

# A Simulation-Based Approach to Training Operational Cultural Competence

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**Abstract.** Cultural knowledge and skills are critically important for military operations, emergency response, or any job that involves interaction with a culturally diverse population. However, it is not obvious what cultural knowledge and skills need to be trained, and how to integrate that training with the other training that trainees must undergo. Cultural training needs to be broad enough to encompass both regional (culture-specific) and cross-cultural (culture-general) competencies, yet be focused enough to result in targeted improvements in on-the-job performance. This paper describes a comprehensive instructional development methodology and training technology framework that focuses cultural training on operational needs. It supports knowledge acquisition, skill acquisition, and skill transfer. It supports both training and assessment, and integrates with other aspects of operational skills training. Two training systems will be used to illustrate this approach: the Virtual Cultural Awareness Trainer (VCAT) and the Tactical Dari language and culture training system. The paper also discusses new and emerging capabilities that are integrating cultural competence training more strongly with other aspects of training and mission rehearsal.

## 1. INTRODUCTION

There is a growing awareness of the need for intercultural knowledge and skills across a wide range of disciplines. Recent conflicts in Iraq, Afghanistan, and other countries have highlighted the importance of cultural issues in 21<sup>st</sup> century military operations [14]. Multicultural workplaces, health care and educational settings, and emergency response teams are just some of the other contexts in which intercultural knowledge and skills have been found to be important [5], [10], [15], [16], [17].

This need for intercultural knowledge and skills poses a significant training challenge. Experts in the language education community, such as the American Council on the Teaching of Foreign Languages (ACTFL), commonly assert that true cultural competence arises only after years of immersion in the target culture, as part of a language education program [13]. Unfortunately, relatively few specialists get the opportunity to devote that much time to cultural training. For example, many service members deploying to Iraq and Afghanistan get just a few hours of cultural awareness training, and some get none at all [9].

This paper describes a simulation-based approach to cultural competency training realized in the Alelo family of training products. It is intended to help trainees who may not be cultural specialists quickly develop cultural skills they need to be effective in intercultural settings. This includes the knowledge and skills necessary to handle common intercultural interactions, as well as the adaptability needed to cope with unexpected intercultural interactions. Crucially, it utilizes simulations of intercultural situations that trainees are likely to encounter in the course of carrying out their jobs or missions, which helps trainees develop the skills and confidence necessary to apply intercultural skills in those situations. The approach also supports the assessment of cultural competence by testing trainees in simulated intercultural encounters.

Although intercultural skill is an important outcome of this training, it is not the only desired outcome. Researchers in cross-cultural competence such as Abbe, et al. [2], have argued that intercultural competence has knowledge and affective components as well as skill components, and that all three should be promoted in culturally competent individuals. Therefore, the Alelo training method does not rely solely on simulations, but integrates simulation-based training with multimedia instruction and affective elements, employed in a coordinated fashion to help trainees develop robust intercultural competence.

We have developed a cultural analysis and instructional design methodology, called the Situated Culture Methodology (SCM), which facilitates the creation of training courses that utilize this approach. SCM focuses sociocultural data collection and instructional design on situations that trainees are most likely to encounter in the context of their work activities. This provides a necessary focus to the cultural training. Cultural training courses can have a tendency to turn into a litany of facts about the target culture—of interest to the cultural specialist, but of questionable value to the ordinary intercultural practitioner. SCM focuses on culture relevant to the job or mission context, resulting in training that is more coherent and effective in achieving its intended learning outcomes.

This approach has been employed to develop a variety of Alelo training courses, such as the Tactical Language family of language and culture training courses [8] and the Virtual Cultural Awareness Trainer (VCAT) [4]. Tens of thousands of trainees have made use of these courses to date, with demonstrated positive impacts on cultural competence as well as overall operational effectiveness [11].

## 2. EXAMPLE TRAINING MATERIALS

Two courses will serve as examples for following discussion: Tactical Dari and VCAT. Tactical Dari is a PC-based serious game that helps learners acquire

operational knowledge of the Dari language and Afghan culture. VCAT helps trainees develop pre-deployment cultural awareness of the Horn of Africa. Both provide training in language and cultural skills, although Tactical Dari places greater emphasis on language skills and VCAT puts greater emphasis on cultural awareness and operational cultural knowledge.

