# Non-verbal intercultural communication awareness for the modern engineer

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ABSTRACT: In the article, the authors examine the main concepts regarding non-verbal intercultural communication skills and awareness for the global engineer. The importance of the cultural context is also discussed, particularly as non-verbal communication is culture dependent. Ethnocentrism can provide a barrier to effective communication, particularly with regard to assumptions that all non-verbal signals reflect the individual's personal cultural paradigm. Due to the complexity of non-verbal communication, misunderstandings can arise, including overt, covert and latent forms. Non-verbal communication has a solid emotional component; to this end, emotional intelligence (or EQ) can contribute in understanding intercultural non-verbal communication, particularly with regard to its elements of empathy, self awareness, social skills and intercultural awareness. Several recommendations are made in the article to enhance intercultural awareness and the development of non-verbal communication skills in this area. The article concludes with a brief discussion of the strengths of good intercultural communicators and Senge's concept of personal mastery.

#### INTRODUCTION

Communication skills are an integral component in the education of engineers at the tertiary level. Indeed, the Dean of Engineering at Duke University stated that ...engineers who are adept at communications have a considerable advantage over those who are not [1].

Communication skills have to be considered as a vital aspect in the education of engineers. This has been reinforced by communication skills being one of 11 key outcomes required by an undergraduate engineering programme in the ABET Engineering Criteria 2000 [2]. Communication skills are a regular feature of an engineer's job in industry; some graduates employed in industry have identified that education in communication skills needs to be improved, given the demands that have been encountered in industry [3]. Indeed, communication skills are considered to be a valuable *career enhancer* [4].

The incorporation of language and communication improvement courses should be considered an important element of continuous learning, and will ultimately contribute to the process of life-long learning. This should, in turn, facilitate advancements in engineering and engineering education through streamlining fundamental communication skills [5].

Communication has been identified as an element of culture; indeed, how communication is actually defined and utilised differs and varies by culture [6].

## INTERCULTURAL COMMUNICATION

New communication technologies (such as the Internet, e-mail, cable TV, satellites, etc), the increasing speed and reduced

costs of international transport, migration flows, and last, but not least, the internationalisation of business have resulted in an ever-increasing number of people engaged in intercultural communication. Representatives of politics, universities and private industry emphasise that internationalising curricula is not only important to remain competitive in a global world economy, but even indispensable in a world that can only survive through global cooperation. A prerequisite for successful global cooperation is the development of intercultural competence [7]. Korhonen has affirmed that:

A professional successful in the home environment will not necessarily be equally successful when working in a new environment with a different culture. Organizations often emphasize expatriates' technical competence and experience, and ignore the non-technical knowledge and skills [8].

However, according to Kealey, there is a *substantial consensus* on the non-technical criteria required for intercultural competence and professional success in another culture [9]. The link of intercultural competence and professional success is also supported by a number of other researchers [10-12]. In this case, the concept of intercultural competence refers to a mixture of cognitive, affective and behavioural components [13]. In addition to linguistic skills, intercultural competence integrates a wide range of human relations skills [7]. However, the focus of this article is on non-verbal intercultural communication skills.

## Importance of the Cultural Context

Intercultural communication covers situations where there is communication between persons with *different cultural beliefs*, *values*, *or ways of behaving* [14]. Cultural differences may be fairly minimal, eg between a German and an Austrian, or may

be great, eg between a German and a Fijian. Indeed, intercultural communication may be very difficult if the communicator and the receiver share few mutual and recognisable symbols [6].

The personal culture of a receiver of communication acts as a filter through which he/she interprets the message. This filter may colour the message to the point that the message received may not match the message sent. The source of the communication will most often be within the context of the sender. Indeed, culture has been identified as influencing every facet of the communication experience [14]. However, in order to achieve an accurate, effective and efficient communication process, the communication actually received is ultimately more important than what the communicator thought was sent [15].

