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DEVELOPING CULTURAL COMPETENCE FOR GLOBAL ENGINEERS – HOW 'SOFT' SKILLS HAVE BECOME THE NEW 'HARD' SKILLS

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Abstract. *Diversity drives innovation, and today's most efficient teams rely on clear communication and mutual understanding. Engineers are already working within multinational teams – not only within the UK, but as integrated parts of global organisations and networks, and while on assignments abroad – and this is only set to increase in the future. In order to succeed within any multicultural environment, such engineers will have to develop cultural competence – an emerging soft skill-set that makes working across cultures more effective.*
English is without question the operating language amongst engineers worldwide. It has been proven, however, that a common language alone does not necessarily eliminate other cross-cultural obstacles. Whereas certain aspects about culture may be gleaned through language, the more important elements, such values, expectations, and beliefs, are much harder to identify and teach in a classroom.
This paper explores the importance of cultural competence in engineering, for both native- and non-native speakers of British English, with the curricular challenges it faces. It will also evaluate the effectiveness of the cultural competence workshops used by the Language Unit (LU) in Cambridge University Engineering Department (CUED) to train the engineers, during which attendees were able to explore the various meanings and impacts of culture on our thinking and behaviour, before then developing strategies for better, culturally-minded communication.

Key words: *cultural competence, intercultural communication, global engineers, employability skills*

1. INTRODUCTION

This paper reflects on cultural competence in engineering as a career enhancement skill for future engineers. The main body of the paper consists of a description of what is cultural competence and why it has become a critical interpersonal skill in the field. Then it talks about the challenges of cultural competence training and its place in the departmental curriculum are described. The paper examines how intercultural competence can be built in universities based on a series of stand-alone intercultural communication workshops run by the CUED, targeting postgraduate students at the Engineering Department. It also deals with the analysis and evaluation of teacher observations and participants' verbal feedback, as well as seminar evaluation forms. Finally, possible improvements will be discussed.

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2. Review of Employability Skill Sets

In her summary of the Global University Employability Survey, designed by French HR company *Emerging* and published in *Times Higher Education*, Carly Minsky points out some important facts about the appropriate skill set for employability. When asked: "When you think about recently employed graduates, how do you rate the importance of employability skills against specific technical or academic knowledge and skills associated with their degree?", about 40% said that in engineering roles, "Employability skills are much more important", about 33% said that they are "a little more important", and about 23% answered "they have the same level of importance" (Minsky 2016).

Having analysed the study, Minsky reinforces the view that a generation of graduates is overqualified academically "but underprepared for a workplace where the right attitude and behaviour can often be more important than specific knowledge". According to the study, most recruiters said that employability skills are vital in the current global climate because they represent "a set of job-related aptitudes, attitudes and behavior" (Minsky 2016).

The author also quotes Eden Woon, Hong Kong University of Science and Technology's vice-president for institutional advancement: "we are very firm in the belief that the university is not a vocational training institute. So the purpose of the university is not just to prepare you for jobs. The purpose of the university is really to give students a skill so that they can go and find a job but, more importantly, it is really to prepare students for what happens after they get a job. In other words, whether they can adapt to the job and adapt to changes that the world requires of them. That is where innovation, creativity and attitude come in" (Minsky 2016).

In his article *Communication Skills for the 21st Century Engineer*, Marc J. Riemer discusses key communicative competencies with which universities should be equipping future engineers. Among the key interpersonal skills are communication, management skills, emotional skills, and intercultural competence (Riemer 2007).

Intercultural competence can be understood as the ability to reflect on both one's own and others' cultures and the way they change perception and define expectations. Culture is about perception (Tomalin and Nicks 2014). According to the authors: "Perception is a sensitive subject. Culturally, it describes the recognition that what I hate about a social behaviour may be what you accept. The point is that what we register about another community is the differences and if we don't like those differences, the perception will be negative".

Following this logic, low-context communicators (German speakers) may perceive high context speakers (British English) as vague or uncritical. On the other hand, high-context communicators may perceive their low-context counterparts as insensitive and cold (if not rude). This kind of situation can only lead to stereotyping.

National culture in the workplace is a significant, and yet very underestimated factor. "Differences in culture manifest in differences in ways of working. Failure to spot these and plan for them mean slippage in deadlines, failures in quality assurance, [and] management, poor relations and non-cooperation, poor performance, financial penalties, and even withdrawal of contract or agreement leading to protracted lawsuits" (Tomalin and Nicks 2014). When it comes to international business, the authors encourage the readers to "think beyond our traditional markets to the emerging markets". In this day and age, more attention should be drawn to the 'internal internationalisation of companies' (middle managers are in constant communication with managers from other countries, although they might never meet) migrant workers in the UK (who are increasingly more successful and rise to high management positions in companies) and finally, the globalisation (and the reversal of the trend 'the West outsources to the East').

