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**GROUPING CRITERIA FOR TRAINING FOREIGN LANGUAGE
INTERPERSONAL COMMUNICATION SKILLS OF
ENGINEERING STUDENTS**

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Abstract

The article proves the necessity to develop interpersonal communication skills of engineering students for their successful functioning in the modern professional community. Current requirements of the Russian Federal State Educational Standard for Higher Education regarding the sphere of foreign languages insist on training competent interpersonal communication at EFL (English as a Foreign Language) classes. Teachers of foreign languages should involve the students into active communication and interaction through small group work. To divide the students into small interactional groups a survey was implemented in the spring of 2017 and targeted at the students of the National Research University of Electronic Technology (MIET). Four grouping criteria were used: language proficiency, an academic background, a personality type and a social status. Application of the criteria involved the methods of ranging the students according to their advancement with the help of Corporative Technological Information Platform for Distributed Data Exchange in Corporative Environment (DDECE), Eysenck Personality Inventory (EPI) and sociometric techniques. Eight group types obtained include four homogeneous and four heterogeneous ones. The authors consider the four heterogeneous group types to be more efficient in fostering the communicative interpersonal competence than the corresponding homogeneous group types. For overcoming communication difficulties, students learn to manifest extreme flexibility in the process of professional interaction, show empathy to each other, think critically, cooperate and collaborate, exchange information to mutual benefit and join efforts in order to reach a common goal.

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1. Introduction

The first two industrial revolutions which happened in the late 18th and the early 20th centuries improved science and evolved it into a modern engineering discipline. They made people richer through industrialized mass-production. New urban-centered society based on science and technology continued its development and is now entering the era of the third industrial revolution according to Jeremy Rifkin (2011), an American economic and social theorist and an advisor to the European Union.

Manufacturing is going digital. The materials used are being changed as well. Modern production requires revising the status of an engineer and a package of competences necessary for his successful functioning in the professional community.

Since the end of the 20th century, international organizations, governmental agencies, academic bodies and business leaders have been developing a number of initiatives to study the knowledge, skills, abilities and competences required for a student of engineering to be a professional success in the rapidly changing world. All the initiatives consider communicative skills among the core characteristics of an efficient modern specialist who is able to face the challenges of the rapidly changing world.

In 2012, the OECD promulgated a document '*Better skills, better jobs, better lives: A strategic approach to skills policies*' (*the Skills Strategy*) which identifies the ways to develop a skills potential of European countries to comply with current and prospective demands of the changing labour market. *The Skills Strategy* differentiates between "hard" skills allowing young people to work on modern equipment and "soft" skills, such as **teamwork, communication and negotiation** (OECD, 2012, p. 18). Analyzing some economic studies, *The Skills Strategy* reports "a rise in the demand for non-routine cognitive and **interpersonal skills** and a decline in the demand for routine cognitive and craft skills, physical labour and repetitive physical tasks" (OECD, 2012, p. 21).

Critical thinking, creativity, **communication** and **collaboration** are known as the "Four Cs" and many educational and economic institutions consider them as the most important specific skills. For example, the largest American teachers' labour union the National Education Association (NEA) believes students' high-level performance of the "Four Cs" to be an imperative for the educational system (National Education Association, 2012, p. 3).

A non-profit global organization the Center for Curriculum Redesign (CCR) is aimed at improving education worldwide through designing and propagating new curricula. Reflecting about relevancy of worldwide education for the 21st century, its founder and Chairman Charles Fadel is convinced of the need to reconsider the four dimensions of an education: knowledge (what is known and understood), skills (how one uses what one knows), character (how one behaves and engages in the world), and meta-learning (how one reflects and adapts). Ch. Fadel argues (2015, p.2) that higher-order skills (such as the "4 C's" of Creativity, Critical thinking, **Communication**, **Collaboration**, also known as "21st Century Skills") are of great significance.

So one can state that information technology development does not lessen the role of interpersonal communication, but on the contrary, communicative skills are gaining ever-increasing importance nowadays.