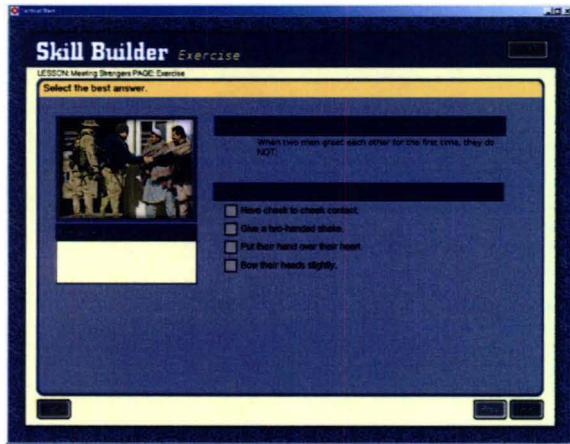


Figure 1. Tactical Dari nonverbal interaction quiz

Tactical Dari includes interactive lessons that focus on common skills relating to interpersonal interaction in a Dari-speaking context, such as greetings, introductions, arranging meetings, discussing business with counterparts, etc. The course addresses all aspects of interpersonal communication in such contexts, including appropriate forms of address, gestures and body language, and social norms for hospitality and relationship building in conducting business. These concepts are all taught in the context of interactive lessons and exercises. Figure 1 shows one such exercise. Here the learner is asked to identify appropriate gestures and body language for men greeting each other for the first time in Afghanistan.

Tactical Dari then gives learners opportunities to practice their intercultural skills in simulated encounters with Afghans. Figure 2 shows such a simulated meeting. The player character, gesturing on the left, is leading a team engaged in discussions with the village leader and other elders (right) about collaborating on a reconstruction project. The trainee plays his role by speaking into a headset microphone in the Dari language and selecting appropriate gestures for his or her character. The built-in speech processing system interprets the trainee's speech in context and causes the non-player characters to generate socially and culturally appropriate responses.

In order to succeed in a scene such as this, trainees must employ a wide range of cultural skills. For example, they should remember to introduce everyone in their team. They should inquire about the elder's family, but not in a way that causes embarrassment (e.g., by inquiring inappropriately about female family members). They should make appropriate use of Dari phrases expressing respect and humility, at socially appropriate times. For example, they should make use of the Dari phrase /naame khudaa/ (Thanks be to God) in acknowledging the leader's good fortune as well as

one's own. Trainees thus learn not just to understand and recognize culturally appropriate behavior, but are able to practice until they become skilled at behaving the right way at the right times.



Figure 2. Meeting with Afghan village elders

VCAT is a Web-based training course, accessed via Joint Knowledge Online. When trainees start the course they indicate the particular country they will deploy to, their level of seniority, and the type of mission they are likely to undertake in the region. VCAT then automatically selects a tailored curriculum that focuses on their particular needs.

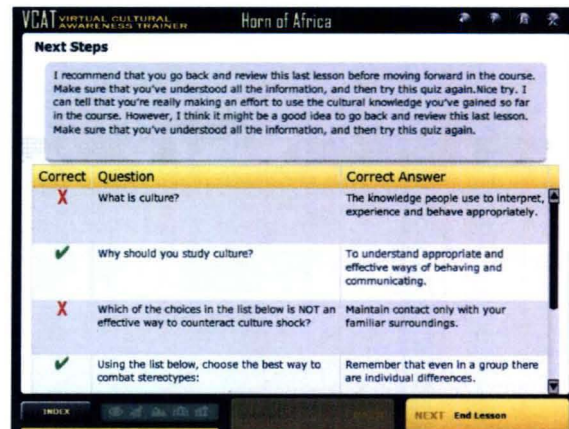


Figure 3. VCAT culture-general feedback

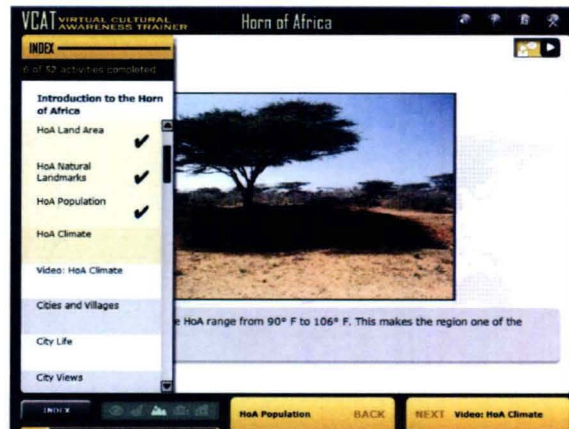


Figure 4. Introduction to the physical environment in the Horn of Africa

At the start of the course trainees are given a general introduction to culture—what it is, and why it is important. They are also introduced to six general dimensions of culture: physical environment, social structure, political structure, economic structure, and cultural perspectives and practices. This provides learners with a conceptual framework for understanding culture and how it applies to their mission and activities in country. Figure 3 shows feedback from a quiz at the end of this section, where the learner is tested on these general cultural concepts.

