CROSS-CULTURAL NONVERBAL CUE IMMERSIVE TRAINING

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ABSTRACT

When US soldiers are deployed to Iraq, their interactions with the local population are impacted by their understanding of complex cultural differences. Nonverbal cues play a major role in cross-cultural communication, as they vary among cultures by many culture-specific rules that govern certain aspects of behavior (Taylor, 2006). This study was intended to be an initial attempt to discover the distinction between the types of nonverbal cues and their likelihood of being correctly perceived. Based on our preliminary results, it appears that the type of cue is indeed important.Affect displays and emblems seemed to be most reliably interpreted, while most regulators and adaptors were misinterpreted. These results suggest that nonverbal cue training requires context to understand their respective meaning and relationships. Immersive technologies incorporating mixed reality training may be used to promote social cooperative learning.

1. INTRODUCTION

As a global community, individuals from various cultural backgrounds need to interact for economical, social, and political reasons. Communication is an integral part of our daily lives and is paramount to collaborative interaction. Both verbal and nonverbal messages interact to form human communication. Verbal communication depends solely on speech to provide meaning. They are conscious and discrete actions. Nonverbal communication, on the other hand, involves a message transmitted to another person without words. It may or may not depend on the verbal language as supplement and are continuously communicated either consciously or unconsciously through various forms of nonverbal cues such as body posture and facial expressions.

Nonverbal cues play a major role in cross-cultural communication, as they comprise approximately two-thirds of the information exchanged between individuals (Spoelstra, 2006). Nonverbal communication varies among cultures, as there may be many culture-specific rules that govern certain aspects of nonverbal behavior (Taylor, 2006).

When US soldiers are deployed to Iraq, their interactions with the local population are impacted by their understanding of complex cultural differences. These interactions support building trust in the local population and ensuring protection from insurgent activity. A major challenge that may arise during cross-cultural communication involves nonverbal cues (Matsumoto, 2000). Arabs communicate messages that are often implicit, indirect and highly coded. They tend not to rely solely on language but leverage both the close personal relationships and nonverbal cues such as voice intonation and facial expressions that play a significant role in communication. Therefore, a Soldier interacting with an Arab must interpret what the message means by correctly filtering through what is being said and the 'way' the message is being conveyed via nonverbal cues. This approach is in sharp contrast to the United States, where the message is explicit and the speaker says directly and precisely what s/he means.

1.1 Nonverbal Communication

Burgoon (1985) revealed that nonverbal communication has several different properties. First, nonverbal cues can be broken down into modality categories, such as body communication (gestures and body movement), facial and eye communication (gaze, affect displays), proxemics (the use of space), tactile/haptic communication (via touch), paralanguage (auditory utterances that affect meaning). These nonverbal communication categories may be performed continuously and viewed as progression in their signaling

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(i.e., vocal intonations, facial expressions; Littlejohn & Foss, 2005).

Hence, nonverbal cues may be displayed alone or as groups. They allow for quick and direct simultaneous multimodal sensory transmission via several different signals of the body giving added meaning to the interaction. Research has found that people can generally process unconsciously or consciously nonverbal cues faster than verbal communication cues (Burgoon, 1985).

Certain nonverbal cues elicit universal meaning, which may be biologically determined. These cues are often emitted spontaneously and unconsciously (De Vito, 1989; Burgoon, 1985). However, it's important to emphasize that nonverbal communication is oftentimes guided by *rules* which dictate the appropriateness and consequences of actions. These rules are greatly influenced by the culture and social norms (referred to as display rules) and are most often learned by observing others to dictate when and where the use of nonverbal cues is acceptable (DeVito, 1989). There may be many verbal and nonverbal culture-specific rules of discourse that govern certain aspects of communication including opening or closing conversations, taking turns during conversations, interrupting, using silence as a form of communication, pursuing only appropriate topics of conversation, using humor appropriately, using nonverbal behaviors and gestures, laughing at appropriate times, knowing when to stop talking, and sequencing a conversation (Taylor, 2006). These nonverbal cues are also bounded by the context of the situation, which ultimately give their meaning.

