

DISKURANSÄTZE IN DER UNTERRICHTUNG VON INGENIEURSTUDENTEN UND ENTWICKLUNG INTERKULTURELLER KOMPETENZ

Isroilova D.M.

Andijan State University, Doktor der Philosophie (PhD) in pädagogischen
Wissenschaften, Usbekistan

dilquv@gmail.com

Abstrakt: Der Artikel befasst sich mit der Frage eines diskursiven Ansatzes im Englischunterricht für Ingenieurstudenten sowie der Bildung interkultureller Kompetenz im Lernprozess. Wir schlagen vor, die erlernte Sprache mit Fächern wie "Lebenssicherheit und Ingenieurökologie", "Kultur der Produktion" in die Bildung interkultureller Kompetenz und Internationalisierung von Programmen zu integrieren. Weil diese Disziplinen Konzepte einführen, die sich auf soziale Verantwortung im Ingenieurwesen beziehen. In der modernen Welt reicht es nicht aus, eine berufsorientierte Sprache zu beherrschen, mündliche und schriftliche Sprache zu verstehen, denn es ist notwendig, mit Trägern einer anderen Kultur Kontakt aufnehmen zu können, ein gegenseitiges Verständnis mit ausländischen Kollegen zu erreichen, die dort arbeiten im selben Bereich und entwickeln „Soft Skills“. Ziel des „Spezialkurses“ ist es, die Fähigkeit zu entwickeln, ingenieurwissenschaftliche Fragestellungen und Probleme in der interkulturellen Welt zu analysieren und zu interpretieren.

Schlüsselwörter: Interkulturelle Kompetenz,
Internationalisierungsprogramme, CLIL, Soft Skills, Ingenieurstudenten.

DISCOURSE APPROACHES IN TEACHING ENGINEERING STUDENTS AND THE DEVELOPMENT OF INTERCULTURAL COMPETENCE

Isroilova D.M.

Andijan State University, Doctor of philosophy (PhD) on pedagogical sciences,
Uzbekistan

Abstract The article deals with the issue of a discursive approach in teaching English to engineering students, as well as the formation of intercultural competence in learning process. We propose to integrate the studied language with subjects such as "Life Safety and Engineering Ecology", "Culture of Production" in the formation of intercultural competence and internationalization of programs. Because these disciplines introduce concepts which is related to social responsibility in Engineering. In the modern world, it is not enough to know a professional oriented language, to understand oral and written speech, because it is necessary to be able to establish contact with carriers of a different culture, achieve mutual understanding with foreign colleagues who is working in the same field and develop "soft skills". The purpose of the "special course" is to develop the ability how to analyse and interpret engineering issues and problems in the intercultural world.

Keywords: intercultural competence, internationalization programs, CLIL, soft skills, Engineering students.

Introduction

The development of international and intercultural skills has been especially in the spotlight over the past two decades as it has contributed to increasing the employability of students. Since the emergence of the concept of competence, the concept of intercultural competence has also entered the stages of development of pedagogical science, which shows the ability to function effectively in different cultures, to think and act appropriately, and to communicate and work with people who come from different cultures. Intercultural competence is a valuable aspect in a rapidly developing world, where there is interaction between people from different cultures and countries, shaped by manifestations of value qualities, beliefs and experiences. Sergeeva N.N., Pokhodzey G.V. in their works indicate that “intercultural communication skills are necessary for representatives of different professions. They need to apply knowledge about the culture of native speakers in professionally directed situations of foreign language speech contact” [1.3-217]. At the level of higher educational institutions, multilateral interstate relations are being implemented, focused on large targeted and comprehensive educational projects and programs. Currently, students from foreign countries are studying in the universities of Uzbekistan on various programs of professional training of higher education, as well as our students earn education in other countries.