VCAT then introduces trainees to the culture of their region of interest. Like Tactical Dari, it includes lesson modules that introduce cultural concepts. These touch on the various dimensions of culture relevant to operations in the Horn of Africa. For example, Figure 4 shows part of the course that introduces trainees to the physical environment of the Horn of Africa, particularly the hot climate. Climate is important in HOA in part because it affects when and how people work and conduct business. People are less likely to be available to work at the hottest times of the day, and offering and receiving drinks is an important aspect of hospitality when meeting with people in the region.

As in Tactical Dari, trainees get opportunities to practice their cultural skills in immersive simulations. Trainees are not required to speak in the local language on behalf of their avatar, but they are required to make choices in the context of the situation, and thereby become skilled at behaving appropriately in that situation. Figure 5 illustrates one such scenario. Here the trainee character (right) is engaged in a meeting with the local health minister to discuss a mission to deliver medical supplies. The minister has offered the trainee water to drink, and the trainee must decide whether to accept it. The trainee must consider the health risks of drinking water that may be contaminated, the health risks of *not* drinking fluids in such a hot climate, as well as the risk of offending the health minister by declining the offer. Such situations require trainees to apply their cultural knowledge in complex situations where multiple factors are involved. Thus they are more likely to be prepared when they are required to put their cultural skills into practice.



Figure 5. Practicing cultural skills

### 3. THE SITUATED CULTURE METHODOLOGY

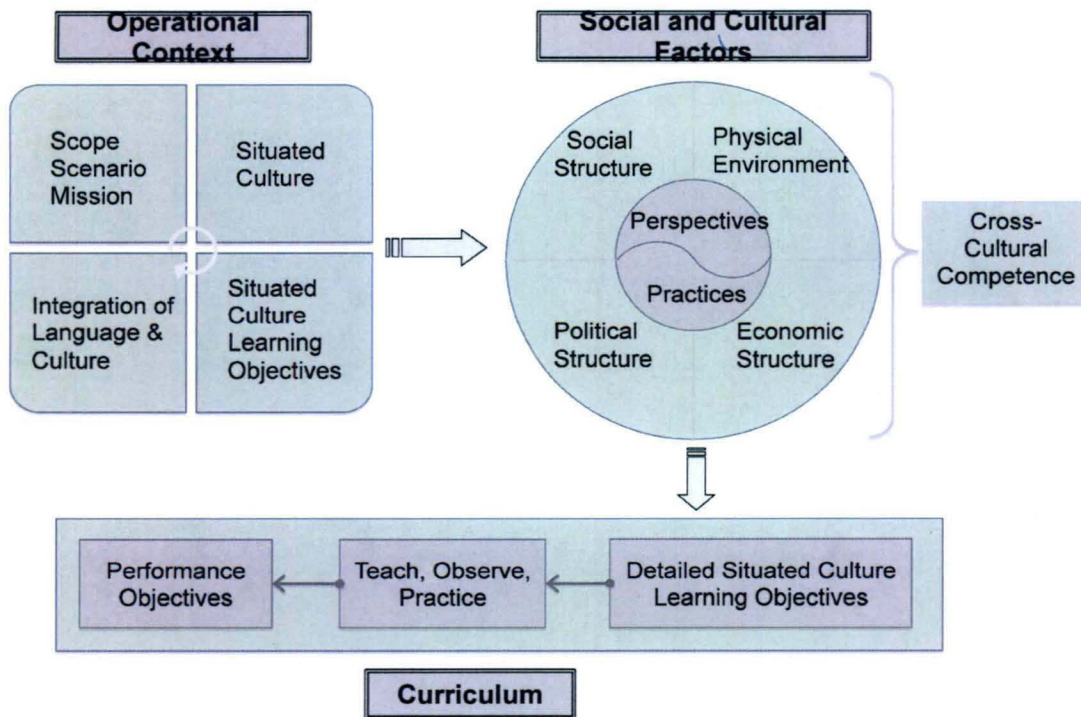
A key challenge in developing such culture courses is determining what cultural information is relevant to the trainee's needs and presenting it appropriately. Cultural literacy approaches (e.g., [3]) tend to present a range of facts about the culture, but do not give much consideration to which of those facts might be relevant to trainees and contribute to useful intercultural skills. Cultures are rich and varied, and so descriptions of a given culture can easily become very large and wide-ranging. An effective cultural training approach needs to take cultural information, which may be interesting in its own right from an anthropological perspective, and focus on the material most relevant to trainee needs in specific contexts.

