Technical Report 1251

Identifying the Core Content and Structure of a Schema for Cultural Understanding

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14. ABSTRACT *(Maximum 200 words)*:

Multicultural perspective taking skills enable Army leaders to adapt quickly when encountering individuals or groups from unfamiliar cultures and function effectively in multinational alliances. In previous research, a schema for cultural understanding was identified as a key component of multicultural perspective taking. The primary objective for the present research was to identify core content and structure of a schema for cultural understanding that can be used to inform training for Soldiers deploying to unfamiliar cultures. Using a combination of qualitative and quantitative methods, we extracted schema content through interviews and identified common themes and concepts. This process resulted in schema content consisting of attributes of culture, goals in using cultural knowledge, and tactics for cultural learning. Findings indicated that concepts of religion, values and beliefs, and customs or traditions were central attributes of cultural understanding. These findings can inform training development and guide further research on the skills needed to function effectively in multicultural environments. Whereas traditional cultural awareness training typically focuses on understanding members of a specific culture or country, augmenting this training by focusing on a schema for cultural understanding developed through practical experience will afford Army leaders broader cultural capability.

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Cultural Understanding, Culture, Cultural Schema, Cultural Expertise

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IDENTIFYING THE CORE CONTENT AND STRUCTURE OF A SCHEMA
FOR CULTURAL UNDERSTANDING

EXECUTIVE SUMMARY

Research Requirement:

Increasingly, the United States Army operates in multinational, and therefore, multicultural, environments. Teamwork within such settings requires the ability to see events as members of other cultures see them. The goal of the research was to identify a schema for cultural understanding, a key multicultural perspective taking competency that will enable Army leaders to function effectively in multinational alliances. The primary objective for this research was to identify core content and structure of a schema for cultural understanding that can be used in future training for Soldiers deploying to unfamiliar cultures.

Procedure:

The research was conducted using interviews to extract cultural schema content from two samples of Soldiers. Data were collected at Fort Riley from returning members of Military Transition Teams and from Soldiers at Fort Bragg. Participants were identified as having some experience working successfully in another culture. The interview data were summarized yielding an initial set of cultural schema content statements. A third sample of Soldiers, also returning Military Transition Team members sorted the statements and made structural ratings. These data were subjected to Pathfinder analysis. The most central items were used to develop a structural assessment of a schema for cultural understanding. Several subject matter experts completed the assessment and the results were used to identify the structure of attribute core content of a schema for cultural understanding.

Findings:

The core content of a schema for cultural understanding identified as relevant to Army Soldiers consisted of attributes of culture, goals in using cultural knowledge, and tactics for cultural learning. Sixteen items representing core attribute content were identified, and the structural relationship among these items was identified. Findings indicated that concepts of religion, values and beliefs, and customs or traditions were central attributes of cultural understanding.

Utilization and Dissemination of Findings:

These findings can inform training development and guide further research on the skills needed to function effectively in multicultural environments. Traditional cultural awareness training typically focuses on understanding members of another culture from an American's perspective. However, augmenting this training by focusing on a schema for cultural understanding that has been developed by actual Army Soldiers with relevant experience will afford Army leaders broader cultural capability. Additional research is needed to understand how *goals* and *tactics* for cultural learning are incorporated into a schema for cultural understanding.

IDENTIFYING THE CORE CONTENT AND STRUCTURE OF A SCHEMA
FOR CULTURAL UNDERSTANDING

CONTENTS

List of Tables

List of Figures

IDENTIFYING THE CORE CONTENT AND STRUCTURE OF A SCHEMA FOR CULTURAL UNDERSTANDING

Army doctrine highlights the importance of cultural factors across the spectrum of military operations and emphasizes the need to improve Soldiers' ability to operate in a multicultural environment and (FM 6-22). Multicultural perspective-taking competencies can contribute to the capability needed to work effectively in joint, interagency, and multinational (JIM) operations. These competencies enable leaders to take the perspective of another within the cultural context, to apply cultural lenses, and to adapt quickly when encountering individuals or groups from unfamiliar cultures. U.S. Army leaders can develop multicultural perspective-taking skills through well-designed, efficient, and effective training in the forms of self-development, institutional training, and operational assignments. However, it is essential to clearly define the competencies required. Initial research (Rentsch, Gundersen, Goodwin, & Abbe, 2007) involved a broad scan of the research literature. This research identified a set of multicultural perspective-taking competencies, which serve as a solid starting point for developing multicultural perspective taking in Army leaders.

The goal of multicultural perspective taking is to function effectively within a cross-cultural environment. This ability requires one to extract and interpret relevant cues within a multicultural setting. As shown in Figure 1, a schema for cultural understanding plays a key role in multicultural perspective taking. Interpretation is directly influenced by the schema for understanding culture and regional expertise (a specialized portion of the schema for understanding culture). Extraction of cultural information is necessary for the interpretation of cultural information.

A schema for understanding culture is culture-general – that is, it reflects knowledge that applies to all cultures. This knowledge can be used in conjunction with regional knowledge, or to supplement where regional or specific cultural knowledge is lacking. Interpretation may involve a comparison of cultural information with cultural knowledge contained in the schema for cultural understanding and regional expertise. The product of this process may be subjected to visualization, integration, and cognitive reconstruction (i.e., interpretation competencies) yielding a refined interpretation of cultural information.

A well-developed schema for understanding culture will support the ability to elicit and detect cultural information. The ability to identify patterns and to triangulate will be enhanced to the extent that individuals possess well-developed schemas for understanding culture.

