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PEDAGOGICAL-PSYCHOLOGICAL CHARACTERISTICS AND FACTORS OF DEVELOPING COMMUNICATIVE COMPETENCES OF FUTURE ENGINEERS

Abstract: This article is focused on the analysis of pedagogical-psychological characteristics of developing communicative competence in future engineers. Also, such problems as the role of English language in engineering science, communicative difficulties the students may run into during academic and professional conditions, pedagogical features of teaching English language to engineering students were investigated.

Key words: communicative competence, academic conditions, professional conditions, communicative difficulties, language skills, engineering skills.

Annotatsiya. Ushbu maqolada bo'lajak muhandislarda kommunikativ kompetensiyani rivojlantirishning pedagogik-psixologik xususiyatlari tahlil qilingan. Shuningdek, muhandislik ta'limida ingliz tilining roli, talabalarning akademik va professional sharoitlarda duch kelishi mumkin bo'lgan kommunikativ qiyinchiliklar, muhandis talabalarga ingliz tilini o'rgatishning pedagogik xususiyatlari kabi masalalar tadqiq etilgan.

Kalit so'zlar: kommunikativ kompetensiya, akademik sharoit, professional sharoit, kommunikativ qiyinchiliklar, til ko'nikmalari, muhandislik ko'nikmalari.

Аннотация: Данная статья посвящена анализу педагогико-психологических особенностей развития коммуникативной компетентности будущих инженеров. Также были исследованы такие проблемы, как роль английского языка в инженерных науках, коммуникативные трудности, с которыми могут столкнуться студенты в учебной и профессиональной деятельности, педагогические особенности преподавания английского языка студентам инженерных специальностей.

Ключевые слова: коммуникативная компетентность, академические условия, профессиональные условия, коммуникативные трудности, языковые навыки, инженерные навыки.

Effective communication is of great importance in the field of engineering, because it plays a decisive role in overcoming the gap between technical expertise and real world application. Communicative competence i.e. the competence of using a language effectively and properly in different situations is a necessary skill for future engineers to succeed in their scientific research and professional careers.

To know the language is the main language skills in engineering education; it comprises obtaining technical terminology, the competence of presenting and defending a speech referring to the sphere and engineering concepts clearly, reliably. Developing the communicative competence enables the opportunities to participate in discussions, solving the problems effectively and expressing their ideas clearly, contributing in innovations and development of engineering sphere.

The role of English language in engineering education. English language as a subject as well as English for special purposes (ESP), is known as of great importance in engineering education. This is a specialized form of English language teaching, it is directed to equip with special skills and knowledge appropriate to students' academic or professional fields. It plays an important role in solving unique communicative demands and problems, the future engineers run into, in their scientific and professional work. Several main aspects of science in engineering education emphasize the importance of the English language:

1. Terminology of the specialty: Engineering is a technical subject possessing a wide range of terminology. English for engineering introduces vocabulary and terminology of the sphere to students, it

enables to understand technical texts, to communicate effectively with their peers and experts and to work out clear and brief documents dealing with engineering (Hutchinson & Waters, 1987).¹

2. Speech and style of engineering: teaching English language on engineering to students introduces with different speech forms and styles that are widely spread in the sphere of engineering. This enables to accomplish various tasks as such academic and professional tasks as reports, proposals and research works by following conventions and stylistic benefits characteristic to engineering (Johns, 1997).²

3. Professional communication: it is considered to be integral to cooperate with colleagues, to present the findings and to communication with customers and interested parties effectively. It provides the students of the faculty of engineering to take part in the meetings, seminars and conferences, as well as effective negotiating and the skills of persuasion (Hirvela and Belcher, 2001).³

4. Global programs: in the science of engineering learning English focuses on integration of today's world software. Students are engaged in real engineering tasks, simulations and practical researches, this will allow to apply language skills in related practical scenario of their future profession (Dudley-Evans and Cents-John, 1998).⁴

5. Cross cultural communication: in globalized engineering engineers often cooperate with colleagues and clients with different cultural background. English language develops cross cultural awareness and communication, and enables the engineers to manage mutual impacts sensitively and effectively (Kramsch, 1993).⁵

6. Employment and growth in the career: knowledge of English increases the employability of engineering graduates. Employers seek for the engineers with language skills because effective communication is regarded as the main attribute to achieve career success (Hewings, 2002).⁶

7. Continuous education: learning English language gives engineering students an opportunity to access to language resources and ability to utilize them. English language students independently and gives you the ability to use them. As professionals of engineering they continue being engaged in education by being aware of the achievements in their sphere due to continuous education, researches and communication (Flowerdew & Peacock, 2001).⁷

As a conclusion we can say that, English language plays an important role of science in engineering education and present language tools which are necessary for leadership in students' academic and professional researches. This does not only increase their ability of communication, but also helps to understand engineering concepts more deeply and facilitates the integration of their global engineering community.

Specific communicative requirements and challenges that future engineers face in their academic and professional environment in utilizing English language

Future engineers meet characteristic requirements and challenges in utilizing English language in their academic and professional environment due to specific nature of engineering and globalized context. These requirements and problems arise from the necessity to use technical information in effective communication, cooperation between cultures and implementation of mutual effects between subjects. A number of basic aspects show the following communicative requirements:

¹ Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes: A Learning-Centered Approach*. Cambridge University Press.