Military approaches to teaching culture, such as the Marine Corps's notion of operational culture [14], are a step in the right direction. They focus on cultural information that is relevant to military operations. But even that provides insufficient focus for the purpose of intercultural-skills training. In the military case, for example, successful intercultural-skills training requires knowing about culture that is operationally focused as well as *operator-focused*, i.e., focused on what an individual military operator (servicemember in the field) needs to know and be able to do to be effective in the intercultural situations they are likely to encounter in military operations. Similar concerns arise in nonmilitary courses, such as our goEnglish course (www.goEnglish.me), developed to teach American English and American Culture worldwide. The focus there is to provide learners with an understanding of culture and communicative skills they are likely to need in everyday situations they are likely to encounter when they come to the United States.

These concerns led Alelo to develop a methodology for designing intercultural competence courses known as the Situated Culture Methodology (SCM). An overview of the SCM approach is shown in Figure 6.

#### 3.1 Focus on operational context

SCM focuses the curriculum on the operational context: the range of situations in which the trainee is expected to apply the cultural knowledge being taught. The factors involved in considering operational context are depicted in the top left of Figure 6. First, it is necessary to determine the desired scope of the course: the size of the region that trainees are being trained for, the degree of cultural proficiency sought, and the range of jobs and missions the trainees are being prepared for. In most training courses, the scope of the course is constrained by the amount of time available to train, which is typically quite limited. For example, trainees who train using the VCAT course are expected to have an average of only four hours of training time. The program of instruction for each trainee must therefore be very narrow in scope.



**Figure 6. Situated Culture Methodology**

To maximize training effectiveness for each trainee while complying with stringent limitations on training time, we generally adopt an approach in which the scope of the course is adapted for each individual trainee through tailored programs of instruction. When trainees begin a course, they complete a brief questionnaire in which they indicate the nature of their job and anticipated overseas assignment. The training software platform then dynamically configures the curriculum to fit those job requirements. In the case of Tactical Dari, the servicemember's rank and specialty help to determine the scope of the curriculum. In the case of VCAT, seniority helps to determine the curriculum focus, as well as the specific country in the Horn of Africa that the servicemember is deploying to. This means that the curriculum designer needs to plan for not just one course scope, but multiple scopes, each of which may involve different learning objectives.

To determine the cultural knowledge associated with a particular scope, instructional designers identify scenarios and missions that are typical for a given rank or specialty in the cultural region of interest. These, in turn, suggest common situations that trainees are likely to encounter, e.g., meetings with local leaders and counterparts, chance encounters with children in the street, or patient interviews in a medical clinic. These situations are what provide the primary context and focus for the courses. The cultural training course is successful if it can properly train people to be effective in the intercultural exchanges they are likely to encounter in those situations. Those situations also help to determine the specific learning objectives that are captured in the curriculum design. These typically include both cultural-competence objectives as well as language-skill objectives, since both may be necessary to cope with a given scenario.

Although the scope of the curriculum depends upon the responsibilities of the individual trainee, there is typically a significant amount of overlap in each individualized curriculum. Some cultural skills, such as culturally appropriate greetings, are likely relevant regardless of the trainee's job. Some skills, particularly cross-cultural competence skills, are relevant regardless of the target culture. In some cases the trainees' job responsibilities cannot be anticipated with precision. Moreover, in practice there are limitations to the amount of individualized training materials that can be authored and developed. These factors serve to limit the variability in the situated-culture training objectives.