Literature review

As we know, a good command of a foreign language is not a guarantee of achieve in an international professional or academic context. Teaching mobile students in a multilingual and multicultural audience requires the introduction of special programs for the formation of intercultural competence. According to the Spanish researcher Marta Aguilar, teaching students in the ESP and EMI programs is not enough, it is spotlessly important to introduce the Intercultural Communicative Competence (ICC) program, which could be useful for students and teachers [2.25-39]. T.B. Frick argues that "the object of studying the theory of intercultural communication is the process of natural communication in natural conditions between representatives of different linguistic cultures, and the subject is the analysis of types of interaction between representatives of different cultures, the study of factors that have a positive or negative impact on the result of communicative interaction" [3.8-100]. We would like to note that the role of culture in language learning has been recognized in intercultural studies, as well as in the new CLIL (Content Language Integrated Learning) subject-language immersion program, because immersion and the educational environment of CLIL deepen students' intercultural awareness [4.25-39]. To understand the processes of using the skills and attributes of intercultural competence, we relied on the work of Michael Byram [5.147]. He introduced the concept of "intercultural speaker" - that is, a person who is able to accept the external and look at himself, adapting his behavior based on values and beliefs. K. Kramsh notes “knowledge of oneself is an awareness that comes

through the knowledge of others. An intercultural encounter, a place where people bring their own socially and culturally constructed worldviews and ways of communicating. This is the right place to start assessing your intercultural competence. Here, people experience other people's ways of speaking, see the relativity of their own culture of communication"[6.295].

Research questions

To conduct this study, we were given the following research questions:

- to analyze the theoretical and practical problems of the formation of intercultural competence of engineering students in technical universities;
- to consider curricula, programs and teaching aids for technical universities in terms of linguistic and cultural awareness;
- define the concepts of intercultural competence and aspects of its study in modern linguistics and linguodidactics;
- explore the problems associated with learning in the process of forming the professional, pedagogical and intercultural competence of engineering students at the master's level;
- to consider a discursive approach in teaching engineering students and identify the difficulties that arise in the process of forming intercultural competence;
- to carry out a survey review of the effectiveness of the developed methodology for improving the intercultural competence of students of non-linguistic universities in teaching English at the master's level.

Article structure

2.1. Analyzing the theoretical and practical problems

Teaching English as a foreign language in technical universities is not only integrating four skills like Reading, Writing, Speaking and Listening, as well as a professionally oriented language, but also about life skills that allow students to communicate. Language and culture are united; therefore, the teaching and learning of its language will differ in the culture of the speakers not only in everyday life, but also in professional orientation. To do this, it is necessary to have knowledge of intercultural understanding, to develop the ability to recognize, interpret and respond to situations that come to light from misunderstandings due to cultural differences. So, the study of cross-cultural understanding from a professional point of view (Cross Cultural Understanding) is very important.

2.2. Consider curricula, programs and teaching aids

To achieve this goal, we analyzed the regulatory documents and conducted a comparative analysis of programs, curricula and textbooks in terms of the problem under study in non-philological and philological universities. After reviewing curricula, plans and teaching aids for philologists, we decided to adapt many of the materials for non-linguistic universities or reshape them based on professionalization. Comparative analysis also helped to find out how important the formation of intercultural communicative competence is for all industries. Analysis of the regulatory and legal documents of the Republic of Uzbekistan on the professional training of university graduates provides "to provide scientific knowledge, practical skills and abilities to perform research work in the specialty of the master's program,

process modeling and a systematic approach in achieving the target results of professional activity. "When studying the volume of the teaching load "Master" of full-time education, the volume of classroom classes of theoretical training, depending on the specialty of the master's program, will be distributed by blocks of disciplines as follows:

- General methodological disciplines - 30-35%;
- Specialty disciplines – 40-50%;
- Disciplines of choice - 13-15%.

In the general methodological disciplines, the requirements are indicated for engineering students at the master's level to have a high general and professional culture, creative and social activity, and the ability to independently navigate social and political life and be able to set and solve problems for the future.