² Johns, A. M. (1997). *Text, Role, and Context: Developing Academic Literacies*. Cambridge University Press.

³ Belcher, D., & Hirvela, A. (2001). *Writing and Identity: The Discoursal Construction of Identity in Academic Writing*. John Benjamins Publishing.

⁴ Dudley-Evans, T., & St. John, M. J. (1998). *Developments in English for Specific Purposes: A Multi-Disciplinary Approach*. Cambridge University Press.

⁵ Kramsch, C. (1993). *Context and culture in language teaching*. Oxford University Press.

⁶ Hewings, M. (2002). *English for Specific Purposes: A Discourse Analysis Approach*. The Continuum International Publishing Group.

⁷ Flowerdew, J., & Peacock, M. (Eds.). (2001). *Research Perspectives on English for Academic Purposes*. Cambridge University Press.

- ✓ Technical terminology and slangs: as we have mentioned above, engineering is a subject that relies on specific technical terminology and jargons. Future engineers must understand and utilize the specific vocabulary effectively in order to deliver complex engineering concepts (Hutchinson & Waters, 1987).⁸ Communicating with technical data in English requires strong specific knowledge and provides accuracy and order in their interaction.
- ✓ Cross cultural communication: Engineering projects often include international teams and cooperation with clients of different cultural backgrounds. Future engineers must solve cross cultural problems considering various communication methods, norms and expectations (Kramsch, 1993).⁹ Awareness of a cultural diversity is considered to be crucial in the development of effective teamwork and ensuring the successful results of the project.
- ✓ The cooperation of the subject: Engineering projects often comprise the cooperation with professionals of different disciplines such as architects, designers and experts on the environment. Effective communication in English between disciplines requires an ability to eliminate gaps in languages, to understand specific terminology and to work in partnership towards common goals (Flowerdew & Peacock, 2001).¹⁰
- ✓ Technical writing skills and maintaining documents: Engineers must work out a wide range of technical documents including reports, proposals and project specifications. Delivering technical information in written form require accuracy, consistency and following engineering conventions, good documentation of their ideas and easy understanding by colleagues and interested parties (John, 1997).¹¹
- ✓ Presentations and public speaking: engineers have to organize presentations to deliver technical data to technical and non-technical audience. To deliver an affective speech in English requires not only the ability to explain complex concepts, but also to engage the audience and the ability to link with them (Hirvela and Belcher, 2001).¹²
- ✓ Negotiations and persuasion: in the sphere of engineering, specialists often have to negotiate with clients, contractors and interested parties. Effective negotiation and persuasion in English require persuasion of the arguments in a safe way, achieving agreements and to settle disputes peacefully (Hewings, 2002).¹³
- ✓ Contacting innovations and research: engineers contribute to the development of technology and innovation. Delivery of research results and technologic achievements in English in an effective manner is important for conveying knowledge and contributing to the community and global engineering (Dudley-Evans and Sent-John, 1998).¹⁴

Therefore, future engineers run into communicative requirements and difficulties in the use of the English language in their academic and professional environment. The engineers should develop their language skills strongly, cross cultural awareness and the ability to communicate between disciplines in order to work hard in globalized and technical landscape in the sphere of engineering so that to achieve success in their career.

References:

1. Hutchinson, T. & Waters, A. (1987). *English for specific purposes: A Learning-Centered Approach*. Cambridge University Press.

⁸ Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes: A Learning-Centered Approach*. Cambridge University Press.

⁹ Kramsch, C. (1993). *Context and culture in language teaching*. Oxford University Press.

¹⁰ Flowerdew, J., & Peacock, M. (Eds.). (2001). *Research Perspectives on English for Academic Purposes*. Cambridge University Press.

¹¹ Johns, A. M. (1997). *Text, Role, and Context: Developing Academic Literacies*. Cambridge University Press.

¹² Belcher, D., & Hirvela, A. (2001). *Writing and Identity: The Discoursal Construction of Identity in Academic Writing*. John Benjamins Publishing.

¹³ Hewings, M. (2002). *English for Specific Purposes: A Discourse Analysis Approach*. The Continuum International Publishing Group.

¹⁴ Dudley-Evans, T., & St. John, M. J. (1998). *Developments in English for Specific Purposes: A Multi-Disciplinary Approach*. Cambridge University Press.



2. John Weiss, M. A. (1997). Text, Role and context: Developing Academic Literacies. Cambridge University Press.
3. Belcher, D. & Hirvela, A. (2001). Writing and identity: The Discoursal Construction of Identity in academic writing. John Benjamin Publishing.
4. Dudley-Evans, T. & Least Tree-Cutting John, M. J. (1998). Developments in English for specific purposes: a multi-disciplinary Approach. Cambridge University Press.
5. Kramsch, C. (1993). Context and culture in language teaching. Oxford University Press.
6. Hewings, M. (2002). English for specific purposes: A discourse analysis Approach. The Continuum International Publishing Group.
7. Flowerdew, J. & Peacock, M. (Ed.). (2001). Research perspectives on English for academic purposes. Cambridge University Press.