2. Problem Statement

Some years ago Russia joined the Bologna Declaration to comply with the European higher education standards and to make its system of higher education more competitive. Russian universities, institutes and academies adopted a two-level system of higher education to offer programs aimed at Bachelor's and Master's Degrees. The changes concerned not only the structure of higher educational programs, but first of all their strategical goals. The knowledge- and skills-oriented approach to formulating educational objectives was replaced by a competence-based approach to meet modern demands of the society.

Russian Federal State Educational Standard for Higher Education which uses the competence-based approach requests training general cultural competences and professional competences. The current requirements of the Russian Federal State Educational Standard for Higher Education regarding the sphere of foreign languages are as follows: future engineers should have an **“ability to communicate in oral and written forms in Russian and foreign languages for solving problems of interpersonal and intercultural interaction”**. Another general cultural competence reads like this: **“ability to work in a team, tolerantly perceiving social and cultural differences”**.

Russia goes hand in hand with the CDIO (Conceive, Design, Implement, and Operate) Initiative which in its Standard 2 (Section 3) pays much attention to **the interpersonal communication skills** of engineering students and names them among other learning outcomes: individual and group interactions, teamwork, leadership, communication, communication in foreign languages (Crawley, Malmqvist, Lucas, & Brodeur, 2011).

It poses challenges for the teachers of foreign languages at non-linguistic universities. In the view of reforming, the whole system of engineering education developers of foreign-language training of engineers should bear in mind that nowadays a set of professional requirements for engineers differs much from what it used to be in the past. For successful professional interaction not only EFL communication skills are important. Engineers should be able **to interact, collaborate, negotiate and work in a team**.

New educational approaches are required. Future engineers should be taught to develop such abilities and qualities as tolerance, ethics, collaboration and cooperation, social awareness, persistence, leadership and others. The authors believe that the teaching method based on **students' cooperation (learning in small groups)** can provide a solution to the task of forming **interpersonal communication competence** of future engineers.

3. Research Questions

Past research (Brookfield & Preskill, 1999; Jaques, 2000; Race, 2000; Slavin, 1995) has shown the efficiency of group work (table 01), cooperative and active learning for interpersonal communication skills development. **Cooperative learning** or, in other words, **learning in small groups** is one of the well-proven educational methods of the so-called humanistic approach in pedagogy. The main idea of this teaching method according to Polat (2000) is to create conditions for active joint learning of a foreign language by students. All students are different. If they form small groups and get a task to fulfill, they

have to join their efforts and cooperate sharing their knowledge and showing empathy to each other. Thus, **competent interpersonal communication** is being developed. The authors found that to maximize the English language learning, large coeval groups of students at MIET could be divided into smaller groups/teams (Davidenko, 2016).

Foreign language teaching methodology offers the following criteria for grouping:

- language proficiency (more proficient students vs. less proficient students/ faster learners vs. slower learners/ high achievers vs. low achievers/ advanced students vs. the lower level students/ the more able/the less able)
- academic background irrespective of proficiency (content expertise suppliers vs. content expertise recipients)
- personality type (active students vs. passive/ dominant vs. reticent)
- sociometrics (friendship, respect, mutual interests vs. dislike or indifference)
- gender (boys vs. girls)
- random/accidental allocation.

Homogeneous **language proficiency** grouping has been claimed to improve student achievement by enabling students of different levels to work at their own pace with other students of similar abilities. More challenging tasks should be given to the more able and less demanding ones to the less able.

Language proficiency teams can be deliberately heterogeneous, where faster learners are supposed to help slower learners, to become teacher-assistants or consultants. They are to render the teacher's explanation into a "student language" and to consolidate their own knowledge by mastering their ability to remember, to state clearly, to listen patiently, to give examples. Cross-ability groups are beneficial for low achievers as well because slow learners are supported by their teammates and get self-confidence.

Rance-Roney (2010) finds grouping students according to their **academic background** useful. "For example, when integrating challenging academic content, such as science, with language learning, learners with strong academic backgrounds (irrespective of proficiency) can supply needed content expertise that allows all group members to learn the content and concurrently focus on language development. If the goal is for learners to develop collaborative knowledge, heterogeneous grouping based on content knowledge makes sense" (p. 24). Very soon, the students will learn to use one another as knowledge resources. They will become responsible when teaching each other, sharing knowledge with one another.