This has dramatic consequences in the current era of globalisation, where people, including professionals such as engineers, are increasingly likely to interact with others from different cultural backgrounds, and where many graduates are keen to work beyond the borders of their home country. As such, it is becoming more important that graduates, as future engineers, gain a good level of intercultural competencies. Indeed, the cultural context of the sender needs to be recognised as not being absolute: culture is not a static concept [15].

Importantly, non-verbal communication, particularly in relation to verbal channels, is highly culture dependent and relies on cultural heritage; indeed, every person is influenced how to move and communicate from a very early age [16]. Therefore, it plays a significant role with regard to intercultural communication and in fully understanding what is being communicated.

Hall differentiated between low-context and high-context communication. Low-context communication focuses on verbal elements and is characteristic of cultural groups from North America, England and Germany. High-context communication blends verbal messages with a lot of bodily behaviour, motions and signs, this typifies Central/Eastern Europe, the Mediterranean region, South America, plus various other cultures [17].

## Ethnocentrism

Ethnocentrism is a barrier to effective intercultural communication and occurs when a person perceives his/her nation as the centre of the world; this is closely linked to people's sense of identity based on how they have been socialised as children [18]. During this process of socialisation, children have been told what is *good* or *bad*. This can include behavioural ways to interact non-verbally with other people, including *rituals*.

Certainly, the application of personal frames of judgement and the expectation that other cultures are somewhat inferior in comparison to other, quite different, cultures is reminiscent of European imperialist expansion from a century or more ago into other regions and continents. This saw the enforcement of certain European values on cultures in other continents, including Africa, Australasia, Asia and the Americas [15].

To a lesser extent, stereotyping can affect communication as well. Devito makes the point that the term *African American* 

denies the rich diversity of the African continent and would be analogous to using the term *European American*; people from the same continent, even the same country (consider the diversity in Indonesia or Israel [19]) are not the same and should not be considered to have the same values, etc [14].

## Intercultural Communication Competence

A high percentage of the people who engage in intercultural communication are engineers. These engineers, as well as the non-engineers, often feel confronted with a task for which they are insufficiently prepared. As a consequence, there is a strong demand for further education and training for these people. Indeed, a growing number of management coaches and private training companies offer seminars and training that target people facing intercultural deployments. There is a variety of training systems available, including general intercultural communication courses [7].

Competence in intercultural communication needs to encompass some level of understanding in non-verbal communication.

## NON-VERBAL COMMUNICATION

It has been asserted that language can control meaning [20]. Yet non-verbal communication expands on the verbal language tradition to emphasise meaning, even condensing the need for verbal elaboration.

Much like verbal communication, non-verbal communication, including posture and bodily expression, carries a meaningful message which may be received and processed by other people [16]. However, there are fundamental differences between bodily/behavioural messages and verbal messages in that, in verbal communication, one word generally equals one meaning, yet this is not the case with non-verbal communication as bodily expressions tend to be shared by various cultural groups, often crossing the borders imposed by verbal language restrictions, but also generating new challenges in societies with multiple cultures [16].

#### Indeed, Schneller has asserted that:

The divergence between the groups' shared experiences, resulting in varied meanings for gestures, may reduce the fluency of communication, specifically through the misleading contribution of non-verbal communication to the overall interaction process [16].

Non-verbal behavioural elements include, but are not limited to, the following components:

- Eye contact (oulesics);
- Facial expression, posture, bodily gestures, etc (kinesics);
- Distance between interlocutors (proxemics);
- Influence of odours (olfactics);
- Tempo and time factors (chronemics);
- Touch (haptics);
- Artefacts and environmental objects.

Non-verbal communication does not provide a distraction in communication channels; rather, it provides reinforcement for a message and, if read carefully, helps to clarify meaning.

