



**KAPITEL 4 / CHAPTER 4<sup>4</sup>**  
**TEACHING SPEAKING TO SOFTWARE ENGINEERING STUDENTS  
WITHIN ESP COURSE: METHODOLOGICAL, PSYCHOLOGICAL, AND  
MOTIVATIONAL ASPECTS.**

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## **Introduction**

The modern world is heavily dependent on innovative technological solutions, and software engineering is a widely sought-after career. As a result, Ukraine is facing an increasing demand for qualified workers in this industry. An important task today, in the context of fleeting changes caused by the development of information technology and integration processes in the society, is the development of Ukrainian national education. In today's world of advanced information technology, the country's development is impossible without highly trained specialists who can adequately respond to the challenges of the world of information society. The information technology sector is one of the most promising for development in Ukraine; our information technology (IT) specialists are in demand worldwide. Among all IT qualifications, software engineering specialists hold a special place.

Despite the large number of students of this specialty graduating annually, the need for qualified programmers does not decrease. The professional activities of these specialists include the development of software systems for industry and economy, business areas, offshore programming and software outsourcing. The tasks of the bachelor's professional activity in this area include collecting and analyzing the needs and requirements of software users, determining the functional requirements of the system being designed, the actual design and design of the software, participation in professional communication processes, participation in software engineering management processes, software requirements analysis and management, verification and certification, etc.

At the same time, the professional development of such specialists largely

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depends on the speed and efficiency of professional information processing not only in the native language but also in English, as within this profession the new information load increases significantly every year. English language communication in this area takes place at all levels, starting with the study of the needs of foreign customers for the development of particular software product, elucidating the details of the software's intended purpose with end users to discuss the details of work on software development projects with international contracting companies and ending with giving speeches at conferences. It is obvious that the value of oral communication is growing.

Moreover, modern means of transmitting video and audio signals over the Internet and the teleconferencing systems have made oral communication with foreign experts possible from anywhere on our planet, enabling us to obtain professionally important information in just few seconds. Subject to proficiency in a foreign language, programmers have a great opportunity not only to present their own developments at annual international conferences, but also to learn about new trends in this area, analyze new software products, ask questions, share your own experience, and therefore move significantly in a professional direction. Thus, the importance of mastering English by future software engineers is obvious, which makes the search for effective teaching methods and techniques actual.

The problems of oral speech are the subject of many studies. In particular, the research made by Bondar O., Chirva I., Konoplenko L., Moroz I., Ruzhentseva T., Slipchenko L., Strilets, V., Synekop O. and others. The researchers justified the need for differentiated training of students; highlighted the importance of the use of educational computer technologies, developed project methodology for teaching English to future programmers. However, despite the significant value of research, the problem remains actual.



#### **4.1 The current state of teaching ESP to software engineering students. Needs analysis.**

*Particulars are not to be examined till the whole has been surveyed*

*(Dr. Samuel Johnson: Preface to Shakespeare)*

In this section, we aim at highlighting the methodological, psychological and motivational aspects related to teaching ESP, and English speaking in particular, to future software engineers. Therefore, we will examine some theoretical details of teaching speaking; analyze some survey results and practical teaching experience and learning outcomes within ESP course to future software engineers. The goal of the research behind this section was studying potential benefits of the novel approaches to form professional English language speaking competence of future software engineers and analyze the techniques that could contribute to the efficiency of the learning process. However, to view the whole picture it is necessary to understand the overall conditions of teaching ESP at Ukrainian universities in general as well as at National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”. So, let us draw our attention to the general picture of the ESP teaching process at Ukrainian universities. The report about English for Universities Project (EfU) published by The British Council in 2019 revealed the research made between the years 2015-2018 in thirty-two universities of Ukraine. In order to represent the current state of teaching ESP, we will bring some results of this vast study to exemplify the teaching side of it (Simon Borg, 2019 British Council).

The purpose was to study and improve the quality of teaching English for Specific Purposes at higher educational contexts as well as to improve English Medium Instruction (EMI). The study allowed substantial body of evidence from the observations, interviews, and questionnaires. The basic data taken from 15 institutions that joined the project revealed that there was no general view of the approach to ESP throughout the whole country, which resulted in diversity of teaching approaches at different universities. Besides, the number of hours devoted to teaching English varies from one to two hours from university to university and even within the same



institutions (1 being the most frequent number). Here I would allow myself a comment on the fact that such small number of teaching hours, basically, causes other shortcomings of the ESP teaching process at technical universities and provokes the fall of students' motivation as well as lowers their chances to cover the material, which they didn't master appropriately at school and need to catch up.

Back to the conclusions, which the above mentioned institution made during the research, is the fact that ESP teachers at Ukrainian higher educational establishments lack methodological training to enhance the delivery of the subject, they would benefit from extra training that could improve the use of technology and help them to make the lessons more entertaining.

The need for practical ESP training is not even realized by some teachers. (Simon Borg, 2019 British Council). At the same time, they may lack opportunities for practical training. Among the basic areas, where practical training is preferable for Ukrainian teachers are modern technology (application of some of the up-to-date methods and approaches that are globally accepted for teaching English). Another problem, mentioned was a mixed ability teaching. It should be mentioned, that the majority of students at technical universities show different level of English language proficiency, and this can be very challenging for teachers. Unfortunately, there is no possibility to put students into groups according to their level. Therefore, teachers are to navigate between teaching new aspects to some students and sharpening other students' knowledge, trying to add up something new. Teachers often have to come up with individual tasks for particular students, which takes extra time to plan and produce in class.

Another aspect, which requires special attention, is the ESP/EAP and study skills. The abovementioned report showed that these skills "are not widely known or practiced" in Ukraine. (Simon Borg, 2019 British Council). Besides this, teachers would also benefit from practical training on material development, as there is no singular view on how the genre and the discourse analysis has to be made for working with texts. The research revealed that progress achievement and assessment criteria should also be revised and unified.



The objectives of teaching within ESP are enabling the learners to receive information in its general sense. According to Basturkmen (2006) there are 5 broad aims in ESP teaching:

1. revealing subject-matter language use to students;
2. developing target performance competences;
3. teaching underlying knowledge;
4. developing strategic competence;
5. fostering critical thinking;

The task behind the first aim is to get students familiar with the way English language is used in the professional setting. This is a very practical task as students should be able to operate the language and get specific information from English language sources while working. The second aim focuses on how the language itself can help students to fulfill their needs within their profession, and how it can foster the development of their professional skills. The third aim represents an idea of providing students with any additional knowledge that can be important, including cultural knowledge. The fourth aim plays a pivotal role in mastering a language by students. If students have become skillful in the techniques and are equipped with the set of strategies to manage their own learning activity, they have greater chances to succeed. The fifth aim is fostering students' personal understanding of the communicative situation. They are to analyze the circumstances of the professional situation they are involved in, in order to choose the right register and vocabulary set.