Method

Sample / Participants

The survey was carried out in three stages: at the first stage (2020 – 2021) the state of the problem of the formation of intercultural competence among engineering students at the Andijan Machine-Building Institute were studied Namangan Engineering and Construction Institute, Ferghana Polytechnic Institute and Karshi Engineering and Economics Institute where 40 teachers and 270 students participated. The first stage of work was carried out from December to March where all recipients were interviewed. Also analyzed a special literature and available teaching aids on this issue and studied level of formation of soft skills. At the second stage, from April to June, of the theoretical

Research: curricula were carefully studied, analyzed programs, educational and plans, textbooks and teaching aids for the formation of intercultural communicative competence, as well as a muddle platform for online learning too. The questionnaires included 10 questions aimed at finding out how and to what extent engineering students understand intercultural competence and to what extent it is important for them. Questionnaires for teachers were also prepared, where questions directly related to the formation of intercultural competence in non-linguistic universities, the compliance of curricula, existing teaching aids and the selection of the content of teaching intercultural foreign language communication. The analyzes of the questionnaire and the results of the participants' discussions indicated a vague and passive understanding of intercultural communication. To the question "How important is for engineers to have intercultural communication skills (ICC) in addition to learn English for specific purposes (ESP)? Many students answered that for four years they had studied a foreign language aimed at professional orientation, and at the master's level, learning a language from the point of view of cross-cultural communication can develop their intercultural competence, which is very necessary in the process of globalization.

1.1. Instrument(s)

As we know, motivation is an impulse to act when a person grows old to control the behaviour and the necessity of his needs. These concepts were first proposed by R. Gardner and W. Lambert. In their opinion, integrative motivation is

the desire of a person to become a part of a foreign language culture, the desire to speak a foreign language in order to understand and communicate freely with native speakers. Instrumental motivation occurs when learners want to learn a language for practical reasons, i.e. getting a good job, getting promotions, passing exams, and getting to know people who speak the language. Our analyses illustrate the need to take into account integrative motivation when preparing authentic material, that is, to include various types of tasks and texts to form a positive attitude towards the people and culture of the country of the language being studied, as well as generally accepted standards and etiquette from a professional point of view. As we know, engineering communication is based on an engineering text, the study of which fits into the framework of discursive analysis. As the experts themselves note, "an engineering text must meet the requirements of clarity and logic of the argument, with general conciseness and simplicity of language content, have information richness and capacity". When preparing professional texts for the study guide offered by us "English for Cross Cultural and Professional Communication", we took into account the Code of Ethics for Engineers. In Writing we pay attention to the importance of developing special communication skills for engineers: knowing and using the conventions and strategies of professional writing and designing an engineering document. Listening exercises included the following topics: working discussions, participation in meetings, reading articles, reports, consulting activities, professional presentations and preparation of applications for engineering projects. Texts for Reading were selected taking into consideration the content and language integrated learning and effective communication, increasing of critical thinking, understanding of professional ethics and the responsibility of decision-making.

1.2. Data collection procedures

When analysing the educational process and conducting experimental work, conclusions were made to integrate the language being studied with the subject "Life Safety and Engineering Ecology" in the formation of intercultural competence and internationalization of programs. Because this discipline presents concepts related to social responsibility in engineering. Safety, environmental protection and sustainability, voluntary work, social justice and diversity are all included in professional codes of ethics related to the social responsibility of the engineering profession. The International Education Association's Washington Agreement programs include an understanding of the engineer's professional responsibility - that is public safety. Safety and social responsibility is explicitly included as a cognitive "cross-functional" activity within the chemical engineering body of knowledge. The Royal Academy of Engineering's (RAE) Statement of Ethics in the Australian Code uses the term "public good" separately from the item "health and safety" i.e. "concern for the public welfare". This means that a high level of foreign language proficiency is not sufficient for effective professional, business and socio-cultural communication of a specialist. There is a need for content language integrated learning, which will serve to understand the peculiarities of intercultural communication, observance of universal norms of behaviour, rules and categories with certain norms of etiquette in a multicultural world.

We have proposed a special course "Engineering Dialogue in English" for first-year engineering students at the master's level. The purpose of the special course according to standards is to develop the ability to analyse and interpret engineering questions and problems. And also integrate with the subject "Culture of production", which plays a big role in improving the efficiency of the enterprise. To improve the content of teaching a foreign language (in our case, English) for engineering students, it is necessary to take into account the situations used in the workplace, such as: norms of behaviour, regulation of a single style of clothing, special trainings and organization of joint holidays, as well as other events that help to establish trust relations between people and create confidence among employees in the correctness of the production goals set for them.