Sometimes, non-verbal communication does not complement meaning so much as substitute it. Furthermore, non-verbal communication provides an important role with regard to feedback, including emotions, moods and interest [16]. Interestingly, various proportions have been cited with regard to the strength and high impact of non-verbal communication. One example found that 82% of the teacher's messages were in the non-verbal communication form [21]. Knowledge of other cultural norms and idiosyncrasies, including non-verbal behaviour, will aid in improved communication across cultures [6]. Non-verbal communication, such as gestures, can also help to maintain the attention of the listener.

It has been stated that human languages are inventories of symbolic resources that users employ so as to conceptualise a certain situation [22]. However, human language is not limited to the spoken domain, as non-verbal elements carry great meaning and visual cues can convey symbols that offer and emphasise fundamentals within a discussion. Indeed, verbalised language need not be transmitted at all for meaning and understanding to take place.

Non-verbal communication elements, such as gestures, are intrinsically coded; gestures, in particular, are abstract [22]. In isolation, gestures are open to misinterpretations, unless at least either the communicator or the receiver has an understanding of the other's cultural context.

Generally, a communicator will utilise a *matrix* of channels in order to communicate a message, and that these channels will vary in the *degree of articulation and of specialization for ny communication group or subgroup* [23]. Furthermore, it has been asserted that relationships among such channels would be better *described as combinatorial, rather than additive* [23].

## Misunderstandings

Linell categorises misunderstandings from overt misunderstanding and covert misunderstandings up to the latent misunderstandings [24]. This latter type, the latent misunderstandings, is most dangerous as the communicating parties are not aware that miscommunication has occurred [7]. Such errors in non-verbal communication have been dubbed *kinesic antonyms*, and the greater the diversity of non-verbal elements, then the greater is the chance of misunderstanding [16].

Culture specific gestures, in particular, can lead to misunderstandings of both types. Indeed, Axtell provides a thorough examination of various clashes between gestures that are coded to mean one thing in one culture, but mean something rather different in another; such *acquired* gestures have no real logic to their establishment, yet their meanings are recognised within a certain cultural group to mean one thing or another [25][26]. For example, the thumbs up sign means *great* in America (also a hitchhiker's sign), but such non-verbal behaviour is considered an insult in Nigeria [26]. To consider one to be more *correct* than the other would be ethnocentric; it is more important to utilise them correctly within their specific cultural contexts.

Facial action serves not just to emphasise meaning, but also to indicate the response expected or desired [22]. Recognising this element can illuminate the message actually being delivered, ie apparent (spoken) versus intended message.

## **Negotiation Skills**

A recent brainstorming study targeted the identification of key variables that influenced negotiations in intercultural encounters within an engineering context [27]. Non-verbal behavioural communication elements were considered as some of the key factors that could influence negotiations.

#### **EMOTIONAL INTELLIGENCE**

Non-verbal communication has a stronger emotional element than verbal communication. It also encompasses a stronger behavioural element, as it is this component, rather than language or verbal dialect, which dominates in non-verbal communication.

University education needs to be able to prepare graduates, not just with engineering fundamentals, but also for success and actual on-the-job skills [28]. Essential for the skills set for an engineer includes capabilities in emotional intelligence [29]. Initially embraced by management, emotional intelligence should be embraced by all professions.

The term *emotional intelligence* (later coined EQ) was first defined in 1990 by Salovey and Meyer [30]. Their work has since been considerably expanded by Goleman in 1995 (eg see refs [31][32]), who identified that IQ is actually less important for success in life and work than EQ – a set of skills that are not directly related to academic ability [33]. Importantly, emotionally intelligent individuals will be able to solve problems adaptively and will be more competent in integrating emotional considerations when considering alternatives [30].

Goleman identified five domains of emotional intelligence, namely: self-awareness; self-regulation; motivation; empathy; and social skills. These areas can be incorporated into student education and preparation for professional working life. Furthermore, they can be considered as being morally neutral [28].

As it stands, the non-verbal component of emotional communication is estimated to be near 90% [31]. This includes body posture, movements and gestures, facial expressions, eye contact, touching, interpersonal distance and greetings [34].

