based decision-making training methodologies that can prepare Infantrymen for both types of environments.
A Strategy Based Approach to the Acquisition of Complex Perceptual-Motor Skills
Eldad Yechiam (Indiana Univ)

The acquisition of competence in the performance of perceptual-motor skills can be viewed as a process of converging choices among performance strategies, based on task constraints and reinforcement structure. This approach is studied to contrast visually guided response strategies, and strategies guided by other sensory modalities. Visually guided response modes are known to be dominant in perceptual motor tasks. In three different tasks we studied the effect on skill acquisition of three factors: available strategies, their relative efficiency, and prior experience. The tasks were manual gear shifting in car driving, standard typing, and number processing with a keypad. In all three tasks, visually guided response modes were initially the dominant response strategy. This dominance was attributed to a locally optimal strategic choice, determined by the initial propensity of vision and prior experience. Indirect training methods that modified the priority and reinforcement structure of the task promoted the development of alternative strategies that did not rely on the visual modality.

Dyadic Protocols, Observational Learning, and the Acquisition of Complex Skills
Eric Day (Univ of Oklahoma), Winfred Arthur, Leigh E. Paulus (Texas A&M Univ) & Erich C. Fein (Ohio State Univ)

We examined two dyadic training protocols, both featuring observational learning, with respect to the acquisition of a complex skill. Specifically, we compared an active interleaved modeling (AIM) protocol which requires trainees to alternate between performing half of a task simultaneously with a partner who performs the other half to an alternating perform-and-observe (APO) protocol which requires trainees to alternate between performing the whole task and observing a partner performing the whole task. Sixty-four young adult males were assigned to either an AIM or APO protocol and underwent three days of skill acquisition training on a complex computer task that simulated the demands of a dynamic aviation environment. Results indicated that the APO protocol led to greater levels of skill acquisition and skill retention (after an eight-day nonpractice interval), but the advantage of APO training diminished after a brief period of individual reacquisition and on a test of skill transfer.

The Effectiveness of Cognitive Elaboration using Augmented Reality as a Training and Learning Paradigm
Dennis Vincenzi, Brian Valmont, Nickolas D. Macchiarella, Christopher Opalenik & Sathya N. Gangadharan (Embry-Riddle Aeronautical Univ)

Until now, little research attention in the area of Augmented Reality (AR) has been paid to the cognitive benefits engendered by this emerging technology. AR, the synthesis of computer images and text in the real world (Azuma, 1997), affords a supplement to formal information acquisition that has yet to be fully explored and exploited. AR achieves a more smooth and seamless interface by complementing human cognitive networks, and aiding information integration through multi-modal sensory elaboration, by utilizing visual, verbal, proprioceptive, and tactile memory while the user is performing real world tasks. AR also incorporates visuo-spatial ability, which involves the representations of spatial information in memory. The use of this type of information is an extremely powerful form of elaboration. This study examined four learning paradigms: print (printed material) mode, observe (video tape) mode, interact (text annotations activated by mouse interaction) mode, and select (AR) mode. The results of the experiment indicated that the select (AR) mode resulted in better learning and recall when compared to the other three conventional learning modes. Implications for training and curriculum design are discussed.

Effectiveness of Computer Game Instructions
Jessie Chen (US Army Research Institute)

One important issue facing the military training community for incorporating computer games into training programs is that training time is at a premium and trainees need to learn the game as quickly as possible so they can start using the game to train the skills of interest. This study examined various game-related performance measures and concluded that the two different instructional techniques (i.e., computer-based tutorials and game tips) appeared to be effective in different ways, and players with access to both learned the game most effectively. Specifically, computer-based tutorials appeared to be more beneficial for motor elements such as maneuvering and actions. On the other hand, those who had access to game tips performed better in cognitive segments of the game such as setting up game plans and familiarity with the game interface. Future military game development can utilize these results to determine which type of instructional material to be included in the games.

Human Factors Deficiencies in Handgun Safety Training
Paul Paradis (Colorado Public Defenders Office) & Hal Hendrick (Hendrick & Associates)

Deaths and serious injury from accidental handgun shootings is a major problem in the United States. Among children and adolescents, firearm injuries is the second leading cause of death in the United States, with over 25% being from accidental shootings. Yet, there is evidence that when sound, mandatory training is provided, accidental shooting deaths can be dramatically reduced. When a gun safety program is required or made available in a community, it usually is the standard NRA basic gun safety program. Unfortunately, from a human factors perspective, this training system has a number of deficiencies that limit its potential effectiveness. These deficiencies are described along with suggestions for their elimination. Implementation of these suggestion would provide a training system and program that, if taken by all persons with guns, could dramatically reduce accidental shootings and related injuries or death.
Paper Session
(co-sponsored by the Cognitive Engineering and Decision Making TG)

