

Foreign Languages in Engineering University Education

Emília MIRONOVOVÁ; Juraj MIŠTINA

Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology,
Paulínska 16, 917 24 Trnava, Slovak Republic, e_mir@mtf.stuba.sk , mistina@mtf.stuba.sk

KEYWORDS *Languages for Specific Purposes, engineering education, university*

ABSTRACT: *At present when Slovakia together with several other countries is getting ready for integration into the European Union, as well as in near future following the integration in May 2004, foreign language competence is inevitable for young specialists, graduates of engineering universities entering the European job market and international scientific forums. Foreign languages, English in particular, will be needed as a tool of communication in this global professional environment:*

- *for professional information exchange in the field of quickly developing science and technology,*
- *as a tolls of life-long education,*
- *for survival in global world,*
- *for better orientation in the world of globalised culture with a wide scope of national diversity and plurilingual society.*

To satisfy these needs a future engineer will definitely have to master English, general language of science and technology, and perhaps other (one or two) foreign languages acquired in life-long education within broader professional, cultural, ethical and social context exceeding pure linguistic training.

The present article tries to point out how language departments in engineering universities will fit into this scheme via redefining their present vision, mission and action. The authors suggest that one of the ways to achieve the aim above is intensive co-operation on all levels involving and utilising all the international educational experience, grant research and mobility exchange programmes joining the existing networks and initiating new links to challenge information and experience exchange, to scoop up and disseminate experience and products to reach general standard.

The authors describe how the Language Department of the Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava, Slovakia is taking up the challenge in the field of:

- *curricular concept,*
- *in-service teacher training,*
- *research,*
- *equipment and technology.*

1 INTRODUCTION

English for Specific Purposes /ESP/ in engineering universities in Slovakia has a long tradition, yet it reached a qualitatively new level in the period of 1991-2000, partially thanks to strong professional, material, financial and moral support of the British Council. The boom of numerous activities, language, methodology and management courses and events helped define and promote the ESP concept and content, set up the aims and goals, and, having mapped the creative potential of local ESP community, build up an effective network of individuals and institutions able to introduce and promote ESP in engineering universities.

What is more significant, the British Council managed to train local ESP practitioners able to take over the responsibility for running the ESP projects in the period after 2000 when the British Council was gradually reducing their professional and financial support. The challenges comprised enhancing the existing network and experience, joining other national networks, disseminating the Slovak experience home and abroad, strengthening the position and status of the language departments in the engineering universities, innovating continuously the ESP content, tailoring it to the needs of opening global job market.

Language department of the Faculty of Materials Science and Technology, Slovak University of Technology (MtF STU) was involved in the British Council activities to the high degree. Four ESP teachers from the department received teacher-trainer training. Challenging and organising several key ESP events and projects, investing a lot of time, energy and knowledge, we simultaneously profited from gaining new experience and contacts in Slovakia and abroad which has brought us the reputation of the “home of the Slovak ESP” respected and acknowledged all over Slovakia.

Though the situation in the global Slovak ESP field has changed since then having split to several less or more intensively collaborating nuclei, we believe that the development of our department mirrors the global field to a certain degree and thus we can generalise present situation and sketch the vision for years to come. What is more, we will dare to go beyond the ESP borders: the ESP in our professional environment has expanded considerably, disseminating progressive teaching and learning concepts and strongly influencing the development of other foreign languages development. In accordance with the European Union intention to preserve and promote cultural and language diversity, our Department supports wider scale of foreign languages education, and therefore we will look at the Language for Specific Purposes, LSP.

2 DEPARTMENT LSP PROJECT

Our BSc, MSc full-time and part-time undergraduates and PhD students receive compulsory training in English, German and Russian. Spanish and French have not been taught after 1998 due to no or minimum interest. Anyway, Peugeot, the French automotive company entering the local entrepreneurial field, has evoked strong interest in reviving French courses in the region. The department therefore promptly re-introduced French for Specific Purposes into the basic offer since 2003-04 academic year.

LSP concept, syllabus, aims and teaching strategies worked out and implemented in the previous period on the base of the needs analysis have been continuously innovated in compliance with the Faculty graduate profile to reflect the needs of the actual job market.