Critical incidents have been used to teach cross-cultural sensitivity to university level students, targeting cross-cultural miscommunications in classes [35]. Culture general knowledge instruction can be given to cover the following aspects, which also touch on areas covered by EQ:

- Developing an understanding of bases of cultural differences (categorisation, differentiation, in-group/outgroup distinction, learning styles and attribution) [36].
- Understanding the influences that culture has on communication and associated behaviours.
- Acquiring a level of intellectual curiosity, openness, tolerance and empathy towards foreign cultures and their inhabitants [37].

EQ, through its emphasis on intercultural awareness, empathy, self-awareness and social skills, can strongly aid intercultural communication competences [15]. Furthermore, it has been argued that the learning of other cultures should be an integral element of communication modules that are part of a university

curriculum, as this will also support greater linguistic competence and serve to break down student perceptions of stereotypes [28]. Dlaska has stated that it will also support learner motivation, cross-disciplinary integration, learner autonomy, as well as the institution's academic standing [38].

## **Empathy**

A sufficient degree of empathy is required in order to sustain intercultural communication, although empathy's status as a learned skill, trait or contextually emergent relational state has been discussed [39]. Empathy is a vital aspect of EQ and is a learnable skill. Furthermore, it has long been considered a central intercultural competency [39].

Empathy can help maintain and advance intercultural communication, given any communication must be within the cultural context of those communicating and which can alter the message sent/received. By affecting communication processes, EQ and intercultural awareness will also necessarily affect negotiations [15].

Ojanlatva asserted that minority cultural groups generally tend to know more about a majority cultural group than vice versa [40]. This is an important consideration in dealings with people from other cultures.

#### Self Awareness

Self awareness is a vital component of EQ that helps a person to recognise and even regulate his/her emotions, as well as personal strengths and weaknesses. As such, the level of self awareness will directly affect a person's encounters in intercultural communication and interaction [15].

Furthermore, professionals need to have competences in both verbal and non-verbal communication skills, which include touch and listening skills, as well as being aware of cultural differences [40].

Critical incidents can help to address cross-cultural sensitivity and aid in reflection. This serves to increase self-awareness with regard to perception, acculturation and culture shock [35].

## Social Skills

Given that communication is ranked as one of the prime characteristics required by employers in the engineering industry, EQ has an important role to play in strengthening communication skills when certain EQ elements are enhanced in students. Such skills also reinforce teamwork and leadership skills, also considered vital for an engineer [15].

Non-verbal communication skills similarly reflect on the social skills of the communicator and the receiver, pointing to other factors like impression management and interpersonal competence, which are important skills for modern engineers, not just within the current global context [41]. As such, heightened EQ skills can also augment social competences by focusing on enhancing the non-verbal communication process.

#### Intercultural Awareness

Goleman has stated that deficiencies in emotional intelligence may result in engineers being tuned out in working with those from different ethnic groups or nationalities [29]. This is particularly so given the increasing level of international diversity in the workforce.

Intercultural awareness is a particularly pertinent matter when considering non-verbal communication. Schneller's study found *manifold languages* in the *gestures* of Israelis, despite the common tongue of Hebrew, and with it a high level of misunderstanding, even amongst *veteran interactants* [19].

Another example can be found in so-called *touch-oriented* nations, such as the Middle East, Greece, Italy, Korea and Indochina, wherein two men holding hands is a sign of respect and friendship, and does not denote sexuality [26]. The *don't touch* culture of North America (for example), between men in particular, suggests a somewhat obsessively homophobic culture.

Similarly, personal space (proxemics) is a major issue between cultures. Northern Mediterranean and Middle Eastern cultures stand close together, certainly when compare to the American standard, while some Asians, especially the Japanese, stand further apart when it comes to business and social interaction [26]. Encounters between people from differently spaced cultures can lead to a conversational tango, where one steps closer while the other retreats in an effort to regain personal space [26]. Intercultural awareness, coupled with personal self awareness and a level of personal discipline, can help to counter such awkward situations.