Function effectively
within the cultural environment

Take-perspective
using another's
cultural & personal
lenses

Interpretation

Personal & Interpersonal
Skills

Self-Awareness

Extraction

Schema for
Understanding Culture

Regional Expertise
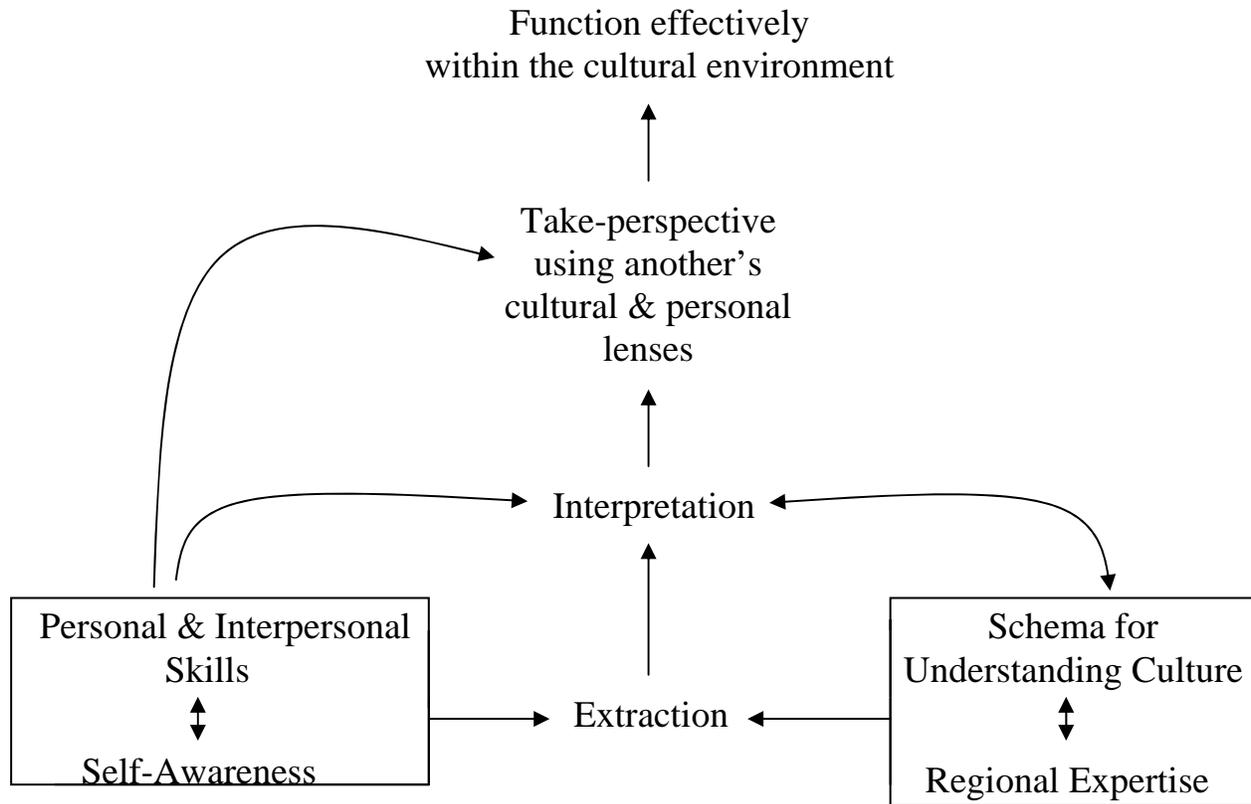
Figure 1. Framework of Multicultural Perspective Taking Competencies (Rentsch et al., 2007)

Based on a broad overview of the research literature, Rentsch et al. (2007) identified an important multicultural perspective-taking competency to be a schema for cultural understanding. This literature provided one source of information on potential content for a schema for cultural understanding. However, this information should be augmented by information provided by subject matter experts or individuals with relevant experience. In order to be useful to the Army, a full articulation of a schema for cultural understanding must be made in a manner that can inform training systems supporting the development of this knowledge. Building on previous research (Rentsch et al., 2007), the objective of the present research was to identify core content and structure of a schema for cultural understanding that draws on the experiences of Soldiers.

Schema for Cultural Understanding

Rentsch et al. (2007) identified a schema for cultural understanding as a primary multicultural perspective-taking competency. A schema is a mental model representing general and abstract knowledge of a topic (Kellogg, 1995). Schemata guide expectations, learning, and behavior, providing a basis for action when one lacks either detailed information or the resources

to process it (Fiske & Taylor, 1991; Graesser & Nakamura, 1982). Schemata are dynamic and shift in response to specific experiences or new information encountered. An existing schema facilitates learning (Tse et al., 2007), enabling rapid integration of new associations, even when learning opportunities are relatively limited in number. A schema can also serve an organizing function by specifying relationships between concepts, which facilitates pattern detection.

Rentsch et al. (2007) proposed that a schema for cultural understanding may aid novices to quickly learn a novel culture. Forming a schema for cultural knowledge may be particularly helpful, because abstract cultural concepts can serve as a guide even when one's familiarity with a specific culture is limited. Entering a new, unfamiliar culture often involves high anxiety and, initially, only superficial knowledge of the location and people. A cultural schema may include features or concepts that have proved salient or useful in previous intercultural situations. Generalizing from these specific past experiences may help guide appropriate behavior, reduce anxiety, and facilitate learning the specific culture. Although other research has emphasized schemas specific to the host culture (Nishida, 1999), we argue that schema for culture-general concepts and intercultural interactions have particular importance for military personnel, whose missions and responsibilities involve contact with many cultures and with a variety of individuals and organizations, including civilians, nongovernmental agencies, and other foreign militaries..

A schema for cultural understanding is more than just a stereotype about the members of a culture. Whereas stereotypes tend to be rigid, a schema is dynamic and subject to revision. Whereas stereotypes tend to simplify and ignore group differences, a schema can be quite complex. In fact, research suggests that schema complexity is indicative of higher expertise in a domain (Ceci & Liker, 1986; Fiske & Taylor, 1991; Hess, Osowski, & LeClerc, 2005). Schema complexity is also associated with receptivity to disconfirming information (Stein, 1994). In other words, a complex schema is both stable and flexible, adjusting to accommodate new information.

A schema for cultural understanding provides leaders with the capability to organize and make sense of novel cultural information. Based on the literature, a *schema for cultural understanding* with respect to multicultural perspective-taking should include (1) understanding of cultural impact, (2) understanding of cultural identifiers, and (3) understanding of cultural barriers.

Understanding cultural impact involves understanding that individuals exist simultaneously in multiple cultures and that these cultures influence individuals' identity, thoughts, and behavior. An understanding of cultural impact will also include the knowledge that others have a view of one's own culture and some knowledge of what that view is. Perhaps most importantly, an expert understanding of the impact of culture will contain knowledge that variance exists within cultures and explicit recognition that *similarities* and differences exist across cultures (e.g., Hofstede, 2001; Pedersen, 2004).

Another component of an expert schema for cultural understanding is the understanding of cultural identifiers, which involves knowing that cultural information is embedded in artifacts, beliefs, values, assumptions (e.g., physical settings, stories, symbols, heroes, rituals,

jargon/language, and social structure). In other words, leaders need an understanding of where cultural information and clues are embedded.

A third component is the understanding of cultural barriers. This understanding includes the knowledge that cultural information is tacit and subtle. Leaders must understand that important cultural clues exist in what is and what is *not* said, seen, heard, or done. It is critical to "hear" what someone may be thinking but not saying. Furthermore, cultural barriers exist in part, because some cultural information is so deeply assimilated that it exists in the subconscious. In addition, leaders must grasp that trust may be a major cultural barrier and that trust and other barriers are expressed and understood differently in different cultures.