The model of the teaching process within ESP is similar to any other language teaching process; it starts with a needs analysis (studying the learners' goals, needs and motivation) and moving towards the development of their learning strategies required to master the language. The latter is emphasized during the learning process, as "the ESP teacher in the classroom is a knowledge provider and a facilitator for students' learning and no more as a resourceful authority". (Kashani et al, 2007)

Scientists differentiate two types of needs to be taken into consideration while teaching ESP: target needs and learning needs (Lamri, 2016). This means that first we have to study professional situations in which future specialists will communicate, as



well as linguistic elements that they will need for that. The following subdivisions were offered: necessities, lacks and wants. Necessities include the knowledge students have to possess in order to act in a particular situation. Lacks represent the deficiencies in a certain aspect that a student might have, that is to say gaps in language proficiency or aptitude. The existing knowledge needs to be compared with the level needed and the plan to achieve that level is to be made up. Wants are students' wishes and expectations in terms of acquiring knowledge. However, students' wants do not often coincide with the shortcomings identified by a teacher or with the necessities of the target situation. Therefore, we can speak about some constraints that can be caused by the amount of hours assigned for teaching English at some particular university (which depends greatly on the financial aspect), and the impossibility to compensate those students' lacks and satisfy all their wants.

Another aspect, in particular, learning needs, determine how students will learn ESP, which becomes increasingly valuable under the described above circumstances. What needs to be clearly identified are target situations (it can be realized through questionnaires), the learners themselves (with their aptitudes and lacks as well as typical features they demonstrate while learning,) are to be examined and the learning situation, revealing the types of materials used, the surrounding environment and the time volume needed for this. All of this later on will be implemented in a syllabus.

ESP is generally taught to intermediate to advanced level students and the amount of time is rather limited. However, at some universities of Ukraine, namely National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", where our research mostly took place, English is taught throughout the complete studying process starting with general English at the first course and proceeding to English for Specific Purposes at the third course. The last two years students study English for Academic and Scientific Purposes. It is a combination of general English language skeleton with software engineering repletion (in the context of our analysis group). In order to succeed in mastering the English language, students should acquire enough knowledge of grammar and lexis (which is mostly professional terms) and get enough practice in speaking, writing, reading and listening. Teachers may experience



a lack of that kind of knowledge, having substantial levels of English language proficiency. My own personal experience teaching ESP to students of different faculties, such as Faculty of Chemical Engineering, Radio Engineering Faculty, Institute of Special Communications and Information Protection, Faculty of Instrumentation Engineering, Heat and Power Engineering Department proves this idea. Each time with the change of students' specialization, I experienced a shift of paradigm. Besides the new set of professional terminology I had to master, I also had to grasp the general idea about the type of activity that the students will have to do as a job in future. The design and maintenance of nuclear power stations (the task of specialists in nuclear power stations) is quite different from the process of writing a program code (programmers). Each time the shift took place, I had talks with both teachers of technical disciplines and students themselves about the nature of their future job. Without the general idea of what processes are behind their future job, the chances of providing them with adequate ESP training are questionable.

Therefore, as Jim Scrivener reassured us, there should not be any panic. As he states “You are an English teacher; no one expects you to know anything about the nuclear power (other than the person-in-the-street might know). You know about English and they know about the topic. Put the two together, and you have the potential for some exciting lessons.” (Scrivener, 2011, p. 324) Students of the third year of studying at National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (that is the year when they start studying ESP) possess well-grounded basis of the professional knowledge and can be active participants of the course design along with teacher of their professional disciplines.

Thus, the issue of course design and syllabus design may play an insignificant role while teaching general English. However, this is not the situation with the ESP programs, where it is one of the main prerequisites of a successful learning process. Here students are placed in the core of the learning process and they are “dynamic contributors” (Lamri, 2016). They have a certain amount of professional knowledge and therefore realize what professional problems they will need to solve in future and what particular needs they have in mastering a foreign language for professional use.



Consequently, they can contribute to the process of syllabus design as well as help to raise motivation among students of ESP course. Students can assist teachers in individualizing the learning process and prompting students' participation, contributing to the feeling of involvement in the class.

Syllabus is a document, which consists mainly of the list of all the things to be taught within the course. It has to be comprehensive; it should include the content (particular vocabulary sets, topics, structures) as well as the process involved (tasks and methods used to reach the goals); its components have to be ordered correctly and contain most essential elements presented earlier and less important ones later. This ordering can vary from being very detailed and rigid to being more general and flexible. A syllabus has to have clearly represented objectives, declared at the beginning of the document. As it is a public document, it must be available for scrutiny by teachers or university authorities to students and their parents. It may also indicate the time schedule, but this part is optional. It may also indicate a basic recommended approach or method (Ur, 1996).

The significance of the syllabus design is vital for ESP teaching. At the same time the practical teaching process in different classroom groups (for example, to software engineering students of two different groups of the same course) can show different results in terms of students' performance and the implementation of one set of skills and topics needed for one group will differ from the other. The teacher may truthfully conclude that the importance of certain aspects for various groups is different. Maybe because of such discrepancies, some teachers decide to apply personal practical teaching strategies and methods with little reference to the syllabus applied. Such a decision may lead to developing new, independent programs, based mostly on teacher's preferences and students' needs. It can contribute to creating a creative cooperative atmosphere in class, if the teacher is competent and the learners are mature people. However, it is possible that the disadvantages outweigh the advantages. (Ur, 1996, p. 180) The negative consequences can be notable gaps in language taught in class. It is preferable for both teachers and students to have a clear structure of the topics they need to cover while learning. The teacher of ESP can ground own teaching





on the course book as well, but in such circumstances there is a threat that a course book will overtake the role of the syllabus. Still the syllabus is a core around which a teacher can structure own view of the subject and add any extra information he or she views as important for mastering by students.

According to Dudley-Evans and Johns (1998), the key stages in ESP are course (and syllabus design), material selection (including production), teaching and learning and evaluation. The authors demonstrate the theoretical linear process:

Needs analysis → course design → teaching/learning → assessment → evaluation;

At the same time, they acknowledge that in the real life ESP learning process all the elements are largely interconnected. At the stage of teaching/learning both evaluation and the needs' analysis take place. At the stage of assessment, needs analysis and course design are considered. Gathering data about the course needs and evaluating the learning achievements during the course implementation allows readjusting of the content. Thus, the real-life ESP teaching process is not linear in its essence.

Software engineering – is a multibillion-dollar investment sector of the economy of any developed state. The emergence of this separate area of training is caused by the great necessity and need for specialists capable of effectively participating in the implementation of software development, operation and support processes as analysts, consultants, integrators, specifiers, architects, designers, developers, testers, quality engineers, etc. Due to this problem a separate bachelor's degree «Program Engineering» was formed. Bachelors of this speciality receive the qualification of a specialist in software development and testing, masters receive the qualification of a software engineer.

Among the specialized and professional competencies of students in the field of software engineering is the ability to conduct business negotiations with business partners, the ability to convince colleagues that the proposed solution is the best one, and the ability to negotiate with partners on basic agreements, including in English. Thus, It is crucial for professionals to possess oral English proficiency, as a large



number of software development projects are international or implemented by programmers from different countries. Therefore, the practical mastery of a foreign language is included in university program requirements. Students need to be able to communicate in English within the scope of topics due to professional topics. The task of studying the foreign language of students of this specialty involves mastering specific terms in English related to the creation of software, as well as the development of skills to communicate using terminological and thematic vocabulary for common oral and written discourse.