All these factors should be taken into account when talking about enhancing the employability of students in Britain's very competitive global market. Students born in the UK compete with non-native peers who, having been born outside of the UK but are fluent in both English and an additional language, are very often also bi-cultural.

3. CURRENT PROVISION AT CUED

This need to link language learning and culture has been addressed by the founders of the GELS (Global Engineers' Language Skills) project. GELS "is a common initiative between the University of Cambridge, KTH Royal Institute of Technology of Stockholm and a French research laboratory (Institut Mines-Telecom – Didalang)". The objective of this project is to "enhance our future engineers' language skills in order to prepare them for the increasingly challenging demands of a globalised market" (GELS 2018). GELS is an attempt to incorporate not only provisions of languages for specific purposes, but also intercultural communication competence building in the language curriculum. The framework it is being implemented at CUED and at the same time, it is being developed further via the GELS collaborative network.

Although culture embedded in a language course is a vital element in the building of cultural competence, it cannot be seen as the only tool of development of intercultural competence which the Engineering Department offers its students.

Firstly, it has been argued that whereas academic language teachers are qualified to teach about [a specific] culture, they are rarely trained to teach about intercultural communication at the same time (Del Vito 2008). Whereas certain aspects of culture may be gleaned through language, the more important elements, such as values, expectations and beliefs, are much harder to identify and teach in a classroom.

Secondly, intercultural training embedded in language training is culture specific. Learners acquire "information about how particular cultures operate and manifest themselves" (Utley 2004,6). It does not develop awareness of working in diverse teams and therefore does not prepare participants for working across cultures as such.

Therefore, in effective intercultural competence training, language should be separated from culture, because by default, it is not about one language or one culture. Intercultural competence (awareness) training, as opposed to a culture specific training (embedded in language specific courses), is about making participants 'aware of the existence of a number of different cultures and types of culture, and of their importance in all forms of interaction, in private and working life' (Utley 2004,6).

Based on observations in my work as a business cultural trainer in the UK, it seems that industry is still holding on to a very misleading belief: i.e., that the existence of English as the lingua franca in this globalised world significantly undermines the importance of intercultural competence. Many do not see the need for intercultural communication training because English is spoken in their context**;** hence, there are no obstacles to business and workplace communication. English is without question the lingua franca amongst engineers worldwide, but a common language alone does not necessarily eliminate other cross-cultural obstacles. In addition, it is not entirely clear which English the teachers and learners should refer to, i.e., US English, British English, etc.

The best proof of the fact that a common language does not eliminate cultural challenges is the situation at the Engineering Department in Cambridge. Asked about their motivation to

attend the workshops *Combating Culture Shock* and *Working across Cultures*, international students told us:

"I would like to know what are proper and improper things to say in the UK, which may be quite distinctive in English culture. For example, I got to know that it is not very polite to say 'I want something' when I buy things in a store or café. Instead, I shall say 'Can I have ….' I'd like to know whether this example is true and other things I should pay attention to".

"I was always wondering if there are certain body languages, gestures or facial expressions that will give the idea that the British people are feeling bored or offended by the topic, since I assuming that they prefer not to say that directly".

"I would like to know what kind of topic is appropriate for daily chatting, and what kind of topics we should avoid".

These quotes illustrate that fluency in the target language (in this case English) does not guarantee confident cross-cultural encounters. According to feedback received during the workshops, many international students often feel unsure about their interaction with their peers, supervisors, and lecturers. As a matter of fact, the idea of intercultural workshops came to my mind when I overheard a conversation between an American student attending my colleague's workshop on the practicalities of living in the UK, designed for international students unfamiliar with UK culture. The student shared with the course instructor that she felt 'out of place', 'misunderstood', and 'coming across as pushy and aggressive'. This is where the idea of workshops for both native- and non-native speakers originated.

Due to the reality of living and working in Cambridge, our future engineers experience the need for some form of cultural toolkit during their time in Cambridge, before they start their international career. The UK-born students interact and communicate with international students on a daily basis so the latter are forced to adopt British 'norms of behaviour' while communicating successfully with their international peers. The Department presents a natural environment for intercultural training. Therefore, the cultural diversity of the Engineering Department offers a unique opportunity for intercultural communication workshops which the Language Unit has embraced.

4. Intercultural Competence Workshops at CUED Cambridge

The piloted workshops took place at Cambridge University Engineering Department between 2016 and 2018.

Though the CUED has offered culture specific (UK culture) workshops to postgraduate *international* Engineering students for many 10, *Working across Cultures* and *Combating Culture Shock* were introduced in 2016**,** aimed at both international and students born in the UK.

On the whole, the feedback from the students has been encouraging. Some postgraduate students from the Engineering Department have shared the following as their key take away points:

"Brought up issues I haven't thought of."

"When you work abroad, study the culture, when you get upset about something, think about what the other person is thinking."

"Learned about culture structure which made the concept of understanding a culture easier to break down".

