

Technical Report 1279

**Developing Intercultural Adaptability in the
Warfighter: A Workshop on Cultural Training and
Education**

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November 2010



**United States Army Research Institute
for the Behavioral and Social Sciences**

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DEVELOPING INTERCULTURAL ADAPTABILITY IN THE WARFIGHTER: A WORKSHOP ON CULTURAL TRAINING AND EDUCATION

EXECUTIVE SUMMARY

Research Requirement:

Understanding and navigating the sociocultural terrain have not historically been recognized as core warfighter competencies, but have proved to be an unavoidable component of military operations in recent years. From humanitarian relief operations to counter-insurgency operations in Iraq and Afghanistan, culture has emerged as a central consideration for both general-purpose forces and specialists. Cultural training and education can provide the capabilities needed to confront the cultural complexity characteristic of the current and future missions. Due to the wide array of efforts in this area, opportunities are needed to coordinate efforts, share successes and lessons learned, and identify common challenges.

Procedure:

A two-day workshop focused on the instructional design process as applied to the development of cultural training and education. Participants were approximately 130 representatives from government, industry, and academia who are actively involved in planning, developing, or delivering cultural training and education or in conducting research in those areas. Participants attended plenary session presentations by the Services' culture centers and other government programs addressing cultural capabilities. The plenary session presentations described current and emerging approaches, as well as highlighted gaps and issues needing further attention. Four breakout sessions examined aspects of the instructional design process in greater detail, with parallel tracks on analysis, design, development, and implementation and evaluation.

Findings:

Research gaps needing further investment were identified in six primary areas:

- 1) Cultural performance requirements analysis. Cognitive task analysis and other research should be conducted to determine empirically what Service members need to do or know regarding culture to perform their missions.
- 2) Learner motivation, cross-cultural competence, and development. Models of cultural expertise and cultural skill acquisition are greatly needed to inform instructional design. In addition, research is needed to determine which instructional methods best support learning and motivation. The roles of fun, fidelity, and feedback in instructional design are areas of particular interest.
- 3) Development and validation of instructional sociocultural content. Identification of and taxonomies for the cultural information Service members need for their varied missions and role is needed to guide training content. Methods to more efficiently gather, access, and validate such information are also needed.

- 4) Flexible instructional solutions. Greater flexibility and authorability of instructional technology are in high demand. Further advances are needed to develop instructional solutions that provide tailoring to individual learners' needs and offer instructors and trainers flexibility to change scenarios, conditions, or cultural context.
- 5) Methods and metrics for training evaluation. Evaluation of cultural training and simulation is greatly needed, yet metrics and methods to evaluate beyond simple user reaction are not in use. Research is needed to provide methods to evaluate the impact of cultural training on the learning outcomes identified by the Services as important.
- 6) Continuing opportunities for exchange and collaboration. Due to the interdisciplinary and inter-Service nature of the challenges for cultural training and education, researchers, training developers, and practitioners would benefit from continuing opportunities to collaborate and disseminate findings and solutions.

Utilization and Dissemination of Findings:

These findings can be used to inform future directions for the training portion of the Human, Social, Culture, and Behavior Modeling Program, as well as other research and development programs addressing cultural training and education.

DEVELOPING INTERCULTURAL ADAPTABILITY IN THE WARFIGHTER:
A WORKSHOP ON CULTURAL TRAINING AND EDUCATION

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Developing Intercultural Adaptability in the Warfighter: A Workshop on Cultural Training and Education

INTRODUCTION

Understanding and navigating the sociocultural terrain have not historically been recognized as core warfighter competencies, but have proved to be an unavoidable component of military operations in recent years. From humanitarian relief operations to counter-insurgency operations in Iraq and Afghanistan, culture has emerged as a central consideration for both general-purpose forces and specialists. Cultural training and education can provide the capabilities needed to confront the cultural complexity characteristic of the current and future missions. Across the Department of Defense, policies and programs have proliferated to develop these capabilities. The challenge now is to identify and further develop solutions that effectively build them.

Due to the wide array of efforts in this area, opportunities are needed to coordinate efforts, share successes and lessons learned, and identify common challenges. This workshop provided such an opportunity. The focus of this two-day event was the instructional design process as applied to the development of cultural training and education. Participants were approximately 130 representatives from government, industry, and academia who are actively involved in planning, developing, or delivering cultural training and education or in conducting research in those areas. Participants attended plenary session presentations by the Services' culture centers and other programs addressing cultural capabilities (see Appendix A for workshop program). The plenary session presentations described current and emerging approaches, as well as highlighted gaps and issues needing further attention. Four breakout sessions examined aspects of the instructional design process in greater detail, with parallel tracks on analysis, design, development, and implementation and evaluation.

This report will present summary of the presentations and discussions from the workshop. First, a summary of the Services' current approaches to cultural training and education will be presented. Next, other themes from the plenary sessions will be identified, followed by summaries and recommendations from each of the breakout session tracks. Finally, an overall set of gaps and recommendations will be outlined for future research.

As Martin Bushika noted in his presentation, we are at the "end of the beginning" of incorporating culture into military training and education. All of the Services have implemented programs to better prepare their personnel for the cultural environments of current conflicts. This point is a good time to assess collective progress in this domain and to determine where further research and development are needed.

Current Approaches, Programs, and Challenges

Programs and Perspectives from the Services

All of the Services have a culture-general component and a culture-specific component to cultural training and education for general-purpose forces, though they differ on the relative emphasis on each. For example, the Air Force strategy identifies cross-cultural competence as the primary enabler for Airmen to communicate, relate, and negotiate across cultures, supplemented by language and regional culture (2009). David Ott of the U.S. Army Training and Doctrine Command noted that the Army approach is “big C, little l,” placing relatively more emphasis on culture than on language for the general-purpose forces (Department of the Army, 2009). The Marine Corps includes a culture-general component with its “operational culture” concept and teaching of interpersonal skills in advisor training, but emphasizes regional studies both in its pre-deployment training and in the career development cycle with its Career Marine Regional Studies Program. The Navy also emphasizes the culture-specific component, highlighting language and region initiatives in its strategy (2008).

Speakers from the Services’ culture centers and programs identified challenges in developing and implementing appropriate solutions. David Ott noted constraints on time available for cultural training. Training schedules that are already tightly packed with essential tasks demand cultural training solutions that are effective and efficient. Paula Holmes-Eber discussed the importance of understanding and tailoring to the audience. From her experiences teaching operational culture to Marines, she observed the need to make cultural training relevant and immediately applicable to Marine Corps tasks. She also noted the need for collective training.

Both Rob Sands (Air Force Culture and Language Center) and David Ott noted the role of Service differences in understanding the training requirements. For example, whereas ground forces tend to deploy as units, Airmen deploy as individuals, which generates some differences in how cultural training should be delivered. David Brand (John F. Kennedy Special Warfare Center and School) identified the challenge of determining what success is in cultural training and education. In other words, what does a culturally competent Soldier look like? What are the skills and knowledge needed at intermediate or advanced levels? Once those characteristics are identified, assessment tools are needed to measure them, a challenge that the Air Force Culture and Language Center is also currently facing.

Speakers’ comments included many suggestions for developing or improving the cultural component of training. LTC Marc Kortenray (U.S. Army Intelligence Center, Training Division) emphasized the use of partnerships with other sectors to help address these challenges. Establishing relationships with academic institutions would help provide access to regional experts who can contribute training content. Collaboration and communication with the Combatant Commands would also help ensure that training meets operational requirements.

Martin Bushika noted the utility of building platforms or architectures that can be used for different applications in order to enhance affordability. He also advocated the development of

portable solutions. For example, Web-based tools can facilitate tracking an individual's progress so that the information is available to unit leadership. In addition, training and practice tools for handheld devices can provide timely opportunities to reinforce learning from other training exercises, such as Mojave Viper, and can help sustain capabilities like language skills that are subject to decay.

Perspectives on Instructional Technologies for Cultural Learning

Plenary sessions included presentations from two experts in technology-based instruction, Dr. Richard Clark (University of Southern California) and Dr. Dexter Fletcher (Institute of Defense Analyses). These experts helped frame the issues of applying instructional technologies to cultural training.

Dr. Clark discussed five principles to consider when developing cultural instruction. First, culture is largely automated and unconscious. Identifying the important aspects of culture to address in training is therefore difficult, but can be improved by the use of cognitive task analysis. Cognitive task analysis can help access the deep cultural knowledge of experts. Second, Dr. Clark recommended that cultural instruction in the military first teach about our own culture(s). Understanding one's own cultural context and influences provides the foundation for understanding other cultures. The goal is to achieve cultural understanding, not to insist on agreement with other cultural beliefs and values. The training audience will be more receptive if they realize that the goal is to enable them to better do their jobs. Third, culture dictates motivation, and motivation is a primary consideration in developing training and education. What gets people to start an activity, why do they persist, and how do we get them to invest time and effort in it? Fourth, learn "how" and "why" before adapting. People need to know how to do something and why it will help them. We can't just convey the "what" and expect it to transfer. Fifth, varying practice is needed. Dealing with foreign cultures requires adaptive performance. Learning a routine response first, then encountering varied conditions and novel circumstances helps to build adaptability. Avoiding cultural stereotypes will help enable adaptability so that Service members are prepared for the variation among individuals and subcultures that they will inevitably encounter.

Dr. Fletcher emphasized the need for training evaluation and cautioned workshop participants to pay attention to cost. Return on investment is often difficult to quantify in the defense context, but can be addressed by looking at the cost of training in terms of personnel time and the investment in developing (and maintaining) the training resources. Training is a means to achieve greater operational effectiveness, not an end in itself. Dr. Fletcher called attention to the issue of requirements and identifying the tactically sufficient levels of skill needed to accomplish the mission. He also cited the advantages of instructional technologies in reducing the time needed to train and the potential for providing individualized instruction. These advantages can be accomplished by taking advantage of the learner's prior knowledge. Dr. Fletcher encouraged the audience to think of instructional design as an engineering discipline, rather than as an art or a science.

Themes and Recommendations from Breakout Sessions

This section presents summaries and recommendations from the four tracks of breakout sessions: analysis, design, development, and implementation and evaluation. In some sessions, discussions extended beyond training, education, and research and tended to address relevant, but broader concerns, such as personnel selection and management. We have attempted to include that material in the session themes and summaries, but restricted recommendations to issues for cultural training, education, and research.

Analysis Track Summary

Mr. Marc Hill, of the Defense Language Office, and Mr. Doug Nelson, of Kinecton, opened the first session, *Toward a Shared Competency Map*. They began with a brief background on the Defense Language Office, which is tasked to create force development policy on regional expertise, culture, and foreign language that will be used throughout the Department of Defense. Mr. Nelson presented on the need for a shared map of competencies that all Service members need to work effectively in foreign cultures. A shared competency map would enable different instructional developers and vendors to use a common framework.

The analysis track then divided into five smaller groups which were asked to look at the potential benefits of a shared map and possible obstacles to developing such a map. Groups were asked to define role-based performance objectives that support the competencies and to define knowledge, skills, and abilities (KSAs) that support the performance objectives. Groups split up depending on their organization: vendors (2), agencies, training organizations, and nay-sayers, who expressed skepticism about the shared map concept, and then discussed these issues for 30 minutes. Each group then out-briefed what they had discussed to the analysis track.