In addition, “group dynamics” and “communication” are two disciplines that are part of the cycle of professional-oriented and practical training, along with other disciplines like the fundamentals of programming and software engineering. This discipline comprises the following meaningful modules, the tasks of which are to master students' practices of extracting software requirements, including: interviews, scenarios, prototypes, explanatory meetings; master students' strategies of listening, persuading, and negotiating; create a formal presentation of high quality, etc.; and to prepare students for effective work with colleagues.

Speaking skills are closely related to all of the previously mentioned ones. This explains why oral communication development has received so much more attention and why studying in-language communication is now prioritized in oral communication instruction.

According to program requirements for software engineering students, generally accepted at Ukrainian technical universities, there has been a shift in focus in the training of professional communication from the study of purely lexical and grammatical English language textual features within a particular professional field of knowledge to the use of situations of professional interaction that have a broader contextual usage. This is also clearly reflected in Common European Framework of Reference for Languages (CEFR, 2018), where special attention is drawn to situational oral communication. Between the two types of oral speech (monologue and dialogue), monologue speech, as represented in the curriculum, aims at forming the competence of producing an extended descriptive monologue, extended monologue - giving



information, and extended informative monologue (putting a case e.g. in a debate). Additional skills within monologue production are the abilities to make public announcements, the ability to make a report and give a presentation in English. Dialogue speech (interaction) requirements include the ability to understand the interlocutor, to maintain a conversation, the ability to lead a formal/informal discussion (including work meetings), and the ability to exchange information and conduct and participate in interviews (interviewing and being interviewed), the ability to use means of telecommunications to exchange information. English Language Program accepted at National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, future software engineers must achieve a level of language proficiency: B2, which is the standard for a bachelor's degree. Students are to master English speaking on such level of proficiency that they are able to convey the idea orally in English, to speak clearly and consistently to the interlocutor, to build relatively long, logical statements, to describe actions, to explain facts, to clarify details, to present arguments to achieve the desired result.

Having analyzed the requirements for software engineering students, we would like to summarize them for mastering English speaking by future programmers:

**Table 1.1. Table of speaking requirements for software engineering students**

Monologue speech	Dialogue speech
<ul style="list-style-type: none"> <li>- to master the functional types of monologue, most often used in the professional sphere;</li> <li>- to speak clearly giving presentations on a wide range of academic and professional topics;</li> <li>- to produce a clear, detailed monologue on a wide range of topics related to learning and speciality;</li> <li>- to use adequate means of communication and linking devices in order to combine statements in a clear, logically unified discourse;</li> <li>- to comment on tables, graphs and</li> </ul>	<ul style="list-style-type: none"> <li>- the ability to exchange professional information during discussions, discussions related to education and profession;</li> <li>- to have functional types of dialogue, in particular those most often used in the professional sphere;</li> <li>- to engage the interlocutor in common professional activities;</li> <li>- to ask to repeat, clarify and explain the incomprehensible parts;</li> <li>- encourage the interlocutor to provide detailed information;</li> <li>- to clearly explain their point of view regarding relevant professional</li> </ul>



<p>diagrams;</p> <ul style="list-style-type: none"> <li>- to adhere to the theme of the speech;</li> <li>- to clarify, supplement, develop the statement of the thesis;</li> <li>- to paraphrase the statement.</li> </ul>	<p>topics (for example, at conferences, discussions in the educational environment), giving appropriate explanations and arguments;</p> <ul style="list-style-type: none"> <li>- to comment on the views of other specialists;</li> <li>- ask relevant, specific questions;</li> <li>- to answer questions quickly and correctly;</li> <li>- conduct telephone conversations on professional topics;</li> <li>- to maintain and conclude the conversation;</li> </ul>
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The abovementioned table outlines skills required for future software engineering specialists, including mastering functional types of monologue, giving clear presentations on various topics, using appropriate communication tools, commenting on tables and diagrams, adhering to the theme, clarifying and developing thesis statements, and paraphrasing. It also emphasizes the ability to exchange professional information during discussions, engage in common professional activities, clarify incomprehensible parts, provide detailed information, explain their point of view, comment on other specialists' views, ask specific questions, conduct telephone conversations, and maintain and conclude conversations.

To get the actual picture of the needs of future software engineers, we made a survey of 56 software engineers. The results showed that 100% of respondents believe that knowledge of English is very important for the professional activity of the programmer, 87.5% of respondents think that while recruiting software engineers English proficiency plays an important role, and only 12.5% believe that this knowledge is not very important. Almost 94% of the surveyed specialists continued to learn the language after graduating from the university mainly took local English courses, attended courses at the workplace or continued self-education. Only half of the programmers believe that their knowledge of English is sufficient to communicate in the professional field with native speakers.

As for language skills, according to the results of the questionnaire, it was



determined that 81.2% of software engineers possess English reading skills at the best level, 12.5% – writing skills and only 6.2% – speaking skills. The vast majority of respondents attribute the greatest difficulties to speaking (62, 5%) and listening (25%), and only 6, 2% – to writing and reading. The greatest difficulties while creating an utterance in English they associate with the lack of vocabulary, the insufficient knowledge of necessary sentence structures, the fear to speak with native speakers (lack of confidence).

We also made a survey of students of the third course studying ESP at National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” as well as at Chernihiv Polytechnic National University (overall number is 126 students). They acknowledge the obvious necessity of linguistic proficiency for their future career (77%). Only 11.4% believe that they speak English at a sufficient level to communicate with native speakers, 50% – think that the level of their speaking skills is insufficient and 38.5% – consider it not quite sufficient. 54% of students assign most difficulties to English speaking, 28% - to writing in English, 13% - to listening and 5% - to reading in English.

The results of the survey of ESP teachers showed that 40% of them consider the most difficult activity for students is giving a speech on professional topics, 27% - associate the difficulties with listening tasks, 27% - with writing tasks and 6% - with reading. Monologue speech is the biggest difficulty for students (41%) compared to dialogue speech, broadcasting (26%), for the rest (33%) both types are complex equally. According to the survey, while generating an English language utterance, students experience the lack of vocabulary means to express themselves on professional topics, have problems applying linking devices, choosing proper grammatical structures, etc.

As for the textbooks that are used in teaching ESP, according to the survey, the majority of teachers, namely 44%, prefer to use domestic and foreign-language publications equally, 35.4% – use only English-language publications, 22.5% – mostly domestic and partially English-language publications and only 8.6% – use only domestic publications. However, over the last years the percentage of using foreign



publications has increased radically.

Summarizing the above mentioned, we can state the following: currently different universities practice different approaches in teaching ESP to future software engineers, some of them start teaching ESP from the first course, whereas others start with general English and begin teaching ESP at the third course. While teaching ESP to software engineering students, it is difficult to overestimate the importance of needs analysis, as students (as well as professional disciplines' teachers) are dynamic contributors to the learning process, being well informed and having professional knowledge of the subject matter. Developing an appropriate course and syllabus design is a crucial aspect for successful teaching within ESP. Speaking is a necessary skill for such specialists, which increases their interest and motivation to learn.

The requirements include students' ability to exchange professional information during discussions, the ability to speak clearly when making presentations on a variety of academic and professional subjects, producing a clear, in-depth monologue on a variety of subjects linked to learning and specialization, employ appropriate communication tools and linking devices to combine ideas into a coherent discourse, etc.