### 3.2 Organize around cultural dimensions and factors

Once the situated-culture learning objectives are identified, the next step is to identify cultural information that addresses those learning objectives, and organize it for inclusion in the training course. To help make it easier for trainees to understand what cultural information is relevant for operational purposes, we organize the cultural material along six dimensions: social structure, physical environment, political structure, economic structure, perspectives, and practices. The social, physical, political, and economic factors are concerned more with the macrosocial aspects of culture. Perspectives and practices are concerned more with factors relating to the microsocioal, or one-on-one interactions, and provide more of an individual- or operator-oriented view. Perspectives include time orientation, individualism vs. collectivism, task-oriented vs. relationship-oriented working relations, and other attitudes toward personal relations. Practices include discourse genres, conversational culture, nonverbal communication, politeness norms, formality vs.

informality, and other factors influencing cultural action.

To ensure that the cultural material under each cultural dimension is relevant to the operational context, each cultural dimension is subdivided into cultural factors, which are a set of cultural topics that are frequently relevant to operational applications. For example, the physical environment dimension includes the following topics: division of the terrain into cultural regions, patterns of land use across the region, patterns of human movement and contact between regions, access to drinking and irrigation water, and access to energy and fuel. By working through the target scenarios with subject matter experts, it is possible to identify cultural factors that are likely to be relevant. For example, in a humanitarian assistance scenario in VCAT, access to potable water and electrical power turned out to be critical factors in locating a site for a medical relief station.

To further focus the research and identify relevant cultural information, we consider *operational cultural questions* associated with each factor. Operational culture questions are questions pertaining to a cultural factor that commonly arise in the context of a given type of operation. We have gathered operational culture questions from military culture resources, (e.g., [14]), and extend the set of such questions as needed to serve the goals of the course curriculum. Using these questions in interviews with subject matter experts can help uncover additional cultural factors that need to be considered in the course. For example, a number of operational culture questions pertain to water and power, such as who has access to it, who provides or controls access to it, and how local people deal with shortages of it.

In addition to identifying relevant cultural factors and skills, we seek to identify optimal metacultural skills – knowledge and skills that are useful in any cross-cultural situation. The successful use of these skills is commonly referred to as cross-cultural competence. Cross-cultural competence can come into play in explaining why particular cultural factors pertain in a particular situation and to draw lessons that learners can apply in the future to similar situations. Consider for example the case of a humanitarian relief scenario in which local officials make requests or proposals that, from an American perspective, are considered inappropriate, such as asking for preferential treatment for their family or tribe. This affords the trainee opportunities to reinforce metaskills such as perspective taking and not being judgmental about differences in social norms and attitudes.

### **3.3 Design performance-oriented curriculum**

Once the cultural learning objectives have been identified and the cultural content has been researched and organized, we then design the cultural curriculum materials. Based on the analysis of relevant cultural factors described above, a detailed set of situated-culture learning objectives are defined.

Most social and cultural factors involve a combination of knowledge-oriented learning objectives (e.g., the ability to recall cultural facts about the region of interest) and skill-oriented learning objectives (the ability to apply cultural knowledge in specific settings to achieve particular objectives). This typically results in a coordinated set of learning materials to cover each cultural topic: presentation materials and exercises that help ensure that trainees understand the relevant cultural concepts and how they apply to task objectives, and dramatized scenarios that help learners to develop the necessary skills and the ability to apply them in typical situations at a desired performance level.

Simulation therefore plays an essential role in the resulting courses, particularly in developing and reinforcing the intercultural skills. However, simulation-based activities must be supported by other learning activities that help develop the underlying cultural knowledge. This motivates the hybrid instructional designs of training products such as Tactical Dari and VCAT, which interleave interactive multimedia instruction and simulation-based training.

Although the emphasis of this discussion has been on learning cultural skills, it should be evident that language skills are involved as well. Many of the detailed skills involve communicating with host nationals to achieve particular objectives. For this reason, foreign language skills are an essential part of the courses that we develop. This is a controversial point in some circles; for example, some in the military have argued that military operators can rely on interpreters, or even translation devices, and therefore have little need for language skills beyond some minimal vocabulary [1]. Recent experience in operations in Iraq and Afghanistan give reason to call that position into question. For example, a Marine Corps Center for Lessons Learned (MCCLL) study of the use of Tactical Iraqi training by the 3<sup>rd</sup> Battalion, 7<sup>th</sup> Marines indicated that there were not enough interpreters assigned to the battalion to support every encounter between Marines in the unit and host nationals, so that it was beneficial to make sure that every squad had at least one or two individuals with Arabic language training. The MCCLL study [11] showed also that even basic language skills facilitated operational culture objectives, because it demonstrated that the Marines were knowledgeable about the host nation culture and were open and receptive to intercultural interchange.