1.2 Nonverbal Cues Categorized by Function

In one commonly accepted taxonomic approach, Ekman and Friesen (1969) classified nonverbal cues into five functional types. First, emblems are clear, explicitly defined and intentional body movements or utterances that are independent of speech and directly translate into phrases or words (DeVito, 1989; Richmond & McCroskey, 2000). They may repeat, substitute, or contradict part or all of the simultaneous verbal communication. Emblems carry less personal information (i.e. affect, feelings, and opinions) than other forms of nonverbal cues (Ekman & Friesen, 1969). Emblems occur mainly when verbal communication is inhibited by external factors (e.g., noise, distance). They can be recognizable gestures such as a open palm representing 'stop' or utterances such as "Shhh," which represents the phrase "Be quiet" (Poyatos, 1988). Within a particular culture, emblems are not commonly misinterpreted because they have direct verbal translations and are universally shared among a group of people. However, many emblems do not mean the same thing across cultures, which often lead to misinterpretations (Ekman & Friesen, 1969).

Second, illustrators are nonverbal cues directly linked to words used to reinforce the verbal communication by allowing the individual to emphasize the word or idea. They are often linked to speech and serve to illustrate the verbal message, show the relationships between the person speaking and the verbal message (e.g., how s/he feels about what s/he says), emphasize the verbal message, and direct the conversation. They are usually intentional and cannot stand alone like emblems because they have no meaning apart from verbal messages (DeVito, 1989; Richmond & McCroskey, 2000). They may be a little less intentional than the use of emblems, but generally people are aware that they are displaying illustrators (Ekman & Friesen, 1969). An example of an illustrator is when an individual shakes his head in disagreement as he verbally disagrees with something. Some illustrators can be understood independent of speech while others require speech for understanding. However, illustrators are related to the ongoing verbal communication and should be taken on a contextual basis, from moment to moment and situation to situation (Ekman & Friesen, 1969).

Third, affect displays reveal our emotional state and are exposed primarily via facial cues. They may also include postures and any other movement that gives some indication of emotion (DeVito, 1989; Richmond & McCroskey, 2000). Gaze in particular can be used to seek feedback from someone, regulate conversation, and transmit certain messages (DeVito, 1989). These displays may occur with or without awareness on the part of the sender, and they are highly dependent on context (Ekman & Friesen, 1969). Affect displays are extremely important because people tend to focus attention on affect displays as feedback during communication.

Fourth, regulators are nonverbal cues that regulate interaction such as eye behavior, tonal variation and loudness, and/or head nodding to regulate conversation. They may also include body movements such as turn-taking cues that regulate and maintain the conversation and the interaction as a whole (DeVito, 1989). They tell the speaker to continue, repeat, elaborate, hurry up, become more interesting, stop speaking, etc. They do not mean anything alone without verbal exchange (Ekman & Friesen, 1969). Studies have shown that we are sometimes unaware of giving these cues, but when asked to repeat them, we can. They seem to be habitual, learned, and almost involuntary. Thus, regulators are primarily interactive and are found to be extremely important. For instance, research has demonstrated that if regulators were inhibited in a conversation, the communication is quickly terminated because the perceiver recognizes that

regulators are purposefully being withheld and discontinues the interaction (Ekman & Friesen, 1969).

Finally, adaptors are movements that satisfy personal needs to help adapt to the environment and may also be behaviors that may be used to manipulate situations. Specifically, adaptors refer to when a person unintentionally touches himself, others, or objects during conversation. They allow individuals to adapt to different situations typically in response to stress or anxiety (DeVito, 1989; Richmond & McCroskey, 2000). They are learned to satisfy the self or body needs, perform bodily actions, manage emotions, develop or maintain relationships, or learn an instrumental activity (Ekman & Friesen, 1969). They appear to be triggered by something in the interaction and are habitually displayed, such that the sender is not intending to transmit a message (Ekman & Friesen, 1969).