As survey results show, the main difficulties in speaking are connected with the lack of vocabulary, problems with sentence structures, and the lack of confidence while speaking.

#### **4.2. The mystery of speaking – psychological aspects.**

So, let us take a deeper look at speaking as a wondrous activity, which has been the matter of research for many decades.

Apparently, the outcome of productive skills (speaking, writing) is the text (oral or written) whereas the product of receptive skills (listening and reading) is the mental conclusion that a person arrives at while listening or reading. At the same time, the subject of conversation is a thought. A thought is the result of productive thinking.



However, it can include both productive and reproductive elements, since the reflection of the thoughts of others is an element of reproductive thinking. Therefore, the enduring connection between the language and the thought is unchangeable.

In this context, it is necessary to talk about the activation of the mind before the conversation begins. Using modern cybernetic terminology, we can talk about three codes. Under the code, one can understand the flow of signals of some material nature and the rules of its combination. In our case, these signals are letters, sounds and speaking movements.

There are certain modes of transition from the signals of one material nature to the signal of another. Therefore, the transition from letters to sounds is the process of reading, the transition from speech movements to sounds – oral speech, and the transition from sounds to letters is writing.

Of course, mastering any language implies mastering all three codes. However, the basic long-term memory for words is formed precisely in the kinesthetic analyzer. So, speaking is responsible for forming a person's vocabulary, whereas visual and auditory analyzers form memory for recognizing written or heard words.

In psychology, there are two types of memory: long-term (permanent) and operational (short-term). The first type of memory holds language and speech knowledge acquired by students, which is extracted when necessary.

Besides, operative (short-term) memory plays an important role in oral speech mechanism, which works for a couple of seconds. Its essence can be reduced to two functions: 1) while making oral sentences you need to retain the already spoken words; 2) to predict the words that will be spoken. The retention and prediction of words ensures their alignment in the syntax scheme.

The structure of memory, according to the research of psychologists, consists of the following links: the intake of information, perception, storage, reproduction and use of the received data. Oral monologue speech, as an active process of using language resources, allows to engage all of the above five components.

It is believed that the usage of large information blocks can reduce the load on memory and contribute to better information processing, and therefore teachers are



advised to submit the material in an enlarged layout. This is also supported by the experience of Ségère, described by J. Piaget (Clarke, 1998), that when studying a foreign language, memorization per unit of time looks like this: letters – 7%, compositions – 11%, words – 25%, groups of words – 78%, sentences – 37%. Thus, the most productive option of teaching students oral monologue speech seems to be the use of thematic blocks of words or phrases, combined on a certain basis. This approves the use of such scaffolding tools as speaking frames in teaching speaking to software engineering students (Saienکو & Nazarenko, 2021; Poehner, 2018).

Oral speech is a way of forming and formulating a thought that plays a decisive role, demonstrating the level of language competence. Oral speech activity is described as the process of active, targeted, language- and situation-determined interaction with each other. Speech production involves four major processes: conceptualization, formulation, articulation and self-monitoring. (Carter & Nunan, 2001)

According to the research of psycholinguists, the basic problem is to determine whether speaking and listening are two different skills, constricted, but different from each other or they are only different manifestations of one linguistic ability. The term language activity could be seen as a speech phenomenon itself, which represents special activity (along with cognitive activity, work activity etc.). Under such circumstances, language activity is organized in the same way as any other activity, and can be characterized by:

- objective motivation;
- purposeful nature;
- heuristic character.

The inner plan of speech, partly hidden and unconscious, is the mental processes that provide it. The psyche and activity are unique, but not identical: the psyche is formed and developed in activity. Activity is regulated and motivated mentally. The inner side of speech activity provides the interaction of cognitive, emotional and regulatory-voluntary processes. Characterizing the interaction of code transitions in the processes of understanding and speech generation, scientists singled out four steps on





the way to the language of the brain: language - sound speech - inner speech - intelligence. The juxtaposition of two discrete codes with the language of the intellect gave rise to a mixed code - internal speech, which must be considered as a universal object code that became a mediator not only between oral and written speech, but also between national languages. (Nikolaeva, 2011). That last point is crucial to our study of speech in foreign languages.

In internal speech the text is condensed into a certain concept – a semantic concentrate, which accommodates its main content. Perceiving any text (whether during reading or listening) a person forms a projection of this text, a certain "mental formation", that is, the meaning of the text as a concept, a holistic formation. The concept can be renewed in words that do not coincide literally, but integrate the same meaning.

Speech itself is an external process, psychologically preceded by internal speech, which is in direct connection with thinking. For the development of speech, it is not so much speech, which is necessary, but listening. Speaking requires auditory control, and for this it is necessary to have in the psyche of a person auditory verbal notions, closely related to articulatory-moving notions.

As already mentioned, speech is the initial process of communication that stimulates listening. The simplest unit of speech is “language act” with its communicative content – meaning of pronunciation and communicative form – lexicogrammatical and intonational design of oral language action.

The definition of oral speech as an activity, and not simply as a process, means that we have to consider both the external and the internal sides of this phenomenon, that is, the mechanism of generating meaning when its programming, planning and control is carried out. Thus, psychologists (Vygotsky, 2012) suggest that the internal speech, shortened in structure and predictive in function, represents an important link between the original idea and its embodiment in final expression.

Analyzing speech activity, the scientist proposed the following scheme: motive – thought – internal speech – semantic plan – external speech. Continuing to study this issue, scientists developed a generalized model of producing an oral utterance, which



does not depend on the language in which it is performed. According to this model, speech consists of the following stages:

1. The system of motives (factors that form the motivation of a speech act);
2. speech (communicative) intention stage
3. internal speech activity program (mediating speech intention with personal senses that are fixed in certain subjective code units);
4. implementation of the internal program, which involves two relatively independent processes: - semantic implementation - grammatical implementation;
5. acoustic-articulation program;
6. sound performance of the utterance.

Subsequently, scientists proposed a scheme for speech generation, based on a practical approach to speech and took into account the peculiarities of generating an expression in a foreign language. Several stages of speech generation are distinguished:

1. motivational
2. analytic-synthetic
3. executive.

The motivational level of speech generation is realized in a complex interaction of needs, motives and aims as a future result of actions. The motives and needs engage a person in one or another activity. Motivation is extremely important for speaking. The first level of the scheme of speech generation combines a motive and a communicative intention. The motive explains the nature of this speech act. Communicative intention determines what purpose the speaker pursues.

It is the ability to evaluate the situation and build the adequate expression, based on the communicative situation and its purpose, which is important. These skills are based on the feedback - the signals that the speaker receives from the listener and external circumstances. The speaker has the ability to modify his or her expressions and behavior according to these signals in order to provide corresponding and effective utterances based on his/her intentions.

At the second level – forming/formulating – a thought is being formulated by means of speech. It is the starting point of programming. It outlines the basic thesis of



the text, which is the plan of the content of the text. Thus, at this phase, the selection of the necessary semantic complex takes place and lexical design is fulfilled. It combines lexical, articulatory and grammatical design of expression. It is pointed out that these two phases are monolithic, inseparably related to each other.