Other examples of knowledge that should be included in a schema for understanding culture are knowledge related to understanding that culture affects perceptions of reality (including one's own) and actually serves to "blind" one from fully deciphering and understanding another's culture. This understanding is clearly related to self-awareness, particularly with respect to understanding one's own cultural biases (e.g., Hofstede, 2001; Pedersen, 2004). A schema for understanding culture should contain the knowledge that culture influences verbal and nonverbal communication, and that it influences the expression of respect, saving face, trust, and other interpersonal variables many of which will affect relationship building

A schema for cultural understanding may also include knowledge of macro-level features of national cultures. Understanding various differentiating national value profiles may aid Army leaders to gain an initial understanding of cultural differences (e.g., Hofstede, 2001; 1980; House, Hanges, Javidan, Dorfman, and Gupta, 2004; Schwartz, 1992; Trompenaars, 1994). A primary example of such an approach is Hofstede's work, which is highly recognizable in the culture literature (Hofstede, 1980). Hofstede organized cultural differences into overarching patterns based on individualism and collectivism, power distance, masculinity, and uncertainty avoidance. Other influential research in the cross-cultural literature include Hall (1959), Kluckhohn (1951), Schwartz (1992, 1994), Trompenaars and Charles Hampden-Turner (1997), and the work of Project GLOBE (House et al.). A summary of the cultural dimensions identified in this research is presented in Table 1.

Table 1. Cultural Dimensions in the Literature

Author/Researcher	Dimensions/features/culture concepts
Hofstede (1980, 1991)	Power distance Individualism vs. collectivism Masculinity vs. femininity Uncertainty avoidance Long vs. short term orientation
Schwartz (1992, 1994)	Individual level values: Power Achievement Hedonism Stimulation Self-direction Universalism Benevolence Tradition Conformity Security Openness to change vs. conservation Self-enhancement vs. self-transcendence Culture level - dimensions Conservatism vs. autonomy Hierarchy vs. egalitarianism Mastery vs. harmony
GLOBE Project (House et al., 2004)	Uncertainty avoidance Power distance Collectivism 1: societal collectivism Collectivism 2: in-group collectivism Gender egalitarianism Assertiveness Future orientation Performance orientation Humane orientation

Table 1 (continued)

Trompenaars & Charles Hampden-Turner (1997)	Universalism vs. particularism
	Individualism vs. communitarianism
	Neutral vs. affective
	Specific vs. defuse
	Achieved status vs. ascribed status
	Time orientation
	Internal vs. external orientation
Kluckholn & Strodtbeck (1961)	The nature of people
	The relationship with nature
	Duty towards others
	Mode of activity/ determinism
	Temporal orientation
	High vs. low context cultures
	Polychromic vs. monochromic time orientation

One caution is that relying exclusively on macro-level cultural features may limit multicultural perspective-taking. Nationality may serve as a basis for stereotyping rather than for understanding, when applied uniformly to all members of that culture. In addition, nationality is only one cultural target of which there may be many. However, these models may provide useful frameworks for perceiving and organizing differences between cultures.

In addition, according to the literature, a schema for cultural understanding should include information regarding respect for each person's unique cultural experience with the recognition and acceptance that others' ways of viewing their internal and external worlds are valid. This does *not* mean that the observer should adopt another's way of thinking. Rather, the observer should recognize that culture, indeed reality, is experienced subjectively and is socially constructed, while simultaneously appreciating that subjective realities become reified and serve as potent forces to guide and restrict behavior (Berger & Luckmann, 1966). A schema for understanding culture should also include a recognition that others have developed an understanding of their own culture (Pedersen, 2004).

We expect that, over time, individuals will develop increasing levels of expertise with respect to their understanding of culture. The development of an expert schema for cultural understanding may be highly beneficial to aid individuals to adapt quickly to working in novel cultures.

A Schema for Cultural Understanding Based on Experience

In general, schemas are knowledge structures that influence individuals' expectations and interpretations (Graesser & Nakamara, 1982; Rumelhart, 1980). Schemas develop with respect to any content domain. They aid in sensemaking, and influence attention, information processing, perception, and recall. They are formed through direct or indirect experience (e.g., through interaction and communications with others). For example, individuals have schemas for understanding vehicles that might include classification of type of vehicle (e.g., airplane, train, automobile, motocycle), types of within specific classifications (e.g., sports car, family car, luxury car), how the vehicle is made, technological features, costs, uses, and so on. Knowledge and categories for culture may be similarly structured. An illustration of a hypothetical schema for cultural understanding is presented in Figure 2.
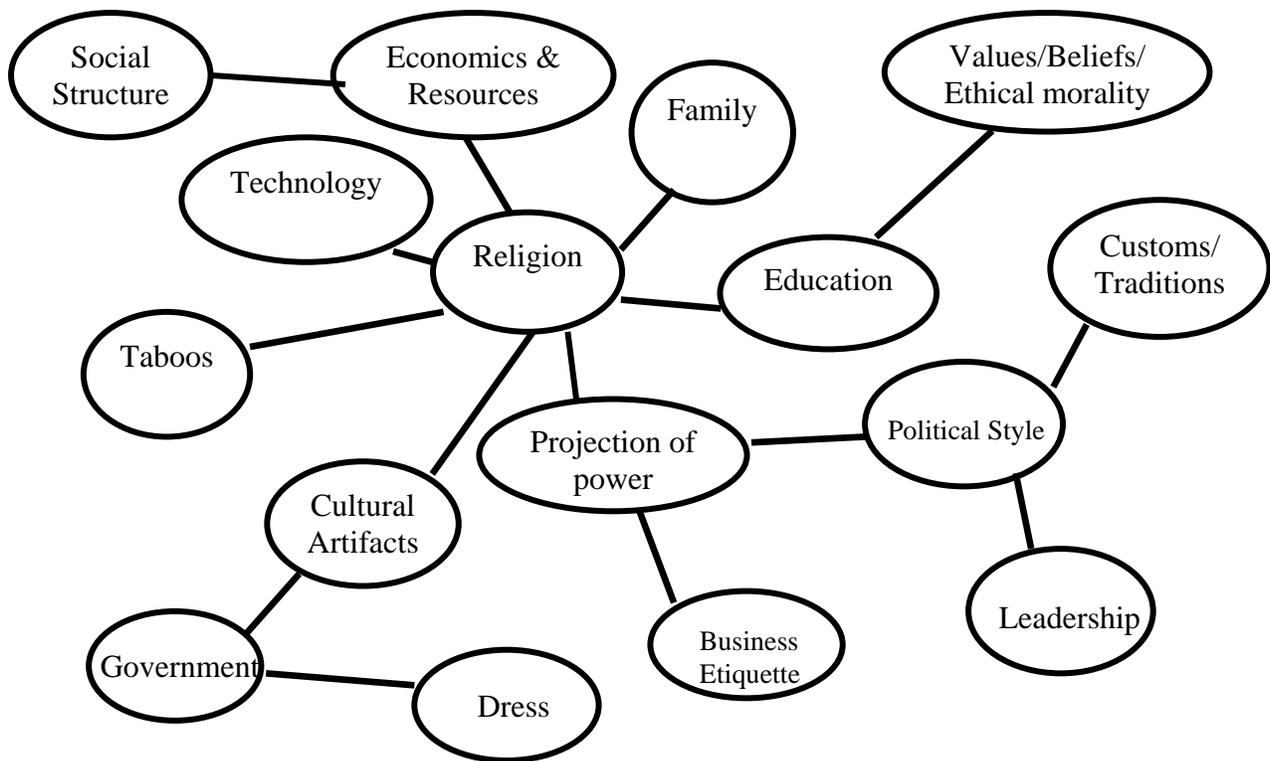
Figure 2. Illustration of a Schema for Cultural Understanding

Expert Schemas

Expert schemas increase an individual's ability to adapt to novel situations. Expert schemas enable experts to acquire new knowledge more easily and more quickly than novices, because experts can understand and retain new information by linking it to their existing schemas (Bereiter & Scardamalia, 1986). The schemas of experts can be characterized as deep and

multileveled – containing many connections between and within levels. In contrast, novices develop shallow schemas consisting of many details connected to a few general ideas.