Situation Awareness Training
Friday, October 17, 2003, 8:30-10:00
Chair: Herbert Bell (Air Force Research Laboratory)
Co-Chair: Michelle Harper (Univ of Central Florida)

Adaptive Expertise During Simulated Flight
Mark T. Jodlowski, Randy J. Brou & Stephanie M. Doane (Mississippi State Univ)

The present research examined pilot ability to perform simulated flight maneuvers in routine and non-routine instrument flight situations as a function of expertise. Twenty-one pilots were asked to fly nine simulated instrument flight maneuvers using a modified version of Microsoft Flight Simulator®. Each of the flight maneuvers involved performing routine control movements on up to three axes (airspeed, altitude, and/or heading). For the first seven trials, all instruments operated properly. During the final two trials, the attitude indicator experienced a partial vacuum failure which was either announced or unannounced. Pilot control movements, eye fixations, and flight status were recorded. Percent goal complete within specified bounds (commercial pilot standards) was calculated for each trial. Results indicate an overall expertise effect for routine flight. However, during unannounced failure, expert performance dropped to novice levels. Results are discussed with respect to training and routine versus adaptive expertise.

Post-Training Feedback: The Relative Efficacy of Team-Versus Instructor-Led Debriefs
Jeffrey Beaubien & David P. Baker (American Institutes for Research)

In many high-risk domains, simulators are used for training and evaluating team performance under realistic conditions. Once the simulation is complete, the teams review their performance to identify the lessons that they have learned. These post-training debrief sessions may be either instructor- or team-led. Unfortunately, the relative effectiveness of instructor- versus team-led debriefs remains unclear. To address this question, we surveyed a nationwide, representative sample of over 30,000 pilots from 24 U.S. airlines. Despite having a high degree of statistical power and a reliable scale, we found no practically significant differences among the four most common approaches to post-training feedback: team debrief with videotape, team debrief without videotape, instructor debrief with videotape, instructor debrief without videotape. The results suggest that all four approaches are equally effective. Implications for team training are discussed.

The Efficacy of Training in a Complex and Dynamic Simulated Air-to-Ground Search and Destroy Mission
Scott Glaster (Air Force Research Laboratory) & Raja Parasuraman (The Catholic Univ of America)

The efficacy of training was evaluated in a simulated complex task environment. Eight military pilots were trained to perform primary and secondary tasks in an air-to-ground search and destroy mission. The training protocol utilized is described and evaluated with respect to performance measures at the beginning of the experiment compared to identical post-experimental trials. The results indicate that the pilots were trained effectively under this protocol in performing the primary tasks required. Secondary task differences accounted for the majority of variance seen between the pre and post trials. Specific performance benefits in the secondary task are discussed.

Impact of Multimedia Presentation on Knowledge Acquisition for Complex Training
Sandro Scielzo, Stephen M. Fiore, Haycée M. Cuevas & Jenny L. Klein (Univ of Central Florida)

In this study, we applied and expanded principles of multimedia training design to complex task environments. We anticipated differential effects of various multimedia instructional formats (redundant or non-redundant information) and presentation formats (simultaneous or sequential) on knowledge acquisition and instructional efficiency. Knowledge acquisition was assessed with different elicitation methods, ranging from concept recognition to transfer tasks. Overall, multivariate analysis showed a significant effect for the redundant instructional format, and a marginal significance of presentation format on measures of knowledge acquisition. A similar pattern of results was found for instructional efficiency. The discussion centers on the generalizability of multimedia principles to complex task training environments.

Improving SA: Training Challenges for Infantry Platoon Leaders
Laura Streater, Debra Jones & Mica R. Endsley (SA Technologies)