Therefore, we can conclude this overview by saying that oral speech is probably the most mysterious process, which involves the inner side and the outer side. The inner plan of speech is a complex system of cognitive, emotional, and regulatory-voluntary processes, forming and developing within the psyche and activity. This inner side of speech activity involves language-sensory, perceptive, thinking, emotional, and regulatory processes. Memory plays a great role as well. The model outlines speech stages, including motives, intention, internal speech activity program, implementation, acoustic-articulation program, and sound performance, mediated by personal senses and influenced by subjective code units.

As we can see, speaking is quite a sophisticated process requiring a set of background knowledge as well as the ability to evaluate the current speaking situation, choose language means and produce adequate reaction using sounds. Speaking a foreign language is psychologically even more challenging.

Teaching ESP to software engineering students is a fascinating and occasionally difficult task. They generally have substantial expertise in Mathematics and Computer Science; they are generally motivated and have a high level of analytical thinking abilities. (Nazarenko, 2019) Still, teachers do face a variety of challenges in the classroom when it comes to helping students improve their English-speaking abilities. Thus, we want to draw attention to some individual thinking characteristics to be given attention while teaching ESP speaking to software engineering students.

First, according to conversations with professional programmers and teachers of special disciplines, the communication of students of this specialty in a professional environment is often fragmented; they understand each other from the half-word. Fragments of sentences, separate terms, program names, and actions they perform mostly prevail in their conversations. This is due to the peculiarities of the professional activities of these specialists, because, most of the working time programmers spend



in the world of code, their only interlocutors are methods, objects, modules, packages, etc.

Besides, psychological research shows that programmers have a low level of social interaction. (Cogut, 2014). However, during the beginning as well as at the last stage of a software project development, software engineering specialists require communication (including communication in English). They need to collect data and evaluate project requirements, specify the target needs from future software users as well as discuss the functionality of a future software program. Moreover, software developers have to participate in regular group discussions between the programmers, clients, intermediaries, etc. If the communication takes place in English, which is an integral part of the professional activities in the field of programming, difficulties in building a consistent, logical utterance will be worsened by the need of conducting foreign language activities within the profession. In particular, they need to possess developed abilities to articulate their own opinions in a foreign language, support their professional positions, and create reports (Nazarenko, 2018).

Even though software engineering students can share common features and are traditionally inclined to analytical thinking style, they still differ in their thinking processes, such as thinking depth, thinking sequencing, thinking independence, thinking criticality, as thinking is formed as the result of their intellectual activity, educational processes, life experience, etc. Teachers are to account for the differences in students' behaviors that may be caused by their thinking peculiarities in order to make use of them while teaching ESP speaking. Let us briefly describe those.

One feature that defines *thinking* is its *depth*. It gives students the capacity to investigate the essence of the phenomenon, uncover its causes, examine the relationships between the events that make up objective reality, and forecast future outcomes. Thinking superficially is the antithesis of this characteristic. Students that possess this type of thinking are content to know only a portion of a subject without being able to distinguish between what has been proven and what has not. In terms of language learning, students, who possess a deep level of thinking, take longer to organize their English speech, whereas students who think superficially tend to put less



pressure on themselves and speak more freely.

Another feature to be given attention is *thinking sequencing*. It means that they have different views on grounding their thoughts and concluding. They differ in the ability to stick to the topic without switching attention to another aspect and thus plan their thoughts differently which results in different organization of students' speech.

Each student has his/her own level of *thinking independence*. By this, we understand students' ability to show initiative in dealing with the tasks. If a students' thinking can be characterized as independent, he/she can not only make use of new knowledge but also acts creatively in exploring reality, puts forward new explanations, expresses his personal judgements about the reality. Such features can help students to express new ideas, which are often rather innovative; if the task allows them they are able to give a fresh look at things. In terms of speaking English, practice shows that the more thinking independence a student has, the more chances for him to be active and not afraid to speak in a creative in-class group activity, setting an example for other students.

Another feature closely related to the previous one, is *thinking criticality*. (Pasichnyk et al., 2015). This feature of thinking accounts for the ability of a person to reconsider his/her views, theories and vary them if they come into conflict with new knowledge. Scientists and technologists who are innovators exhibit this way of thinking. They boldly break the previous guidelines and present fresh ideas, and they do not hesitate to question. Instructors must design assignments so that students may engage in critical thinking exercises by providing them with group projects or team activities with opposing hypotheses. If students are motivated by the topic of a speaking activity, it greatly increases the chances for good speaking practice in class.

The opposite to this feature of thinking is *thinking non-criticality*. There are always a number of students, who fall under the influence of other students' opinions without analyzing them thoroughly because of this thinking characteristic. They promptly accept other people's thoughts without checking them. Such students have difficulties with generating their own ideas for a group speaking project or class debates.



A very important individual thinking characteristic is *thinking flexibility*. It is responsible for the ability of a person to change the way to solve a problem in case it is wrong or inadequate. Students, who possess a high level of thinking flexibility, are adaptable when it comes to fixing their errors and readily embrace a variety of speaking assignments and presentation styles. The opposite thinking characteristic is called *thinking rigidity*, and it refers to a student's difficulty to quickly adapt to new guidelines and assignments. Such students typically have set work styles that they find comfortable, and they may struggle with self-correction. (Pasichnyk et al., 2015)

Summarizing the above mentioned, we can say that speaking is a very complex and multi-level activity and speaking in a foreign language therefore is one of the most challenging skills to master. Speaking in a foreign language requires complex cognitive processes that involve three stages. Before delivering the utterance, inner speech organization is required, which includes gathering necessary vocabulary and organizing the grammar skeleton. Therefore, while training future software engineers in English for professional goals, such organizational structures as speaking frames can be applied. Besides, while leading a speaking task in class, teachers are to account for different levels of thinking characteristics (described above) that students possess, adjusting the speaking procedure to a particular group of students.

### **4.3. Methodological aspects of teaching ESP speaking**

Among all the four language skills, speaking seems to be the most important. When people know a foreign language, they he/she is a speaker. Classwork activities for practicing speaking are more difficult to organize and conduct compared with listening, reading or writing. Moreover, each student group will have a different outcome after the same classroom speaking activities, and it is difficult to foresee how the lesson might turn out. However, I believe, if it does work out well, it turns into one of the most rewarding classroom activities that can boost enthusiasm, create a unique atmosphere and set the good starting point for cooperation in further activities (Ur,



2012).

So, let us analyze what it takes to have a successful speaking activity in class. According to Penny Ur (2012), such activities are successful if several conditions are met. Learners should talk a lot, teacher talking time is limited, students' participation is even (discussion is not dominated by more talkative students). Besides, the author mentions that a high level of motivation is a key feature, where students show enthusiasm in speaking and seem attracted by the content of the talk. Language level has to be at an acceptable level of accuracy.

At the same time, the research mentions some of the problems of classroom speaking activities. Among them is inhibition - students are too preoccupied with how they show themselves in public (classroom), worry a lot about making mistakes or being judged and assessed as well as being simply shy to speak. Another problem in speaking is the lack of something to say or they may not have the motivation to express themselves. Some students dominate in classroom speaking activities. If they are effective speakers, this may result in low or uneven participation of others, which does not provide necessary conditions for everyone to be involved. Lastly, in-class native language use can also reduce foreign language speaking time at the lesson. Teachers' task here is to stimulate foreign language use as much as possible and make it a classroom habit (Ur, 2012).