The first vendor group discussed the need for a core group comprised of government, military, industry, and academia. Each of these groups would gather information from their specific community, and the group would synthesize the competencies. The second vendor group focused on processes for performing missions; first look at what is going on, then use the knowledge one has, come up with objectives, and then execute the plan. They also discussed planning for social outcomes and military objectives using social reasoning. The nay-sayer group focused on competencies, noting the need to understand linguistic pragmatics and to understand verbal/non-verbal queues. They noted that it is important to know the costs and investments of training systems. This group also questioned what the private sector and business schools are developing and discussed the need for culture to have the same level of importance as other military priorities. The training group focused on the need for a foundational doctrine base to show the importance of culture and for sequencing as a foundation for training and education. Self-awareness needs to be integrated as well and should be a leadership exercise. Finally, the agency group had a spirited dialogue and determined that it is important to map specific competencies. They discussed the need to define who would benefit most and who would find it most problematic. They also discussed participation in this area by the US Department of State.

The second session, *Motivational and Personality Factors Affecting Cultural Learning*, was opened by Dr. Joan Johnston, from the Naval Air Warfare Center, Training Systems Division who gave a short presentation on cross-cultural competence and mission effectiveness. She discussed personality characteristics that make people most amenable to cross-cultural competence. Dr. Johnston discussed the three components of cross-cultural competence: cognitive, behavioral, and attitudinal. She also discussed research findings citing the importance of emotional regulation.

The rest of the session included a presentation entitled *Necessary Antecedents for Intercultural Learning* by Dr. Paula Caligiuri, Professor of Human Resource Management at Rutgers University and included an open dialogue on cultural agility, which looked at current gaps and future training possibilities. The questions and answers portion focused on the hard-wiring of a person versus the ability to train the individual, the significance of motivational factors to learn about foreign cultures, an individual's background and how it influences them in the future, the value of inherent personality, how to best understand and evaluate one's own culture, and potential methods to evaluate and select people who will best adapt to foreign culture and language.

Dr. Caligiuri described cultural agility, which is the ability to work with people from different cultures and not solely about adaptation. Following a question asking how the hard-wiring of an individual affects their ability to be agile in a foreign culture, Dr. Caligiuri noted it is difficult to adapt if a person does not possess certain characteristics to function well in high-level peer-to-peer interactions. This led to a group discussion on the selection process for Special Operations Forces (SOF) that are based on certain characteristic traits that make them more likely to succeed, and how powerful self-selection is. Dr. Caligiuri also discussed how people who perform well in one culture tend to do well in other cultures as well, emphasizing culture-general abilities. She also discussed the importance of motivation, noting in the corporate realm, she looks for people who have openness to foreign cultures, are emotionally stable and who are sociable.

One theme of the discussion focused on a necessary shift within the military that demonstrates the importance of culture, including the need to promote its humanitarian side in addition to its more conventional side. Culture was framed as a life-saving skill. One difficulty the group focused on is that a prior negative experience in a foreign culture (such as being in Iraq during high-intensity kinetic warfare) can have implications on one's motivation to respect a culture on future deployments. It is also important that behavior, both negative and positive, correlate with an outcome, such as being rewarded for good behavior. Additionally, attendees noted that the climate of the organization and ranking officers has a great impact on the culture of a unit and the value placed on intercultural aspects of the mission. The group discussed the dilemma of including more training hours for culture into existing military education which is already compact.

The group also focused on an individual's personality, including the difference between extroverts, who tend to be more culturally agile, and introverts, who may have more difficulty in knowing what to monitor in a foreign culture. The group also discussed early-life experiences

and whether this leads to doing well in intercultural settings later in life. In one study, bilingual children were more effective working in bilingual cultures later in life. Dr. Caligiuri said that the more languages a person speaks, the more agile he is in a foreign territory regardless of what culture it is. Next, they discussed the importance of learning about one's own culture before learning about another. The military also has the ability to shape behavior and should do so. An attitude shift might have a big impact, and, over time, values and attitudes might shape behavior in a positive way. The group discussed how nowadays, people self-select to join the military because they identify with certain aspects of the military which pushed them to join. Perhaps it is necessary to identify what aspects make people join and to then build upon those areas.

Dr. Johnston then noted that when we have representation from different places that want to establish different dimensions of competence, and many are personality and motivationally related and there are models to help predict success and learning, these things should help us figure out how we are going to use our resources to build training, education, and monitoring systems.

The group discussed many things, including the need for people to alter their perception of the traditional military mindset of, for example, blowing things up, to a more humanitarian side. This shift in messaging will take a long time, and should begin with cultural awareness being taught in boot camps. Thus, Soldiers need to be competent in both the traditional military as well as more cultural humanitarian skills. Therefore, cultural education should be done in conjunction with more traditional teaching. If Service members understand how cultural training will help them perform better, the training will be more effective. Talking to Service members about attitudes and cultural values along the rank structure can help. Military personnel who were involved in kinetic operations have a difficult time being friendly to foreigners following an attack. The group discussed the need to mitigate these experiences. The conclusion was to show utility for whatever is being taught to Soldiers, so that they will be able to tie the utility and success to what they are being taught. This led to a conversation on the linkage between behavior and desired outcome. Measuring and rewarding a positive outcome is very important. In addition, the organizational climate is also of importance. If a leader finds cultural agility important, it could change the entire unit's opinion of culture.

Session three, *Socio-cultural Aspects of Mission Performance in Specific Roles and MOS*, began with a presentation by Dr. Michelle Ramsden Zbylut (U.S. Army Research Institute, Fort Leavenworth). She discussed the need to focus on leadership development and methods for looking at mission performance in regards to culture. Specifically, the military should identify methods for looking at cultural capabilities needed for different missions and effective performance and the role of training versus other solutions toward achieving cultural effectiveness.

Dr. Zbylut's group applies task analysis methodology to examine the soft human skills and activities that military advisors focus on. It is important to know how to focus cultural training for advisors, given the lack of time allocated to cultural training. She described a survey conducted by her team, in which returning advisors prioritized behaviors and skills relative to one another to find what should be addressed in training. This survey identified advisors' perceptions of how frequent and important each behavior was. Although it provided a good way

to understand the performance domain, there was no perspective given from neither locals nor experts. It was noted that success was very difficult to look at in this context, but that behaviors were prioritized relative to other behaviors.

The second part of this session was led by Dr. Karol Ross (Cognitive Performance Group) on *Methods for Understanding Intercultural Aspects of Military Job Performance*. Methods depend on goals and it is important to always state goals very clearly. She focused on cross-cultural competence as an emerging area of military expertise. Dr. Ross presented different survey examples done in this field. In one example, her team used a team-ranking task that Mr. Mike McCloskey developed. Rankings ranged from not competent to culturally competent, and interviewees were asked to categorize team members along this continuum. The researchers also used critical incident interviews, task diagrams, team-ranking tasks, and document review to the role of culture in Air Force roles and missions. Results ranged from NCO through officer personnel, all with recent foreign contact. Dr. Ross found that the Air Force put a greater emphasis on language than the Army did. She then showed a task diagram and described the way it works. Its goal is to break a person's tendencies to say what they should do, and to capture what they actually do. Challenges to the analysis of intercultural aspects of specific roles include difficulty in distinguishing the culture-general aspects of performance from the region-specific and in distinguishing cultural competence from tactical competence.

The group discussed methods previously used as well as knowing when to use the appropriate method. For example, they discussed the need to find a baseline and ways to determine performance in terms of effectiveness, both for experts and non-experts. Building on earlier discussions, the group focused on the concept of cross-cultural competence and debated whether it is a value needing to be instilled in every Service member, or rather a set of KSAs that need to be acquired through training. The group concluded it should be developed (and evaluated) through training. Additionally, they noted that cross-cultural competence is multi-faceted and its component skills must be taught in military training. They also continued to discuss the importance of Soldiers understanding why and where they are going if it is for an extended period of time. It is a long-term professional development process that includes military culture, training, and continuing education. If a person is going abroad to perform a technical task, then training is sufficient, however; if the person is going for a longer period of time, selecting personnel with higher levels of cross-cultural competence may be more appropriate than training. Continuing the discussion of selection, the group recommended recruiting globally-minded individuals using advertising methods that show the military's cultural side. Furthermore, the military must begin now to focus on future missions and new countries and regions so that it can best determine what the performance domain might look like in potential future missions.

There is currently a gap in demonstrating a direct linkage between cross-cultural skills and the success of a mission, and whether knowing about culture improves the effectiveness of a mission. Part of this gap includes performance measurement. The group discussed discourse analysis as one method to address this gap. Take examples of language in use that can be in any form – documentary, recording, etc. – and analyze the structural components of the language and what is implied in the background with language use. This method could also be used in training

evaluation, with both a pre- and post-test to see how actual communicative interpretations shift over time. Word choices are important and may reflect an individual's level of understanding or competence.

This session closed by discussing that the Services do not have a good requirements analysis process in place to address cultural training requirements and that cultural skills must be placed in a specific mission context. The group also focused again on the role of leaders, how they teach and model respect, and how they reward behavior.

The final session of the Analysis track focused on *Cross-Cultural Learning as a Developmental Progression*, and was led by Dr. Melissa Brittain from the Air Force Culture and Language Center. Dr. Brittain began her briefing by noting it is necessary to understand how individuals learn cross-cultural competence. The current model the Air Force uses focuses on three skills: negotiation, communication, and relating. On the developmental continuum, they focus on consistent traits, emerging traits, key learning, and transition specific critical experiences. They also look at predisposition to think about putting people on specific tracks based on their abilities. It is also important to look at environmental considerations, which are all unique to specific Services. Dr. Brittain described the Air Force rhythm of learning on a timeline and where culture education fits in. Cultural instruction is provided in education, and, once a destination is known, the Air Force begins to provide more culture-specific training.

The Air Force is currently conducting competency modeling to see what the domain of cultural capability looks like. They are conducting interviews in theater with personnel who have taken their PME's. In the future, the Air Force hopes to have a model that is operationally relevant with practical cross-cultural competence. It is also important to reinforce long-term development of cross-cultural competence in the field and to better understand the role of environmental conditions. Gaps include finding what skills are most critical for certain populations, what role individual characteristics play, and finding ways to utilize skills in the field. Comments included the need to show some consistency within training and the need to identify right training for right person for right location at right time.

The second half of this session was presented by Mr. Mike McCloskey, from 361 Interactive, and focused on *The Developmental Progression of Cross-Cultural Competence in Soldiers*. He began by discussing how to measure and assess cross-cultural competence, noting it is important to look into burn-out after a Soldier has been deployed for an extended period of time and their continued motivation. 361 Interactive takes a multi-tiered approach to assessing cultural competence within Soldiers. Mr. McCloskey described team ranking task interviews that were conducted and how interviewees described themselves, including what skills more advanced personnel had. In addition, they conducted critical incident interviews to find likely causes of both success and failures. Simulation interviews were used to probe how different aspects of cross-cultural competence would develop, how expertise develops in a traditional domain, and how to integrate that with culture. Their goal is to develop a tool to assess and provide feedback on a Soldier's level of cross-cultural competence. Mr. McCloskey discussed six factors: cultural maturity, empathy, cognitive flexibility, awareness, assessment acuity, and interpersonal skills. Mr. McCloskey then described his developmental model of C3 and also an

assessment interview, which details question based on the level of the Soldier. Experience can be instrumental in learning, but can also sometimes be detrimental if the experience is negative or consistently stressful.

Mr. McCloskey noted the importance of having a threshold level of empathy, and how it should be addressed, including foreign interaction and basic coaching. Only about 5% of Soldiers 361 Interactive interviewed had very low empathy and other Soldiers were aware of them. Discussions distinguished empathy from sympathy, and some participants expressed concern that empathy carries risks. Empathy may cause Service members to become so relativistic that they will not be able to pull the trigger when needed.