Experts typically represent problems in terms of general, abstract principles, whereas novices tend to use concrete surface features (Chi, Glaser, & Rees, 1982; Hillerband & Claiborn, 1990). An expert's recognition of the underlying principles often aids in reaching a correct solution. Because of their in-depth knowledge of the domain, experts can use efficient problem-solving strategies. For example, experts develop rules that enable them to engage in more forward search, a strategy that reduces strain on working memory and lessens the chance of making errors.

Expert schemas may exist for abstract social contexts. For example, evidence has been obtained to support the existence of expert schemas for teamwork (Rentsch, Heffner, & Duffy, 1994). An expert schema for cultural understanding will increase the likelihood that leaders will perceive observable, including the most subtle and obscure, cultural clues (e.g., cultural artifacts). The schema for cultural understanding will also influence the interpretation of cultural cues. For example, an expert schema will provide general categories to consider in the interpretation process. Schemas will provide a structure for organizing the cultural information. Therefore, an expert schema for core cultural understanding may be incorporated into training.

Although, as stated above, potential content of a schema for cultural understanding has been extracted from the literature on cultural dimensions, additional research is required for a full understanding of this schema in the context of military operations. Schema extracted from individuals who have relevant intercultural experience would be particularly informative in identifying the schema content to be trained. Soldiers require an understanding of culture that enables them to adapt quickly to cultural differences, to support multicultural perspective taking, and to support negotiating with members of the culture in order to complete their mission.

Prior to their first deployment to Iraq or Afghanistan, Soldiers often received cultural training that was minimal and superficial, or received training perceived as irrelevant to their area of operations (Center for Army Lessons Learned, 2005). Though cultural training programs and resources are now more widespread (Longo, 2008), Soldiers' exposure to cultural content and experiences during training continues to vary greatly. For many, cultural awareness has been acquired primarily through first-hand experience in observing and interacting with the local population during deployment.

Therefore, a primary purpose of the present research was to identify the core content and structure of a schema for cultural understanding from individuals who are experienced in working in a foreign culture.

Overview of the Present Research

Four data collections were undertaken for the present research. Data Collections 1 and 2 used qualitative methods and were aimed at extracting the content of a schema for cultural understanding. The results from these data collections were combined and reanalyzed to identify schema content. In a subsequent phase, quantitative ratings were obtained to determine the core

schema content and structure. The purpose of Data Collection 3 was to identify the core or essential content of a schema for cultural understanding. Data Collection 4 was directed toward identifying the structure of a schema for cultural understanding.

The participants in this research were sampled from mission types with a high level of opportunity for intercultural interaction. The samples in data collections 1 and 3 were members of Military Transition Teams returning from assignment as military advisors in Iraq. Because these participants varied considerably in their level of cultural experience, even with some similarity in their roles and time abroad, we also sampled from Special Operations Forces (SOF). Though we could not independently confirm levels of expertise, SOF missions generally require a high degree of intercultural interaction relative to other military operations and therefore offer extensive opportunities for experience-based learning about culture. Participants in data collection 4 were volunteers and were recruited based on their interest in the topic.

Thus, we attempted to obtain samples who would have moderate to high levels of cultural experience and include fewer novices than individuals in more traditional military missions and roles. The methods and the results from each data collection are described below.

Data Collection 1: Extraction of Schema Content

Methods

Sample. Data were collected at Fort Riley from a sample of U.S. Army Soldiers returning from Iraq after having served a deployment of approximately 11 months in Military Transition Teams. The sample consisted of four Captains, two Majors, and three Lieutenant Colonels, all males ranging in age from 28 to over 50 years of age. Their relevant cultural experience consisted of prior overseas assignments ranging from 11 months to over 5.5 years in countries such as Iraq, Korea, Kuwait, Brazil, Bosnia, Germany, Thailand, and Japan. The average number of countries for which participants reported significant experience was approximately four. One individual also had experience in Brazil, Finland, Vietnam, Portugal, Spain, Austria, and China. Their military experience varied across a wide variety of domains such as field artillery observer, quick reaction support leader, fireman, logistics advisor, brigade military transition team chief, Apache pilot, advisor, J-7 construction engineer, project purchasing officer, military communications, and military exercise planning.

Assessment. The interview protocol questioned participants for their conceptual understanding of culture and for their methods to acquire additional cultural understanding. Questions were asked regarding their idiosyncratic approaches to understanding culture. The interviews included several questions regarding how the Soldier thought about culture and how he tried to learn about culture. The interviews were structured insofar as the questions were previously determined and all participants were asked the same questions. However, due to careful phrasing, the interview protocol included only open ended questions. Therefore, the interviewees were not restricted in their choice of answers. The same question could have potentially triggered a different response from different individuals. In addition, questions were asked regarding the participant's background with respect to experience in multiple cultures.

Procedure. Participants were interviewed individually by one interviewer (one participant was interviewed by two interviewers). The two interviewers had experience working on cross-cultural studies and were familiar with the current culture literature. This ensured that the interviewers were able to rephrase and reformulate questions and to re-direct the flow of the interview in order to obtain clear answers to the questions of interest. Each interview lasted approximately one hour. The interviews were conducted in the late afternoon and until about nine o'clock in the evening. All participants were interviewed on an individual basis in order not to contaminate responses and in order to insure their full participation. Additionally, in order to put the participants at ease, none of the interviews were videotaped or recorded. The answers to all questions were recorded in writing by the interviewers.

Results

The interview notes were individually summarized by interviewers and then compiled into one document that contained 296 statements regarding understanding culture. Two researchers, one of whom was blind to the data collection procedure and purpose of the research and who was a relative novice regarding culture, sorted the statements to identify redundancies. Fifty-five items reflective of a culture from a specific country (i.e., the information referenced a cultural practice specific to a country that was not generalizable to other countries) were identified and withdrawn from the dataset. This sort resulted in 88 unique items.

Three researchers independently reviewed the set of cultural items with the objective of identifying obvious categories. A set of categories was not readily apparent. Therefore, in an effort to minimize the influence of the researcher's schema for cultural understanding, but in order to gain some manageable structure for the data, the researchers agreed on two broad categories: cultural *attributes,* which were characteristics of culture or sources of cultural variability, and *methods* for acquiring cultural information. Two researchers then sorted the items into to these two categories. Three items were unclear, and no agreement could be reached among the researchers regarding the meaning of the items. Rather than interject researcher interpretation into the data, the items were dropped. This sort resulted in identifying 29 items representing *cultural attributes* (e.g., religion, government). Fifty-six items were identified as *methods* for acquiring cultural information (e.g., training courses, observation, building rapport).