In every English class, there are **active/dominant students** who over-participate and **passive/reticent students** who do not seem to be involved in the teaching/learning process. The teacher often even does not know whether they are just passive participants or they are bored and will soon become troublemakers. Should teachers make heterogeneous groups and mix active students with passive? It depends. Sometimes a homogeneous variant is preferable. Dominant students are given an opportunity to defend their opinions pressing their arguments in heated discussions. Reticent students benefit from their absence and discuss the same problem with their teammates quietly.

Friends or people who get along well with each other often volunteer to be grouped together. Some students find it less stressful and more comfortable to work in the same team with the chosen classmates. But some individuals are more accepted by the group than others. In order to measure interpersonal

relationships in a group of students, **the teacher can use sociometric techniques**. Such methods provide information about student's standing within a peer group. They focus on a student's relationships with regard to **social popularity, peer acceptance, peer rejection, and reputation**.

Gender grouping allows the students of EFL classes to speak freely on the so-called uncomfortable topics when discussing a book, a play or a movie.

To make diverse groups, teachers may **randomly/accidentally** assign EFL students to groups according to the season or month of their birth, the number of letters in their first names, by using the list of their names in the register, by asking them to choose a number (depending on the number of the groups) and grouping them according to the number, by proximity (students occupying the neighboring desks can work together), etc.

However, a lot of questions require further research:

- Which of the above-mentioned criteria should be used by teachers of English at non-linguistic universities?
- How can one divide students into groups using these criteria?
- Should each of the group types be homogeneous or heterogeneous/incongruous?
- How many group types would one get under such an approach?
- Which of the group types are preferable for interpersonal communication skills development?

4. Purpose of the Study

The communicative language competence includes linguistic, sociolinguistic and pragmatic competences (Council of Europe, 2001, p. 13). At EFL classes students are taught to use language in oral and written forms according to the aims of communication in different social conditions. Effective verbal communication between students presupposes usage of **interpersonal communication skills** which are not built automatically. The task of a foreign language teacher is to involve the students into active communication and interaction through small group work (Baydikova, 2000, p. 62).

Keeping in mind that cooperative learning is an efficient way to teach students not only communicative foreign language competence, but also interpersonal communication competence, one should use well-grounded criteria and methods for group division. As a result one shall get several group types.

The purpose of the study is to find out what group types foster the interpersonal communication competence development in a better way at EFL classes.

5. Research Methods

The survey was implemented in the spring of 2017 and targeted at the students of MIET. All of them were the second-year students of different technical departments. The number of the respondents was 58 (female: 26%; male: 74%). Because of the small number of the respondents, the authors used only descriptive statistics when examining the data.

5.1. The criteria of language proficiency and academic background

Rance-Roney (2010) suggests: “One technique for quick implementation is to keep a list of students ordered by proficiency level, with the most proficient students in the class at the top and the least proficient at the bottom. If you choose to form triads, for example, count down the list by three, draw a line, and group by three until you reach the end of the list. This gives you ready-made proficiency groups” (p. 23).

To apply the criteria of language proficiency and academic background, the authors used Corporative Technological Information Platform for Distributed Data Exchange in Corporative Environment (DDECE) developed at MIET for information and interaction support of the educational process. The platform allows the students and teachers to have an online access to the curricula, academic programs, materials for individual work, tests for training and control and other educational resources. Using the platform, the teachers regularly assess the students’ academic performance, so at any time all the participants of the educational process can have a clear overall view of the educational results.

To fulfil successfully a course of study on any discipline, a student of MIET is to accumulate 100 points every semester. To assess language proficiency and academic background of the respondents, the authors converted their 100 point academic performance into a three point scale. For the criterion **language proficiency**, the value 1 was given to those who had 50 up to 70 points in English in the previous semester, the value 2 - to those who had from 71 to 85 points and the value 3 - to those who had from 86 to 100 points. The **academic background** was assessed according to the same scale, but instead of the academic results in English, the authors took the arithmetic mean value of the students’ performance on all the other subjects.

