Globalization in all aspects of human life in the 21st century refers to university education as well. Today, academic mobility has become a common occurrence in international education and includes faculty as well as their students. Academic mobility in the Russian Federation was extremely limited during the communist regime and now appears to be opening to international movement. Russian universities seek to be recognized and ranked according to international standards. One of the metrics in these rankings is the number of international faculty invited as visiting professors to the university to give classes in the traditional lecture format as well as in the popular project based learning format [1]. Because of the limited foreign language fluency among the Russian faculty, foreign professors often have to work through an interpreter. In many cases, this is a real challenge. An interpreter can either become an obstacle to communication between the professor and the audience, or, due to their professional skills bridge both linguistic and intercultural communication gaps. Communication is broadly recognized to occur along multiple channels, where signals and meanings are transferred from one person to another through hearing, listening, visual, physical gestures, mimics and kinesics. Even when communication occurs in the native language, it is often difficult to reach your interlocutor and catch their attention. The process is much more complicated when the communication must bridge both cultural and language gaps [2]. Intercultural communication is a dynamic process involving symbols and depending on context and on the participants themselves. Nowadays, the English language is the language of international and intercultural communication. In academia, a good command of the English language is a necessary pre-requisite for a successful career in the international education system with increasing faculty and student mobility. Russian faculty, however, have long been isolated from the global education space. During in the communist regime, there was no need to share scientific ideas internationally with other countries and particularly with the ‘capitalist’ countries. At the same time, the need for scientific communication and collaboration was satisfied within the confines of the Soviet Union. Thus foreign language proficiency was aimed at developing reading and translation skills, but not communicative skills. Thus few Russian engineering faculty can speak English or any other foreign language with adequate proficiency. In this context a visiting professor appearing at a Russian engineering university will experience all the challenges of intercultural communication. In many cases a foreign professor works through an interpreter who gets involved in the process. In the traditional form of lecture, language is the principal avenue of communication relying on the interpreter’s skill and knowledge in the language in general but also the vocabulary of the technology. This situation changes significantly when the pedagogy moves away from lecture/question interaction and on to a hands-on inquiry based pedagogy such as project based learning (PBL). In PBL, hands-on projects and problems, being solved by students often in teams, which are used to grow, exercise and reinforce the skills and capabilities of the students. The style of teaching in PBL is one of short, limited

lectures which define the learning outcome and the project that supports the outcome followed by continual mentoring and monitoring of the team as the team addresses the tasks of the project. In the PBL situation, linguistic communication and understanding through language is insufficient and other channels of communication must start working more intensively. Success significantly depends on the physical presence of the professor, body language and physical gestures, and the intensive of eye contact. The interpreter, in this PBL situation, becomes an integral partner in the success of the interaction not only connecting between two languages, but also bridging two cultures into a very different kind of instruction. Fluency in the language is necessary but not sufficient and the cultural background starts playing an important role. Close interaction with the students and the instructor become more significant than ever. The instructor and interpreter become a team acting as one facilitating the progress of the team and assisting the team in tackling the tasks of the project.. This is true for all forms of teaching, but, first and foremost, for project based learning where personal engagement of every participant is of foremost importance. In October 2011, the authors of this paper collaborated as the instructor/interpreter team in a demonstration of project based learning (PBL) using the Skyscraper Exercise. This exercise was created by engineering educators from the United States and contains all the major components of the conceive, design, implement and operate (CDIO) pedagogical approach in an exciting format. The full exercise is available with both instructor guidance as well as the challenge elements for the students [3] In order to give an historical context, the exercise is built around the highly competitive building of skyscrapers in the early 1900s. One of these skyscrapers is the Chrysler Building in New York City. New structural materials such as steel I beams and new building processes enabled this expansion. The PBL exercise is to design, build and test a model skyscraper using foam blocks and pencils as the fasteners. Each foam block is priced based on volume and is used to build up a construction budget not exceeding $2000 including provision for procuring land and footprint, blocks, and fasteners. A test of the structural integrity is required: supporting a 0.5 liter bottle of water while being tilted on a 10% slope demonstrating earthquake durability. The overall height of the skyscraper is the principal success metric but aesthetics and pleasing physical design is an additional factor in evaluation process. The exercise is a team effort which includes the following tasks: · Team organization for operational efficiency, · Requirements and constraints understanding and interpretation, · Creation of a design meeting all technical requirements with aesthetics appeal, · adherence to the budget and the imposed time constraints, · Gathering of the experimental technical data to support the adopted design, · Construction documentation, configuration management and adherence to the documentation during the build phase, · Final acceptance testing This demonstration of a PBL project was given to an audience with limited English capability by an instructor with limited to no Russian language capability and teamed with an English/Russian interpreter from a non-technical background. The pedagogical

aspects of the exercise have been discussed in a previous paper [4]. The communication during this three hour exercise drew in all the dimensions of multi-channel communications described in the previous section. The experiment was challenging, but the event was highly successful based on student feedback. : Preparation: The communication went smoothly due to the well-organized team work of the lecturer and interpreter. The interpreter had to be in the topic of the workshop, and it was essential that all the texts and exercises were sent to the interpreter a week before the event so that she could get acquainted with the event. In addition the interpreter was actively involved in preparing the materials and venue for the exercise allowing her to starting grasping the personality of the instructor and the upcoming dynamics of the exercise. Oral Delivery: The lecturer had to get adjusted to working with an interpreter, to make the right pauses in his speech between the meaningful utterances. It was frequently more important for the interpreter to bridge between the two cultures and transfer the mood of the utterances rather than a direct word-to-word translation. Cultural Organizational Preferences: There were several difficulties in communication due to different expectation of both the audience and the lecturer. Being used to working within the American culture, the lecturer was prepared to an ‘American professional image of an engineer’ who is used to team work and a distribution within the group of the critical functional roles of a team. The Russian faculty participants were more used to hierarchical command structures, and many groups very quickly got a leader, and everybody expected him to make all the decisions [5]. On the other end of the organizational spectrum, several groups chose a communal command structure i.e. no one is in charge but “we are all in charge” mode. In this case the instructor’s concern that this choice could lead to disfunctionality of the team and a failure to meet the objectives were dissuaded by the interpreter bridging the cultural gap and interpreting the choice and providing context. Mentoring vs. Lecturing: In PBL, the role of the instructor is quite different from his role in the traditional lecture/question format. Interaction with the team in PBL is similar to inquiry based learning where asking leading questions is used to provoke the exploration of different solutions by the team. Typically the instructor listens to conversation to detect road blocks and lack of progress. It was difficult for the instructor to detect these situations since he did not understand the language. Instead the instructor had to rely on reading facial expressions and grasp the dynamics of the conversation to ask the interpreter for more information. From the interpreter’s point of view, this style of pedagogy was new. Therefore translation was not the goal but sensing a problem and lack of progress was essential. She played an active role in mentoring of the teams. High Action Interaction: With 8 teams actively participating in the exercise, the instructor is constantly moving from group to group. Usually an interpreter is more stationary and she could remain highly focused on the goal of translating. Often times the interpreter cannot recall what was said and is not allowed sufficient time to absorb and understand the conversation. In this case, it was essential that she comprehend

and assess simultaneous with translating the ideas. Today, the world is shrinking, and university education is becoming accessible to people from different countries. Russian universities are going international, and this requires professional development of their faculty, attracting international visiting professors [6]. This development process will result in frequent and challenging situations demanding non-traditional modes of communication. The process gives many lessons learned in verbal and non-verbal forms of communication, as well as communication through an interpreter who is becoming an active stakeholder