1.3 Nonverbal Cues Categorized by Modality

An alternative taxonomic approach to nonverbal cues is by means of sensory modality channel. First, body posture or movement is used to express our feelings and attitudes in two primary dimensions including immediacy and relaxation (Hecht & DeVito, 1990, Richmond & McCroskey, 2000). Body posture cues representing immediacy include body orientation, symmetric position, and forward leaning of the body. Cues defining relaxation include backward leaning, reduced tension in arms and legs, and asymmetry of positioning. For example, body posture may be used as a sign of (dis)interest by how we lean (towards to show involvement or away for detachment). Furthermore, as a sign for agreement studies have shown that people are more likely to mirror similar postures and adapt to others as a cue for similarity.

Second, gestures lend some sort of meaning to an interaction occurring independently or simultaneously with verbal communication (Kendon, 1983). Hand gestures are often used as space or time markers to indicate size, distance, location, and temporal meanings (Poyatos, 1988). Gestures can be used in lieu of speech to supplement words and phrases. Gestures can be divided into three patterns including: gestures with symbolic meaning, gestures with pictorial meaning, and gestures for emphasis (Brewer, 1951). Gestures that have symbolic meaning in a culture are used and understood independent of speech and conversation. Gestures that have pictorial meaning may or may not be understood outside of the context of a conversation. This form of gesturing generally serves to clarify and intensify conversation. Finally, gestures are sometimes used to emphasize certain points in the conversation and would typically not be understood outside of the context of the conversation.

Third, eye contact and behavior is considered to be the most important in human communication, which refers to the visual code of direct or indirect eye contact made during interaction (Watson & Graves, 1966; Richmond & McCroskey, 2000). Eye contact expresses attitude, emotions, and intentions in a very dynamic way (Hecht & DeVito, 1990). Eye contact and gaze typically reveal interest in a topic or person. During interaction, we often use eye movement to assist us to interpret verbal messages. Eye contact may be used in conversation in signaling when to continue talking (mutual eye contact), stop (eye gazes away), or provide further explanation. Thus, eye contact functions in coordinating conversations. Eye behavior is also used in cognitive processing (Richmond & McCroskey, 2000). Specifically, Conjugate Lateral Eye Movements (CLEMs) refers to the involuntary lateral shifts of the eyes to the right or left. For instance, we look to the left or right when we are thinking and look forward when we have stopped information processing.

Fourth, facial expression is the primary body part where expressions of emotion are transmitted. The face is critical in human communication since it is the most visible during interaction. Facial and emotion expression relating to anger, disgust, fear, happiness, sadness, contempt, and surprise have been suggested to be universal (Ekman & Friesen, 1986; Matsumoto, 2000). Cross-cultural research has suggested that this small set of facial expressions of emotion is universally expressed and recognized.

Fifth, paralanguage defines the vocal behavior and all the oral cues in spoken utterances without word meaning. Vocal behavior provides information about age, gender, emotion, attitude, state of health, and trustworthiness (Richmond & McCroskey, 2000). Paralanguage includes language sounds (pauses, clicks, whispers, pitch), non-language sounds (whistles, kiss, laugh, cry), and control of air movement (nasal sounds, rate of speech; Key, 1977). These non-speech sounds also emphasize verbal content. For instance, it may be used to evoke a response or reaction from a listener (e.g. changing vocal tones at the end of a sentence to ask a question). Sound does not always need to be used to convey information. Silence, for example, is an element of nonverbal communication and can be used to dominate, control, emphasize, think, intimidate, or encourage an individual in an interaction (depending on the context; Key, 1977).

Finally, proxemics refers to spatial distance cues between people in face-to-face communication such as the appropriate intimate, personal, social distance, and public spaces (Hall, 1969). The amount of personal distance (or proxemics) that a person requires is based in

part on that individual's cultural background. Proxemics also includes the amount of touch that is involved during interaction, which may vary among genders, social statuses, and cultures. Tactile interaction functions to accentuate professional, social, and intimate relationships (DeVito, 1989).