The group also discussed the need to select people who will not do well in a foreign area and reassign them to other fields. Mr. McCloskey noted that in the corporate realm, in-country training has proved highly effective, but that this may not work in a military context. The group then discussed the need to train and evaluate Soldiers in cross-cultural competence since selection is not an option.

Finally, discussion focused on experiences in the field during deployment and the need to be more systematic at capturing these experiences. There is a database being built at Ft. Leavenworth to look at lessons learned in this area. Ft. Bragg has also done a lot of work with adaptability. It is much easier to train hard skills, such as how to hold a gun, than soft skills like coping with cognitive dissonance. There is also a dilemma in creating efficacy without having too much self-confidence.

In conclusion, the Analysis track looked at the military environment and leadership. The Air Force representative noted they have a difficult time providing cultural education and training once they move up in the military ranks. Global businesses face the same issues. Two options were brought up in conclusion: either show personnel what to do and tell them to do it or train them from the very beginning.

Analysis Track Recommendations

Define and create a core set of cross-cultural competencies for the military.

The military needs to define and create a core set of cross-cultural competencies. The core set should include a foundational doctrine base and must be embedded in general education and training using a multi-faceted approach. Once a core set has been defined, the military must invest in understanding precisely how individuals learn cross-cultural competence, as well as what role environmental factors play, in order to encourage long-term development. Additionally, the military must find ways to both measure and assess cross-cultural competence. The need for a core set of cross-cultural competencies was the main recurring theme throughout the analysis track. The group also recommended reaching out to a broader community, beyond the military, to get input in how to achieve the this recommendation.

Demonstrate the importance of culture for performance outcomes and mission success.

Analysis track participants emphasized the importance of teaching culture as a fundamental enabler for mission performance. The need for Soldiers to be competent both in conventional skills and in sociocultural skills was recommended in more than one session and after lengthy discussion from participants. Culture must be taught as a life-saving skill, including rudimentary skills in interacting with foreigners, prior to deployment. The military cannot rely on Soldiers to receive on-the-job training in culture. In order to get Service members motivated to learn about culture at an early stage, it is recommended that training and education tie cultural adaptability and agility to surviving in theater early on, not be left only to pre-deployment training. It was noted this type of teaching will go a lot further than simply teaching culture as a secondary issue. Simply put, culture needs to become a value within the military.

Increase cross-cultural instructional efforts and focus on the curriculum.

More training hours must be added for culture; however, the group noted that this is a dilemma, as military schools and training programs already suffer from densely packed programs of instruction and limited time. Analysis track participants suggested that understanding of one's own cultural and language is an important pre-requisite to learning about a foreign culture or language. It was recommended that the Services invest in teaching cultural self-awareness to junior personnel as a foundation for further cultural education and training. Once a student fully understands his own culture and language, he will have an easier time learning about another culture and learning a foreign language. It is important to find a way to separate different requirements for different job descriptions within the applicant pool: one set for experts, another for non-experts. Finally, in regards to training, it is also important to show consistency across the field and to identify appropriate training that caters to the individual at the correct time.

Design Track Summary

Dr. Michelle Wisecarver and Mr. Gonzalo Ferro (PDRI) presented the first session of the Design track, *Designing Cultural Training to Maximize Training Transfer*. The goal of cultural training is to maximize training transfer, but how does one enable transfer for adaptive performance in which the tasks and conditions are changing? Intercultural adaptability means producing an effective response to environmental change. The key to developing instruction for adaptability is to address metacognition, to create retrieval cues, using Merrill's five principles of instruction: activation, demonstration, application, integration, and task-centered instruction. Discovery and error-based learning is good for training adaptability because trainees can see how and where they make mistakes. There was much discussion of computer-based training, as the presenters introduced software developed for the John F. Kennedy Special Warfare Center and School, to create a foundation for cultural training for entry-level SOF. As with other software packages mentioned by other members of the group, the goal is to develop culture-general organizers and then apply this to culture-specific knowledge. Teaching regional facts (such as history and geography) helps build a foundation.

There was also great debate about cultural taxonomies and the utility of a taxonomy of cultural dimensions to drive underpinnings of various cultural initiatives. A taxonomy could help organize the cultural information to be conveyed in instruction, or help trainees to organize their

cultural knowledge. Salmoni and Holmes-Eber's dimensions of operational culture and Hofstede's dimensions were two such frameworks discussed. The audience agreed that there was no widely accepted taxonomy to date. A related discussion addressed the analogies typically used for culture. For example, some felt that the common iceberg analogy is insufficient to convey the complexity of culture. A tree analogy, with its branches and roots, might be appropriate.

The group also focused on ways to motivate warfighters to learn about culture. The time allocated for cultural content is not sufficient to teach everything the Services members need to know; how can education and training encourage independent and lifelong learning? Participants discussed warfighters' tendencies to be apathetic until they get to theater, and then want to learn everything. One method is to get to them to learn without realizing they are learning and embed the information into other lessons. It is important to emphasize this, which includes changing the way culture is taught. While top-level leaders in Defense, such as General Petraeus, General McChrystal, and Secretary Gates are beginning to realize the importance of this, it must trickle down and lead to organizational changes.

The second session, *Integrating Culture-Specific and Culture-General Objectives*, was led by Dr. Richard L. Wolfel from the U.S. Military Academy (USMA). He is the chair of intercultural competence at the Center for Languages, Cultures and Regional Studies. USMA is trying to create second lieutenants who have the culture-general skills to succeed in their military careers. There are three parts of cross-cultural competence taught at USMA: knowledge, skills, and affect. For knowledge, the core curriculum and goal is to place a team in the field to assess effectiveness, professional military ethics, and the historical value of landscapes. There is a power relationship behind all of this. Government uses culture to promote its goals. For skills, the goal is to understand general regional concepts (not region-specific facts) and to develop confidence through cross-cultural communication. Cadets can think "I did this and survived—I can do this again." This helps prevent reverse culture shock upon return.

USMA offers a study abroad event for ten days during spring break, and a summer program for 21 days. Additionally, they provide semester abroad opportunities that give Cadets the opportunity to learn a language through immersion. Currently, USMA can send approximately 1,000 Cadets abroad at once, with six to ten Cadets per trip. There are over 50 countries available to travel to, which are based on the strategic language list. This complements their knowledge and helps build skills and self-confidence for working with foreign cultures. Dr. Wolfel then described how this is applied beyond USMA. All Cadets get pre- and post- training and the returning Cadets brief the outgoing Cadets. The goal at USMA is to develop Soldiers who will feel comfortable interacting with other cultures, regardless of the specific culture. Dr. Wolfel has used the Intercultural Development Inventory and a Scenario Based Assessment tool in order to gauge the Cadets' cultural mindset (from monocultural to multicultural).

The co-leader of this session was Dr. Mark Mendenhall (University of Tennessee-Chattanooga). The business world has provided many valuable lessons on how cultural adaptability affects job performance. He describe a cycle consisting of the ability to perceive/analyze/decode what is going on, to accurately identify appropriate action (kinetic/non-kinetic), to possess the behavioral flexibility and discipline to act appropriately, then to

perceive/analyze/decode again, which allows people to function effectively in foreign cultures. However, there are missing links in most cultural training and education. The missing link between culture-general and cultural-specific models is a cultural-specific manifestation of the general models. This can help people understand what to do in culture-specific situations. Soldiers need to understand the “why” behind cultural mechanics to bridge the gap between knowledge and application. There is always a system that undergirds the behaviors; only understanding the framework does not work. This system provides a powerful tool to understand what to do in any given situation. It is necessary to include this missing link, which occurs between perceive/analyze/decode and accurately identifies concepts within the cycle.

Some discussion focused on individual personality traits and competencies, such as emotion regulation, and how these affect cultural integration strategies and how individuals compensate for weak traits with their strong traits. Personality traits are not usually malleable so it is important to learn how to utilize them. Further, it is important to teach that understanding foreigners does not mean being warm and soft, it means being able to connect to them when needed to get the job done.

During the discussion session, Dr. Mendenhall stated that pre-deployment intercultural skills did improve intercultural effectiveness, but that the most important thing was the ability to listen and the sincerity in people skills. The three dimensions most related to intercultural effectiveness are cosmopolitanism, other orientation (interest and relationship engagement), and self-management. Emotional resilience and optimism may also play a role. The Myers-Briggs Scale was mentioned during the question-and-answer period, but this scale has not been applied to the intercultural domain and is not used in the literature.

The third session, *Gaming and Simulation for Intercultural Communication*, was led by Dr. Elaine Raybourn (Sandia National Laboratories) and Dr. Mike van Lent (Soar Technology, Inc). Dr. Raybourn discussed her experience developing intercultural simulations. These simulations are not stand-alone; the instructor is heavily involved. Simulations create practice environments, not training, which is complementary to live action training. The goal of simulation is to execute, through communication, one’s adaptiveness, and to have the ability to expertly change one’s behavior according to multicultural situations. What must still be addressed is how to create environments that allow people to exercise their adaptiveness and understand their situation. Humans in the AI environment are role-played by other trainees (learning how to negotiate and play both sides) or experts. They draw from experiential learning, metacognition, and adaptive training. Social-process simulations are intended to help people realize that assumptions are not always the best guide for action and to allow participants to experience what it is like to behave adaptively. They start with a particular challenge, they go through actions to question their own beliefs which create a conflict, and they use communication to solve the problem. Sometimes the realization comes during after-action review. The focus is on learning, affect, and believability. The speech acts are parsed out into a narrative. In-game feedback becomes after-action review and trainees often come out of the experience with a broader solution space.

Dr. van Lent discussed modeling a culturally-specific individual for use in computer-based simulation and training. He described how visuals, such as appearance and gestures, are

just the tip of the iceberg. A greater focus is the beliefs, goals, schemas, norms, emotions, and personality that drive behavior, rather than scripting. Furthermore, instead of hiring a lot of people to do role-playing, he uses culturally-specific virtual role-players. Designing the training or simulation requires a set of models that include what is going on with the student and what the student should know. These models include an expert model (an ideal that serves as the target), an assessment model to measure the learner's progress, a model of the learner, a pattern model to allow for comparison between the learner and a referent group of peers. A monitor checks what is happening and gives tailored feedback, which can be in the form of explicit feedback (telling them what they did wrong) or implicit feedback (adapting scenario based on what they do). Dr. van Lent discussed the use of these models in a project currently in development, Social Cultural Immersive Learning (SCIL), which teaches culture-general skills that can help a student in any scenario.

Much discussion focused on the definitions of and distinctions between games and simulation. There is no technological distinction between games and simulations except for the game engine. Differences are primarily a matter of emphasis. Games generally direct a user's experience down a path, and simulation provides them with more freedom. A typical game puts more emphasis on engagement and a story. Games depend on believability, not realism. Dr. van Lent discussed the importance of knowing how real a game needs to be for positive training impact and the tradeoff of virtual vs. live-action films (facial expressions) vs. live role players (creativity) to occur. Immersion can have benefits, but may also have drawbacks. Immersion can affect a student's emotional response and make the student feel stressed. It is a weak form of emotion, but being caught up in the game can help in the real event. However, it is not known if being caught up in the immersion helps one to retain knowledge. In any case, either games or simulation can be a fruitless endeavor if not properly instantiated to support a training objective and become a training objective.

Another area of controversy is the role of fun, and whether it causes the student to spend more time in the immersion or if content is more important. Fun does not equate to being engaging, stimulating, or motivating, which are the important aspects of a simulation. One of the aims is to get learners to use the knowledge learned outside of the classroom because they enjoy it, hopefully working towards learning objectives, so fun can be a motivational factor. In addition, learners with video game experience will bring that prior experience and the accompanying expectations to the classroom. However, the important point is that fun can be a learning tool, but the military is not under a moral responsibility to make things fun for the sake of being fun. It is more important to do the best thing to achieve the training outcome. Whether having fun leads to better learning requires research.