Novel applications of digital technologies promise to revolutionize the battlefield of the Infantry Warfighter by expanding the information available to all echelons through enhanced acquisition, faster access and wider distribution. The integration of this information into a coherent picture is the essence of the Warfighter’s Situation Awareness (SA), which provides the basis for sound decision-making and enhanced performance. This study investigates areas of SA that are considered problematic by the soldiers who train new Infantry Platoon Leaders, identifying strategic target areas for future training efforts. The number and variety of items identified as significant problem areas for SA support the concept of the multidimensional nature of SA within the Infantry arena. This research provides a framework for development of targeted training programs to better equip our fighting forces to establish and maintain superior levels of SA in the challenging environment of Infantry operations.
Using Virtual Environments for Conducting Small Unit Mission Rehearsals
Robert Pleban (US Army Research Institute) & Jenna Dilege (Emory Riddle Aeronautical Univ)
An experiment was conducted to examine the use of virtual environments as a viable dismounted infantry mission rehearsal tool. Four squads of soldiers individually conducted two missions that involved clearing a two-story building located in an actual real world urban operations training site. Two of the squads rehearsed the mission in a virtual representation of the exact building they would clear in the real world. The remaining squad rehearsed in an actual two-story building that was similar to the one they would clear during the real world missions. All squads executed both missions in each environment. Performance differences between the rehearsal groups across the two real world missions were small to negligible. This research showed that small unit dismounted infantry tasks could be effectively rehearsed in a virtual environment. The research also showed that complete physical fidelity in the virtual environment is not a requirement for positive transfer.

Effect of Alternate Feedback Strategies on Performance for a Synthetic Aircraft Visual Inspection Task
Rahu Desai, Anand Gramopadhye, Brian Melloy & Andrew Duchowski (Clemson Univ)
Feedback training has been shown to be one of the most effective ways of improving inspection performance. One important issue surrounding the use of feedback is providing the type of information that inspectors find most useful, including determining the format for presenting this information in a way easy to interpret and utilize. The objective of this study was to conduct subjective and performance evaluations of graphical displays used to provide performance and process feedback. Ten subjects, randomly assigned to one of the two sequences in which they underwent two treatment levels (performance feedback, process feedback), inspected a simulated aircraft cargo bay for three types of defects (crack, corrosion and damaged conduit). The subjects then filled out a subjective questionnaire on the content, format and usefulness of the feedback information provided and the display used to provide the information. The results on performance and subjective evaluation of feedback information are analyzed and reported as a part of the study.

The Effects of a PC Simulation Added to Digital Military Training
John Holmqvist (Univ of Central Florida)
This paper asks the question: What advantages and disadvantages will be gained from adding a video game to the training and retention regime of a US Army computer-based report and command system? The core response to this question is not found in simply better training but in more realistic workload, more realistic timeline, and more engaging training environment. The addition of these variables was not reported to speed-up or retain the knowledge longer, but it did increase the users desire to train and increase the users preparation for using the training in a real world environment.

A Virtual Environment for Training Military Checkpoint Guards
Jean M. Catanzaro, Mark Scerbo, Frederic D. McKenzie, Nathan R. Bailey, R. Bowen Loftin (Old Dominion Univ) & Mark A. Phillips (VMASC)
The present study describes a Virtual Environment (VE) designed to train individuals to perform the role of a military checkpoint guard. Participants stood guard at a fictitious base in which simulated drivers in vehicles would approach seeking entrance. Participants were to inspect each vehicle, interact with the drivers, verify their identification, and make a decision to allow the driver to enter the base, to detain the vehicle, or to ask the driver to turn around and leave. The experiment was conducted in a CAVE with stereoscopic visual and auditory displays, participant tracking, and voice recognition. The results showed that participants were able to learn quite effectively in the virtual environment with the biggest performance improvements seen in the areas of proper protocol and social influence. These findings indicate that VE technology holds promise for training a wider range of activities than have been the focus of most research to date.

HFES 2003 Registration has begun!!
Here is some important information you should know.
Conference Dates: October 13 – 17, 2003
Location: Adam's Mark Hotel in Denver, CO
Important Deadlines:
Register online at http://hfes.org.
The deadline for reserving hotel rooms is September 18, 2003.
ON-DEMAND TEAM TRAINING WITH SIMULATED TEAMMATES: SOME PRELIMINARY THOUGHTS ON COGNITIVE MODEL REUSE

By Benjamin Bell, CHI Systems Inc.

Aboard the Vinson, LT Frank Doyle (“Stroke”) of VFA-97 (“the Warhawks”) slips into his state room and fishes a laptop from his seabag. As he logs in for some strike training, the F/A-18 pilot begins to feel the adrenaline of the mission and is glad he can call up his own training, personally tailored and with no scheduling or paperwork....

CHI Systems has recently launched an effort as part of DARPA DSO’s Training Superiority Program (“DARWARS”) to create a deployable, distributed air strike mission trainer. The CHI team, which includes NAVAIR Orlando Training Systems Division, Aiptma, Visual Training Solutions Group (VTSG), and Floodgate Entertainment, is creating Synthetic Teammates for Realtime Anywhere Training and Assessment (STRATA). STRATA is a mission trainer that will train two pilots and/or operators with instructor-less, automated tutoring in a simulated flight environment. Synthetic team members will populate the scenario and will interact in spoken language with the human participants.