Two researchers knowledgeable about culture reviewed the lists carefully and came to consensus that the *methods* items seemed to contain two foci. Therefore, two researchers (including the blind researcher) differentiated these items with respect to two categories: *tactics* for acquiring cultural knowledge and *goals* for acquiring cultural knowledge. Thirty-eight items were identified as *tactics*, 18 items were identified as *goals*.

Data Collection 2: Extraction of Schema Content

Methods

Sample. Sample 2 data were collected at Fort Bragg with U.S. Army special operations personnel. The sample consisted of two female and three male participants. The represented ranks were: one Staff Sergeant, two Master Sergeants, one Lieutenant Colonel, and one Chief

Warrant 3. Participants ranged in age from 32 to 44 years of age. Their relevant cultural experience was attributable to previous overseas assignments ranging from 3 months to 3 years. Their military expertise ranged across several domains such as counter-narcotics missions, tactical training, humanitarian aid, the training of local forces, civil affairs, artillery, and Army Special Forces military training. The participants' combined cultural experience spanned across a multitude of countries including Afghanistan, Belize, Bolivia, Bosnia, Canada, Columbia, Costa Rica, Cuba, Ecuador, Guam, Guatemala, Haiti, Holland, Honduras, Iraq, Italy, Japan, Korea, Kuwait, Malaysia, Mexico, Nassau, Nicaragua, Pakistan, Panama, Peru, Philippines, Puerto Rico, Qatar, Serbia, Singapore, Spain, Switzerland, Thailand, and Uruguay. The average number of countries reported in which participants believed they had significant experience was approximately eight.

Assessment. The interview protocol probed participants for their conceptual understanding of culture and for their tactics to gain more cultural understanding. Based on the results from Data Collection 1, the interview protocol was adjusted to include several questions focused on cultural concepts or attributes. These items were explicitly included because the participants in Data Collection 1 indicated that cultural concepts and attributes were important to their understanding of culture. Again, the questions were structured insofar as they were previously determined and all participants were asked the same questions. Due to the open-ended nature of all the questions, the participants were not restricted in their answers. The same question could have potentially triggered a different response from different individuals. In addition, questions were asked regarding the participant's background with respect to experience in multiple cultures.

Procedure. The same two interviewers who conducted the interviews for Data Collection 1 also conducted Data Collection 2 interviews. Each interview lasted two hours and interviews were conducted during regular working hours. Each participant was interviewed by both interviewers. For each interview, one interviewer took the lead and asked the questions while the second interviewer ensured that none of the answers went unwritten and asked additional questions for clarification purposes when needed. Due to the extended interview time and due to the revised interview protocol, the questions asked and the responses obtained in Data Collection 2 were more detailed than in Data Collection 1.

Results

The interview notes were summarized by the interviewers and then compiled resulting in 356 cultural items. Two researchers, one of whom was uninformed about the nature of the project, identified and removed redundant items and items related to specific cultural information. This resulted in 283 unique items. Then, the two researchers sorted the items into three categories. Forty-three items were determined to be cultural *attributes*, 56 items were coded as *goals,* and 184 items were categorized as *tactics*.

Then, the two researchers reviewed the items within each category (e.g., cultural attributes) and grouped similar items together (e.g., dress & attire). Next, the third researcher wrote a single item or chose an item that best represented each set of similar items. The resulting list of items was presented to the two other researchers who coded the items into one of the three

major categories. Items on which coders agreed were retained. This resulted in 37 items representing *attributes,* 54 items representing *tactics,* and 32 items representing *goals.*

Combining Results from Data Collections 1 and 2:
Identification of Schema Content

Next, the results from the two data collections were combined. The researchers performed a four step process, shown in Figure 3, to analyze these data. Step 1 involved two researchers identifying redundancies within each of the three categories of items (attributes, goals, tactics). For Step 2, they grouped items that were similar (e.g., dress and attire). In Step 3, a third researcher combined the grouped items by either selecting a representative item or writing a representative item. Step 4 was a modified retranslation where two researchers combined all items and sorted them into the three categories. Again, items on which coders agreed were retained. The final result was 40 unique attribute items, 36 unique goal items, and 67 unique tactics. Sample items are shown in Table 2.

Sample	Attributes	Tactics	Goals
1	29	38	18
2	37	54	32

Step 1	Step 2	Step 3	Step 4
Identified redundancies	Grouped similar items	Combined items	Sorted all items

Result
Attributes - 40 items   Goals - 36 items   Tactics - 67 items
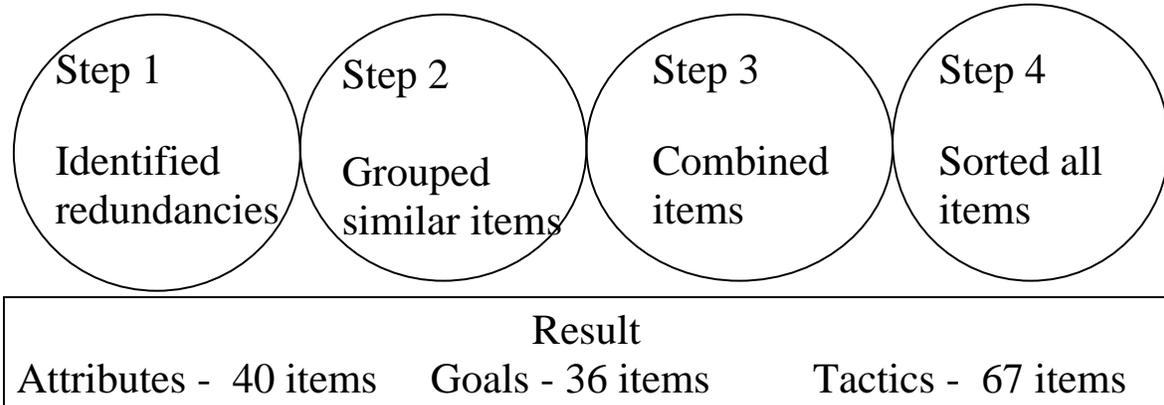
Figure 3. Data Analysis Process for Combined Items.