Effective use of stories in instructional design is another area for future research. Stories are an efficient way to communicate tacit knowledge and military leadership development. Human brains are wired and better designed to accept stories than information in raw form.

Extensive discussion focused on believability and physical fidelity requirements. Participants discussed whether the fidelity of a simulation is equivalent to credibility and how lifelike avatars need to be. The simulations do not need to be hyper-realistic in terms of details, but believable that characters are emotional beings. Physical fidelity in this domain is not the

right question; rather the right question is what the cognitive model fidelity is. For example, animated movies, such as Toy Story or A Bug's Life, use unrealistic characters, but are highly successful as engaging, living characters. Cognitive task analysis will define cognitive model fidelity requirements. Simulation development should put resources into that instead of details such as blades of grass. Some medical simulations have no graphics, only text which means relying on symptoms to yield a diagnosis. It is problem-based education, engages the student, and has to deal with mental representations. It is the opposite of believability, but very successful. It is important to look at how much the trainee feels the system is helping him learn.

Service members seem to have very high expectations of fidelity; they expect to see a video example over 3D/2D avatars. But even for video, they reject the authenticity in them and have tended to find small discrepancies. Participants discussed whether an investment in greater physical fidelity would pay off in terms of greater learning or acceptance from warfighters. The up-front motivation of cultural novices was addressed. There is a challenge of connecting with someone who knows an operational scenario versus someone who is unfamiliar with the situation. To aid in this, the situation must be described so that it becomes personally relevant. One person thought having senior leadership explain why a situation is important could be helpful.

The choices available and resulting feedback in a simulation or game were viewed to have an important impact on believability. The challenge is to build back-ends that support lots of situations and decision-making processes. It is necessary to find the sweet spot in terms of how many choices and how much feedback is given. A choice-feedback-choice chain breaks the realism. Instead, one could focus on a step-by-step multi-choice chain mapped into a 3D environment. Choice-choice-choice-choice-feedback or subtle feedback are other possibilities, but whether one must stop the scenario after each decision to give feedback, was debated by the group. They also discussed what the level of granularity of decisions that maximizes one's feedback and training should be and how much learning is transferred during multiple choices. The group discussed the importance of aiming to target higher-level skills such as metacognitive prompts. This can be done by asking the user how he made a decision or how he combined knowledge and information and whether he included intervention between scenarios. This could be accomplished in an after-action review.

The fourth session in the Design Track was led by Mr. Doug Nelson (Kinecton) and Dr. David Matsumoto (San Francisco State University), *Translating Intercultural Competencies into Learning Objectives*. They described competencies as a set of behaviors that describes excellent performance. Dr. Matsumoto discussed how to take big picture competencies and break them down, noting not to worry about how they were obtained, but rather what the problems are in the real world and which problems they want to solve. It does not describe a particular behavior, so different people could solve it by focusing on different behaviors. Academics bring competencies from literature, but no one does the problem extraction from the field. The challenge in the cross-cultural area is that there is no defined list of competencies; it is needed to recreate a competency model. Such a model might include the basics to engage, communicate, read situations, build relationships, and negotiate, with the goal as having a cross-culturally competent warfighter. The presenters then gave the group a list of KSAs to use for breakout groups. The groups were told to filter this list against the competencies found in the breakout

groups and see if it corresponds. There was a consensus that having general concepts is beneficial.

Data from the field suggest that knowledge gains do not necessarily translate to performance gains. In terms of knowledge, learning objectives are the specification of what a student should learn. These should be focused on the learner, not the teacher, and what he will be able to know, feel, or do differently as the result of an intervention. These objectives should be demonstrable and assessable, and one should be able to rate the success. This is important because without good goals, one cannot assess progress or performance. Specific, concrete learning objectives should drive instructional design and will help the community get beyond the knowledge domain to application.

The difference between knowledge, skills, and attitudes are that knowledge is easy to teach and assess and includes things one can talk about, whereas skills are things one can do, and attitudes are things that one feels. The group discussed how much of this skill-building is because of cross-cultural skill differences. Some of these are cultural rules that breakdown to create knowledge, but the difference between knowledge and skills is the ability to act properly versus what one knows. Experiential exercises may hit some of the skills and more time should be spent planning the exercise to hit multiple points. Knowledge-based assessment works if the instructor explains why (“states the reasons”) but never asks the trainees to demonstrate the task (which would be a skill).

The track concluded its final session by breaking into smaller groups. Armed with a list of KSAs, the goal was to design and develop training for USMA cadets in KSAs to develop tolerance for ambiguity. Discussions noted the difficulty of assessing affective learning objectives and of establishing the reliability and validity of measures selected to assess learning.

Design Track Recommendations

Instructional interventions should address motivation as a learning outcome.

Motivation for cultural learning, self-confidence in one’s ability to learn and apply cultural skills, and valuing the role of cultural knowledge and skills in supporting the mission were all motivational/affective learning outcomes that discussions cited as important. Research is needed to determine what methods best achieve these outcomes. Using stories and scenarios with personal relevance, highly immersive simulations, and messages from senior leaders were proposed as effective ways. It is important to assess the impact of these methods on affective and motivational learning outcomes.

Conduct research on the role of fun, fidelity, and feedback in synthetic learning environments.

These three issues were the topic of much discussion. A better understanding of their contributions to cultural learning would enable better design of games and simulations to support learning and adaptive transfer. Participants suggested more research be conducted into which types of feedback are most effective, what level of granularity for decisions and feedback, how fun and enjoyment affect learning and motivation, and what level of fidelity is needed to maximize learning.

Develop methods and metrics for assessing learning and learning transfer.

There are currently no accepted metrics to assess learning or to evaluate training for culture, particularly for affective and metacognitive learning. Behavioral performance can be observed, but some learning outcomes that are important in enabling effective performance cannot be directly observed and are therefore more difficult to assess. Assessment methods are needed to support instructional design, training evaluation, and linkages between learning and performance. Assessment would also allow for a determination of whether cultural learning has any negative impact on more conventional skill sets.

Development Track Summary

The first session of the Development track began with a briefing by Dr. Robert Sands (Air Force Culture and Language Center) entitled, *Using Narrative and Ethnographic Methods in Cultural Instruction*. There are different ways to use ethnography to educate from a pedagogical standpoint. Ethnographic methods can be used to elicit narratives for instruction. Narrative can be defined as a primary form of thought that has evolved to serve functions of 1) communicating, 2) a repository for culture-specific and general social knowledge expressed through myth and story, 3) as a means to provide an effective platform to prepare for future activities. The Air Force uses narrative as both a resource and a means of assessment. Dr. Sands is collecting empirical data using Airmen narrative, in which Airmen discuss their stories of deployment, without the use of interview questions to guide them. Some of these stories are recorded on video and then used in culture-related courses. These narratives, which bring more intensity and emotion into the experience, assist in training future Airmen what to expect when they are deployed in the field.

Ms. LeeEllen Friedland presented narrative methods as used in Alelo's Operational Language and Culture Training System (OLCTS) and the Virtual Cultural Awareness Trainer (VCAT), as well as in virtual reality (VR) training systems. Alelo creates serious games and provides a mechanism for training inter-communicational skills. The goals of OLCTS are to develop a training environment to acquire, rehearse and apply relevant language and culture skills in a mission. The VCAT is web-based and can be delivered on a handheld device. Alelo uses an applied ethnographic approach to develop elements of curriculum design and course content. In particular, Alelo developed a situated culture methodology that focuses solely on things necessary for mission success. Alelo also uses ethnographic interviews and role-playing with Subject Matter Experts to assist in developing dialogue which can later be used in scenario practice. Both the data and narratives are shaped by research design and methods. Various types of narratives are collected, in which Subject Matter Experts are asked specific questions as well as to describe specific things and to discuss their personal experiences.

Discussion focused on bias which occurs when warfighters are provided a post-deployment narrative, especially since opinions can differ so much between individuals and situations. To mitigate this effect, Alelo takes many samples in order to triangulate and find commonalities among the narratives. Other concerns included how much of this type of training

Airmen actually retain, and it was noted that the use of hand-held devices allow Airmen to refresh their training. Because of the narrative involved, the learner feels more connected to what they are learning. Another issue that was raised was the risk of warfighters becoming less adaptable to situations and instead simply memorizing how to respond. To remedy this, Alelo exposes its students to multiple scenarios and includes role-playing in its training, which differs from the narratives they watch, in order to ensure they learn to think quickly and independently.

The Development group discussed the importance of Soldiers having a realistic view of what a foreign area looks like, so that regardless of what it looks like, they treat it with respect. They also noted the need for the narrators to have a high level of empathy in order to get the right thing across to the trainees, and also for the narrators to discuss perceptions of Americans and attitudes toward Westerners in foreign countries, to best prepare warfighters for what to expect when deployed. Thus, it is important to show a proper balance of both positive and negative experiences for students to view and understand.

The group also discussed cultural training's target audience, noting it is variable and constantly changing. Some people thought that it is not good to give a lot of cultural training pre-deployment, as it is a small priority, when Soldiers are heavily focused on whether their armor fits. It is important; therefore, to focus on cultural training at appropriate times, although, timing and technology remain constraints in reaching the target audience. It is also imperative that training include both general as well as specific cultural knowledge, and also that it be designed for the target audience, such as using Marine videos to train Marines and not Airmen, so that each Service can best relate.

It is also important to teach culture as a life-saving skill, and to first assess where a Soldier is in their own cultural development in order to best customize training to the individual. It was noted that Marines who found out they were successful in their mission were more eager to discuss their experiences. However, some people noted that the word empathy should not be taught to Marines, as it distracts them from their main mission focus and that they will not take cultural empathy seriously. Furthermore, it was of opinion that cultural empathy is not how Marines think of themselves and it should therefore not be taught at boot camp. This led to further discussion on the difference between cultures in the different branches of the military, and it was repeated that each Service must instruct its personnel in a way that correlates with its own culture. An across-the-board training program will not work.

The session concluded by discussing the challenge of storing data. A database for cultural data and narratives could allow the entire Department of Defense to access it and use it to build accurate models and instructional materials.

The second session, *Cognitive Load and Other Considerations for Multimedia Delivery*, began with a briefing by Mr. Gary Rauchfuss (U.S. Army Training and Doctrine Command, NCO Development). Mr. Rauchfuss discussed moving the Army from an outdated training design which involves subject matter experts developing training, to a more modern approach, which uses the latest findings in training research and applies it to military training. Mr. Rauchfuss focused specifically on research on cognitive load theory (e.g., van Merriënboer &

Sweller, 2005). It is important to understand how much intrinsic load the subject matter has; in cultural training, this is likely a significant amount. It is then important to balance the type of content being taught with the format in which it is administered. In order to prevent the content from overwhelming the learning, and to reduce an extraneous load of material, the content needs to be broken down into smaller concepts to make them easier to learn. For example, people learn better from visual and audio aids than visual and written aids. It is therefore important to use modalities effectively.

It is also important to understand definitions in order to understand bigger concepts. Therefore, one should teach definitions first, rather than embedding definitions in other concepts. Smaller definitions and concepts should be presented before the bigger concepts, so that the load is not too big to try to have the student learn small concepts embedded along the way. Additionally, it is recommended that speech accents of trainers be identical to accents of learners, and that trainers personalize their teaching in the second person (e.g., use “you will be learning” instead of “the student will be learning”). It is also important to reduce load by using spatial contiguity; i.e. putting labels on diagrams, and keeping text and graphics on the same pages. Finally, Mr. Rauchfuss discussed using temporal contiguity, such as having audio paired with animation, so as not to impose additional, unnecessary load on the learner.