"It was very interesting and eye opening how much work is left to fully understand another culture."

"As a British national working for many years in a large global technology company, I have learnt how challenging and important it is to embrace cultural diversity in the workplace. I would highly recommend the modules run by our language unit to every engineer regardless of their nationality. It was great to be able to listen and contribute to the discussion with such a broad range of perspectives and cultures."

The intercultural communication workshops provide input in the form of practical paradigms and strategies for reflecting on and improving individuals' intercultural competence, as well as engage students in paired and group discussions related to real-life scenarios from engineering and business. The aims of the workshop are to develop

- **Awareness**: The ability to reflect on others' and one's own culture and the way they change perception and define expectations; understanding that social norms are not shaped by common sense - e.g. what seems rude in my context does not necessarily seem rude to someone from a different culture.
- **Knowledge**: Understanding how culture can be defined through familiarisation with both 'visible' and 'invisible' cultural dimensions.
- **Skills:** The ability to interpret cultural misunderstandings from the participant's past cross-cultural encounters, alongside the ability to apply the new 'cultural' perspective to future cross-cultural interactions.

The duration of the highly interactive workshops is 2 hours and the framework has been built on Gibson's *Intercultural Business Communication* (2000) and Utley's *Intercultural Resource Pack (2011)*. A workshop outline would usually comprise the following elements:

1) Why intercultural communication for Engineering?

In this section, the students learn about the importance of intercultural competence in a range of scenarios: on assignments abroad and during international collaboration and communication with their future international colleagues in the UK as well as their fellow students at Cambridge.

2) What is intercultural communication?

This section deals with culture, types of culture, and intercultural communication.

The participants explore the definition of 'culture' (national regional, professional, social), its impact on the way people learn "to see and think about the world" (Utley 2011) and how it affects intercultural encounters.

3) Barriers to intercultural communication

This section deals with attitudes, perception, stereotypes, interpretation and culture shock. The participants explore the barriers to intercultural communication, learn about the origin of stereotypes, and become familiar with experiencing culture shock - which should no longer be associated with going abroad, especially not in modern Britain. The

attendees learn about ethnocentrism - the belief that ‘our way’ of doing things is the only ‘right’ way. This is usually followed by a discussion on ‘who should adapt?’

4) Cultural dimensions

Students work with real-life critical incidents drawn from engineering and business. In small groups, they identify what went ‘wrong’ and why.

5) Non-verbal and verbal communication

The participants learn about some differences in non-verbal (body language, eye contact, touch, body distance, paralanguage, turn taking) and verbal (communication style: context, directness) communication in different cultures and the implications for intercultural interactions.

6) Dealing with difference

Participants reflect on the importance of specific personal and interpersonal skills of successful international managers such as active listening, the ability to deal with stress, flexibility and sensitivity (to name only a few). Participants reflect on how hard technical skills can be transferable, but not soft skills.

5. Evaluation and Improvement Recommendations

The major challenge so far has been in the difference in level of participation between international and British students. It has already been suggested among colleagues that taking the intercultural communication workshop should no longer appear under the umbrella of the English Language modules on the Language Unit timetable which might be a solution to the problem.

The analytical nature of the engineers has posed another challenge. Verbal feedback received suggests that the workshop participants expect a ready-to-use, one-size-fits-all tool enabling them to deal with people from a specific culture. The intercultural communication workshops have been primarily designed to serve as ‘eye-opening’, awareness raising modules, not about the do’s and don’ts of a specific target culture (although comparisons are often made with the British culture as a common space). Perhaps this has to be made clearer and the goal of the session should be stated more clearly in the content outline of the session.

Thirdly, there are limitations of the current time frames. During a 2-hour workshop, with relatively large groups (20 - 40 Engineering postgraduates), only a few very specific goals can be achieved. It is possible to change views and identify the key interpersonal competencies that are crucial when working with people from other countries. However, it is not long enough to build actual personal and interpersonal competencies. These could be developed further through 1:1 coaching and a personal development plan, not achieved during a training session.

6. Conclusion

Developing cultural competence is crucial in engineering. Failed assignments abroad as much as low staff retention due to a low level of satisfaction in diverse teams in the UK are very costly to companies. Industry has long realised that they need to choose the

best possible candidates for a role. One cannot deny the importance of foreign language, so culture- specific information and communication skills should be embedded in language curricula. English as a lingua franca is inevitably a crucial tool enabling intercultural communication but it does not resolve the challenges linked to cultural differences in ways of thinking, beliefs and attitudes.

In order to avoid misunderstandings, future engineers need to learn to make allowances for cultural differences in how people communicate. Although crucial during their time at university, intercultural competence counts as a critical soft skill in the future career of global engineers. The engineers of tomorrow need cross-cultural communication skills to work effectively across countries and cultures, in international teams and in leadership /managerial roles, in addition to technical and scientific competence.

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