The developed model is divided into three stages as a cognitive-reflexive stage, where the knowledge of students studying on any topic under study is revealed. At the second reflexive-interpretive stage, acquaintance with the topic develops based on the analysis of an authentic text. At the third takes place the activity-existential stage, where is the process of the actualization of new meanings. It is at this stage that students understand the value and benefits of intercultural dialogue for practical professional activities, and building interpersonal relationships.

1.3. Data analysis

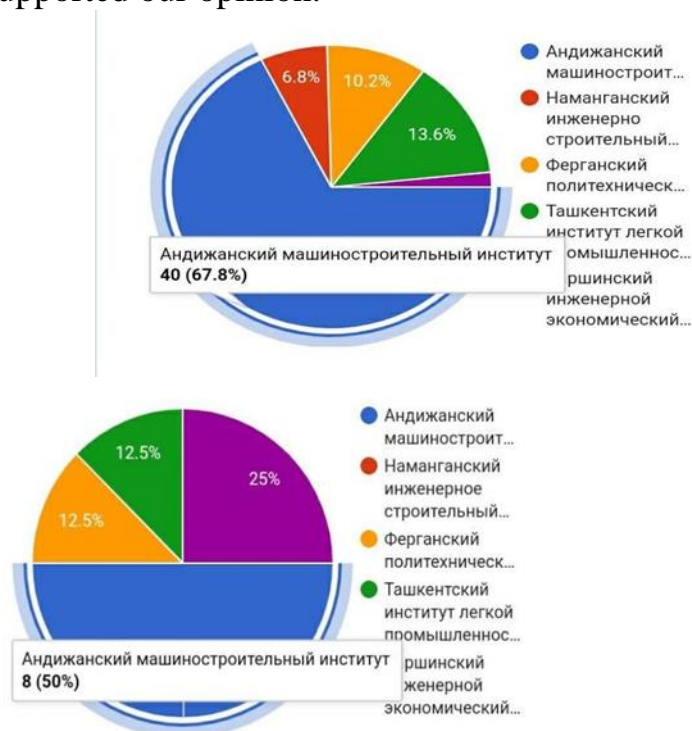
On the next question of the questionnaire, we provided various topics, and engineering students had to divide them into important and less important, or offer their opinion. "Which topics are important or less important for the formation or development of intercultural competence of engineering students (master's degrees): customs, holidays, food, sports, professional slang, music, weather, cultural differences, etiquette, telephone communication, distance communication etiquette, myths, people's lifestyle, the need to know habits, currency, dress code, articles, education system, phrases and idioms?"

Important -----

Less important -----

This helped us to identify the interests and needs of students and consider in the process of preparing educational material. We would like to note that the conversation with teachers and the survey we conducted played an important role. According to the question: "How important, in your opinion, is it to teach intercultural communication to engineering students?" Almost all teachers emphasized the importance of developing intercultural communicative competence from a professional point of view. Because, the growing demand for a new type of engineer who overcomes cultural barriers and is able to effectively communicate and interact with professionals from other cultures is one of the important aspects of modernity. To the next important question "Does the literature you use contain materials (topics) that form intercultural competence in teaching engineering students foreign language professional communication?" Many teachers indicated that the books they use partially have topics, but most of the materials are downloaded from the Internet. And to the question "How correct is it to teach students by comparing our culture with the culture of the country of the language being studied in the

context of professional communication?" All respondents gave a positive answer and supported our opinion.



At the final stage of the experiment, we observed increasing the level of soft skills of students of technical universities and the formation of intercultural competence through the integration skills and content and language integrated learning. Within the framework the final stage of our survey, processed and analyzed the results of teaching, which were obtained in the control and experimental groups using the methods of mathematical statistics. The obtained data are correlated with the general theoretical conclusions of the dissertation research. The main goals and objectives of this stage were:

- conducting final testing;
- comparison of the results of post-experimental and final testing;
- formulation of conclusions based on the results obtained;
- proof of the legitimacy of the material put forward by us about efficiency of using the developed technique for forming intercultural competence in technical universities.