Project work and communicative method proved to be the most reliable and effective channels for transforming this concept into teaching and learning process. Project work has been successfully integrated into LSP classroom for its high effectiveness, authentic tasks, learner-centredness, student personal involvement, focus on language on discourse level, employment of integrated language skills, and possibility to combine individual talents and knowledge acquired in specific subjects studied within the chosen major. Project work involves multi-skill activities challenging students to work together within a team with developed dynamics and reasonable time management.

The present aim is to provide our graduates with an effective tool of communication and information exchange so that they are able to contribute to the development in their field. Besides, it will be essential in future to perceive the communicative competence of our students in wider context of ethical competence, so that they not only speak within the rules of political correctness, but also act as correct, fair individuals with strong characters in the frame of the organisation mission, able to contribute to and bear responsibility for socio-economic and socio-cultural development in their field, community, country, the whole world.

To achieve this we will need more space for language and soft skills training, shift it to master degree stage where students consciously and purposively demand more intensive and specialised language training.

Student Research Conference organised by the Language Department since 1997/98 is an integral part and the highlight of the Department educational programme. Its section originally open for both English and German has soon become the most attended and popular with students. The concept, format and conditions have been continuously innovated in the process of discussion with teachers and students inside and outside the Faculty regarding their progress in the field of professional, language and technology development. Student Research Conference today presents:

- two sections, English and German, attended by 10 – 14 competing teams,
- interesting content presenting results of research,
- high language competence,
- sophisticated presentation skills,
- use of the latest presentation technology,

- implementation of soft skills emphasising team work, stress resistance, political correctness, dress code,
- simulation of real conference conditions, space for demonstrating and promoting corporate and conferencing culture,
- challenge for gifted and talented students,
- challenge for creative and devoted teachers,
- highly impressive, illustrative and attractive teaching and learning aid for teachers and students,
- benchmark, challenge for other departments sections and other events organisers (state exams),
- attractive forum for the audience (under and postgraduates, teachers from other departments, partnering language departments from Trnava and Bratislava, local TV, journalists),
- insight into the Department job, promotion of its activities (poster displays in particular), aesthetic decoration of the Department lobby.

We are proud that we managed to hit the target, having transformed our vision that has been crystallising in ongoing discussion into reality. Yet there are issues that we failed to achieve:

- to standardise conditions within STU, to bring together concepts of all STU faculties,
- to give it more publicity,
- to involve local companies as both sponsors and customers,
- to initiate co-operation with other subjects departments,
- to look for other forums, possibly international.

3 PROFESSIONAL DEVELOPMENT

Changes in the Department staff structure in the past five years have been brought by life. The new head of the Department introduced more flexible and open communication with the Faculty management, new approach to business activities, grant research and qualitatively new international collaboration. The development in the above mentioned areas was possible only due to the fastening on to the previous concept.

Currently there are five teachers of English, two teachers of German and one administrative worker at the Department. One of the English teachers also covers a minor students' interest in Russian language. The imperative of today has been to hire a French teacher, to respond to the social, professional and regional demand for French language owing to the Peugeot Company establishment in the Trnava region.

Not a numerous staff, but demanding tasks. The requirements put on the staff can be viewed in several levels:

- within the department (internal competition),
- within the wider professional environment (leadership and partnership),
- within the Faculty level (professional output expected by the Faculty management).

To meet the requirements of the faculty management we built up a strategy in professional development. Hand in hand with research activities, teachers develop their professional knowledge within their post-graduate studies. One teacher successfully defended her post-graduate doctoral thesis and acquired PhD degree, another four teachers study for PhD degree. Simultaneously with this effort, the staff has been growing up professionally utilising their teacher training experience, participating in various educational, training and research events home and abroad, carrying out professional discussion with home and foreign partners, but mainly carrying out professional discussion within the workplace, challenging thus younger and less experienced colleagues. The aim is to continue building up an effective, creative and communicating team.

To bridge the generation gap, hiring young, dynamic and enthusiastic teachers open to new stimuli and willing to increase their professional degree became the highest priority of the Department. The vision is to form a learning workplace that facilitates learning of all its members and continuously transforms itself into knowledge and experience pool – a bank of flexible, versatile and mobile teachers able to cope with new challenges exceeding the border of the Department, Faculty, University and country.