The second half of this session was led by Dr. Chad Lane, who discussed intelligent tutoring systems and feedback. He also discussed effective ways to provide pedagogical support in immersive learning environments. One example of this is using transfer and retention to create robust learning. Formative feedback should be non-evaluative, supportive, timely, and specific (Shute, 2008). Instead of having the learner memorize a goal, it is visually on a screen. It is important to consider whether people will even pay attention to things like a tutoring window. To test this, one can use eye tracking to see where people actually look. Better tutors force learners to use knowledge recently gained to answer questions and consider issues. The goal of this is to get the learner to think more and to retain the learned information. It is also important to balance the tension between using a convincing story and teaching a concept. UrbanSim, for example, is a game-based, interactive way to learn about counterinsurgency in any foreign theater. Different models have different simulation systems. BiLAT, for example, is driven by timing, appropriateness, and relevance of actions, whereas UrbanSim is driven by the closeness to the ideal end state.

The Development Track then held an open dialogue and had a question-and-answer session on the presentations. One person thought UrbanSim might be too much of a cognitive load, since students are given binary questions to answer. This is potentially an issue depending what the learner is thinking at the time. A designer in the group noted designers have yet been able to apply knowledge on learning and teaching to create effective games. If the trainer can see what the learner is doing during the simulation, then it can be assessed, to know the student will practice what they should be learning. Otherwise, it is essential for the learner to be engaging in further instruction. The system is designed for the learner to both practice what they just learned as well as to learn a new concept. When asked what issues might affect a learner’s cognitive load using the UrbanSim program, answers included the number of icons and amount of text. To mitigate this, students must be pre-trained on the game and how to interact with it. To avoid

stress, players are not given a specific time limit to accomplish tasks. The group also discussed how effective this type of virtual environment is in creating emotional responses, and what level of fidelity is necessary. The group also discussed where to invest in cultural training, but did not come to any conclusions.

The group also discussed multimedia as a training tool in general, noting that future learners will be more familiar with multimedia and are able to multitask better than previous generations. It was noted that much anecdotal evidence exists in this realm, but there is no empirical evidence. In fact, research has shown that although younger generations are easily able to use multimedia, they are not actually more effective in learning through simulation than older generations. The group also discussed ways to give learners the tools to promote and develop metacognitive skills and the role of instructors in facilitating learning in these synthetic learning environments.

The third session, *Theoretical Foundations for Developing Virtual Humans for Training and Simulation*, began with a presentation from Ms. Julia Kim (USC Institute for Creative Technologies). Ms. Kim discussed how to best design virtual humans and their cognitive, emotional systems. She is interested in how to pick and choose how to develop characters in virtual environments. Virtual humans are able to enable interpersonal human to human communication beyond just practicing culture on a macro scale. Additionally, negotiation, language skills, and general interpersonal communication are all elements that can be explored using virtual humans. Since culture is embedded in everything people do, and how they communicate, simulations allow culture to be taught using avatars. Serious games have come a long way in terms of more realistic looking graphics and realistic humans. Culture, which plays a role in perception and language, can be shown with avatars using non-verbal behavior. Each avatar is an autonomous, intelligent agent that acts on a theory of emotion that is programmed. Different actions of the learner change levels of trust in the avatar which influence how the avatar acts. The model presented can change on the fly, based on inputs that the user also has access to.

In the culturally affected behavior (CAB) system, values and norms are overlaid on the task/plan models. Elements such as how avatars interact with one another all have cultural elements that are meant to be instructional. It is also important to have a training element that explains why it is that an avatar responds in a certain way. At ICT, they are trying to explore means for making simulation more educational. This can include having an avatar explain why it is that he/she reacted a certain way, or whether something else pops up and informs the learner why something happened the way it did. However, it is a big challenge to figure out how to make the models apply to various cultures. Many things still need to be looked at: time as a factor, knowing what to focus on, how interactions should be driven – by cognitive or behavior models, and assessing how to ensure users are learning the correct lessons.

The next part of this session was presented by Dr. Lynn Smith-Lovin (Duke University). She began by noting that in order to develop a virtual human, one has to build on a model that shows how humans act and what they do. Dr. Smith-Lovin is developing a behavioral model for how humans respond emotionally, how they think, and what attitudes they have, all of which are

necessary for programming virtual humans. She discussed the Affect Control Theory, a mathematical theory that has the precision most programmers can make use of. Other models are in verbal terms and are therefore not possible to program, whereas this model is explicitly about how to use cultural tools within a culture to respond to others and to respond emotionally to real world events. Human Terrain states that every block of a village differs, which is not helpful in planning operations or creating virtual trainers, because agent-based models assume all humans act the same. This model allows a person to generate understanding about an infinite number of social events and interactions. Dr. Smith-Lovin noted that simulation allows the choosing of which culture to use, interact with, and where the simulation will take place. It can also assign actor emotions. This model allows for both a general cultural approach as well as a specific knowledge approach and is feasible for putting on an iPod or other handheld device for warfighters to train with.

The Development group discussed the potential in this simulation program to create an element of surprise. However, there has not been a lot of validation of the cross-cultural aspects of this model. Data is collected in a lab, and then the model is tested in environments. The group was somewhat confused as to how this model works and is validated, so a demonstration was given. Dr. Smith-Lovin also noted that every set of actions is contingent on the previous interaction history, and it builds up with every event.

To clarify between the two presentations during this session, it was explained that the first model must state what it means for example, to assail someone, and would need to include a set of verbal or visual emotions to correlate with that. Given all the interactions of the particular person, one can see why the individual would behave the way it does and what the consequences for the set of actions would be using different kinds of people. This model has two approaches: one is bottom up and begins with the model, the other is top down. Ideally the two models would meet somewhere in the middle. Integrating this model into an intelligent cognitive agent was also discussed, in an effort to create a visual representation.

The group also discussed how the military is currently implementing technologies that look at physiological responses to interrogations, and how a simulation can capture that. One example is for the simulation to teach culturally specific things. The group also discussed how to capture the entire spectrum of language and communication, including non-verbal body language, paralinguistics, and neuro-linguistics in a virtual reality trainer, as well as the implications of these various models, and the potential for a greater level of detail in input. It is unknown at this time what level of input is needed to teach a person to be an effective communicator or interrogator, such as knowing the pitch of the voice or the heart rate. However, which specific nuances are that of a novice versus an expert, are known. In concluding, the group discussed the need for a trainer to be refined when better technologies come along, as the technology does not yet exist. Perhaps a beginner should see a simulation trainer first and this will make the training time shorter in the more advanced courses with one-on-one instruction with a human. The group ended its discussing by asking what types of capability they are trying to provide, such as skills in cultural agility or something more culture-specific. It was decided they are working on building an adaptable soldier.

The final development session, *Using Cultural Informants, Cultural Subject Matter Experts (SMEs), and Military SMEs in Content Development and Validation*, began with a briefing by Dr. Lewis Johnson of Alelo. He opened the session by discussing ways to use cultural informants and SMEs, including finding the operational context that they are training for and how it constrains in training. Alelo is figuring out what kind of information operators will need and then they collect and develop that content. He noted the importance of using SMEs at all stages of the development process. One problem with this is using retired military SMEs as the information might no longer be valid. It is therefore important to collect all the pieces of data and information and to then triangulate from it what is believed to be the most accurate perception. Some people have varying levels of meta-cultural awareness of their own culture, so accounts can definitely vary within SMEs. Alelo prefers to meet with SMEs on an individual basis, so that they can delve deeper into their expertise. They are also worried about contamination, since if there is a dominant person, most of the content is going to come from that person. That is why they are typically not in favor of focus groups, and prefer one-on-one interviews.

The final portion of the development track was led by Dr. Winston Sieck (Applied Research Associates). He discussed how to get information and how to ensure it is valid, as well as what aspects of culture to train, as that determines which methods they use to develop the content. There are a lot of different kinds of expertise, necessary for creating good content, and include cultural informants, cultural SMEs and military SMEs. The challenge is figuring out how to understand what is going on in the heads of people from other cultures. Military experts of a region do not provide the same information as locals from that culture do, and it should not be assumed that they provide the same information, as each brings a unique kind of expertise. However, he does believe that basic competencies of a culture can be generalizable, as long as people are aware of what drives specific cultures. To do this, they must first establish evaluation criteria, including the difference between what a novice and an expert has in their skill set and then conducts a gap analysis.

Sieck's research uses the method of Cultural Network analysis to map knowledge in a way one might map a social network. The group discussed perceived values and thoughts that are populated with a specific concept and what information is needed from an expert. This led to discussion on what constitutes a cultural expert and difficulties in accessing such experts.

To document information received from an interview and to balance the scope of the interview to ensure you receive the necessary information involves recording the session and to create a series of prepared questions. However, gaps will be discovered later on, but ideally one can return to the subject matter experts or seek new experts to assist in filling gaps. Other ways to mitigate these problems is to have two interviewers, and to use a very methodological approach.

One person noted the importance of using outside perspectives as they will be attuned to minor differences of a culture, as often times, people are unable to point out specific things within their own culture because they lack the meta cognition. Narratives are an effective approach for getting information out of people who do not have an ability to reflect on their own

culture. Dr. Sieck also discussed the importance of having multiple subject matter experts to cross-check information and to best understand the data. It is important to be reflective and careful about one's own assumptions when going into an interview, because how the interviewer engages a SME is going to be very different. Even the kinds of questions that one comes up with will be very different. To control for the many different opinions of a culture, they try to collect data from several sources to determine multiple courses of action. Because cultures are diverse, they do not seek one answer. It is important to expose people to multiple courses of action in a given scenario. Dr. Sieck also discussed using internet surveys to see how teamwork varies across cultures. One dilemma with using the internet is that remote villages do not have the necessary access. This is where one can use, for example, Afghani experts and natives to go into villages and talk with people, in order to get a good idea of the differences between people in the city and people in villages. Another example is to use role playing to describe non-verbal communication, such as how far apart people stand in a foreign culture. This approach can also help elicit information as any expert would have an opinion on it. It is important to develop and share tools to help the collection, structuring, analysis, and reanalysis of data.

To validate the accuracy of the data, they return to the source of the data and to the subject matter experts a second time. To look into accrediting training, it was suggested people look at whether it covers the materials a Marine will need to learn and whether it is specific to a particular region, however; it was noted there is no complete answer yet. Language training has a more standardized accreditation process. It is handled mainly on making sure the correct language is being taught for the given region and whether dialects change drastically between villages. Applied Research Associates has its language material validated by multiple sources and considers it an iterative process. The goal of the research is to get knowledge into the field, but also to build cultural sense making. This helps to create high content-specific knowledge that is focused on core generalizable skills for teaching cultural ability.

Discussions addressed the need for greater authorability of scenarios so that training can be disseminated more rapidly. The traditional way for making training is for one person to provide content and for the developer to turn it into a program. What is needed is for both training and programs to be made adaptable to revisions in content. A current challenge is the ability for someone to build a tool and technique that can collect cultural data and quickly put it into training that can be accessed by Soldiers throughout the world.

Development Track Recommendations

Apply and disseminate research from the cognitive and learning sciences to the development of cultural training.

Cultural training development often focuses on the cultural content without sufficient consideration of the learner's prior experiences, cognitive limitations, and learning processes. Research is needed to apply relevant to the sociocultural and interpersonal content domain to insure that training development is strongly founded in instructional design principles.

Use stories and narrative from Service members to provide realistic and relevant training content.

This approach provides engaging material to help convey cultural information in the context of Service missions and cultures. Research should examine the role of narrative in facilitating cultural learning.