#### RECOMMENDATIONS

Experiential approaches, which involve the student in the actual experience of communication, with opportunities for debriefing and re-application, provide opportunities for the development of self-awareness. Also, constructivist approaches build on past learning and should be utilised to build on students' positive learning experiences so as to enhance learning and skills development.

Such interactive modes of learning encourage student participation and enhance the personal learning experience of students. Indeed, interaction between teacher and student will help each other gain insight into the personal cultures of each other and elucidate cultural (mis)interpretations; however, students need to be carefully encouraged to participate in class discussions [42].

Problem-Based Learning (PBL) can focus students' activities and learning on recognising different non-verbal behaviours within a different cultural context. This was applied successfully in the case of patient interaction with the Romanies of Finland, a minority clan culture with its own distinct verbal and non-verbal language [40]. Indeed, PBL can increase students' personal sense of self-confidence with regard to interaction with other cultures, by breaking down the barriers that be generated due to a lack of knowledge, empathy, and/or self-awareness [40].

Also, role-play will encourage self-awareness, while role reversal will contribute to the student's understanding of empathy, of knowing how *the other side* perceives engineers. Indeed, this need not be confined to specifically engineering concerns. However, such context-specific role-play will help to cement those skills within the engineering framework [28].

Further, this need not be limited specifically to the classroom, as the Internet (for example) provides new avenues for long-distance learning.

In cases of second language acquisition, students need to be aware not just of the complexities of another language, but also the idiosyncrasies that accompany the new language within its main cultural context. However, in cases where the new language is pluricentric (ie has multiple centres), such as English, this may be more difficult and, indeed, will require more focused applications on certain cultures (eg Australian English, Indian English, Irish English, etc). To sum this point up, verbal skill acquisition with regard to language must be accompanied with non-verbal language skills within key cultural context(s) of the language studied. Indeed, learning the non-verbal *signals* of certain cultures will serve to make the individual a more powerful communicator [26].

It has been commented that training in intercultural skills needs to incorporate the emotional element as well [36]. However, such additional steps in training also consume more time and, as the need for intercultural training is not immediately and overtly recognisable, it is less likely to receive the required attention. Yet omitting such a step may lead to *ineffective or even counterproductive results* [36].

## Strengths of Good Intercultural Communicators

Jandt has identified key strengths of good intercultural communicators, namely:

- Personality strength (eg strong sense of self; socially relaxed):
- Communication skills (non-verbal and verbal);
- Psychological adjustment (ability to adjust to new situations);
- Cultural awareness (understanding of how persons from different cultures behave) [6].

These are then divided into eight other skills, including self-awareness, self-respect, interaction, empathy, adaptability, certainty, initiative and acceptance [6]. Many of these aspects involve a strong level of emotional intelligence, such as empathy and self-awareness, so EQ skills are important to consider.

## Personal Mastery

Likewise, Senge's concept of personal mastery offers important lessons on enhancing intercultural communication skills [43]. Senge comments that people, who are engaged in personal mastery, which is a life-long learning process, seek to perceive reality accurately and are inquisitive, as well as feel connected to others and to life itself [44]. Such a process will contribute to learning about intercultural communication and the dissonance that may initially be generated. Furthermore, Senge affirms that organisations learn through individuals; as such, individual learning concerning intercultural communication will ultimately contribute to organisational learning as well.

## SUMMARY AND CONCLUSION

Given the increasing globalised nature of engineering practise, greater recognition and attention needs to be apportioned to intercultural skills in order to facilitate more efficient

communication between parties from different cultures. This includes raising awareness of various non-verbal components that impact on the message sent and received within the overall communication matrix.

The article has identified key elements in intercultural nonverbal communication, as well as presented a discussion on the emotional component. Recommendations have been made, including that greater emphasis needs to be placed on structuring improved integration in the education of intercultural communication skills. Other suggestions have focused on how to improve the competences of intercultural communicators, particularly with regard to non-verbal skills.

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