2. Results

Processing and analysis of the conducted training in experimental groups were carried out using the chi-square test (χ^2) compared to control group. Here we compared the distribution of control and experimental groups according to the status of the following properties: Reading, Speaking, Listening Writing and soft skills. According to these properties, the objects (students, teachers) of the samples were divided into four categories in accordance with marks in points: "5" (high), "4" (medium), "3" (fair) and "2" (unsatisfactory). Consider the results of the final control for all criteria:

Table 1. Results of final control: Reading

Levels	Control group	Experimental group	Average growth
high	10	21	
medium	26	32	
satisfactory	51	56	
unsatisfactory	48	26	
average grade in points	2,98	3,35	12%

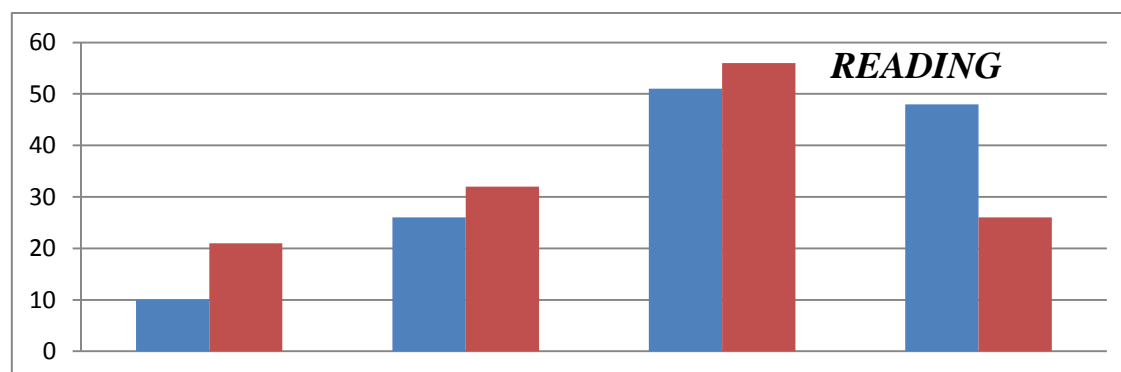


Table No. 2 Results of the final control: Speaking.

Levels	Control group	Experimental group	Average growth
high	16	30	
medium	38	52	
satisfactory	54	40	
unsatisfactory	27	13	
average grade in points	3,32	3,73	12%

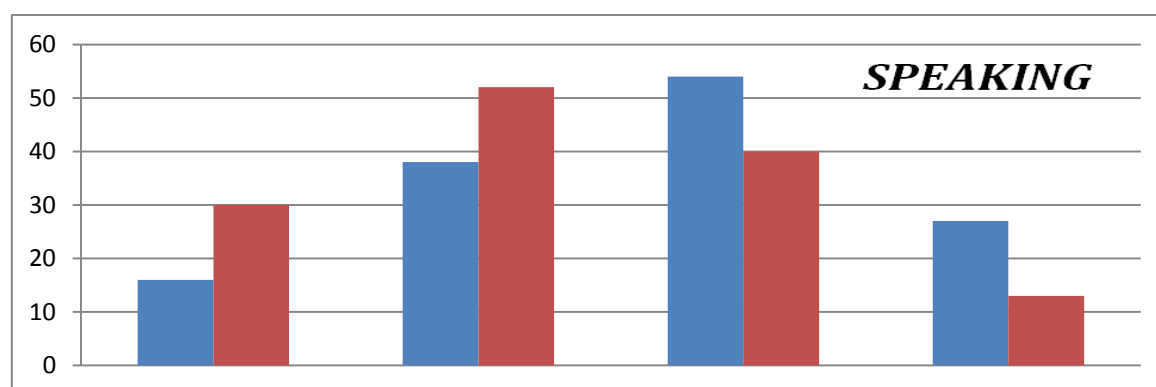
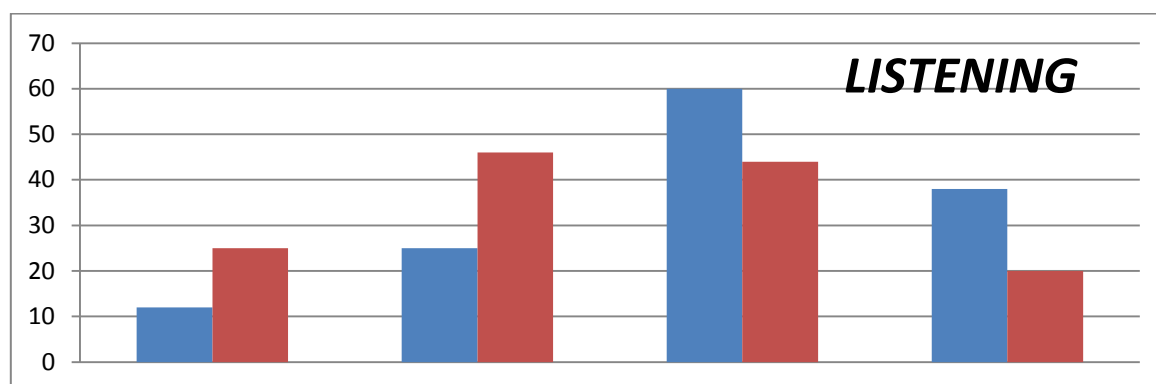


