Changes and Challenges Posed to Engineering Education by Migrant Work Force

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Abstract: - The presentation focuses on the most important aspects of acquiring a second language and culture, on the relationship between personal identity / foreign idiom and on the main criteria that must be taken into account when two or more civilizations interact and have to generate tangible results in the field of work. This issue is relevant and pressing nowadays, as an increasing number of professionals, alongside with skilled or unskilled work force, move around the world for completing daring technological tasks and advance our civilization, at the same time trying to find better paid jobs with more challenging duties. Globalization, multinationals in search of new contracts, new staff and new areas of influence, together with the quick sharing and implementing of scientific progress, determine engineering education to meet new requirements and face unexpected challenges in both university training and continuing education.

Key-Words: - foreign language acquisition, migrant work force, continuing education, cultural patterns

1 Introduction

The task foreign language professors have to accomplish in technical universities is demanding and constantly updated in point of content and skills level. They must prepare the students to become valuable professionals, able to keep in touch with the most recent developments in their field, and also cultivate the learners’ management and leadership abilities, in joined team effort, cooperating with professors of other subjects in the university. Our students need to become not only intellectually competent, but also good leaders of diverse work force, who come from various cultural contexts and speak different languages, obeying distinct, sometimes conflicting traditions. Not only this; our graduates must also meaningfully contribute to the team effort of similar or upper rank colleagues in international, multicultural environments, all actively involved in achieving the project tasks.

Lexical units and sentence patterns affect communication on the one hand, but on the other hand, and most importantly, they have a profound impact on thoughts and learning techniques, as engineering graduates will continue to learn throughout their professional life. Last but not least, as professors, we must not overlook the fact that the outcome of learning is influenced by the student’s personality and by the geographically and culturally conditioned aspects of the language he uses. Therefore, idiom acquisition generally seems to reflect both a pre-existent cultural worldview and a newly and constantly reshaped one, which is modeled in unique and almost unpredictable forms.

An engineering student, or a graduate, may learn and perfect foreign language skills in order to communicate, sooner rather than later, with people in another culture(s), as part of his professional duties and personal improvement goals. Many people learn foreign languages for instrumental purposes (e.g. a foreign language requirement in a university, or reading knowledge within a field of specialization), or simply out of a personal interest in languages and cultures, which ranges from temporary curiosity to high technical or linguistic interest in the idiom.

Generally, however, the foreign language situation is more culturally loaded than second language learning in the native culture, since the language is almost always learned in a context of understanding the people of another culture. Therefore, foreign language curricula in engineering universities attempt to deal not only with the cultural connotations of the target language, but also with the real life tasks the graduates will have to carry out in daily professional activities.

2 Problem Formulation

As an individual begins to lose some of the ties with his native country and adapt to the second
cultural experience, he experiences feelings of regret, mixed with feelings of fearful anticipation of entering a new group. Later on, he develops a sensation of homelessness, thinking of himself as neither bound firmly to his native culture, nor fully adapted to the second culture, all within the context of performing hard and exact work tasks, in which mistakes cost dearly: money, time, quality materials, or even lives. In order to get some firm soil under his feet, the worker will get involved in intense relationships, in which he spends tremendous efforts for keeping the communication from breaking down.

Certainly, not every learner will find a cross-cultural experience to be totally positive, but many do derive positive values from such events. For the ones who react negatively, the teachers can provide help increasing the cultural awareness and their self-awareness as well (for both categories on debate, undergraduates and graduates involved in specialized training). A teacher can enable the learner to understand the source of his anger and frustration, to express, correct and prevent those feelings, and then to gradually crystallize a personal form of learning that will lead him to cope with the difficulties.

When a person who was educated in one culture is placed in another culture (be he a very cultivated individual or a simple man), his reactions may be of anger, frustration, fright, curiosity, repulsion, and confusion. If the encounter is provided by the study of another language which adds on to his work tasks, the reaction may be even stronger, because he is faced with two unknown situations at the same time. Such a context may seem threatening, and until the threat is removed, language learning could be blocked, therefore negatively impacting on the employee’s duties.

2.1 Summary of theoretical approaches

Research on workers’ discourse has been concerned with whether and how input and interaction affect foreign language acquisition and improvement. A number of rather different approaches can be identified.

As we have already seen, a behaviorist view treats language improvement as environmentally determined, controlled from the outside by the stimuli the workers are exposed to and the reinforcement they receive.

In contrast, mentalist theories emphasize the importance of the worker’s mind. They maintain that the brain is especially equipped to learn languages and all that is needed is minimal exposure to input in order to trigger acquisition.

Interactionist theories of foreign language acquisition acknowledge the importance of both input and internal language processing. Learning takes place as a result of a complex interaction between the linguistic environment and the workers’ internal mechanisms.

As we have already seen, the behaviorist view has been largely discredited.