1.4 Reliability of Nonverbal Cue Interpretation

The purpose of this research is to determine how nonverbal cues can be trained effectively. An experimental design was developed to examine the factors influencing the reliability of nonverbal cue interpretation. We examined several nonverbal cues that vary in modality channel (i.e., body posture, gestures, eye contact, facial expression, paralinguistics, and proxemics), type of functionality (i.e., emblems, regulators, illustrators, affect display, and adaptors), and were either Iraqi or universal nonverbal cues. We hypothesized that emblems and affect displays would be the most accurately interpreted since affect displays are universal in their recognition and emblems do not rely on context for meaning. In contrast, illustrators, regulators and adaptors would be misinterpreted as they are dependent on environmental and cultural context. Due to the one-to-many relationships (one nonverbal cue with many interpretations depending on context) of regulators, illustrators and adaptors, it may be difficult to interpret nonverbal cues accurately. On the other hand, emblems representing a word or phrase, oftentimes independent of context and affect displays, have a one-to-one relationship between the nonverbal cue and the explicit meaning.

METHODS

Seven people participated in this experiment, ranging in age from 20 to 57 (M=38 years) and gender (3 females; 4 males) as well as cultural background (3 civilian English-speaking Americans, 2 American Soldiers who have been to Iraq and interacted with Iraqis, and 2 native Iraqis).

We classified nonverbal cues according to universal and culturally-specific cues specific to a Middle-Eastern culture (i.e., Iraq). The nonverbal cue literature was reviewed to compile nonverbal cues and their respective meanings. Universal nonverbal cues were categorized based on their unconscious and involuntary behavior. Also, they were considered universal when cues were interpreted similarly regardless of the decoder's cultural background. Conversely, culture-specific nonverbal cues are learned and understood based on the specific culture.

After signing a consent form, participants completed a brief demographic questionnaire that asked questions such as gender, age, language background, and, when applicable, experience with Iraqi nonverbal cues. Next participants were presented with a 25-question test of their ability to recognize and understand nonverbal cues. This was presented via a PowerPoint presentation on a laptop computer. For each question, participants were given a word or phrase describing a concept that could be communicated through nonverbal communication gathered from the literature, such as "Anxiety," "Rapport," or commands such as "Stop" or "I advise you not to argue." Participants then watched a three different video clips; each video was approxematly two-seconds long. Each video clip was of a Caucasian male performing three different nonverbal cues, one of which matched the word or phrase provided. Participants were asked to correctly identify which of the three videos best matched the word or phrase. The nonverbal cues used as stimuli in this test included an assortment of the various functional categories (i.e., emblems, illustrators, affect displays, regulators, and adaptors), and channel modalities (i.e., body posture, gestures, eye gaze, facial expressions, proxemics, paralinguistics); they were also balanced for culture so that there were nearly an equal number of universal nonverbal cues and Iraqi-specific cues.

Immediately after responding to each of the 25 questions, particpants were asked if they were familiar with the target nonverbal cue in the context indicated by the word or phrase, and were also asked to rate their confidence level for the answer they provided. Following the experiment, participants were asked to complete a brief post-questionnaire, which asked how challenging the task was, and if they used any specific strategies to determine their responses.

RESULTS

Overall, Iraqis scored highest (M =19), followed by civilian English-speakers (M =17), and finally American Soldiers (M = 16), as Iraqis are familiar with both universal and Iraqi nonverbal cues. Results demonstrated that affect displays (83%), emblems (77%), and illustrators (100%) were most accurately identified.

Participants rated their level of confidence for each response using a 7-point Likert Scale, in which 1 = "Not at all confident" and 7 = "Completely confident". Iraqi participants rated their confidence levels the highest (M = 6.24, SD = 0.89), coinciding with their performance. Soldiers had the next highest confidence ratings (M = 5.68, SD = 1.06) followed closely by civilian English-speakers (M = 5.37, SD = 1.85). Interestingly, the most commonly missed nonverbal cues overall were typically accompanied with a high-confidence rating (between 5 and 7) for all participants.