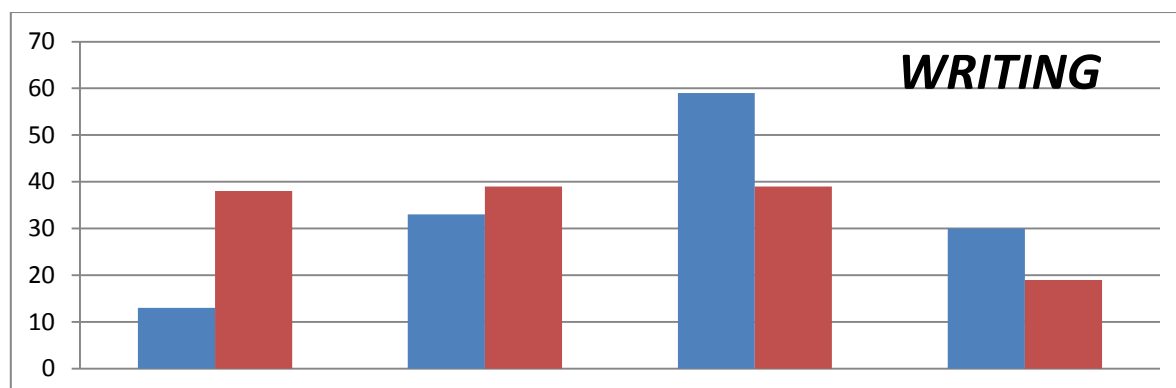
Table No. 3 Results of the final control: Listening

Levels	Control group	Experimental group	Average growth
high	12	25	
medium	25	46	

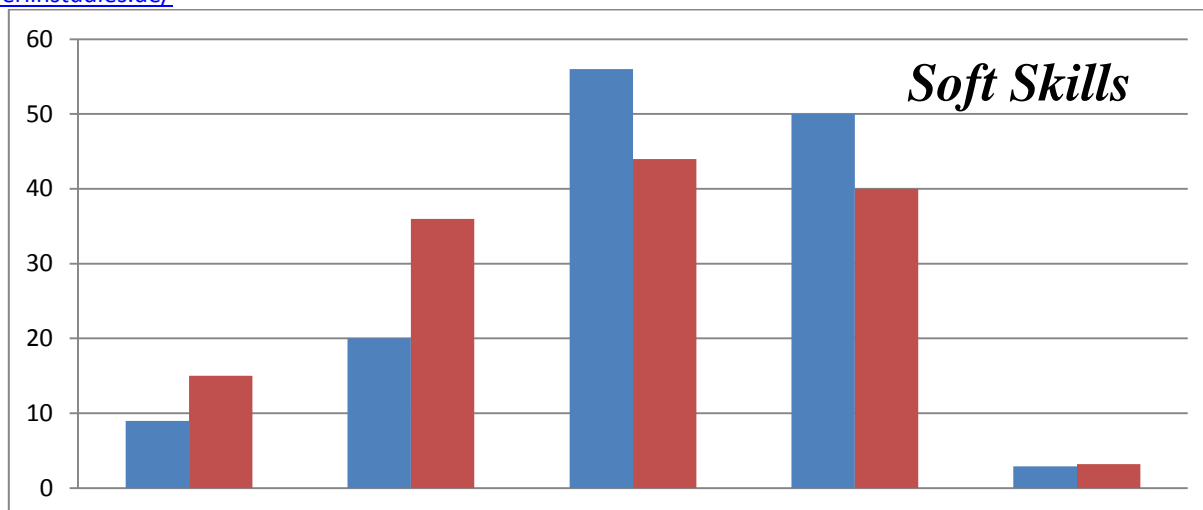
satisfactory	60	44	
unsatisfactory	38	20	
average grade in points	3,08	3,56	15%