Provide methods and resources to gather, store, and validate cultural data.

Participants suggested that sharing data would help facilitate the development of cultural models and of instructional material. These resources would include data on specific cultures of interest, as well as critical incidents from military personnel regarding cultural challenges they encounter in their missions. Participants recognized a need to insure that training content does not reflect the biases of informants who may have incomplete, inaccurate, or outdated information. Data sharing and common validation methods would help reduce the risks associated with biased or limited sources.

Implementation/Evaluation Track Summary

The first session of the Implementation and Evaluation track was led by Dr. Joan Rentsch (University of Tennessee, Knoxville) and focused on identifying skills necessary for intercultural competency. These skills include interpersonal skills and self-awareness, but also include a strong knowledge component. Dr. Rentsch is conducting research to identify cultural knowledge that is useful to Soldiers. The goal is to identify a schema for understanding cultural and regional expertise. In order to do this and to understand a culture, it is important to understand how people organize knowledge. These knowledge structures, or schemas, are formed through both direct and indirect experiences and should therefore be trainable. Expert schemas serve as a good target for knowledge development. Dr. Rentsch discussed representing and extracting complex cognitive information using the method of Paired Comparison Ratings. Research participants rate the relatedness of concept pairs. Once these pairs are created, the data is mapped using the Pathfinder program, which is based on graph theory and which represents data as a network to show relatedness. The benefit of this model is that it shows central concepts that influence other concepts. An example application is that the schema could be used to evaluate training. If students are asked questions and the answers fit the models, then there is success.

Questions are formulated about the pairs by asking what the two items in the pair say about culture, and how they link to the abstract notion of each culture rather than each other. Dr. Rentsch worked with non-academic subject matter experts who had professional experience in a military environment. They were interviewed and their unique statements were taken, placed on cards, and then people stacked the cards as they thought that the statements were related. Then they pulled pairs from those cards. It was noted that the Army could use this process of taking two weeks to collect data, create a model, then alter the training methods based on this model to test its effectiveness. One person noted that he does something similar but creates his own unique terms so that it is a self-contained system, also using Pathfinder.

In this research, rather than create a framework of culture, the goal is to map a mental framework of how an expert understands culture. Interviewees were Soldiers who had been previously deployed to multiple foreign countries. Respondents who lacked either consistency or coherence in their data were dropped. The goal is to identify an umbrella schema that represents a strong operational understanding of culture.

The second presentation was by Dr. Peter Siska (USMA), who discussed how to understand regional knowledge, using regional expertise as a military requirement. He focused on five major components of regional understanding using the Pentathlete concept. Each person has a personal definition of culture and these definitions need to be plotted to all aspects of regional complexity. To assess knowledge and competence, officers need to abstract an understanding of a general region and then apply it to specific regions. Analytical and synthetic thinking differ, both of which are necessary. Dr. Siska also discussed chorology, a cause and effect relationship, which keeps the regional building blocks together, such as politics and economics, for example, where one thing is dependent on another. He then discussed the General Regional Aptitude Network Test (GRANT), which is a questionnaire assessing general regional knowledge and motivation for regional learning. This research could help identify cadets who have an aptitude for regional learning.

Some discussion focused on geography being a critical skill in this area. Recent BAAs have focused on geospatial overlays and this group is now focusing on the correlation between geography and culture. For example, geography might be important for understanding differences between villages, given their distance. Mountainous regions greatly differ from flat terrain regions in terms of cultural development. Region was also one of the pairs plotted in the previously discussed network. One attendee commented how the Nazi regime was deterministic in its approach to cultural success and geography.

Dr. Paula Durlach (U.S. Army Research Institute) presented the third session on *Designing and Conducting Training Evaluation*. In Kirkpatrick's framework, there are five levels of training evaluation: reaction, learning, behavior, transfer, and return on investment, the measure of impact on an organization. The difficulty in assessing increases from the former to the latter. At each step it becomes harder to determine how, what, and when one should measure. Methods used include analyzing the differences between pre- and post-tests and comparing groups that receive different treatments, such as measuring a group receiving several series of training, which is good for assessing different pedagogical models. However, this method is difficult to conduct. The ultimate goal of training is for the trainee to use what is learned on the job, and the difficulty resides in retention and application of what is learned. To measure skills retention, one must look at detecting changes in knowledge and behavior, which includes using increments and not simple yes and no answers from respondents. This helps ensure the assessment accurately portrays what was learned. For example, it is important to measure aptitude, motivation, experience, and time, in addition to just knowledge. It is also imperative that the purpose of the training evaluation be known, since policymakers need one level of data and academics require another.

Dr. Durlach then discussed BiLAT, a game-based training which teaches bilateral negotiation in an Iraqi cultural context. Assessment used a type of situation judgment test (SJT), which measures something between learning and associated behavior. Dr. Durlach discussed SJT situations, and how they were generated and vetted with subject matter experts before being revised and then reviewed by a second set of subject matter experts. At that point, experts raised questions they could not agree on. In hindsight, Dr. Durlach noted, this did not test the sensitivity needed to know the level of experience of the test-taker. In examining the evaluation and design results, there was a significant increase in post-test scores compared to pre-test scores. One could also see a correlation between the knowledge of Iraqi culture and the level of experience in negotiation. People who had negotiation experience started out high, but did not increase their scores. Additional lessons learned included the need to understand the degree of sensitivity prior to the testing and knowing exactly what one is measuring. Finally, she concluded that evaluation should not be the last step, but rather a part of a continuous evaluation.

Ms. Amy Ogan (Carnegie Mellon University) discussed human-computer interaction, also using BiLAT. Characters were created based on experiences of US Soldiers in the field. The learning objective is to establish relationships and to create win/win situations. Certain items are measurable like steps for a proper way to pray in a foreign culture. It is important to identify such practices as they can lead to the best possible social outcomes. She noted that students treat BiLAT like a game with no consequences.

Ms. Ogan conducted a randomized study in which students who were given social goals for the game performed better than students without goals. Dependent variables included retention, timing, and matching learning with study objectives. In the assessment, she looked at independent variables, comparison conditions, and versions of simulation. At least twenty participants were needed in every condition to have statistical power, and they also needed an intervention time to avoid fatigue. To collect data, she avoided experimenter bias by writing a script that was constant to both conditions. BiLAT had a ceiling effect on both pre- and post-tests with the control group having non-social goals performing better in some areas. In conclusion, there was no difference between the two groups in terms of personal goals, but students with social goals took fewer actions.

During the discussion period, attendees discussed training objectives of the BiLAT program, which establishes trust and uses a win/win strategy to train bilateral engagement. These are high-level objectives drilled into each skill-set, though some attendees felt these are vague and difficult to measure. They also have a list of save-face options in the SJT and the student determines which is best. There was also a discussion on knowing what is and is not measurable. It can be difficult to find quantitative observable factors. It was suggested that the Services create ten steps to learning negotiation skills. However, it was noted that social skills can be difficult to define.

Additionally, the group discussed a video shown to the group the prior day. They discussed how this video failed to show respect and the importance of teaching Service members how to think in addition to how to behave. They also discussed how evaluation is conducted, noting the need for independent, third-party evaluation, as opposed to training developers

conducting evaluation on their own products. It is helpful to triangulate this to identify which areas are working versus not working, and to look at the same problem from various angles. BiLAT welcomes assistance in creating its evaluation process to better aid them in understanding their system. Currently, they use military SMEs and Iraqis who are professional role-players to inform their systems. They are beginning to also look at what Iraqis who do not have military training are thinking.

The group concluded with a conversation on the role of SMEs, including who they are, what they know, and what really makes them expert, especially those in the military. Some people noted the importance of working with the Department of State, who conducts language training for diplomats.

In a third session, Dr. Melissa Brittain (Air Force Culture and Language Center) and Dr. Joyce Osland (San Jose State University) led presentations on the assessment of non-cognitive learning outcomes. Dr. Brittain discussed Air Force-specific challenges in developing and assessing cross-cultural competence, and ways to reinforce cultural learning throughout an Airman's career. Ms. Britton focused on the Air Force's three critical culture skills: relate, communicate, negotiate, and how this must begin in a classroom. Education on culture is currently based around the Quality Enhancement Plan (QEP), which is needed to ensure Air Force University accreditation. Dr. Brittain is charged with four student learning outcomes: declarative knowledge, skills (communication, negotiation, relation), attitude (openness to other cultures), and application (how to perform in the field). She noted the difficulty of determining whether these learning outcomes enable better performance in deployment; for example, how might cultural relativism relate to performance and how much is appropriate?

The group discussed this briefing, including how to assess application, which is done using a self-report system at six month intervals. They are also working on behavioral observation and behavioral diaries to develop new tools. They also focus on broad cultural skills, such as the basics for gathering information instead of regional learning.

Dr. Brittain also discussed the Air Force's instruction approach, which includes distance learning courses. One person questioned whether Airmen are actually utilizing the skills they have learned. Airmen receive cultural instruction both in education and in expeditionary training prior to deployment, and they receive both cultural general and cultural specific instruction. They are also provided with simulations to reinforce their training. They are currently working to figure out what works best at changing one's attitude, including stimulus, reflection, and evaluation.

The group also discussed how a warfighter might forget about his cultural training when he is in a traumatic cross-cultural experience. In addition, confidence in one's cultural skills is probably helpful to an extent, but the group also saw value in failure experiences that provide a realistic view of one's knowledge and skill levels. Other challenges include testing and evaluation with such large numbers of personnel, as well as how to assess at higher ranks and levels of competence, and what critical non-cognitive attributes should be addressed.

It was also noted that Service-specific deployment models may impact the learning outcomes of interest. Whereas the Army and Marine Corps tend to train and fight as a single unit, the Air Force deploys individuals, so they are training broad behavioral indicators. Adding to Service differences is the fact the Air Force has a QEP guideline, which is education focused and not task- or mission-oriented. One recommendation is to have J3 fund cross-cultural education to provide more consistency across Services in baseline knowledge and skill.

Next the group discussed online courses and whether an instructor's sample of behavior is enough to assess attitude. The Air Force requires attitude assessment throughout the course, but they need a way to track the development as the current rubric is not the best way. It is important to have a positive attitude so that the trainee can adopt behaviors to achieve an effective outcome. Predispositions and base attitudes are often resorted to during times of stress. The group discussed the internalization of training across the services and the need to change the attitude of the military. However, this issue was a point of controversy, as past research has shown that attitudes are often not a good predictor of behavior. There was disagreement among the group about the relative importance of attitudinal and affective learning outcomes versus behavioral outcomes. Participants noted that front-end analysis might help address some of these issues.

The fourth session of the Implementation/Evaluation Track focused on the *Impact of Cultural Training on Readiness and Mission Performance*, led by Dr. Jay Goodwin (U.S. Army Research Institute) and Dr. Kurt Kraiger (Colorado State University). Dr. Kraiger discussed the use of training evaluations, and whether or not they add value. He noted they are often used because money is being invested, and the investor wants to know what is working well. However, they become difficult when one is trying to use them to make decisions. Most evaluation measures reactions, and only a few measure learning. Dr. Kraiger discussed the Kirkpatrick levels of training evaluation, which is the most commonly used model of evaluation, but noted its criticisms, such as causally relating, and making the assumption that if a student did not like the training, then he did not learn. It is important to ask what one hopes to understand from an evaluation. The purpose of the evaluation must be clear: to make decisions, to get feedback, to have relevancy, or to use in marketing. The value of measuring is in knowing what one is doing, and why. The briefing concluded with a discussion on the ways to quantify the effect of cultural training and looking at its long-term benefits.