We believe that one reason why the language training in Alelo's courses is effective is because, unlike most conventional language courses and language learning software, the language-learning objectives are so closely tied to cultural-learning objectives and situated-task objectives. The language-learning objectives are in support of particular intercultural communicative skills. Popular language-learning software packages, such as Rosetta Stone, deliberately disregard cultural factors to make it easier to create a family of language courses that all teach in a uniform way. Alelo courses also contrast with language courses that promote general language proficiency, regardless of task application.

The design methodology described above assumes that when training time is limited, a more efficient training approach may be to focus on language skills that are involved in the specific communicative skills of interest.

Because intercultural skills are applied in particular situational and task contexts, it is appropriate to consider integrating cultural-skills training with other skills training. A recently developed capability, named Virtual Role Players (VRP), makes precisely that possible. Small units may practice missions in immersive simulations where they can practice their culture and language skills in encounters with simulated non-player characters. Once this capability is more broadly put to use, intercultural communication skills will simply become part of the broader range of skills that trainees employ to carry out their training exercises.

The SCM methodology is an iterative design approach. Once early versions of cultural training products are developed, they undergo pilot testing with representative users. Revisions are then made to scenarios, situations, learning objectives, or learning content to reflect end-user needs and feedback, as appropriate.

#### **4. THE ROLE OF SUBJECT MATTER EXPERTS**

Subject matter experts (SMEs) play critical roles throughout the SCM development process. There are three main types of subject matter experts: task experts, culture experts, and language experts. Task experts are familiar with how to conduct the scenario or mission; typically they have experience conducting missions in the area of focus, and understand how the local culture can influence the conduct of the mission. Culture experts are native to the region, and ideally have some expertise in analyzing and explaining culture. Language experts have native or near-native proficiency in the target language, and ideally have the metalinguistic skills to reflect on language forms and the language-teaching skills to explain them to learners who are unfamiliar with the language. Sometimes a SME may play more than one role at once, e.g., a culture SME may have linguistic knowledge, or may have worked as an interpreter in the region of interest and therefore may have some mission experience.

The more specific and remote the region of interest, the more difficult it can be to find culture and language SMEs who have expertise that is accurate and up-to-date, and also have the ability to reflect on and explain it. To cope with this problem, we typically rely on multiple SMEs with overlapping knowledge, and triangulate between SMEs, as well as between SMEs and other resources. We typically start with one or more SMEs who have broad knowledge of the general area and good ability to articulate and explain it. These individuals can help provide general background, as well as identify important dimensions of cultural variability and diversity in the region. We then refine this with specific information obtained from SMEs with more local knowledge. We try to interview both male

and female SMEs, in order to get a well-rounded picture of the target culture. Triangulating between SMEs is particularly helpful in developing learning materials for courses with multiple overlapping scopes (e.g., multiple countries or local regions within the same area) or whose scope overlaps with that of a previous course (e.g., cultural factors in the Tactical Dari course overlapped with those in an earlier Tactical Pashto course, since the two languages are spoken in the same region).

In the case of task expertise the requisite knowledge is more widely available and tends to be well documented, at least for military task expertise. However, SMEs who have the most specific and in-depth knowledge are often active-duty personnel with limited availability. So we typically try to rely on a combination of multiple SMEs here as well. Task SMEs with the most current and accurate knowledge help define the task requirements and validate scenario designs for accuracy. Then we may rely on other task SMEs who are retired and no longer currently involved with such missions, but who have access to current resources and reports, to add further detail to the task descriptions, as needed.

Work with SMEs progresses in stages, to inform the design process as well as possible and to aid in validation of the content. In the first stage, the focus of discussion with SMEs is on outlines of the task and scenarios (in the case of task SMEs) and cultural and linguistic topics (in the case of culture and language SMEs, respectively). This may initially consist only of a summary of common subtasks to perform, and common phrases and communication requirements. This is used as the basis for creating outlines of the curriculum scenarios. We then ask SMEs to review and approve these outlines. The culture researchers on the team then conduct preliminary research from Internet and library resources, and then follow up later with the SMEs for additional information gathering and review.