4 TEACHER TRAINING

All the ESP practitioners in the Department have received the British Council teacher trainer training either in Slovakia or abroad, or both. Besides direct influence on the other language teachers in the department and occasional teacher training sessions, some of them were involved in designing and delivering specialised ESP courses (originally with the British Council support) to university ESP teachers in Slovakia and abroad (Czech Republic, Lithuania).

Our expertise in teaching and organising was used by other institutions and organisations, such as Ministry of Defence, The British Council, and Ministry of Education in providing input or co-organising the courses within the Peacekeeping English Project, or for secondary school head-teachers.

The SPEKTRUM project represents a special chapter in the Department teacher training activities and will be given more space in the Research paragraph.

5 RESEARCH ACTIVITIES

In the previous period the department research activities were based on institutional projects and they did not exceed their framework. Key strategy and a starting point of a qualitatively new investigation has roots in the needs analysis of the Faculty graduates and undergraduates - the key project, which has become an outcome for syllabus development and, consequently, qualitative change in teaching, learning and research. Since then three more institutional projects resulting in national KEGA grant research and three international projects were solved by the Department staff and this trend is likely to continue.

This has also been projected into quality of the staff publications. The results and solutions of the research tasks have been presented more powerfully, what consequently positively influenced the status of the Department.

The research itself and its results make the Department attractive for potential regional, national and international partners.

Particular results were achieved in the following projects:

- ***The SPEKTRUM*** - a 3-year project financially supported by the City Council was launched with the aim to gather local tertiary and primary language teachers (English, German, Spanish, French, Russian) and provide them with regular teacher-training to improve LSP teaching/learning. The ambition of SPEKTRUM was to cater for wide scale of professional needs and interests of the local language teachers, to set the network for professional information exchange and disseminate effective and attractive LSP ideas via regular training and proceedings. The Project had an ambition to become a model of alternative in-service training for foreign language teachers in Trnava and other regions of Slovakia. In 2002 the Project was awarded *the European Label for Innovative Initiatives in Language Education* by the European Commission for Education and Culture and the Ministry of Education of the Slovak Republic as the very first and only project in Slovakia. In future we intend to issue Proceedings 2003 in a form of an interactive CD which will reinforce the Project impact. Currently the Project team is working on an interactive multimedia material, where teaching tips will be supported by pictures, video clips, animations and other forms of visualisation to make it more attractive and user friendly not only for participants, but in a form of interactive compact disc or web site for wider range of potential users. The department received a grant of Ministry of Education to prepare and design it as a model for on-line teacher training.
- ***English for Professional Communication – Spotlight on Interaction*** is one of the outcomes of successful co-operation with STU Faculty of Electrical Engineering Language Department – our long-year reliable partner in research, teacher training and teaching activities. The material has been developed thanks to the grant from the Open Society Foundation. It is a complementary interactive material to the textbook *English for Professional Communication* issued by the FEI Language Department. It has been tailored to the needs of professionals who are preparing for a business trip abroad, an international conference, or expect a visitor from abroad. The unit titles are, in fact, kind of signposts marking the most important areas to concentrate on while either visiting abroad or having a visitor from abroad. The interactive character of it enables to increase users' self-confidence in oral and written professional and general communication. It gives students an opportunity not only to take an active part in the process of learning, but you also to verify and measure their performance. Working on the Project was a chance to gain an outstanding experience from team work since four

workplaces participated in it. This fruitful collaboration was mutually beneficial and we hope it will continue in future.

- ***Purdue-MtF Model of International Student Collaboration*** - a mutual project of international student collaboration using English developed at the Electrical Engineering Technology Department of Purdue University /EET PU/ in Kokomo, Indiana, USA, and the MtF STU Language Department has been presented on many professional forums and raised a lot of interest thanks to its deep professional and cultural impact, and financial availability. The Project was financially supported first by the Purdue University grant and later by KEGA grant provided by the Slovak Ministry of Education, which made possible mutual exchange of teachers and students, and also purchase of necessary technology. Beside professional benefit for both groups (engineering information transfer) the project provided the participants with an opportunity to experience and benefit from the distance communication, a progressive way of gaining knowledge and experience, while cultural and humane aspects of the project had deep impact on both sides. Being very close to real situation, on-line conferences offer an ideal stage for freshmen to practice the soft or social skills such as co-operation, willingness to work in team, respecting cultural differences, business etiquette and netiquette along with self-marketing and stress-resistance in less stressful environment and at minimum costs. Participation in the project has brought satisfaction and visibility to all parties involved thus raising their self-confidence and self-esteem, stimulating such further activities in the field of international student collaboration. The popularity and benefit of the project, and students' enthusiasm and eagerness made the Project authors have continued the activity even after the financial support was stopped.