5.2. Personality type criterion

In order to define our students’ personality type, the authors used *Eysenck Personality Inventory* (EPI) (Eysenck, 1975). It is a questionnaire to assess people’s personality traits. The authors measured extroversion/introversion and as a result of this test each of our students received the E score which showed how much extravert a student was. The E score consists of 24 items.

High E scores (16-24) indicate extraversion. Students who score high tend to be impulsive, outgoing, highly social, fond of excitement, active. Low scores (1-6) indicate introversion. Typically, low scorers are more quiet, reserved, somewhat pessimistic and passive. Middle scores (7-15) indicate ambiversion. Those who fall in the midrange of the extraversion/ introversion continuum show features of both extraverts and introverts.

5.3. Sociometrics criterion

To identify the students who are more accepted by the group and those who are more rejected, the authors collected data through **the sociometric question**. As the authors did not intend to trace networks of social relationships, they did not permit an unlimited number of choices. Instead, the authors used the so-called **“fixed rank positive nomination technique” of sociometry with a limited number of**

ordered choices in their classroom. Group members were to answer a question and to rank the individuals:

*With which three people in this group would you most enjoy working on a project in English?
Rank the group mates from "most" to "least" liked.*

This technique is positive in the sense that they “would like” to carry out the project together. It is fixed because their choices were restricted to three.

The authors counted how many times each of the students was chosen in his/her group. Then the authors counted the maximum number of choices received by one student in a group.

If a student got two thirds or more out of the maximum number of choices, the authors considered him “more popular”. He was given the value 3. If a student got less than one third, he was considered “less popular” and given the value 1. The rest of the students (“medium popular”) were given the value 2.

6. Findings

Using the criteria and methods of grouping described above, the authors obtained the following results.

6.1. Language proficiency grouping

Advanced students (rated the value 3 for their language proficiency) constitute 25.8 % (15 respondents), the lower level students (value 1) – 36.2 % (21 respondents) and 22 students (38%) are rated in the middle (value 2).

6.2. Academic background grouping

16 respondents (27.6 %) are learners with strong academic backgrounds (value 3), 14 students (24.1 %) are rated as lower achievers (value 1) and 28 students (48.3 %) are rated in the middle (value 2).

6.3. Personality type grouping

Eysenck Personality Inventory (EPI) shows that 16 students out of 58 (27.6%) have high E (extraversion) scores, 4 respondents (6.9%) are introverts and the rest of our respondents - 38 students (65.5%) - fall in the midrange of the extraversion/ introversion continuum and show features of both extraverts and introverts.

6.4. Sociometrics grouping

13 respondents (22.4%) got two thirds or more out of the maximum number of their student-mates' choices and gained the status of the “more popular” with the value 3. 25 students (65.8%) got less than one third choices and were given the value 1 as the “less popular”. The rest of the students (20) were given the value 2 as the “medium popular” (34.5%).

6.5. Correspondence between the group types

The authors found no full correspondence between any of the grouping criteria.

Language or academic proficiency does not completely correlate with personality type. Out of 15 extraverts, 6 students show high academic background (40%). Out of 4 introverts, 2 respondents show high academic background (50 %).

The correspondence between the personality type and the social popularity is also irregular. Only 3 extravert students at the same time have a high social popularity (value 3) in the group (the more popular), 8 extraverts have the middle value (2) of popularity and 5 extraverts have the smallest value (1) of popularity.

On the other hand, if one takes the more popular students in the groups (value 3), most of them (10 students) are ambiverts, 3 respondents are extraverts, and none is an introvert.

7. Conclusion

7.1. Group types obtained

To develop interpersonal communication skills through collaboration, it is reasonable to use the following grouping criteria at EFL classes: language proficiency, academic background, personality type and social popularity of students.