Table 2. Sample Items for Each Category

Attribute	Goal	Tactic
Economics and resources (e.g., money, SES)	In order to understand and manage my relationships with others	Attend to topics and conversations
Religion	To build credibility	Use the language (e.g., order food, ask questions, greet)
Customs/traditions/courtesies	To build trust	Interact with the locals (e.g., have tea with them, eat with them)
Social structure (e.g., relationships between men and women, tribal organization)	To develop my lens, which can put other stuff in focus	Learn from interpreter (ask questions about what you observe, rehearse with interpreter, listen to interpreter)
Government	To maintain security/safety/health	Be aware of your body language and tone

Data Collection 3: Identification of
Core Schema Content for Attributes

Methods

Sample. Sample 3 data were collected at Fort Riley. The sample consisted of 27 male Soldiers returning from Iraq where they were members of Military Transition Teams. A requirement for participation was having worked in at least two countries other than the United States of America. Nine Soldiers were identified as the primary respondents for Data Collection 3. These individuals were identified on the basis of having provided complete and high quality data, which was indicated by relatively high congruence scores (see Results section). These nine individuals were 2 Captains, 3 Majors, 2 Staff Sergeants, and 2 Master Sergeants who ranged in age from 29 to 37 years. The range of Army experience was from 9 to 19 years, and the average number of countries in which they reported having experience was approximately 3. The sample had experience in Afghanistan, Bosnia, Germany, Hungary, Iraq, Italy, Japan, Korea, Kosovo, and Saudi Arabia.

Procedure. The data collection occurred in sessions that lasted approximately two hours and included 2 to 10 participants. For each data collection session, at least one interviewer was

present in order to read instructions and to make any necessary clarifications. Participants worked independently on a series of tasks. First they provided demographic information Second, they were given a set of 40 cards. On each card was written one of the cultural attributes determined from the previous data collections. The 40 items are listed in Table 3.

Table 3. Cultural Attributes Presented to Sample 3

Geography and climate	Taboos
Economics and resources	Social structure
Subcultures	Similarities and differences
Family	Key leaders
Values/Beliefs/Ethics/Morality	Language/Dialect
Customs/Traditions/Courtesies/Daily life	Speech/Communication patterns
Education	Expression of emotion
External influences	Cultural artifacts
Dress	Body language/Posture/Gestures
Food	Typical interactions among locals
Gender	Business etiquette
Government	Key informants
History	Relationship between religion and government
Hobbies/Games/Leisure	Power/Projection of power
Orientation toward U.S.	Political system and values
Military/Civilian	Leadership styles
Religion	Openness to other cultures
Technology	Ability to travel
Time	Cleanliness/Sanitation
Work	Conflicts

The participants were instructed to group the attributes. In other words, they were asked to sort attributes that were highly related together to form a stack. They could create as many stacks as they wished and they could form the stacks using any criteria that were meaningful to them. Third, after sorting the attributes, the participants were asked to think of a name or label that best described each of the stacks, or groups, they compiled. They wrote each label onto a blank card and placed the card on top of the stack it represented. Fourth, they wrote the labels into a grid.

Fifth, the participants rated the relatedness of the attributes as they thought about culture in general. They used an 11-point relatedness scale (ranging from -5 = highly unrelated to 5 = highly related) to rate the relatedness of each of the attributes to one another. For a graphic example of the grid, please refer to Figure 4.

	Government	Behavior	Safety	Harmony
Govenment		5	-5	2
Behavior			4	1
Safety				3
Harmony				

Figure 4. Example Rating Grid with Example Ratings

The participants were also asked to sort two other sets of cards, one each for the goals and for tactics. These data were beyond the scope of the present research. Therefore, only the cultural attribute data were analyzed.

Results

Two sets of analyses were conducted. First, the relatedness ratings provided by the 27 participants were analyzed using Pathfinder. Pathfinder transforms relatedness ratings into distances and graphically maps these distances. Each participant's Pathfinder network (PFNET) was first mapped individually and the coherence of each PFNET was computed. The network coherence refers to the internal consistency of the network and Pathfinder automatically computes it. There is no set standard for a network's coherence and different networks can differ dramatically in terms of coherence. However, very low coherence values (less than 0.20) may indicate that raters did not take the rating task seriously or that they had no well formed schema (i.e., novice) (Schvaneveldt, 1990). Of the 27 participants, 9 had coherence coefficients above .65. The average coherence for the nine participants was .68. Data from these nine participants were subjected to the second set of analyses.

Each of the nine participants had sorted the cards into as many stacks as he wished. The number of stacks ranged from five to ten. The end result was an accurate sorting for each participant because the sorting instructions did not restrict the participant in any way with respect to the number of stacks or items per stack. However, the sorting could not be compared across participants. Therefore, the relatedness ratings were "unfolded," to provide a lower 40 x 40 triangular matrix listing one relatedness rating for each pair of culture attributes. In other words, as an alternative to using the relatedness ratings provided by participants for each *stack,* we generated a matrix that listed the relatedness ratings for each pair of cultural attribute items for each participant. This in turn enabled a comparison of the ratings across participants and the computation of an average matrix.

The individual unfolded matrices were analyzed using Pathfinder and the results indicated that average coherence for the nine matrices was .69. The nine matrices were then combined to form an average matrix that was subjected to Pathfinder analysis and it had a coherence of .62.

Pathfinder also produces a network for each matrix analyzed. For each network, Pathfinder provides the number of links a node (in this case each node represents a cultural attribute) has with other nodes in the network. Therefore, for each network, we analyzed the number of links each of the 40 nodes had with the other nodes in the network. Based on this number of links, we isolated several cultural attributes which were most central or most commonly activated (at least two links), in the cultural schemas for at least two participants. These sixteen cultural attributes represent the core attribute content of a schema for cultural understanding. The mean number of participants for whom the retained items were central was 4.5, and the average centrality value was 3.5.

The network produced from the average matrix is presented in Figure 5, which identifies the 16 common attributes and their location in the network. Table 4 shows the 16 attributes, the number of links for each, and the number of participants having that number of links in his individual network.
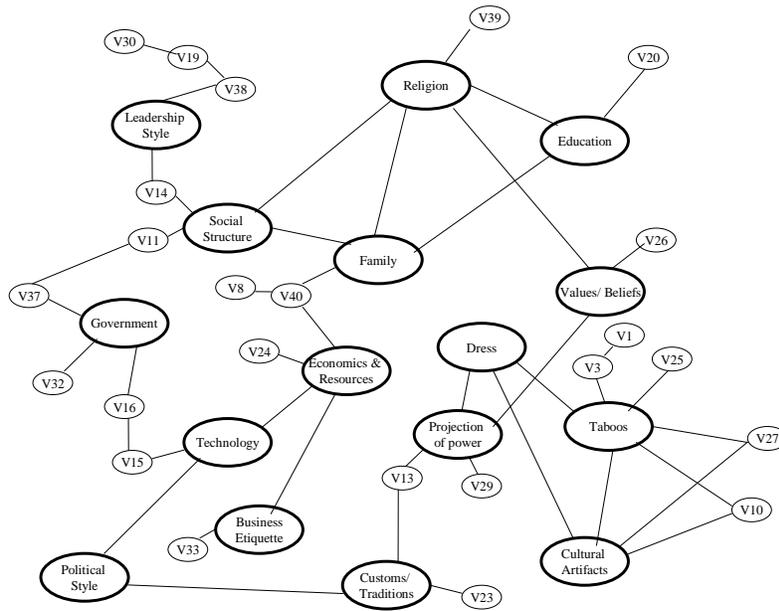
Figure 5. Representation of Core Schema Content for Attributes