Dr. Jay Goodwin gave the final briefing of the Implementation and Evaluation track and discussed program effectiveness, including the transfer of training, individual and unit readiness, and practical issues. He pointed out that there is a big difference between behavioral routines and knowledge and skills. Behavioral routines are default reactions and often do not help in cross-cultural situations, and therefore some basic cultural skills are needed. The training audience must be intellectually ready to make use of these skills. The military defines readiness as the ability to perform a task. Culture can be thought of as the context of a task. Time and technology are two issues that they must deal with. Cultural training is an umbrella term. Its general purpose is to both serve the broad mission by interacting with people and it varies at the military level, as well as interacting with locals.

One person in the group felt they are standardizing too much. Dr. Goodwin responded that the military is still in the early stages of this process and that there is merit in some standardization of the knowledge and skill set for cultural capabilities. Nowadays, ground forces need to be able to talk to locals, and not just shoot. To evaluate the aspect of time measuring impact decades down the road, the military must gradually perform tighter studies, first showing how those with training are more trusted, and then show those who are more trusted being promoted.

Another gap exists in how to measure cultural readiness. The Services provide reports each month that show how a unit is maintaining skills. Readiness is about demonstrating performance, and training is about performance. It was unknown if there are any soft human skills in current readiness reporting. It is important to teach more than just language skills. The warfighter must also have the skills to navigate a foreign culture with little or no foreign language proficiency. Anecdotes about the effects of training, which are taught at a few military training centers, can be just as important as numbers and perhaps even more effective. Anecdotes can be used to prove value. They are not data, but data can be gleaned from them. It is important to have anecdotes about successes, failures, and near-misses. To know whether an anecdote is successful as an evaluation tool, one must consider the context of to whom it is being provided, for example, the military, or a news organization. The group addressed the need for gathering and disseminating these kinds of anecdotes. Questions were raised about how to quantify return on investment in this area; this issue was noted as one area where much work is needed.

Implementation/Evaluation Recommendations

Develop methods to evaluate the effects of cultural training.

There is currently no way to quantify the effect of cultural training. Research should develop measures for the relevant cultural learning outcomes and methods to study the return on investment. Evaluation and comparison of current cultural training should be conducted to determine whether cultural training is achieved the desired effect and to identify continuing training gaps. Training evaluation methods would help both the Services and industry training developers to build evaluation into the design process.

Use independent reviewers in evaluations.

It is important to include independent reviewers in training evaluation. It is important to assess higher levels of trainees at a different degree than beginners and to look at critical non-cognitive attributes. Subject matter experts from within the military are not necessarily independent enough to evaluate training alone. It is vital to use reviewers from across the broader community.

Create common baseline cultural training standards across the Services.

Participants felt that the Services could identify a set of common cultural learning outcomes/objectives that all personnel should achieve. Though the Services will differ in many ways in their approach to cultural training, a common baseline set of skills and knowledge would help institutionalize culture within the military as an enabler to mission success.

Research Gaps and Recommendations

Breakout sessions identified gaps and recommendations not only for research, but also for structuring education, training, and other development of cultural capabilities. In this section, the primary emphasis is recommendations for research to support cultural training and education efforts. This section presents an overall synthesis of research issues and recommendations from the breakout tracks, the plenary sessions, and informal discussions among workshop participants. Many of the research gaps identified in the workshop have been previously identified as issues of interest to the Service's culture centers and other organizations involved in force development in the sociocultural domain.

In general, the gaps and recommendations presented here relate to training and education where culture is a central focus. However, social and cultural learning can either be a foreground or a background for force development efforts, and workshop discussions suggested a need for both. Cultural learning objectives are sometimes the primary focus, but more often, mission skills are the focus in a cross-cultural context – that is, culture is often a condition for training and simulation, not a task. Finer distinction among different modes of cultural instruction would be beneficial to discussions on this topic. Borrowing from intercultural training research (Batchelder, 1978), some suggested terms are offered here for clarification.

What is often referred to as pre-deployment cultural training would be more accurately labeled cultural orientation. Cultural orientation provides knowledge of the specific cultural situation that personnel will face: the “who,” “what,” “when, and “where.” This type of instruction conveys facts about a culture or country and may include specific actions to take or avoid when working in that culture.

Cultural training consists of preparing personnel to perform specific tasks in an intercultural environment – learning and practicing mission-oriented skills for operations with a cultural component. Cultural education builds the foundational knowledge, affect, and skills for mission-oriented skills, particularly when cultural performance demands are broad, uncertain, or are expected to vary. Whereas cultural education provides the “why,” cultural training provides the “how” (Batchelder, 1978; Bennett, 1986).

Simulation and mission rehearsal offer opportunities to practice mission-oriented skills in a realistic context, often treating culture as a condition for the mission, much like an aspect of the physical terrain. In simulation, culture is the background. In cultural orientation and education, culture is the foreground. Training can involve culture in either way, either developing skills that directly enable one to deal with the cultural components of the mission, or developing skills that for which the cultural context is merely incidental.

These distinctions are important because they make different contributions to cultural readiness. Conducting simulation and mission rehearsal with a cultural component assumes that participants have already had opportunities to acquire the skills needed. Focusing on only one or two modes of instruction provides an incomplete background, risking gaps and redundancies in

servicemembers' cultural preparation. All modes need to be considered as part of a continuum of preparation, though the role of each may differ depending on the Service, mission, or personnel.

Incorporating cultural conditions into simulation and mission rehearsal represents its own set of challenges, but workshop discussions tended to focus on explicitly addressing cultural learning objectives rather than treating cultural conditions as implicit to other tasks. As a result, the gaps identified and recommendations outlined below apply most strongly to cultural training, orientation, and education, and to a lesser extent apply to simulation and mission rehearsal as defined above. Six areas needing future investment are discussed in detail below:

- 1) Analysis of performance requirements,
- 2) Learner motivation, cross-cultural competence, and development,
- 3) Instructional sociocultural content,
- 4) Flexible instructional solutions,
- 5) Methods and metrics for training evaluation,
- 6) Continuing opportunities for exchange and collaboration.

1. Analysis of Performance Requirements

Workshop sessions called for a clear identification of performance goals and cultural learning outcomes for general purpose forces (GPF) and critical specialist occupations. Where possible, cognitive task analysis should be conducted to determine performance requirements and identify gaps. Specification of training requirements can only be conducted once the performance requirements are identified and other potential solutions across DOTMLPF (Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities) are considered. Training is only one potential means to filling a performance gap. Other force development activities should be considered, including education and professional assignment, as well as other personnel and organizational solutions, such as personnel selection and assignment and the use of job aids.

To date, no systematic analysis has been conducted to identify the human performance gaps and determine which solutions are most appropriate. As a result, the human capabilities related to culture have not been specified, and the means to achieving them have not been clearly identified. Developing training and simulations without this analysis as a first step amounts to guesswork that may ultimately prove inadequate to fill the sociocultural capabilities gaps.

Furthermore, the cultural training and education needs for specific roles and functions are poorly understood. Workshop participants argued against "one-size-fits-all" cultural instruction, but we do not yet know how performance requirements and training needs differ by job. There may be a baseline of knowledge and skill that all personnel need, but training needs will likely diverge through the career progression. Currently, cultural orientation is readily available for different countries, but training and education have not yet been tailored for specific roles, ranks, or levels of expertise. To this point, training and simulation development has focused on incorporating culture for meet-and-greet interpersonal interactions, and little attention has been

directed to other situations and roles where culture is relevant (e.g., interrogation and intelligence collection, managing multiple ongoing relationships, operational planning).

Research should first specify what successful performance in this domain looks like, and identify current and expected future performance gaps for different roles and personnel. Then the human capabilities needed to achieve the desired performance levels can be identified. Those capabilities will provide guidance for the learning outcomes to be targeted by instructional interventions.

2. Learner Motivation, Cultural Competence, and Development

Discussions identified the need for theory advancement in two areas: the cultural content and the instructional components. The cultural content is addressed in a subsequent section. For the instructional components, frameworks and theory on cultural learning to guide instructional design are lacking. Research on cultural skill acquisition and the development of cultural expertise is greatly needed. There is a large literature on novice-expert differences, but this research has not been widely applied to the development of cultural expertise. In addition, research is needed to test theory on the development of cross-cultural competence and other cultural capabilities. Theory and frameworks for intercultural competencies and attributes have been outlined both for military (Abbe, Gulick, & Herman, 2007; Hardison, Sims, Ali, Villamizar, Mundell, & Howe, 2009) and non-military populations (Black, Mendenhall, & Oddou, 1991; Johnson, Lenartowicz, & Apud, 2006), but none have been tested for their ability to predict performance in military personnel. Generating appropriate content, development through a career progression, and tailoring instruction to the individual all depend on an underlying conceptual model for acquiring cultural knowledge and skills. Research to identify how this development occurs will better enable the Services to close the gap between current and desired performance levels.

Research on the learner population is needed to support decisions on when to use different instructional methods and media. Some research gaps are unique to the domain of cultural learning, whereas others relate to learning and instruction more broadly. For example, much attention has been paid to generational differences in learning and motivation (cf. Prensky, 2005), differences that are often cited in discussions on the use of games in training and education. However, some skepticism may be warranted. Empirical evidence has repeatedly suggested that these trends are overestimated (Orvis, Horn, & Belanich, 2006; Pashler, McDaniel, Rohrer, & Bjork, 2009; Trzesniewski & Donnellan, 2009). Some generational or individual differences may be very important (e.g., levels of experience and expertise in the subject matter), and others may have little impact. Further empirical research is needed to insure that the instructional methods and media selected are effective and efficient for the target audience.

One important topic for future research is learner motivation. Recognizing that the relevance of cultural instruction should be highlighted for the learner (the “so what” of instruction), there remain a set of unresolved issues surrounding learner motivation. How important is the role of “fun” in learning in games and simulation? The notion of fun in synthetic

learning environment seems to revolve around learner engagement. Though unengaged and inattentive learners will almost certainly learn less than the engaged and attentive, it is unclear whether fun and enjoyment is a requirement.

Another potentially important aspect of learner motivation is the distinction between performance motivation and mastery motivation (Elliott & Dweck, 1988). When performance motivation is high, the learner seeks to demonstrate his or her ability to perform the task. When learning motivation is high, the learner seeks to master the skills needed and will seek out challenges that provide opportunities for skill improvement (Ford, Smith, Wessbein, Gully, & Salas, 1998). These goal orientations are important considerations in the design of instructional interventions, as well as potentially important learning outcomes for those interventions (Ford, Kraiger, & Merritt, 2010). There are many important questions surrounding learner motivation for cultural instruction. For example, does performance orientation in a game or simulation undermine learning? How can synthetic learning environments be structured to enhance learning and mastery goals?

3. Instructional Sociocultural Content

One potential method to enhance learner engagement and motivation is the use of narrative, scenarios, and stories, which were viewed by workshop participants to be important resources for cultural learning. Some of the general benefits of scenarios and narrative may be higher personal relevance, higher learner engagement, and utility for teaching tacit or procedural knowledge (vs. declarative knowledge). Narrative and scenarios may be particularly well-suited for developing cultural knowledge, as the impact of culture can be highly situational and often occurs below conscious awareness. Research is needed to examine these issues and the potential implications for learning. Research is also needed to determine how best to structure cultural scenarios for effective education and training. A bank of critical incidents related to culture and intercultural interactions would be a helpful resource for training developers, as well as a helpful resource in determining what competencies are needed in these situations. Workshop discussions cited a potential role for the Lessons Learned organizations in gathering such incidents, which currently lack systematic methods to collect and store relevant cultural incidents.