The study shows that the four chosen criteria result in eight group types:

- homogeneous groups according to language proficiency (groups of more advanced students and groups of less advanced students)
- heterogeneous groups according to language proficiency (mixed groups of more and less advanced students)
- homogeneous groups according to academic background (groups of more advanced students and groups of less advanced students)
- heterogeneous groups according to academic background (mixed groups of more and less advanced students)
- homogeneous groups according to personality type (groups of extraverts, groups of ambiverts and groups of introverts)
- heterogeneous groups according to personality type (mixed groups of extraverts, ambiverts and introverts)
- homogeneous groups according to social popularity (groups of more popular students, groups of less popular students)
- heterogeneous groups according to social popularity (mixed groups of more and less popular students).

7.2. Group types potential

Learning in all small groups types appears to be effective (+) for developing learners' communication. However, among the obtained eight group types, the authors consider the four heterogeneous types to be more potentially efficient (++) for fostering the communicative interpersonal

competence than the corresponding homogeneous group types. Communicating with people different from you in certain aspects always poses a challenge. Overcoming communication difficulties students learn to manifest extreme flexibility in the process of professional interaction, show empathy to each other, think critically, cooperate and collaborate, exchange information to mutual benefit and join efforts in order to reach a common goal.

Table 01. Efficiency of the Small Group Types

Grouping criteria	Language competence	Academic background	Personality type	Social popularity
Homogeneous	+	+	+	+
Heterogeneous	++	++	++	++

References

- Baydikova, N. L. (2000). *Preparing future foreign language teachers for pedagogic communication* (Candidate dissertation). Kurgan: Kurgan State University.
- Brookfield, S. D. & Preskill, S. (1999). *Discussion as a Way of Teaching: Tools and Techniques for Democratic Classrooms*. San Francisco: Jossey-Bass Publishers.
- Council of Europe. (2001). *Common European Framework of reference for languages: learning, teaching and assessment*. Retrieved from http://www.coe.int/t/dg4/Linguistic/Source/CECR_EN.pdf
- Crawley, E., Malmqvist, J., Lucas, W., Brodeur, D. (2011). The CDIO Syllabus v2.0 An Updated Statement of Goals for Engineering Education. In *Proceedings of the 7th International CDIO Conference*. Retrieved from http://www.cdio.org/files/project/file/cdio_syllabus_v2.pdf
- Davidenko, Y. S. (2016). To the question of optimization of foreign language teaching of large groups of students at non-linguistic universities. In *Collection of Articles of the International Conference: Vol. 1. Personality as an object of psychological and pedagogical influence* (pp. 65-70). Retrieved from <https://www.aeterna-ufa.ru/sbornik/PP-48-1.pdf>
- Eysenck, H. J. & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire*. London: Hodder and Stoughton.
- Fadel, Ch. (2015). *Redesigning the curriculum for a 21st century education*. Retrieved from Center for Curriculum Redesign website <http://curriculumredesign.org/wp-content/uploads/CCR-FoundationalPaper-Updated-Jan2016.pdf>
- Jaques, D. (2000). *Learning in Groups: A Handbook for Improving Group Work, 3rd ed.* London: Kogan Page.
- National Education Association. (2012). *Preparing 21st century students for a global society: An educator's guide to the "Four Cs"*. Retrieved from <http://www.nea.org/assets/docs/A-Guide-to-Four-Cs.pdf>
- OECD. (2012). *Better skills, better jobs, better lives: A strategic approach to skills policies*. Retrieved from <http://dx.doi.org/10.1787/9789264177338-en>
- Polat, Y. S. (2000) Training in cooperation. *Foreign languages at school, 1*, 4-11.
- Race, P. (2000). *500 Tips on Group Learning*. London: Kogan Page.
- Rance-Roney, J. (2010) *English Teaching Forum, 1*, 20-26.
- Rifkin, J. (2011). *The third industrial revolution; How lateral power is transforming energy, the economy, and the world*. New York, NY: Palgrave MacMillan.
- Slavin, R. E. (1995). *Cooperative Learning: Theory, Research, and Practice, 2nd ed.* Boston: Allyn and Bacon.