6 EDUCATIONAL TECHNOLOGY

While before, an OHP and video were considered the most advanced technology at the Department, and one PC was used as an up-to-date typewriter, the situation has changed dramatically since then. There are five new powerful computers being continuously upgraded and the computer literate staff with access to digitised collection of LSP materials on Internet and network of interested parties. Beside that, the staff is currently learning to take advantage of digital camera and video-camera not only for documentation strategic issues, but for designing interactive materials for education and teacher training as well.

Recently, with the Faculty financial support, we gained the most advanced presentation technology – a data-projector, which has introduced a new culture into conferencing, but also into everyday teaching and learning practice inside and outside classroom. Not only teachers use it for presenting subject matter of the curriculum, but also, what is even more important, students learn how to operate and utilise it for professional purposes. We have managed to set up the high standard in conferencing/presentation culture, which is now required by students also within the teaching practice of other subjects.

We are upgrading the office equipment, computer technology and software necessary for multimedia educational research, as well as many other everyday activities such as designing teaching materials. For more flexible and operative work, a notebook was purchased. Completing offices and fitting classrooms with computer technology, and providing a user friendly working environment for every single Department staff member and for team work as well, is the challenge for the nearest future.

7 DEPARTMENT STATUS

One of the Department best achievements is that since early 90's, partially thanks to the British Council management courses, we've been able to clearly articulate our ideas and concepts and communicate them effectively and continuously to the Faculty authorities in numerous demanding discussions and negotiations, struggling with their misconceptions and traditional prejudices. This never-ending process involves a lot of compromises, disappointments and failures, nevertheless, it is the only way how to enforce our concept, justify our existence and achieve solid status at the Faculty.

Inviting the Faculty representatives of all levels to the Department events, keeping them informed about our activities, and organising regular impressive displays of our students' output, proved to be the most powerful and persuasive argumentation. We will probably have to cope with the fact, that the Faculty management will struggle for existence for a certain time and some conceptual solutions aimed at LSP training may seem unfavourable to them. Therefore it will have to be the Department staff itself who

will negotiate, persuade and defend some progressive changes in attitudes towards modern European education, to be perceived not only as a purely linguistic department, but a specific one offering broader language, professional, cultural and social competence inevitable for our graduates to survive in the global job market and promote their Alma Mater and native Country.

8 CONCLUSIONS

At present, when Slovakia is getting ready for integration into the European Union, foreign language competence is inevitable especially for young people who will be entering the European job market and will need foreign languages for information exchange in the quickly developing field of science and technology and also as a tool for life-long education in the field. Being aware of the tasks, needs and requirements in the field of professional language training in the period of integration of the Slovak Republic into EU, we feel to be able to respond to the relevant EU documents. We are ready to offer our competencies and experience. We hope that the Department will contribute to multilingual comprehension in Europe.

ACKNOWLEDGEMENTS

The paper is published with the support of National Research Grant KEGA 3/107803.

REFERENCES

- ROBINSON, B.: *ESP Challenges!* In: Proceedings of *ESP Challenges!*, the 3rd Slovak ESP Conference, British Council Slovakia, 1998, pp. 9-10.
- ROVANOVÁ, L.: *Foreign Languages and Technical Universities – A Good Match?* In: Proceedings of *CO-MAT-TECH 2002*, Trnava, STU, 2002, pp 609-613.
- ROVANOVÁ, L.: *Are we Successful in Teaching ESP?* In: Conference "*CO-MAT-TECH 2003*", STU Bratislava, pp. 913-919.
- HRMO, R. a TUREK, I.: *Kľúčové kompetencie I.*, STU Bratislava, 2003.
- TAYLOR, K., MIRONOVOVÁ, E.: *An Update on US – Slovak Collaboration*, In: Proceedings *ICEE 2002*, Manchester, UMIST, 2002, pp 59-60.
- MIRONOVOVÁ, E, MISTINA, J.: *Spektrum – Project Awarded the European Label for Innovative Initiatives in Language Education*. In: Proceedings of *ICEE 2003*, Valencia , UPV, 2003, p. 325.