The validation of cultural content in cultural orientation, training, and simulation is of critical importance. Use of subject matter experts (SMEs) as cultural informants during content development is a common approach; however, the term “SME” is used very loosely and imprecisely. There is no consensus definition of a cultural SME, and SMEs can vary dramatically in the recency, breadth, and depth of their experience with the culture in question. Reliance on multiple SMEs is one solution, but combining disparate responses is still a challenge. Some methods are available to determine how to characterize a culture, when cultures are imperfectly shared and their influence situationally activated (e.g., cultural consensus theory, cultural network analysis). Further research should examine these methods and their use with different sources and amounts of data.

At a more macro level, conceptual models and taxonomies are needed for cultural differences that have operational relevance. These models and taxonomies can either be taught

directly to trainees, as guiding cognitive structures for cultural knowledge, or can serve as ontologies for simulations that depict different configurations of cultural values, beliefs, and behaviors. Because not all aspects of culture are equally important for all operations, workshop participants were skeptical that existing taxonomies, such as those developed in international business settings, would apply uniformly to military operations. A better understanding of how social and cultural context affects behavior in conflict situations is needed. This context includes societal or national culture, but also includes organizational cultures and other social dynamics, such as those due to military intervention itself.

A related issue is determining the appropriate level of fidelity. Cultural content can be highly accurate without being relevant or important. What level of fidelity is needed for training and simulation? How fine-grained should the representation be? Fidelity questions can only be addressed with regard to the operational context – the relevant aspects of a culture are not necessarily the same across all missions and all levels, and continuing research is needed to determine what social and cultural information is needed to perform in different missions and in different cultural contexts.

4. Flexible Instructional Solutions

One set of research challenges relates to enhancing the flexibility of synthetic learning environments (i.e., training simulations, serious games, virtual immersive environments, etc.). One research topic to support that flexibility is the identification of which aspects of the operational environment are important for learning, and therefore which aspects are important to represent in the synthetic learning environment. Simply representing as many details as possible from a live training simulation or from the operational environment is not practical and probably not necessary; for instructional purposes, selecting the details with direct impact on learning is the primary concern and likely more easily accommodated.

The need for greater authorability in training and simulation was also recognized as an important area for additional research. Instructors would benefit from greater flexibility to update scenarios based on feedback from the field and changing instructional needs. Trainers and instructors may also want to control the level of challenge presented in a scenario. Current scripting and branching does not allow for instructor-initiated modification without considerable time and effort. In addition, reusable architectures that support development of training tools for different countries or regions would be beneficial. Participants noted a need for tools that can be edited by a layperson, not a programmer or other specialist.

Flexibility is also needed to provide learner-centered instructional design. Current understanding of the cultural learning domain is insufficient to support tailoring the content and level of difficulty for an individual learner. Further research is needed to determine how to address different levels of knowledge and skill, how feedback should be structured, and what learning experiences help an individual progress from novice or intermediate skill levels to higher levels of expertise. Extensive research on the science of learning has informed instruction for other content domains; this body of knowledge should be tested in and applied to the domain of cultural learning.

5. Methods and Metrics for Training Evaluation

Methods and metrics for training evaluation are greatly needed. As in other sectors, gauging user reaction is common, but assessment of learning is relatively rare (Van Buren & Erskine, 2002). Usability and user reaction are informative, but measuring learning is critical and remains a continuing gap. Ideally, assessments of learning in training evaluation would be aligned with the goals for cultural learning identified in doctrine or strategic documents. Evidence of transfer and return on investment would also be ideal, but this kind of research is often very difficult to conduct. Where these results are not possible to assess, research should establish a link between mission-relevant cultural competencies, learning objectives in training and education, and learning outcomes in the training population. This insures that trainees not only learn something from training, but that what is being learned is considered important and is relevant to the mission – in other words, that we are both training the right stuff and training the stuff right.

Development of metrics for evaluation of learning should be a strong focus area of future research on cultural training. Any training development efforts should build evaluation into the design and development process, with evaluation metrics designed for the learning objectives specific to that training. In addition, some common metrics should be developed to enable comparisons across training methods and products that address similar learning objectives. Though training and education often focus on cognitive and behavioral learning, workshop participants recognized the need for further research on the full range of relevant learning outcomes and the role of affect and metacognition in particular. Different learning outcomes may require different assessment methods

6. Continuing Opportunities for Exchange and Collaboration

Though defense research and development is generally conducted to address a problem for a particular Service or organization, it should also contribute to the broader body of knowledge. Research conducted for one purpose will often have implications for other questions, and investigators and performers should be encouraged to disseminate their findings to appropriate audiences. Filing reports with DTIC is helpful but insufficient, as project reports are often intended to satisfy with requirements of a contract or to communicate with the funding agency, not necessarily to communicate with others working on similar problems. Research progress occurs by sharing findings and lessons learned in an incremental fashion. Indeed, some initial promising work has been conducted on many of the topics listed above, but may not have reached some of the communities that would benefit from it.

HSCB conferences and workshops can help address this need, and such events should continue on a regular basis to allow for continuing exchange. In particular, there is a need to support interdisciplinary exchange. Exchange within disciplines occurs in many existing professional organizations. However, conducting applied research on such broad and ill-defined problems as the sociocultural context for defense activities requires interdisciplinary collaborations that are often not readily accommodated in these organizations. HSCB and other

defense research programs can play a central role in facilitating these exchanges through meetings and publications.

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Appendix A



Workshop Agenda

Wednesday 4 November, 2009

- 0730 Registration & Continental Breakfast
- 0830 Welcome & Opening Remarks
- 0900 Keynote speaker: Mr. David Ott, representing Mr. Maxie McFarland (Deputy Chief of Staff for Intelligence, U.S. Training and Doctrine Command)
- 0945 Five Principles to Consider when Developing Education and Training for Cultural Knowledge and Skills
Dr. Richard Clark (University of Southern California)
- 1030 BREAK
- 1045 Panel: Perspectives on cultural capability needs
Maj Dov Kawamoto, Marine Corps Information Operations Center
LtCol Peter Tarrant, Defence Centre of Training Support, UK
- 1115 Culture Centers Panel Part I:
Dr. Paula Holmes-Eber, Marine Corps Center for Advanced Operational Culture Learning
LTC Marc Kortenray, Training Division, Training Development and Support Directorate, U.S. Army Intelligence Center
- 1145 Lunch Provided

- 1300 Breakout Sessions
- Analysis:* Toward a shared cultural competency map
- Design:* Designing cultural training to maximize training transfer
- Development:* Using narrative and ethnographic methods in cultural instruction
- Implementation/Evaluation:* Assessing non-cognitive learning outcomes
- 1515 Break
- 1530 Breakout Sessions
- Analysis:* Motivational and personality factors in cultural learning
- Design:* Integrating culture-specific and culture-general objectives
- Development:* Cognitive load and other considerations for multimedia delivery
- Implementation/Evaluation:* Impact of cultural training on readiness and mission performance
- 1730 Meeting Adjourns
- 1800 Welcome reception

Thursday 5 November, 2009

- 0730 Registration & Continental Breakfast
- 0830 General Session
- Meeting the cultural training and simulation needs of the future force
- Mr. Martin Bushika, Marine Corps Systems Command, PM Training Systems
- 0900 Culture Centers Panel Part II
- Dr. David Brand, John F. Kennedy Special Warfare Center and School
- Dr. Rob Sands, Air Force Culture and Language Center
- 0930 BREAK
- 0945 Breakout Sessions

Analysis: Sociocultural aspects of mission performance in specific roles and MOS

Design: Gaming and simulation for intercultural communication

Development: Theoretical foundations for developing virtual humans for training and simulation

Implementation/Evaluation: Assessing regional and cultural knowledge

1200 Lunch Provided

1315 Breakout Sessions

Analysis: Cultural learning as a developmental progression

Design: Translating cultural competencies into learning objectives based on mission and role

Development: Using cultural informants, cultural SMEs, and military SMEs in content development and validation

Implementation/Evaluation: Designing and conducting training evaluation

1530 BREAK

1545 General session: Dr. Dexter Fletcher (Institute for Defense Analyses)

1630 Outbriefs and Wrap-up

1730 Meeting Adjourns

Guide to Breakout Sessions

Wednesday 4 November 2009

1300

Track	Topic	Session Leads and Presenters	
<i>Analysis</i>	Toward a shared cultural competency map	Mr. Marc Hill (Defense Language Office)	Mr. Doug Nelson (Kinecton)
<i>Design</i>	Designing cultural training to maximize training transfer	Dr. Michelle Wisecarver (PDRI)	Mr. Gonzalo Ferro (PDRI)
<i>Development</i>	Using narrative and ethnographic methods in cultural instruction	Dr. Rob Sands (U.S. Air Force Culture and Language Center)	Ms. LeeEllen Friedland (Ethnologica)
<i>Implementation/ Evaluation</i>	Assessing non-cognitive learning outcomes	Dr. Melissa Brittain (U.S. Air Force Culture and Language Center)	Dr. Joyce Osland (San Jose State University)

1530

Track	Topic	Session Leads and Presenters	
<i>Analysis</i>	Motivational and personality factors in cultural learning	Dr. Joan Johnston (Naval Air Warfare Center Training Systems Division)	Dr. Paula Caligiuri (Rutgers University)
<i>Design</i>	Integrating culture-specific and culture-general objectives	Dr. Rick Wolfel (Center for Language, Culture, and Regional Studies, U.S. Military Academy)	Dr. Mark Mendenhall (University of Tennessee, Chattanooga)
<i>Development</i>	Cognitive load and other considerations for multimedia delivery	Mr. Gary Rauchfuss (U.S. Army Training and Doctrine Command G-3/5/7)	Dr. Chad Lane (Institute for Creative Technologies)
<i>Implementation/ Evaluation</i>	Impact of cultural training on readiness and mission performance	Dr. Kurt Kraiger (Colorado State University)	Dr. Jay Goodwin (U.S. Army Research Institute)

Thursday 5 November 2009

0945

Track	Topic	Session Leads and Presenters	
<i>Analysis</i>	Sociocultural aspects of mission performance in specific roles and MOS	Dr. Michelle Zbylut (U.S. Army Research Institute)	Dr. Karol Ross (Cognitive Performance Group)
<i>Design</i>	Gaming and simulation for intercultural communication	Dr. Elaine Raybourn (Center for Language, Culture, and Regional Studies, U.S. Military Academy)	Dr. Mike Van Lent (Soar Technologies)
<i>Development</i>	Theoretical foundations for developing virtual humans for training and simulation	Ms. Julia Kim (Institute for Creative Technologies)	Dr. Lynn Smith-Lovin (Duke University)
<i>Implementation/ Evaluation</i>	Assessing regional and cultural knowledge	Dr. Peter Siska (Center for Language, Culture, and Regional Studies, U.S. Military Academy)	Dr. Joan Rentsch (University of Tennessee, Knoxville)

1315

Track	Topic	Session Leads and Presenters	
<i>Analysis</i>	Cultural learning as a developmental progression	Dr. Melissa Brittain (U.S. Air Force Culture and Language Center)	Mr. Mike McCloskey (361 Interactive)
<i>Design</i>	Translating cultural competencies into learning objectives based on mission and role	Dr. David Matsumoto (San Francisco State University)	Mr. Doug Nelson (Kinecton)
<i>Development</i>	Using cultural informants, cultural SMEs, and military SMEs in content development and validation	Dr. Lewis Johnson (Alelo)	Dr. Winston Sieck (Applied Research Associates)
<i>Implementation/ Evaluation</i>	Designing and conducting training evaluation	Dr. Paula Durlach (U.S. Army Research Institute)	Ms. Amy Ogan (Carnegie Mellon University)