In order to solve some problems in teaching speaking it is advisable to use more group work activities. By doing so, teachers will provide students with the possibility to express themselves with less anxiety. It is evident that students will switch to their native language at times, as a teacher does not control all of this activity. However, the overall oral practice is still likely to increase. Furthermore, it is recommended that the speaking exercise be conducted using simpler vocabulary. Students are to be able to speak fluently with minimum hesitation. Some scaffolding techniques for vocabulary use might be appropriate before the oral practice task. (Saienko & Nazarenko, 2019) Whatever we do in the classroom, we must always keep in mind that curiosity is the "driving force" behind all learning. Therefore, speaking activities are to be interesting and in the context of teaching ESP, related to future professional life of software



developers.

Practice shows that software engineering students tend to be very critical to the tasks, which have little relation to their future profession, since they possess the intelligence to refrain from expressing any incorrect opinions on a subject about which they know very little. Therefore, another important aspect is giving right instructions about group participation and providing some training in discussion for students, so they can be confident they are doing everything in the right way. The possibility for native language use in class should be limited. Teachers should not only set examples of good language but also monitor students and be ready to provide assistance when needed.

The ultimate goal of teaching speaking within ESP is to provide future software engineers with the ability to speak fluently. As Jeremy Harmer (2001) states, besides the knowledge of language features, speaking fluently presupposes the ability to process information immediately. Let us go over the features that describe a fluent English speaker.

One of the features that shows up an effective speaker is the ability to use connected speech. In the connected speech, sounds are modified, omitted, added or weakened. Another feature is the ability of an experienced speaker to change the pitch and stress of certain sounds, modify the volume and speed of the utterance, use facial expression with the purpose to convey the meaning. Lexis and grammar usage can also mark a proficient speaker. Moreover, an effective speaker uses appropriate negotiatory language to clarify the meaning of the unknown if needed. (Harmer, 2001).

Besides the above mentioned features, success in speaking also depends on the language processing, which presupposes creating a coherent sentence in a student's head and presenting it in the comprehensible and meaningful form. To develop this skill, frequent in-class speaking activities (when students can practice for fluency) are necessary. Language processing includes language units' retrieval, forming syntactically appropriate sentences. That is to say, students need the chance for in-class interaction with other students, practicing listening and speaking (Harmer, 2011).

Speaking in a foreign language does not differ from speaking one's own





language in terms of mental processing. Speakers go through the process of conceptualizing, then formulating and articulating. Self-monitoring takes place on the stage of articulating and adjusting the message to the needs of a particular communicative situation, deciding on the conversational turns. So, the processes involved in native language speaking and second language speaking are the same. However, what is different is the amount of students' knowledge of the language, e.g. grammar and vocabulary. Students are often simply short for words (Thornbury, 2011).

This is proved by our survey, which was made among software engineering students between January and March 2024 (65 students), 71% of whom found vocabulary shortage their main problem while speaking.

At the same time, the problem might not be the absence of words but the “unavailability” of the knowledge, which has not been integrated in their existing system of knowledge. In order to use the language on the spot, a person has to retrieve the appropriate set of words immediately and arrange grammar. Effective speakers do it automatically. This process may be complicated by language 1 (native language) interference, as grammar rules and language structures in the language 1 and a target language are different (Thornbury, 2011).

Therefore, if a learner wants to say everything correctly or there is a threat to be humiliated, students take much time to formulate the utterance. This means that the self-monitoring process is overused and lasts longer than it should, causing lack of fluency. In other words, students experience problems with distribution of attention between the planning of the utterance and its articulation.

Contrastingly, other students practice a different approach. They prefer a limited set of vocabulary for the sake of fluency. Different students apply various strategies in order to communicate the idea. Therefore, students need to be aware of their own learning peculiarities and should be taught how to apply communicative strategies in speaking tasks. The ability of students to use them is called strategic competence. Among them are: word coinage (e.g. programmists for programmers), foreignizing words, approximation, using all-purpose words, language switch, using paralinguistic means (gestures, mime, etc.) and using avoidance strategy (Thornbury, 2011).



Another strategy is a discourse strategy, when an inexperienced speaker, lacking the necessary language, simply borrows words from the collocutor. It might sound a little strange, but it allows them to deliver the message.

However, researchers question the long-term effectiveness of this strategy. Fossilization can provide inexperienced speakers with some immediate decisions but ultimately reduce their ability to progress.

So, we can conclude by saying that while teaching speaking in a foreign language it is necessary to keep a balance between fluency and accuracy as the one intimidates the other. Besides, students should be able to apply different communicative strategies to reach the purpose of communication, and should not be afraid to speak in class, stimulated by interesting (group or team) activities. In addition to this, speaking for fluency has to be practiced in easier language, giving students the possibility to keep speaking for longer times. While teaching ESP speaking to software engineering students particular attention should be given to enlarging students' vocabulary.

#### **4.4. Motivational aspects of teaching ESP speaking**

As professor Nikolayeva S. used to say to our group of postgraduate students: "Remember, you may set the task appropriately and choose the right topic, situation, and roles for your speaking task in class. However, if students simply do not want to speak they will not." That is the challenge of this wondrous activity (speaking). So, what motivates students to talk in class as well as to do other tasks? In this section, we will analyze motivation in learning and speaking activities.

Motivation is believed to determine whether every difficult endeavor is successful or not. This view is legitimate. Yet motivation is by far a larger concept.

There are different approaches to determine motivation; among them are behavioristic perspective, cognitive perspective, and a constructivist view on motivation.



According to behavioristic perspective, motivation is the anticipation of reward (Brown, 2007). That is to say, people operate in a way that will result in additional reinforcement because they are motivated to receive positive reinforcement and because they have previously experienced favorable rewards for their behavior. This motivation is external with distinct controlling forces. Students expect positive assessment or acclaim for their success.

According to cognitive theory, motivation gives significantly more weight to personal choices: the decisions people make about the experiences and objectives they will pursue or forego, as well as the amount of effort they will put forth in that regard.

Scientists point out several underlying needs or drives as a compelling force behind our decisions. In this view of motivation, students' level of effort is increased and this type is mostly internal. Such students often ask questions for the sake of satisfying their curiosity needs and take the risks to explore something new on their own.

The needs are the following:

- the need for exploration and examining the unknown;
- the need for manipulation
- the need to cause change;
- the need for activity (both physical and mental);
- the need for stimulation (including stimulation by other people, ideas, thoughts);
- the need for knowledge: the necessity of interpreting and internalizing research findings, resolving conflicts, and looking for solutions; the need for ego enhancement; the need to be approved by others (Brown, 2007).

There is a big difference in the attitude of students to their assignments, because some people are simply more curious than others are. Curiosity answers the question: “Why do people continue to engage in seemingly arbitrary behaviors when there are more significant objectives and no outside rewards?” According to Kashdan, curiosity is the tendency to notice, seek, value, and embrace novelty, uncertainty and challenge. (Kashdan, 2009). People, who are curious, are likely to have a wide range of positive



results because of exploring new and challenging topics throughout their lives.