**Table No. 4 The results of the final control: Writing**

Levels	Contr ol group	Experi mental group	Averag e growth
high	13	38	
medium	33	39	
satisfactory	59	39	
unsatisfactory	30	19	
average grade in points	3,22	3,71	15%

**Table No. 5 Results of final control: Soft skills**

Levels	Contr ol group	Experi mental group	Averag e growth
high	9	15	
medium	20	36	
satisfactory	56	44	
unsatisfactory	50	40	
average grade in points	2,91	3,19	9%



3. Discussion

Of the 270 students, 135 were in the control groups, and the remaining 135 were in the experimental groups. At the ascertaining stage, we conducted a survey and a survey. After several sessions at the post-experimental stage, we conducted testing. At this stage, students in the control groups answered the tests of 15 questions on average 6-7 questions correctly, and in the experimental groups the correct answers were 9-10. At the third final stage, that is, after the general learning process (which was 15 pairs (30 hours) including the integration of such skills, As Speaking, Listening, Writing, and Reading we organized testing for lexical material, the tests themselves were compiled according to texts from the book " English for Cross Cultural and Professional Communication " and consisted of 15 questions. Then listening was conducted, evaluated according to a five-point system; special written exercises were offered on the topics covered, after which they had a conversation in English. Our questionnaire consisted of 5 questions. These questions were given with an increasing degree of difficulty, that is, the first two questions are easier, the third and fourth are more complex, and the fifth question is oriented towards a critical understanding of the specialty. Reading answers averaged 12-13 correct answers out of 15 questions. In the audition, out of 135 students, 75 students answered 4 out of 5 questions correctly, 35 answered all questions correctly, and out of 25 students answered 3 questions correctly. We got a similar result in written exercises. The recorded results in the field of speaking among students are as follows: 40 people found it difficult to speak professionally oriented English, but they were able to answer three questions out of 5 correctly. 60 students answered 4 questions correctly, but they found it difficult to answer the fifth question, that is, they could not fully express their thoughts. The remaining 35 students answered correctly grammatically and lexically. In the control groups, we conducted classes, selectively providing students with an overview of concepts. In these groups, the results were lower than in the experimental groups.

Analysis and comparison of the average estimates of the control and experimental groups according to tables No. 1 to No. 5 according to the state of four properties give reason to talk about the correctness of the conducted pedagogical

experiment. We would like to emphasize the following: for all four indicators, the pedagogical experiment gives a positive result. Now let's compare the average score of the experimental group from the control group for all four indicators. From tables No. 1-No. 5 we find the average increase in the percentage of training efficiency:

$$(12\%+12\%+15\%+15\%+9\%)/5=(63\%)/5=12,6\%$$

4. Conclusions

In the final control, for all indicators of the pedagogical experiment, a positive result of 12.6 % was shown; this once again proved the productivity of the method we used in the process of teaching engineering students.

A three-stage model of the formation of intercultural competence in English classes, the task of which is to educate a multicultural personality, has been studied. The developed model is divided into three stages as a cognitive-reflexive stage, where the knowledge of students studying on any topic under study is revealed. At the second reflexive-interpretive stage, acquaintance with the topic develops on the basis of an analysis of an authentic text, and at the third activity-existential stage, new meanings are updated.

A competitive specialist must have not only technical knowledge, but also a set of humanitarian qualities and competencies soft skills, based on this, we proposed taking into account the interdisciplinary relationships of such subjects as "Introduction to the profession", "Culture of production", "Corporate culture", "Metrology and standardization" and "Ethics of business relations" with the English language for the formation of professional and ethical responsibility in making engineering decisions, the development of intercultural communication skills, the ability to manage people and the skills of business foreign language communication

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