Table 4. Summary of 16 Core Attributes from Sample 3

Links	Number of participants	Attribute
6	6	Taboos
5	5	Religion
4	6	Dress
4	5	Economics and resources (e.g., money, SES)
4	5	Power distance/projection of power
4	4	Social structure
4	2	Family
4	2	Cultural artifacts
3	6	Government
3	4	Technology
3	4	Education
3	3	Values/Beliefs/Ethical Morality/Standards
3	3	Customs/traditions/courtesies/daily life routines
2	7	Business etiquette
2	6	Leadership
2	4	Political system and values

Data Collection 4: Identification of the Structure of Core Schema Content for Attributes

Methods

Sample. Sample 4 participants were volunteers from several relevant online forums in Battle Command Knowledge System. The age of the obtained sample ranged from 26 to 49 years, included 1 female and 6 males, and included 3 Captains, 3 Majors, and 1 SSG. The time in service ranged from 5 years to 29 years. The average number of countries in which participants reported experience was approximately 5. The countries and work roles of their experiences abroad are summarized in Table 5.

Procedure. The *C*ultural *O*rientation and *R*ecognition - *T*actics, *A*ttributes, and *G*oals (COR-TAG) Assessment for Attributes was generated from the 16 items that resulted from Sample 3. The assessment was available on several online forums on Battle Command Knowledge System. Individuals participating in the forum could volunteer to complete the assessment and submit their responses electronically. They also submitted demographic information for purposes of describing the sample.

The COR-TAG Assessment for Attributes presented the 16 cultural attributes in a matrix such as that shown in Figure 3. Participants indicated the relatedness of each of the cultural attributes using the same 11-point rating scale used with Sample 3.

Table 5. Experience Reported by Sample 4

Countries	Types of Work performed
Afghanistan	Combat operations
Bosnia	Combat support operations
Germany	Executive officer
Iraq	Medical support
Italy	Mentor/Advisor
Korea	Observer/Trainer
Kuwait	Platoon leader
Panama	Staff Officer
Saudi Arabia	Unit Chaplain
Spain	

Results

Each participant's data matrix and an average matrix computed using the participant matrices were analyzed using Pathfinder. Two individual matrices did not have coherences of .20 or above. Therefore, the remaining five matrices were used to compute an average matrix. The averaged matrix had a coherence of .74. The average similarity value for the five matrices was .32.

The representation of the attributes in the schema for cultural understanding is shown in Figure 6. Items with the greatest number of links in this figure are the most central concepts in the schema for cultural attributes, as reflected in responses from the current sample.
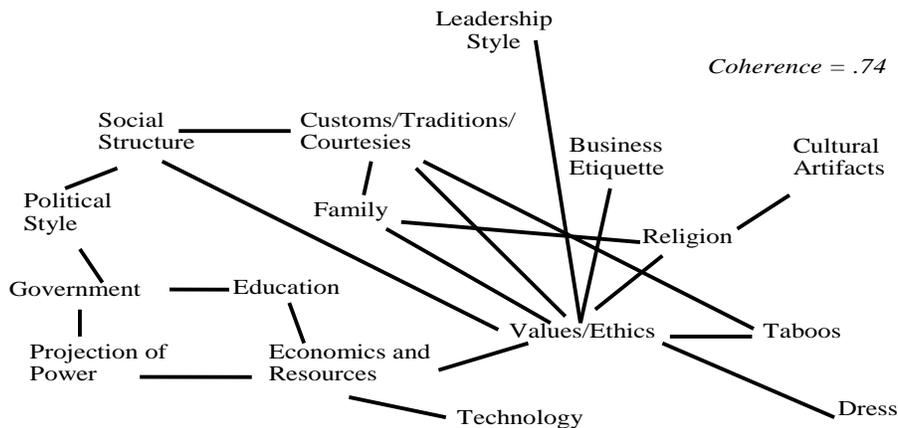

Figure 6. Structure of Core Cultural Attributes

18

General Discussion

The objective of the present research was to identify a core content and structure of a schema for cultural understanding based on Soldiers' experiences. We built upon previous work by examining a schema for cultural understanding, which Rentsch et al. (2007) identified as a key multicultural perspective taking competency. By extracting information and experiences from Soldiers who had deployed to many countries, we were able to identify schema content and structure that was based on relevant experience. Therefore, the schema of cultural understanding obtained in this research may be useful as a framework for developing cultural training. Below, the nature of the schema for cultural understanding identified here will be described in more detail and the usefulness of the schema for training will be elaborated. Then, future research will be addressed.

Structure of Core Schema Content for Attributes

In the present research, effort was directed at extracting content from experienced individuals and maintaining the content as expressed by the participants. Although, in order to design a manageable structured assessment, some condensing was required, in general the content is in the form provided by the participants. One aim of the present research was to augment cultural frameworks developed for research purposes. We were interested in identifying a schema that is relevant to Soldiers who have successfully completed their missions in novel cultures. These experienced Soldiers were expected to have a unique schema for cultural understanding. Their schema was expected to be different from the schemas represented in the academic literature. Academics and Soldiers have a very different purpose for understanding culture. Although, the academic work is highly informative and useful to Soldiers, a schema for cultural understanding that is directly relevant to military operations will be most informative.

The data obtained in the present research revealed that rather than thinking of culture in terms of the etic, cross-cultural dimensions used in organizational psychology (e.g., Hofstede and GLOBE dimensions), Soldiers represent culture more in terms of emic concepts. For example, comparing Table 1 and Figure 6 reveals that the cultural dimensions frameworks contain different concepts than the attribute content articulated by the Soldiers in our samples. The attribute content described by the Soldiers more closely resembles the concepts used in anthropological discussions of culture (see Selmeski, 2007, for one example). This may reflect the nature of participants' intercultural interactions. For example, working with host nationals in a foreign culture may lead to somewhat different knowledge structures than working in a multinational team in a coalition headquarters.

As noted by Rentsch et al. (1994), expert schemas are expected to converge, and the Pathfinder results obtained in the present research are indicative of convergence. The coherence values were used in the present research to identify high quality (expert-like) schemas and all matrices used had coherence values above .50. Both the coherence values and the similarity values obtained in the present research were as high as or higher than those obtained in past research using Pathfinder to evaluate schemas (e.g., Acton, Johnson, & Goldsmith, 1994; Cooke, Kiekel, Salas, Stout, Bowers, & Cannon- Bowers, 2003; Day, Arthur, & Gettman, 2001;

Goldsmith, Johnson, Acton, 1991; Kivlighan, Martin, Stahl, & Salahuddin, 2007; Miles & Kivlighan, 2008; Pilar, Canas, & Bajo, 1994).