Research shows that curious people tend to have better academic achievements, higher subjective well-being, and a stronger sense of their daily lives' value. Diving deeper in the issue of curiosity, we can point out Litman's I-D model of curiosity, distinguishing curiosity as a feeling of interest (I-curiosity), and curiosity as a feeling of deprivation (D-curiosity). Interest is curiosity, which is motivated by the desire to acquire information for its own sake whereas deprivation is curiosity driven by a desire to lessen the uncertainty and frustration brought on by knowledge gaps (Ryan, 2019).

The majority of studies on individual differences in curiosity have been done in conjunction with studies on openness to new experiences. Researchers McCrae and Sutin (2009) describe open people as "imaginative, sensitive to art and beauty, emotionally differentiated, behaviorally flexible, intellectually curious, and liberal in values. At the same time, closed people are down-to-earth, uninterested in art, shallow in affect, set in their ways, lacking curiosity, and traditional in values. (McCrae & Sutin, 2009, 258 p.).

Although scientists find openness to new experiences quite a controversial aspect and define the construct differently, still it is proven to be an important source of variability in curiosity. People with a high level of openness to experience are more creative, they value novelty and believe that it is worthwhile to challenge preconceived notions and try something new.

In a constructivist view, motivation emphasizes personal choices made by each individual even more. Because every individual has distinct motivations, they all respond to their surroundings in different ways. However, these unique decisions are made within the cultural and social context.

Thus, the needs concept of motivation explains why students act the way they do, seeking self-esteem, trying to meet the need of exploration, stimulation, and knowledge. Besides, motivation can be situational, global, or task-focused. Learning a foreign language necessitates some combination of the three motivational levels. A student may possess a high level of "global" motivation, but low "task" motivation, e.g. to fulfill a particular task.



Motivation is also described in terms of intrinsic and extrinsic motives of the learner. Intrinsically motivated students seek their goals for their own self-perceived wants and objectives, whereas extrinsically motivated learners pursue their goals in order to obtain rewards from outside. They wish to get good grades, prizes, certain positive feedback, money – are examples of extrinsic rewards. If a student tends to succeed only to avoid punishment, it is also extrinsic motivation (Ryan, 2019).

Researchers tend to favor intrinsic orientations especially for long-term retention. (Brown, 2007). According to his theory of hierarchy of needs, people are ultimately motivated to achieve self-actualization as soon as their basic, physical, safety, and community needs are met. Releasing children and adults from the grip of incentives and penalties is one of the best strategies to support their cognitive and learning development. One of the biggest negative sides of extrinsic motivation is its addictive nature. Increasing students' goal-orientation, personalizing the learning process, and fostering their sense of autonomy and self-worth – are the factors able to raise intrinsic motivation, and therefore, should be nurtured within the classroom.

Therefore, it has been proven that effective learners have the following features: they are highly motivated, they are genuinely eager to learn, and have powerful reasons for doing so (Harmer, 2007). Students may simply love the subject or be interested in it, they may have a practical reason for it (e.g. to get a particular job in a foreign company – instrumental motivation) etc. Students wishing to integrate into the culture of English speakers are more highly motivated and learn more successfully (integrative motivation). Integrative motivation tends to be stronger than instrumental. However, whatever kind of motivation dominates, highly motivated students do better than those who lack motivation.

Thus, teachers should stimulate students' motivation in class. It is necessary to create a positive attitude towards the subject and a nice friendly atmosphere in class. It is indispensable to pique curiosity and encourage students' participation. It could be done by choosing the interest-generating topic, the context and the appropriate activity for students to be encouraged in the learning process. It is teachers' personalities, combining humor and seriousness, positive attitude to class participation, the variety



of techniques to practice the target language, and the ability to see each student as a grown-up personality with his/her individual peculiarities that can create such an involving atmosphere and boost motivation in class. However, at the same time they are not 100 percent responsible for their students' motivation, they can only encourage, though the genuine motivation comes from within the individual.

University education presupposes a significant amount of self-studying. Successful learners are students who do not just wait to be involved or motivated, but they take responsibility for their actions, put in hours to do home tasks, think about the suitable strategies that they could apply, in order to reach the best learning results. Students need to realize that they must be ready to shoulder some of the burden in the process of learning English. Learning is a partnership between a student and a teacher. Students coming from particular backgrounds may consider teachers responsible for providing learning, not making efforts to be involved. In such cases, it is not enough to try to impose a pattern of learner independence (Harmer, 2007). It is advisable to start with some solowork in class or assigning individual homework to students, so they can gradually move in the direction of independent task fulfillment. It is crucial that teachers assign tasks that are appropriate for students, within their grasp, and do not take up excessive amounts of time—or too little. Tasks should encourage students' autonomy.

Scientists prove that self-directed learning is carried out on the basis of andragogical principles and characterizes it as the process in which individuals, with or without the help of others, take responsibility for identifying personal learning needs, formulating the educational objective, identifying educational resources, choosing and applying appropriate technologies, as well as for evaluating learning results. (Knowles, 2015).

At the same time, teachers have a responsibility to help students take ownership of their education by helping them select assignments to complete at home or in class and by being available to talk about their unique study plans. The most crucial thing is to act appropriately and with awareness of their own expectations for their own level of development.



In this context, it is necessary to address self-management, the science, which deals with describing the ability to regulate one's emotions, thoughts, and behaviors effectively in different situations.

The appeal to the postulates of this discipline correlates with the fact that the training of future programming specialists in English is now mainly within the framework of a personal-activity approach, which envisages the maximum involvement of students' activity in the conscious work on the mastery of the language. The personal component of this approach involves positioning the student as the epicenter of the learning process. Scientists put in the forefront the ability of the individual to occupy a certain position. The personality-oriented approach to education creates an environment that is conducive to the identification and activation of the student's intrinsic learning characteristics, such as motivation, goal-setting, and the establishment of self-realization and contemplation spaces.

In the circumstances of limited time (two hours per week for the English lesson), it is the rationalization of the learning process and independence in the mastery of English language come to the fore. Students should consciously deal with the problem of mastering the professional terminology of the English language, typical situations of professional communication. To do this, it is necessary to allocate time for the acquisition of new words, creating new cognitive connections with already known lexical units to ensure the strength of knowledge. Mastering oral speech under these conditions is an even more complex process in organizational terms. Oral speech is closely related to listening, and therefore, requires additional time dedicated to the listening to English language speech, which requires skills of effective self-management.

Self-management is seen as self-activity, personal technology of self-control. The theory and practice of management itself encompass such components as self-development, self-organization, self-management, self-regulation and self-education. The object of self-management is the human being, as a complex bio-social and spiritual system, and the subject, its activity on self-administration of its life activity in achieving the goals. Self-regulation is viewed as self-management at the subconscious



level, analysis – as a constant evaluation of their actions and abilities, adaptation – as the means, rationalization - as the improvement of their activities and development – as conscious change of themselves

Among the tasks of self-government are the following: study and analysis of own (in the context of the article of the educational) activities, determination with the elements that are subject to correction, development of a plan of correction and the exercise of control of own activities. Self-management activity is the process of making independent efforts to direct one's own actions to a goal. It is characterized by greater human activity compared to external influence. Self-management performs various functions, the main of which is the collection of information by the person about his/her internal state and choosing the trajectory of movement towards the goal, information analysis, and decision-making on the correction of the activity, organization of everyday management activities.