2.2 Removing the blocks

To remove the blocks constitutes a problem. The first step, however, should be the one of making the language learner aware of himself as a cultural being. Paradoxically, most people, of whatever nationality, see themselves and their compatriots not as a culture, but as a standard, and the rest of the world as made up of cultures, which are conglomerates of strange types of behavior. Once people get rid of this notion, and recognize that they are products of their own cultures, they are better prepared and more willing to look at the behavior of team mates and colleagues from other cultures, and accept them without judgment or prejudices. Along with this acceptance of certain people, comes the acceptance of their language and a greater willingness to go beyond the ties of the native language and cultural environment, a willingness to enter the exciting adventure of another language, culture and civilization.

Drawing on variability in learner language, new research has suggested that language acquisition involves a stylistic continuum. It is, thus, argued that learners develop a capability of using the second idiom and that this is the basis for all language intertwined behavior. In its turn, this capability, which constitutes an abstract linguistic system, is comprised of a number of different styles which learners access in accordance with a variety of factors. At one end of the continuum is the careful style, evident when workers are consciously attending to their choice of linguistic forms, as when they feel the need to be correct. At the other end of the continuum is the vernacular style, obvious when workers are making spontaneous choices of linguistic forms, as it is likely to happen in free conversation.

The idea of the foreign language as a stylistic continuum is attractive in a number of ways. It explains why learner language is variable. By definition, interlanguage means native language rules and patterns of use superimposed on the imperfect acquisition of target language. So, the approach suggests that an interlanguage grammar although different from a native speaker’s grammar, is constructed according to the same principles, as
2.3 Role of social factors

Another issue is that the role of social factors remains unclear. The native speakers shift the style in accordance with the interlocutor, using a careful style with non-familiar addressees, especially if they are socially subordinate to them or in a more senior position, and a vernacular style with familiar addressees who are their equals. In other words, style-shifting among native speakers reflects the social group they belong to.

This is not necessarily the case for second language acquisition in the case of work force, however. It is doubtful, for example, whether the concept of social group is applicable to former foreign idioms classroom learners. This suggests that the variability evident in their language use is psycho-linguistically rather than socially motivated.

To the above mentioned aspects, we must add the engineer’s emotional stress when he has to communicate exact instructions and safety precautions to mixed foreign language ability workers, whom he has to manage with authority, in a formal style, motivating them alongside with supervising them.

Another perspective is the one of accommodation. This seeks to explain how the workers’ social group influences the course of foreign language acquisition and improvement. The key idea is that of social accommodation. When people interact with each other, they either try to make their speech similar to that of their addressees, in order to emphasize social cohesiveness (a process of convergence), or to make it different, in order to emphasize their social distinctiveness (a process of divergence). It has been suggested that foreign language acquisition involves long term convergence. That is, when the social conditions are such that workers are motivated to converge on native speaker norms (i.e. speak like native speakers), high levels of proficiency ensue, but, when the conditions encourage them to maintain their own social learning group, less learning takes place. In addition to this, social factors influence interlanguage development via the impact they have on the attitudes that determine the types of language use that the workers will engage in. The accommodation theory suggests that social factors, mediated through the interactions that workers take part in, influence both how quickly they learn and the actual route that they follow.

2.4 Intercultural abilities in conversation

There are rules or, at least, regularities in the ways in which native speakers hold conversations. In many cultures, for example, a compliment usually calls for a response, and failure to provide one can be considered a socio-linguistic error. Furthermore, in American English, compliment responses are usually quite elaborate, involving some attempt on the part of the speaker to play down the compliment by making some unfavorable comment.

However, workers in a foreign environment behave differently. Sometimes they fail to respond to a compliment at all. At other times they produce bare responses. This shows that, to some extent at least, the acquisition of discourse rules, like the acquisition of grammar rules, is systematic, reflecting both distinct types of errors and developmental sequences. Nevertheless, more work is needed to demonstrate which aspects are universal and which are language specific, as it is already clear that many aspects of a worker’s discourse are influenced by the rules of discourse in his mother tongue.

2.5 Special traits of foreign workers’ discourse

One question that can be asked is whether the discourse in which foreign workers participate is in any way different from the discourse native speakers engage in. If this can be shown to have special properties, then it is possible that these might contribute to acquisition in some way.

It does indeed have special properties. Just as caretakers modify the way they speak to children learning the mother tongue, so do native speakers modify their speech when communicating with foreigner workers, for fear they might be only partially understood, or fully misunderstood. These alterations are obvious in both input and interaction. Input modifications have been investigated through the study of foreigner talk, the language that native speakers use when addressing non-natives. Two types of foreigner talk can be identified - ungrammatical and grammatical.
Ungrammatical foreigner talk is socially marked. It often implies a lack of respect on the part of the native speaker and can be resented by interlocutors. Ungrammatical foreigner talk is characterized by the deletion of certain grammatical features such as modals and articles, the use of the base form of the verb instead of the tense, and the use of special constructions such as ‘no + verb’. It should be immediately apparent that these features are the same as those found in workers’ interlanguages. This raises the intriguing possibility that, contrary to the view presented earlier, interlanguage forms could be, in fact, learned from the input. However, this is unlikely, as workers who experience grammatical foreigner talk still manifest the same interlanguage errors as those that experience ungrammatical foreigner talk. There is no convincing evidence that workers’ errors derive from the language they are exposed to.