As Doyle involuntarily braces against the expected pull of the catapult, MAJ Christine Foley enters the empty squadron room at Spangdahlem Air Base and powers up her laptop. The F-16 pilot (22nd Fighter Squadron “the Stingers”) logs into STRATA for strike practice, and is inserted into the current scenario, replacing a synthetic pilot in the F-16 flight....

One novel aspect of this three-year, $6M effort is that STRATA will operate as a training application within the DARWARS network architecture, which will allow a warfighter to log into the system and get inserted into an ongoing exercise that matches his or her training needs. DARWARS will draw from a library of re-usable components (for instance, a library of plug-and-play synthetic teammates) and applications (such as STRATA) to generate tailored scenarios and then populate each one, either with other human trainees or with synthetic players.

The STRATA prototype will consist of three desktop or laptop PCs, two of which serve as trainee stations. They will host the flight and mission simulation and the processes that locally integrate and present the pre-brief, real-time assessment, and After Action Review (AAR). These trainee stations will be locally networked for development but transitionable to standalone or wide-area network (e.g., SIPRNET) use. Each will run a PC-based linked mission trainer; a remaining PC in the STRATA testbed will emulate functionality that ultimately will be distributed between STRATA and the DARWARS network (e.g., hosting the synthetic teammates, providing scenarios, and managing training profiles).

Among the core research and development challenges is cognitive modeling. Rich models of human cognition and performance provide the synthetic teammates with realistic and variable human-like behaviors. Cognitive model-based agents are well suited for creating believable synthetic teammates because they represent human knowledge and internal information processing in a context-sensitive and dynamic fashion. These agents are built with an underlying executable cognitive architecture that distinguishes them from other forms of intelligent agents that employ single homogeneous knowledge representation language with limited representational power (e.g., rule-based representations executed by a traditional inference engine). Thus, cognitive agents are capable of realistically simulating, in a human-like fashion, perception, decision-making, expectation generation, course of action generation, selection, and implementation. Such models thus also provide the tutoring elements within STRATA with expectations against which to compare observed trainee behavior.

...The crackle in his headset snaps Doyle to instant readiness. He hears his synthetic wingman coming up on frequency while, hidden from his view, OPFOR entities are added to the battlespace. The other pilots in the F/A-18’s 4-ship, an F-16 flight, AWACS, E-2C, and Alpha Whiskey are played by synthetic agents...

STRATA’s synthetic team members will represent off-board personnel communicating over radio. The trainee will engage in spoken language dialogue with them via a microphone and synthesized speech. The synthetic teammates will complete the trainee’s own unit (e.g., a four-ship flight) and occupy related assets like the E-2C or AWACS. One or more of these teammates also serves as a tutoring/mentoring agent. Synthetic neutral and red forces will be developed using the same methodology applied in creating blue forces. Since STRATA will emphasize team-training, synthetic team members must possess the following capabilities:

1. simultaneous execution of three principal behavior components: taskwork (flying the airplane, working the console), teamwork (interacting with other members of the team), and instruction (providing assessment and feedback on the behavior of a trainee);
2. interaction via spoken language (required for team training in verbal environments); and
3. modulating avatar behaviors to replicate various error modes, to allow for varying the performance level of the synthetic team members (important in team training).

As the above summary suggests, designing cognitive models and building interactive cognitive agents is tremendously complex, because of the richly elaborated nature of the behaviors that must be modeled, and because of the difficulties involved in enabling such agents to verbally interact with humans. Building an executable model of human cognitive performance can therefore require substantial invest...
ON-DEMAND TEAM TRAINING WITH SIMULATED TEAMMATES CONT’D...

ments of time and skilled personnel to perform a detailed cognitive task analysis and to implement the model in a computational cognitive architecture. The numerous models required to create STRATA would be at loggerheads with the time and cost constraints of the project were it not for the benefit of previous experience and software tools arising from a precursor to STRATA called Synthetic Cognition for Operational Team Training (SCOTT).

SCOTT (Zachary, et al., 2001) is an ONR-sponsored program that demonstrates instructor-less team skills training for individuals, with mission team members replaced with synthetic teammates capable of interacting verbally with the trainee during a real-time scenario. SCOTT is a simulation-based practice and training environment in which a human E-2C tactical crewmember can train in coordination skills by interacting with synthetic teammates, both on and off the E-2C. The synthetic teammates interact in spoken language and possess rich models that enable robust cognition and behavior. The models are created with CHI System’s iGEN toolkit (Elbert, et al., 2000) for constructing a cognitive agent, which is derived from a conceptual framework called COGNET (Zachary, Ryder & Hcinbooth, 1998) for representing real-time expert decision making with multiple attention demands. A synthetic team member acting as a tutor also possesses an internal model of the trainee, enabling tutorial monitoring and intervention with timely, relevant feedback, and providing an opportunity to train meta-cognitive skills in context.