Participants rated their familiarity with each of the nonverbal cues after each trial as well, and similarly to their confidence ratings, Iraqis rated their familiarity with the nonverbal cues highest, (M = 1.5, SD = 0.51) followed

by the Soldiers (M = 1.28, SD = 0.45) and the civilian English-speakers (M =1.17, SD = 0.38).

DISCUSSION

It is important to note that these results are suggestive, but not conclusive due to our small sample size (N=7). The sample is too small to allow for meaningful comparisons among subgroups and should not be assumed to represent the broader population of Soldiers or civilians. However, comparisons among types of nonverbal cues indicate that, overall,the most misinterpreted types were regulators (54%) and adaptors (0%). This finding was hypothesized, as adaptors and regulators are context dependent, culture-specific, and usually occur subconsciously in conversation. The fact that affect displays and emblems were most accurately identified by participants may be due to the deliberate or at least conscious awareness of performing the nonverbal cue.

We often display affect purposefully, or are at least aware of our affective states. We also use emblems to consciously communicate a word or phrase to someone. Thus, in comparison to adaptors and regulators, which are usually performed unconsciously and variably (in manner and frequency depending on context), affect display and emblems may be perceived as more "concrete" and predictable in the sense that they are usually performed or expressed in the same manner each time. Moreover, because adaptors and regulators are much more variable in their display, it may be said that there is a one-to-many relationship between them (i.e., one adaptor may be expressed in many ways depending on context), versus affect displays and emblems, which are less variable, and closer to a one-to-one relationship (i.e., expressed the same way context-free).

To benefit American Soldiers in their attempt to reliably understand nonverbal communication in a foreign environment, future studies should investigate whether adaptors and regulators are truly less reliably perceived, perhaps by showing them in the context of a conversation. Adaptors are performed as a speaker releases tension and stress, so correctly identifying an adaptor is important to the survival of a Soldier. Similarly, regulators are important to Soldiers, as they may be used between two foreign speakers to communicate deceptive collaboration. If a Soldier is able to identify this, s/he may be able to tell when a foreign speaker is not being honest or is holding something back.

Furthermore, by their very nature, both adaptors and regulators are highly reliant on the dynamic of conversation, and perhaps that is why they were not as easily recognized in the present study, in comparison to affect displays and emblems, which can stand alone, and do not require the context of conversation to be understood. A future study should test these nonverbal cues in the context of conversation, rather than in isolation. Finally, there was only one illustrator in the present study, so illustrators should be more thoroughly examined in future studies.

These results suggest that nonverbal cue training requires context to understand their respective meaning and relationships. Immersive technologies incorporating mixed reality training may be used to promote social cooperative learning. Trainees may interact with Iraqi characters in a scenario-based context dependent environment while being critiqued by their own peers for feedback. Leveraging the shared cognitive processes engaged when peers interact during learning and the social processes involved during training, can stimulate comprehension processes (Van den Bossche et al., 2006). Perceptual contrast training methods which utilize contrasting scenarios while asking the learner to describe the positive and negative aspects of each (Wilson et al., 2005) maybe incorporated to determine the meanings and relationships of nonverbal cues. Nonverbal cues can appear very similar to the novice observer; thus, it is important to train the observer to attend to a cue's unique features. An observer's situational awareness, which can impact their ability to notice such distinctions, can be improved with cue recognition training at the featural level, which will help increase the likelihood that the observer will notice the cue in a variety of environmental contexts (Burke, Salas, Estep & Pierce, 2007).

CONCLUSION

In summary, the current study examined various nonverbal cues to test how reliably they could be interpreted by observers. This study was intended to be an initial attempt to discover whether any significant differences exist between the types of nonverbal cue and their likelihood of being correctly perceived. Based on our results, it appears that this is indeed the case, whereas affect displays and emblems seemed to be most reliably communicated.

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