Grammatical foreigner speech is the norm. Various types of modifications of baseline talk (i.e. the kind of talk native speakers address to other native speakers) can be identified. First, grammatical foreigner talk is delivered at a slower pace. Second, the input is simplified (the use of shorter sentences, avoidance of subordinate clauses and the omission of complex grammatical forms). Third, such a talk is sometimes regularized (this involves the use of forms that are in some sense regular or basic: the use of full rather than contracted forms, for instance). Fourth, foreigner talk sometimes consists of elaborated language use. This involves the lengthening of phrases and sentences in order to make the meaning clear.

Input modifications of this kind originate in the person addressing the worker. The foreign engineer seems to know intuitively how to modify the way he talks to make it easier for the workers to understand. However, there are times when they still fail to comprehend. When this happens, they have a choice: they can pretend they have understood (research shows that they sometimes do this) and, alternatively, they can signal that they have not understood. This results in interactional modifications as the participants in the discourse engage in the negotiation of meaning.

Interaction also serves as a bedrock of acquisition. It implies active engagement, with motive and internalization. The first concerns the directly involved way in which individuals define the goals of an activity for themselves, by deciding what to attend and what not to attend to. The second concerns how a novice comes to solve a problem with the assistance of an ‘expert’, who provides ‘scaffolding’, and then internalizes the solution. In this respect, the classical pedagogical notion of the zone of proximal development is important. Workers learn through interpersonal activity, whereby they form concepts that would be beyond them if they were acting alone. In other words, zones of proximal development are created through interaction with more knowledgeable others. Subsequently, the worker learns how to control a concept without the assistance of people around him. Seen in this way, development manifests itself first in social interaction, and only later inside the learner’s mind. According to activity theory, socially constructed foreign language is a necessary condition for interlanguage development.

### 2.6 Monitoring self-progress

So far we have focused on the roles of input and interaction in language acquisition or improvement by workers, but we also need to consider whether output plays any part in interlanguage development. After all, discourse supplies learners with the opportunity to produce language as well as hear it. Speaking is the result of acquisition, not its cause. The only way workers can learn from their output is by treating it as auto-input. But comprehensible output also plays a part in foreign language acquisition. There are specific ways in which people can learn from their own output. Output can serve as a consciousness-raising function by helping workers notice gaps in their interlanguages. That is, by trying to speak or write in the second language they realize that they lack the grammatical knowledge of some feature which is important for what they want to say. Second, output helps workers to test hypotheses. They can try out a rule and see whether it leads to successful communication or whether it elicits negative feedback. Third, last but not least, workers sometimes talk about their own output, identifying problems and discussing ways in which they can be corrected.

### 3 Problem Solution

Acquiring a foreign language means more than memorizing lexical units and grammar rules. The key to success is the adjustment to a different code of communication, to different traditions, to specific habits and mentalities, and to original achievements in point of civilization. New opportunities for development are opened; hence the new coming worker aspires to a new cultural model comprising linguistic information as well as specific
attitudes and organizational/interpersonal skills. In some respects, second language learning involves the acquisition of a second identity and this often cannot be done without the input of a second culture.

In order to facilitate mutual understanding among professional workers, language teaching in technical universities should be approached from cross-cultural and inter-cultural perspectives. It is essential to include culture in the teaching of a foreign language, and it is equally essential to avoid chauvinism in doing so. What our engineering students must accomplish is the ability to understand and communicate within the framework of another culture; they need to understand a certain pattern of behavior, not necessarily to become a part of it. Adjusting a worker to a culture does not imply that the newcomer should totally abandon his cultural origin in favor of embracing the values and customs of the host society, or in favor of the emerging global standards. Learning a second culture should have no ethnocentric overtones and the possession of a particular skill in itself invites to no judgment at all - it is only the act that attracts notice when the skill is used under inappropriate circumstances. In order to help the engineering student, the university foreign language seminars and lectures should point to the similarities between the cultures on question, rather than concentrate on contrasts.

4 Conclusion

Realities of a globalised world point to the fact that learning is no longer confined to a certain age or classroom, but takes place throughout life and in a wide range of situations. During the last fifty years, constant scientific and technological innovation and change have had a profound effect on learning needs and styles, impacting upon all categories of employees and generating mutations in employers’ mentalities. Learning can no longer be divided into a place and time to acquire knowledge (university) and a place and time to apply the knowledge acquired (the workplace). Thus, not only social inclusion is enhanced, together with active citizenship and personal development, but also competitiveness and employability increase.

There is a coherent political response (by western governments, mainly) to a changing world, intended to move away from manufacturing to a services economy, favoring the emergence of the knowledge economy and the decline of many old-fashioned behavior patterns, now requiring engineering professionals and ordinary workers to become more active in managing their own lives. In successfully doing so, foreign language skills play a key role.

In addition to independent study, the use of conference-type group study, with study networks, as well as different types of seminars/workshops/trainings, can be used to facilitate and update learning in any field, and, all the more so, in the fields of foreign language acquisition in engineering.

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