A unique capability recently implemented in SCOTT is to modulate teammate actions to replicate and reliably model various error modes. Modulating performance errors is of great importance in team training, allowing the human trainee to experience high, moderate, or low proficiency team-members, depending on whether the training plan requires scaffolding, practicing, or stressing the trainee. Thus error modeling, which is very challenging, provides a unique capability to train cognitive performance under stress.

...As the two pilots fly the mission they interact in real time with each other and the synthetic players. A synthetic E-2C Air Control Officer presents Doyle with a snap decision to make when it warns “Hostiles LR4 265 for 45, 2000 feet FAST.” At the same time, the F-16 flight lead calls Bingo fuel and assigns Fokey the lead. The pilots have to work hard to stay ahead of the mission, which taxes their judgment and cognitive performance...

The relationship between the work completed under SCOTT and work planned under STRATA is worth commenting on, since these relationships are likely to obtain across a range of related applications well beyond the two discussed here. First, the methodologies employed for SCOTT are directly applicable to STRATA. The techniques employed in creating conceptual representations of the tasks being modeled, through highly detailed analysis and lengthy interactions with subject matter experts (Cognitive Task Analysis) represent a body of expertise aggregated over SCOTT and numerous other projects that helps accelerate the process in STRATA. Second, the computational cognitive architecture (COGNET) and corresponding development toolkit (iGEN) used in SCOTT are similarly a catalyst for model development in STRATA. Third, model elements implemented in SCOTT provide some reusable model building-blocks to jump-start the software cycle for STRATA. The models in SCOTT performed tasks such as navigation, command and control, and verbal communications, all tasks that are central to most of the performance models slated for development in STRATA. The core software that implements these tasks are partially generalizable and are being re-purposed for STRATA.

...By the time they hear the RTB order, both pilots are eager for Miller Time. A synthetic de-brief appears on each pilot’s screen to conduct the AAR. Doyle is pleased to see the replay of his OK3 Trap but focuses on the central objectives as the de-briefer highlights coordination problems and a deficiency in shared situation awareness. The LT signs off on his report, which is sent to DARWARS for updating his profile in preparation for the next encounter.

STRATA presents a host of challenges beyond creating human-like behaviors for synthetic teammates. The focus of the research and development effort is training, so instructional considerations such as mission briefing, dynamic assessment, and after action review are salient. Many of the techniques first proposed for SCOTT (and in some cases, partially implemented in SCOTT) will be adapted and matured for STRATA. The instructional approach in SCOTT offers an interesting case study of the spectrum of re-usability we are able to leverage for STRATA. At the conceptual level, we are employing a training strategy that emphasizes a thorough mission brief and comprehensive after action review, with carefully filtered dynamic feedback (given the real-time demands typical of tactical air operations). This approach evolved for SCOTT and is well-suited to the naval air strike domain of STRATA. At the technology level, the tools for monitoring trainee performance and comparing them against the predictors of a performance model, as well as the mechanism for archiving detected variances for later review, were developed and demonstrated in SCOTT. Although STRATA will reside in a different computational environment, some of the underlying technology can be re-purposed for STRATA, with some adaptation.

STRATA represents an exciting approach to distributed mission training that can assume a transformative role in military training. Realistic synthetic teammates and embedded intelligent tutors will enable truly on-demand training. These capabilities can also be migrated to different venues for training, such as dedicated, high-fidelity simulator installations. The sophistication of STRATA is possible in part because of previous work performed under the SCOTT program. Re-usability is a noble goal but one that has remained largely out of reach. Our approach to adapting elements of the SCOTT demonstration has both conceptual and technological aspects. A short-term obec-
ON-DEMAND TEAM TRAINING WITH SIMULATED TEAMMATES CONT...

tive is to help accelerate the design and implementation of STRATA. A longer-term goal is to learn lessons from our adaptation efforts, in order to better inform future re-use and to build re-usability into the design of new applications from day one.

References


Do you have any content for the TTG Web site?

If you have any content to add to our web site or if you have any suggestions, please contact our webmaster, Teresa Alley.

Your contributions are appreciated!

Teresa Alley
talley@dticam.dtic.mil
(619) 545-7384