The primary method for gathering detailed cultural information from cultural SMEs is ethnographic interviews. In principle, ethnographic observation in real-world contexts is desirable, but is often impractical, particularly in hazardous overseas locations. Role-playing exercises are also helpful to elicit further details about cultural practices and this method is used for targeted information gathering. This method is particularly valuable in gathering information about nonverbal communication and other aspects of culture that are implicit or tacit and need to be made more explicit. We also ask SMEs to write dialogs in the foreign language that are typical for the target scenario; this helps to clarify what specific language skills and cultural skills are involved.

During the authoring phase, it is desirable to have SMEs available on an ongoing basis to answer specific questions and review authored content for accuracy. Often some of these SMEs become members of the authoring team, and help edit and review material.

## 5. ADDRESSING CROSS-CULTURAL COMPETENCY STANDARDS

Cultural competency training is an evolving field, and broadly accepted standards are not yet established. However, cultural training standards are emerging in the military training arena, and so it is worthwhile to compare military courses developed using the SCM approach against these standards. Other disciplines such as medicine and education have their own cultural competency standards, and so courses developed in those fields would need to be compared against those standards.

The Defense Regional and Cultural Capabilities Assessment Working Group (RACCA WG) [12] has identified forty cultural competencies relevant to military training. These were intended to be oriented to the cultural training needs of junior military personnel, and so are not precisely suited for all of Alelo's courses. Nevertheless, they provide a useful basis for comparison.

VCAT, in particular, does a fairly good job of addressing the RACCA learning objectives. Of the forty cultural competencies identified by the RACCA WG, VCAT addresses twenty-six of them, and partially addresses an additional nine. The remaining objectives are primarily culture-general and not oriented toward foreign military operations (e.g., focusing on American military culture).

The ability to meet the full range of RACCA WG learning objectives within a given course is constrained by the amount of available training time. VCAT, in particular, is designed to be completed in a short period of time and this necessitates focusing strongly on cultural skills that can be put to immediate use in overseas deployments. If, in the future, cultural training is given greater emphasis and, therefore, training time, it will be possible to incorporate more cross-cultural competence skills within the SCM framework.

Older Tactical Language courses, such as Tactical Iraqi and Tactical Dari, cover a more limited range of cultural skills, in part because they give greater emphasis to language skills. However, we are taking lessons from VCAT and supporting a wider range of cultural learning objectives in current language and culture courses. For example, the new Operational Indonesian course includes a module on culture and metacultural skills, and provides learners with a framework for understanding culture in general as they learn about the particular cultures and languages of Indonesia.

## 6. TECHNOLOGY IMPLICATIONS

A range of software tools and instruction delivery technologies can be employed to support the methodology described above. Alelo has already developed many of these technologies and others are the subject of ongoing research and development.

- Cultural information management tools are needed to gather, annotate, and organize cultural information. We currently use Google

Notebook for initial data collection and Fedora for managing media assets.

- Authoring tools are needed to specify the content to be delivered. These should support collaborative authoring, including participation by SMEs. It should support both interactive multimedia authoring and interactive simulation authoring. We have developed a Web-based authoring portal named Kona, to meet this need [7].
- The authoring tools and content delivery tools should support tailoring of the content for the needs of individual trainees. We have therefore incorporated such tailoring functions into each of our content delivery systems [8]. For courses that are delivered using SCORM-compliant learning management systems, such as VCAT, we rely on the advanced sequencing functions in SCORM to tailor the curriculum.
- Since trainees typically have limited time to train, it is desirable to provide trainees options for continuing their training and maintaining their skills. Ideally, these should provide trainees the option of training anywhere, anytime, to maximize their available training time. To meet this need, we have developed multi-platform content delivery systems to deliver content on whichever delivery platform trainees find most convenient, including the handheld platforms [6].
- Since cultural skills training developed using the SCM method is closely aligned with task training, it is useful to provide the option of training intercultural skills and task skills together. Alelo's Virtual Role Player training capability, that integrates artificially intelligent virtual role players into multiplayer training systems, helps to meet this need.

## 7. SUMMARY

This paper has presented an approach for cultural competency training, which is designed to help trainees quickly acquire useful intercultural skills. An authoring methodology, Situated Culture Methodology, has been created to develop these courses. This methodology results in courses that are tailored to the needs of individual trainees, and provides good coverage both of regional cultural competency and cross-cultural competency, in a limited amount of training time.

Courses designed using this method are available for download from the Alelo support Web site, as well as on Joint Knowledge Online.

## 8. ACKNOWLEDGMENTS

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