Self-organization of work activity is an important element of developing students' strategic competence skills. Self-organization is provided by regulated conscious activity with the involvement of internal mechanisms, such as autonomy, independence, perseverance, initiative, responsibility. With the involvement of these mechanisms, the student plans and performs an optimal program of self-development. Taking into account the specific circumstances, the individual, using his own mechanisms of self-organization, chooses his own path of professional development, expressed in the desire to work on further self-improvement. Key role in this aspect is played by the initiative of the person and the coincidence of personal goals with the main goals of educational activities (Kolpakov, 2008).

The main categories of self-organization include the ability to use time effectively, the ability to distinguish between the main and secondary goals, and to concentrate on the main goal, the capacity to do everything gradually and to analyze the time spent. In the process of working on self-organization, such personal features as the level of willful effort and perseverance come forward. A survey conducted among 172 students of three institutions of higher education Bobilev A.V. found that students identified the ability to force themselves to sit down for work and not to be





distracted from its performance to be the most difficult (72% of students). At the same time, almost unanimously (92% of surveyed students) defined “personal efforts” as a prerequisite for the effectiveness of independent work (Kolpakov, 2008, 31p.).

According to this survey, determination is not formed sufficiently among students, which indicates the inability to set clear goals during work and to direct their activities to their achievement. Regarding self-organization, it was established that there is a lack of skills to involve external resources in the planning of own activities (taking notes of things to be done). Therefore, personal planning can contribute to the process of managing one's own activity.

Another important mechanism of self-development is reflection. It's intriguing that this function is activated and developed in practical activity at the point when a complication arises. It is then that reflection helps to establish the causes of the complication and to correct the course of further actions. However, reflection is a skill that needs to be developed in practice, the very understanding of this mechanism is insufficient (Kolpakov, 2008).

Targeting plays a stimulating role, defining further activities. A goal is a desired, proposed idea of the result. Understanding the aim is crucial because it forms the cornerstone of the self-government mechanism and dictates how the management system is organized. At the same time, in order to achieve a goal, a person needs to set it first, believe in its achievement and perform management actions.

The task of learning is to create a process that would involve students in a conscious goal-setting process, analysis of the subject of study, creative search during the solution of a particular problem or task, error analysis (reflection). It is very important to put in the minds of students the desire to become the primary cause and the determining subject of what is happening to them. In such a way, students acquire both knowledge and the abilities necessary for the educational activity during the studying process. The development of the individual as a person and the subject of their own activities is the larger educational objective.

Numerous studies demonstrate that human thinking processes are the root cause of the challenges in reaching the peak of human progress. It is extremely difficult to



reconstruct unconscious thinking, by destroying old stereotypes of thinking and by forming new ones. The methods for resolving problems can be modeled after effective professional task solutions, which take place in the life of a person. Understanding the variables influencing the productivity of human activity makes this easier.

Because of this, it is crucial to help students develop a positive self-image of themselves as engaged individuals throughout their educational journey and to instill this self-image into their unconscious minds. It is most attainable when a person is a student, attracting all of their mental potential and reaching their maximum level of growth (attention, memory, etc.).

To conclude, self-management postulates are crucial for the development of individuals in general as well as future software engineers in their learning activity to master English speech. Practicing them in their everyday life can help students manage their activities, develop personal trajectories, plan correcting activities, and make appropriate decisions. In today's rapidly developing world, the need for educated specialists with high self-organization and self-analysis skills remains unchanged, as they can positively impact society and improve themselves. Understanding and applying these postulates is essential for success in the modern world.

## **Conclusions**

Having analyzed the above mentioned, we have come to the following conclusions:

1. At present, there is no single view on the amount of hours necessary for teaching ESP to software engineering students at different Ukrainian universities. At some universities the discipline is taught starting from year 1, whereas at others – from year 3.

2. Having a high level of English language knowledge as well as the ability to speak English fluently is an extremely necessary task for such specialists as it can contribute greatly to students' career development and help to improve their



professional level. This has been proved by several surveys of professional programmers and students.

3. It is challenging to overstate the value of needs analysis when teaching ESP to software engineering students because both students and teachers of professional disciplines are knowledgeable in the field and should be questioned while planning an ESP course.

4. The requirements include students' ability to exchange professional information during discussions, the ability to speak clearly when making presentations on a variety of academic and professional subjects, producing a clear, in-depth monologue on a variety of subjects linked to learning and specialization, employ appropriate communication tools and linking devices to combine ideas into a coherent discourse, etc.

5. While producing an oral utterance, students mainly suffer from the lack of vocabulary, have problems with sentence structures, and the lack of confidence while speaking.

6. Psychologically speaking is of the most mysterious processes, including several phases that flow almost simultaneously in a person's mind. Inner speech organization, which entails compiling the appropriate vocabulary and setting up the grammar skeleton, is necessary prior to delivering the utterance. Therefore, organizational structures like speaking frames can be used when teaching future software engineers to speak English. In addition to this, when guiding a speaking exercise in class, teachers should take into consideration the various thinking styles that students have, tailoring the speaking exercise to the needs of each individual student group. Software engineering students mostly possess analytical thinking, yet they are all different in terms of such individual thinking characteristics as thinking depth, thinking criticality, thinking independence etc., which partly explains different outcomes of in-class speaking activities among different students.

7. While teaching speaking in a foreign language it is necessary to keep a balance between fluency and accuracy as the one intimidates the other. In addition, students ought to be able to use a variety of communication techniques to accomplish their



goals, speak up in class without fear, and be inspired by engaging group or team projects. While teaching ESP speaking to software engineering students, particular attention should be given to enlarging students' vocabulary.

8. To ensure that English instruction and learning are successful, educators must ascertain the motivational styles of their pupils. Teachers need to design meaningful and relevant English language learning experiences for their students after determining their motivation. Motivation cannot be forced from without; it is something that arises from within. Teachers need to understand that incentives are crucial in the early stages of developing motivation. Giving high marks, offering encouraging words, and receiving praise all contribute to the development of motivation. Curiosity is a key mechanism in the acquisition of a skill or knowledge. Researchers favor intrinsic orientations for long-term retention, as people are motivated to achieve self-actualization when basic needs are met. Teachers should foster student motivation by creating a positive atmosphere, piqued curiosity, and appropriate activities. This can be achieved by choosing interesting topics, utilizing appropriate contexts, and incorporating humor and seriousness.

9. The main higher-educational trend today is the aim to develop an individual, able to solve different working tasks and respond adequately to present-day challenges. That is to say, the development has to comprise both knowledge base and personal development issues. Every student has unique thinking qualities, which consistently lead to distinct results from the same speaking assignments in every group. In order to foster a supportive environment where students do not feel intimidated, ESP teachers must consider these distinctions. This will contribute not only to the development of students' English speaking skills but also help to create a nice cooperative atmosphere in class, which will motivate students to be involved.

10. Thus, teaching speaking to future software engineers is a complex multi-faceted process that combines both forms of speech that gradually flow into each other. When preparing students for such communication in class, it is worth taking into account their psychological features and readiness to communicate, that could contribute to better understanding of their abilities and stimulate positive speaking



atmosphere in class. Besides, it is advisable to engage future software engineers in understanding the main postulates of self-management, enabling them to develop their skills to organize educational activities, set goals, monitor actions, produce sustainable skills, analyze results, and consider their strengths and weaknesses.