Thus, current findings suggest that the attributes and structure identified are indicative of schema for culture beyond that of a novice. Participants in this research had broad experience working in foreign cultures, and we selected samples from mission types with relatively high levels of intercultural interaction – Special Operations and military advising. However, it is unclear whether the participants had the extensive deliberate practice needed for the development of expertise (Ericsson & Lehmann, 1996), and we were unable to obtain other indicators of expertise. Nevertheless, convergence in the present sample strongly suggests at least a moderate level of intercultural understanding.

In addition, although the present research focused on the attribute content of a schema for cultural understanding, Soldiers also identified goals and tactics for gaining an understanding of cultural attributes as part of their schema for cultural understanding. Interviews clearly indicated that Soldiers' schemas for culture include not just the "what," but also the "why" and "how" of cultural learning. Cultural concepts and their organization may differ depending on what purposes one's cultural knowledge serves. Different schema may develop over time, or different schema may be activated, depending on one's goals. For example, the relevant schema for culture may differ for someone engaged in military advising, where effective interpersonal interaction is critical, as compared with someone conducting intelligence analysis on a brigade staff.

Assessing this schema content is critical to determining how cultural understanding develops over time. In general, we would expect cultural schema to become more abstract, complex, and organized as intercultural expertise increases (Fiske & Taylor, 1991). At higher levels of intercultural development, one's cultural schema can accommodate inconsistencies and cultural paradoxes (Osland & Bird, 2000), using disconfirming information to advance one's understanding through sensemaking processes (Sieck, Smith, & Rasmussen, 2008). The rating task used in the present research may be a relatively simple way to assess culture-general expertise and can provide a snapshot of the changes in cultural schema produced by sensemaking. Future research will determine whether the COR-TAG Assessment for Attributes used here converges with other potential indicators of cultural expertise and can provide a source of information on individuals' culture-general understanding.

Training Implications

Cultures are complex and it is not always practical to train each Soldier for each new culture he/she will encounter. Furthermore, it may be nearly impossible to provide complete and sound training for specific aspects of regional cultures in some countries due to the numerous subcultures that might exist (e.g., Iraq, Afghanistan). Therefore, training a succinct framework (i.e., schema) to guide how to gain an understanding of a culture may be key to successful negotiation in a new culture. The present research is aimed at this practical goal.

The 16 attributes identified as content for a schema for cultural understanding represent the core knowledge that Soldiers find useful in learning a new culture. The Soldiers expressed

that they tend to search for information regarding these attributes in order to understand a new culture. Thus, addressing these 16 attributes in Army cultural training and education may be beneficial.

Soldiers should also be trained on how the attributes are interrelated. The schema represented in Figure 6 may be useful for this purpose. In particular, core or central attributes deserve attention in training. Central attributes are those that have the most connections to other attributes in the schema. For example, Values/Ethics is an attribute with many connections to other attributes. Instruction on relationships among different cultural attributes may help accelerate cultural learning by providing a framework for organizing knowledge, so that observations about a foreign culture are not experienced as lists of isolated facts, but rather begin to form a coherent narrative about a society or organization. In constructivist learning theory, these narratives provide a critical source of meaning (Clark & Rossiter, 2008).

Findings on goals and tactics for cultural learning also have implications for cultural education and training. Current cultural training focuses heavily on the "what" for culture, with emphasis on culture-specific information. These findings suggest that the "why" and "how" are equally important. Learning objectives should target this tacit knowledge along with the declarative knowledge of cultural facts and attributes that is more commonly taught in cultural training and education. Understanding the links among attributes, goals, and tactics would provide more generalizable knowledge. Goals can be highly informative in determining what attributes are most relevant to particular contexts and tasks. In addition, teaching the tactics for acquiring that knowledge better enables individuals to learn on the ground, minimizing the impact of pre-deployment training that is inevitably incomplete and occasionally of little relevance in the area of operations.

Future Research

The Soldiers who participated in the present research articulated goals and tactics as part of their schema for cultural understanding, and this content needs further examination for a complete representation of the schema for cultural understanding. That is, the methods by which Soldiers acquire cultural information and the goals for using that information have been identified in the present research. The next step is to identify how these goals and tactics are structured and linked to the core attribute content.

Future research should elaborate the representation of the initial schema for cultural understanding that was obtained in the present research. The elaborated schema representation will include cultural *attributes*, *goals* for understanding cultural attributes, and *tactics* for learning cultural attributes. It is expected that the resulting representation of the schema for cultural understanding will contain characteristics of an expert schema. *It is expected to be multileveled and will contain connections between and within levels.* An illustration of a hypothetical schema representation appears in Figure 7. A novice schema is expected to contain fewer links, particularly between levels.
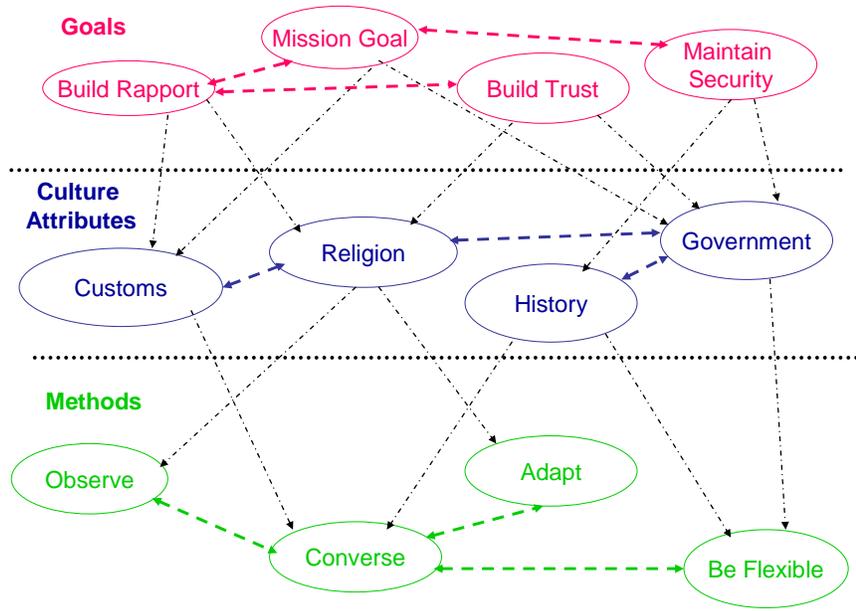
Figure 7. Illustration of a Multilevel Expert Schema for Cultural Understanding

Conclusions

In the present research, we identified three components of a culture-general schema: cultural attributes, goals for cultural learning and knowledge, and tactics for acquiring cultural knowledge. We explored the attributes portion of the schema in greater detail, which yielded a conceptual network of16 core attributes. These findings can potentially provide instructors and training developers with a better understanding of their training audience. Awareness of trainees' cultural schema can contribute to designing and delivering instruction in a way that capitalizes on the cognitive structures learners use to make sense of cultural information. This research can help ensure that cultural education and training translates into mental models that are maximally useful for application of cultural knowledge in an operational context.

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